EKISTICS
ΟΙΚΙΣΤΙΚΗ

VOL. 69, NO. 412/413/414, JAN./FEB.-MAR./APR.-MAY/JUNE 2002

the problems and science of
HUMAN SETTLEMENTS

TRIPLE ISSUE

WSE
2001 MEETINGS
BERLIN
OCTOBER 24 to 28

Defining Success of the City in the 21st Century — 1 of 2

EKISTICS: the problems and science of HUMAN SETTLEMENTS

Founders: C.A. Doxiadis
Jaqueline Tyrwhitt

Editor: Panayis Psomopoulos
Assistant Editor: R.J. Rooke
Assistants to the Editor: Alex Freme-Skliros
Alex Courpa
Circulation Manager: Myro Connou
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Publisher: Athens Center of Ekistics of the Athens Technological Organization
24 Strat. Syndesmou Street
106 73 Athens, Greece
Tel.: +30-210-3623216 and +30-210-3623373
Fax: +30-210-3629337
e-mail: ekistics@otenet.gr

Data Processing: DELTA Singular, SA
17 Rogakou Street
106 72 Athens, Greece
Tel.: +30-210-3397200
Fax: +30-210-3632761
e-mail: info@deltasingular.gr

Typesetting: Chryssa Efstratiadou
23 Amerikis Street
106 72 Athens, Greece
Tel.: +30-210-3642600
e-mail: nikon@ath.forthnet.gr

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Tel.: +30-210-9565256

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Στρατιωτικού Συνδέσμου 24
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The Athens Technological Organization (ATO)

The Athens Technological Organization (ATO) is a non-profit organization established in 1958 to further technology and scientific research on any subject which can contribute to the improvement of human living conditions, technical and economic development and the training of people capable of pursuing these purposes.

Athens Center of Ekistics (ACE)

Upon its establishment in 1958, ATO started ekistic research and educational programs and later on in 1963 established the Athens Center of Ekistics (ACE) to foster a concerted program of research, education, documentation, and international cooperation related to the art and science concerned with the development of human settlements. In the domain of documentation in addition to its library, ACE publishes the following two journals:

- Ekistics, the Problems and Science of Human Settlements, and
- The Ekistic Index of Periodicals, as well as
- A series of research reports and monographs documenting its following four major research projects:

– "The City of the Future"
– "The Capital of Greece"
– "The Human Community"
– "The Ancient Greek Cities"

Since 1965 ATO-ACE have hosted on their premises the Headquarters and Secretariat of the World Society for Ekistics (WSE), an independent organization, whose goals and objectives are compatible with those of ACE.

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World Society for Ekistics (WSE)

The Society – an international nongovernmental organization (NGO) in consultative status with the United Nations (ECOSOC) – is a nonpolitical and nonreligious body with limited membership, formed to study man's patterns of living and their physical expression in the past, present, and future. The aims and objectives of the Society are:

- To promote the development of knowledge and ideas concerning human settlements by research and through publications, conferences, etc.;
- To encourage the development and expansion of education in ekistics;
- To educate public opinion concerning ekistics, thus stimulating worldwide interest and cooperation;
- To recognize the benefits and the necessity of an interdisciplinary approach to the needs of human settlements, and to promote and emphasize such an approach.

WSE Executive Council (1 April, 2002 to 31 March, 2004)*

President: Alexander B. Leman (Canada)

Vice-Presidents *(in alphabetical order):* Christopher C. Benninger (India), William Doebele (USA), Thomas W. Fookes (New Zealand), Mit Mitropoulos (Greece).

Secretary-General/Treasurer: Panayis Psomopoulos (Greece).

Members *(in alphabetical order):* Margery al Chalabi (USA), Charles M. Collins (USA), Takashi Doi (Japan), Jurg Lang (USA), Margaret B. Lowe (USA), John Reid (Ireland), Udo E. Simonis (ex-officio as immediate past President – Germany).

*The President and all other members of the Executive Council are elected by the General Assembly of members for a two-year term.

For further information on WSE, consult www.Ekistics.org

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300 North Zeeb Road
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Volume 69, Number 412/413/414, January/February-March/April-May/June 2002

Defining Success of the City in the 21st Century – 1 of 2

The papers in this issue are selected from documents presented – or made available to participants – at the conference "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001, which took place on the premises of the Wissenschaftszentrum Berlin (Science Center Berlin) at the invitation of Professor Udo E. Simonis, President of the World Society for Ekistics. In most cases papers were edited by P. Psomopoulos following consultation with the authors whenever possible and in collaboration with R.J. Rooke, Assistant Editor. Alex Freme-Skliros proofread the texts and Niki Choleva was responsible for typesetting and graphics.

EKISTICS / ΟΙΚΙΣΤΙΚΗ: the problems and science of HUMAN SETTLEMENTS
Volume 69, Number 415/416/417, July/August-September/October-November/December 2002

Defining Success of the City in the 21st Century – 2 of 2

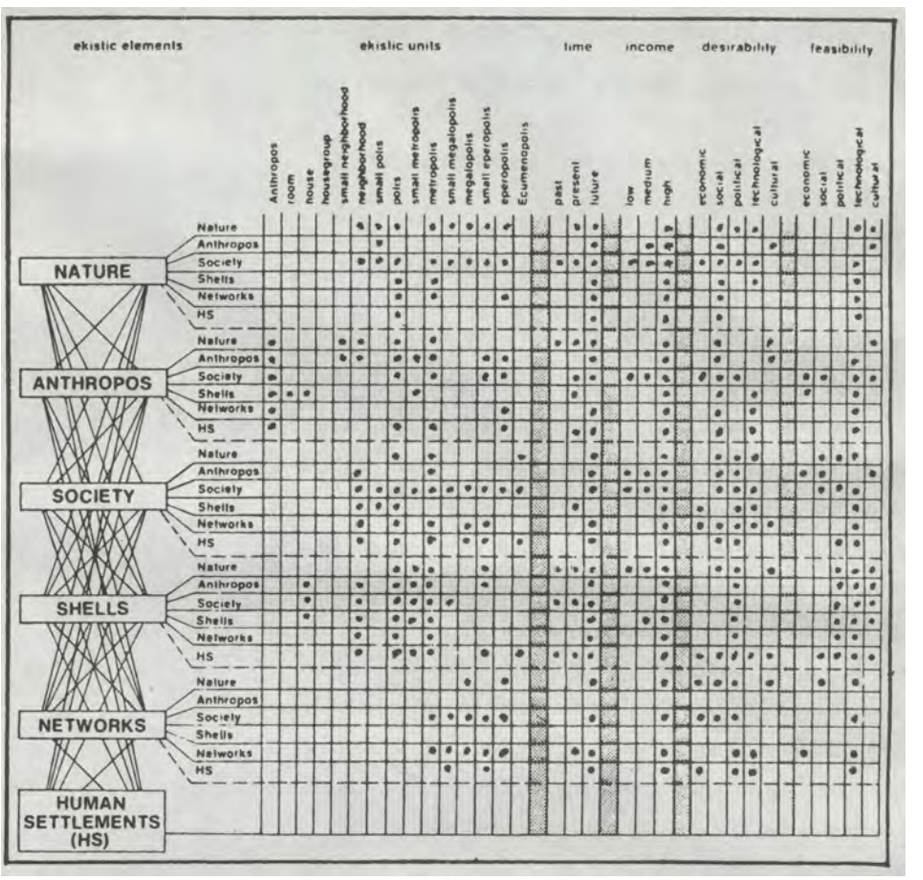
The 2001 WSE Meetings, Berlin, 24-28 October

III. Symposion: Defining Success of the City in the 21st Century (cont'd)

IV. General Assembly

The papers in this issue are selected from documents presented – or made available to participants – at the conference "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001, which took place on the premises of the Wissenschaftszentrum Berlin (Science Center Berlin) at the invitation of Professor Udo E. Simonis, President of the World Society for Ekistics. In most cases papers were edited by P. Psomopoulos following consultation with the authors whenever possible and in collaboration with R.J. Rooke, Assistant Editor. Alex Freme-Skliros proofread the texts and Niki Choleva was responsible for typesetting and graphics.

The anthropocosmos model



Adapted version of model for EKISTICS

Usually the Anthropocosmos Model reflects the contents of the issue to which it belongs. This time, however, it reflects two issues (vol. 69, no. 412/413/414, January/February-March/April-May/June 2002 and vol. 69, no. 415/416/417, July/August-September/October-November/December 2002) which are devoted to papers presented and other material used from the 2001 programs of the WSE – more specifically the 2001 C.A. Doxiadis Lecture and the Symposion on "Defining Success of the City in the 21st Century".

The editor's page

As a documentation and communication vehicle – part of a broader effort of the Athens Center of Ekistics (ACE) to contribute to the development of a sound approach to the field of Human Settlements – Ekistics makes itself available as a free forum for the exposure of ideas and experiences from anywhere to everywhere, provided they are relevant and transferable.

In this effort, writings of members of the World Society for Ekistics (WSE) have quite frequently been considered and published in Ekistics.

How could our attitude be different in cases of collective efforts of the WSE such as its meetings last year in Berlin (24-28 October, 2001) with the title "Defining Success of the City in the 21st Century"? Actually, we have reported on such events on various occasions in the past, the most recent being in vol. 64, no. 385/386/387, July/August-Sept./Oct.-Nov./Dec. 1997 and vol. 65, no. 388/389/390, Jan./Feb.-Mar./Apr.-May/June 1998 on "Mega-Cities ... and Mega-City Regions", a conference of which the WSE was a co-sponsor together with Tsinghua University, Beijing, China, and the University of British Columbia, Canada.

We are happy that the World Society for Ekistics welcomed our proposal to consider the large number of documents made available at its meetings in Berlin and select some of the papers presented for publication in Ekistics. However, the amount of material available far exceeded the capacity even of one triple issue. Hence the following two triple issues:

1. Defining Success of the City in the 21st Century – 1 of 2 (Ekistics, vol. 69, no. 412/413/414, January/February-March/April-May/June 2002); and,
2. Defining Success of the City in the 21st Century – 2 of 2 (Ekistics, vol. 69, no. 415/416/417, July/August-September/October-November/December 2002).

The meetings consisted of

I. The WSE Executive Council
II. The annual C.A. Doxiadis Lecture
III. A Symposion "Defining Success of the City in the 21st Century" and
IV. The General Assembly of WSE members

Deviating from the usual way of selecting papers from such conferences and organizing the material along the views of the Editor, this time, as an exception and in order to give a more complete image of the event, we thought it advisable to include the entire program and provide whatever information was considered relevant from all four distinct meetings. As one would expect, emphasis is given to the C.A. Doxiadis Lecture and the Symposion. Again in this case we thought of following the allocation by theme and sub-theme of the material according to the detailed program of the Symposion, in nine sections. All this is explained in the following pages and the tables of contents which precede this note.

Here for the sake of clarity, please note that the present issue – the first of two – contains 20 papers, i.e. the 2001 C.A. Doxiadis Lecture and 19 papers corresponding to the first four of the nine parts of the Symposion, The second issue contains 26 papers, corresponding to the last five of the nine parts of the Symposion.

I close this note by thanking:

- the WSE for having entrusted us with undertaking the effort of presenting this material;
- all the contributors, most of whom willingly – or by force due to the pressure exerted by the Editor – devoted additional work to their papers for the sake of readers;
- Mrs Noriko Doi for having provided most of the photographic material and Ross Holland from whose report "2001 Berlin Symposion of the World Society for Ekistics" we borrowed four photographs without even asking for his permission as we were sure he would grant it;
- Mrs Alex Freme-Skliros (and here I am joined by R.J. Rooke) whose devotion and hard work surpassed all description in making the present task feasible.

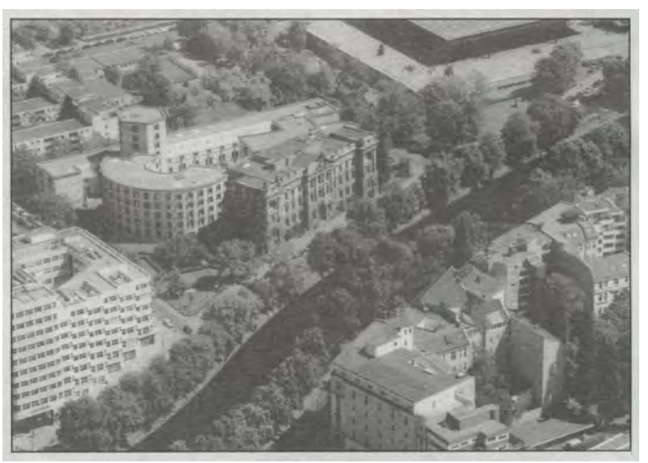
P. Psomopoulos

The 2001 Meetings of the World Society for Ekistics – Berlin, 24-28 October

As part of its multiple activities, the World Society for Ekistics* organizes a series of annual meetings which consist of:

I. An Executive Council Meeting
II. A C.A. Doxiadis Lecture
III. A Symposion on a theme corresponding to its program of priorities, and
IV. A General Assembly of members

At the 2000 meetings in Čelákovice, Czech Republic, the General Assembly expressed interest in having the 2001 meetings in Berlin. In response, the President, Professor Udo E. Simonis, extended an invitation to the Society to hold the meetings on the premises of the Science Center Berlin (Wissenschaftszentrum Berlin) on 24-28 October.



Wissenschaftszentrum Berlin and its surroundings.

The Wissenschaftszentrum Berlin main lecture hall.

World Society for Ekistics

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- To promote the development of knowledge and ideas concerning human settlements by research and through publications, conferences, etc.;
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William Doebele (USA)
Thomas W. Fookes (New Zealand)
Koichi Tonuma (Japan)

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Christopher Benninger (India)
Margery al Chalabi (USA)
Jurg Lang (USA)
Margaret B. Lowe (USA)
Mit Mitropoulos (Greece)
Wesley W. Posvar (ex-officio as immediate past President)
John Reid (Ireland)

*The President and all other members of the Executive Council are elected by the General Assembly for a two-year term.

The 2001 Meetings of the World Society for Ekistics

PROGRAM

Location			Meetings
	Wednesday, 24 October – Arrival of Participants		
WZB	15.00 – 17.00	**Executive Council**	I
WZB	17.00 – 17.30	Refreshments – Welcome of Participants	
WZB	17.30 – 19.00	**"C.A. Doxiadis Lecture" by Prof. Demosthenes Agraflotis**	II
WZB	19.00 – 20.30	Reception/Cocktails	
	Thursday, 25 October – Symposion: Defining Success of the City in the 21st Century		III
WZB	09.00 – 10.50	**1st Session** **Introduction**	
WZB	10.50 – 11.10	Coffee Break	
WZB	11.10 – 13.00	**2nd Session** **Sub-Theme: Nature**	
	13.00 – 14.30	Lunch	
	14.30 – 17.30	Visit to town by coach with Coffee Break	
(1)	17.30 – 21.30	**Presentation on Berlin by Dr Hans Stimmann, Berlin chief architect** Exhibition on the new Berlin, followed by a light meal	
	Friday, 26 October – Symposion: Defining Success of the City in the 21st Century (cont'd)		
WZB	09.00 – 10.50	**3rd Session** **Sub-Theme: Anthropos**	
WZB	10.50 – 11.10	Coffee Break	
WZB	11.10 – 13.00	**4th Session** **Sub-Theme: Society**	
WZB	13.00 – 15.00	Lunch	
WZB	15.00 – 16.50	**5th Session** **Sub-Theme: Shells**	
WZB	16.50 – 17.10	Coffee Break	
WZB	17.10 – 19.00	**6th Session** **Sub-Theme: Networks**	
	Evening free		
	Saturday, 27 October – Symposion: Defining Success of the City in the 21st Century (cont'd)		
WZB	09.00 – 10.50	**7th Session** **Education and Research**	
WZB	10.50 – 11.05	Coffee Break	
WZB	11.05 – 12.30	**8th Session** **Synthesis**	
WZB	12.30 – 13.00	**9th Closing Session** **Conclusion**	
	13.00 – 14.30	Lunch	
	14.30 – 17.30	Free. Vist to Berlin	
(2)	17.30 – 19.30	**General Assembly**	IV
(3)	20.00 – 23.00	Farewell Dinner	
	Sunday, 28 October – Departure of Participants		
	08.00 – 10.00	Joint Breakfast (optional)	
	10.00	Visit to selected spots and Excursion to Potsdam (optional)	

Location: 1. Spreespeicher – Exhibition, Stralauer Allee 1, 10245 Berlin
2. Schleswig-Holstein Landesvertretung – Embassy, In den Ministergärten 8, 10117 Berlin
3. Die Möwe – Restaurant, Am Festungsgraben 1, 10117 Berlin

The 2001 Meetings of the World Society for Ekistics

Contributors

Member-Participants
(in alphabetical order)

Professor Demosthenes Agrafiotis
Mr Serge Antoine
Professor Christopher C. Benninger
Professor Ray Bromley
Mr Charles M. Collins
Professor Aldo Cuzzer
Mr Kjell Dahlström
Mr John Docoumetzides
Mr Takashi Doi
Dr Laila S. El Hamamsy
Professor György Enyedi
Ms Myrto-Gabriela Exacoustou
Professor Thomas W. Fookes
Professor Dr Dieter Frick
Professor Haruhiko Goto
Professor Dr Ekhart Hahn
Professor Dr Peter Herrle
Professor Rusen Keles
Dr Krisztina Keresztély
Professor Lawrence D. Mann
Professor Mao Qizhi
Professor William Michelson
Dr Mit Mitropoulos
Dr Jürgen Oestereich
Professor Dr A. Papageorgiou-Venetas
Professor Petros Petsimeris
Mr Panayis Psomopoulos
Mr Barry Rae
Professor Amos Rapoport
Mr John Reid
Professor Bjørn Røe
Mr Vassilis Sgoutas
Professor Udo Ernst Simonis
Professor Koichi Tonuma
Mr Alvaro Uribe
Professor Wu Liangyong
Professor Wu Weijia

Guest Participants
Dr Voula Mega
Dr Hans Stimmann

Student-Participants
(University of Auckland)

Mr Ross Holland
Mr David Johns
Mr Ian Munro
Miss Aimee Redknap
Miss Sarah Ricketts

Also in Attendance
(Companions and Guests)

Dr Maria Borgos
Dr Johanna Brunner
Mrs Noriko Doi
Miss Hikari Doi
Dr Aaron Eckstaedt
Dr Gerhild Hübner
Ms Susanne Kirsch
Mr Ramprasad Naidu
Mrs Judy Rae
Mrs Phil Reid

Berlin Organizing Team
(Wissenschaftszentrum Berlin)

Ms Petra Barsch
Ms Nicole Böhm
Ms Katrin Löwen
Mr Erasmus Müller

Athens Organizing Team
(Athens Center of Ekistics)

Mrs Myro Connou
Mrs Alexandra Courpa
Mr Nikos Margaritis
Mr Rodney Rooke
Mr Dimitris Samoglou
Mrs Alexandra Sklirou

Further to the above, a large number of WSE members, who intended to attend and finally had to cancel due to the critical world conditions that followed the unfortunate events of 11 September in the USA, sent their contributions in writing or used electronic means to take part in the debates.

The reader will find detailed information on most of the above persons at the beginning of each paper in the present issue of Ekistics.

The 2001 Meetings of the World Society for Ekistics

I. Executive Council Meeting

24 October at 15.00-17.00 hrs, under the Chairmanship of Professor Udo E. Simonis, President of the Society.

The Agenda, large as usual, was covered on time for the Executive Council to be free to welcome WSE members arriving for the second program, the 1st C.A. Doxiadis Lecture.

Naturally the five members who had to cancel their attendance at the last minute were sorely missed.

But most of all, those present missed Professor Wesley W. Posvar, immediate Past President of the Society, and in deep sorrow they discussed his untimely and unexpected death on 27 July, 2001. His extremely important role was remembered in promoting the active mobilization of WSE members through his initiative in calling the meetings in Pittsburgh and Athens in 1999, and in Čelákovice in the year 2000. Also remembered was the joy of both Millie and Wes in Prague a year ago, prior to their trip to Germany to celebrate their 50th wedding anniversary.

Millie and Wes Posvar in Prague, June 2000.

II. The C.A. Doxiadis Lecture

The decision for the organization annually of a C.A. Doxiadis Lecture to honor the memory of the founder of Ekistics, was taken at the WSE meetings in Čelákovice, Czech Republic, in 2000. The series is meant to invite distinguished experts in any professional field which may be considered as directly or indirectly contributing to ekistics, to expose their ideas on any theme of their preference. Reference to C.A. Doxiadis or ekistics is not required, although any such reference is not excluded.

The program for this year's lecture on 24 October was as follows:

17.30 – 19.00 C.A. Doxiadis Lecture
Chairman : Prof. Dr. Udo E. Simonis
Lecturer : Prof. Dr. Demosthenes Agrafiotis
Theme : "Knowledge and interdisciplinarity as socio-cultural uncertainties"

The lecture was delivered in the main lecture hall of the Science Center Berlin (WZB) and was followed by a lively discussion and thereafter a reception.

The WSE President, Prof. Udo E. Simonis, offered the speaker the four books by C.A. Doxiadis which were presented one year after his death by the then President of WSE, Professor R. Buckminster Fuller, at the Plenary Session of the United Nations Conference on Human Settlements – Habitat I – in Vancouver in 1976.

Refreshments prior to the C.A. Doxiadis Lecture

Reception/Cocktails after the C.A. Doxiadis Lecture

Knowledge and interdisciplinarity as socio-cultural uncertainties

The 2001 C.A. Doxiadis Lecture

Demosthenes Agrafiotis

The author is Professor of Sociology at the National School of Public Health, Athens, Greece. He is also a member of the World Society for Ekistics (WSE). This paper is based on the ideas presented by the author as the 2001 C.A. Doxiadis Lecture – first in a series of such lectures established by the WSE – on 24 October, 2001, just prior to the Symposion on "Defining Success of the City in the 21st Century" organized by the Society at the Science Center Berlin, 25-28 October, 2001.

Preliminary narratives and questions – "Apories"

According to the Judeo-Christian tradition, in the beginning there was Word/Logos/Discourse, but according to the ancient Greek tradition in the beginning there was chaos. Are origins important? Do they provide figures and schemes as matrices or possible pathways to approach the (eternal) present and (possible) futures?

It is rather difficult to give an answer. But as a compromise between the two cultural possibilities in approaching "reality," we suggest two perspectives.

- The first is inspired by the destiny, the trajectory of ekistics as a separate/distinct field in the broad Science-and-Technology domain.
- The second is based on a permanent "problématique" on the socio-cultural foundations, conditions of knowledge, and of scientific knowledge in particular.

First perspective: The adventure of ekistics

During the last weeks, as I have been preparing my lecture for the Berlin Meetings of the World Society for Ekistics (WSE), I wrote down the names of persons, institutions, organizations which I would like to thank for the privilege to be here with you and inaugurate the "C.A. Doxiadis Lectures." In the end, the list was quite long. It began with the World Society for Ekistics, its Secretary-General, my friend Panayis Psomopoulos, the German colleagues who worked for the realization of this meeting, the pilots of Lufthansa, Constantinos Doxiadis and his associates, Greek society with its constraints and its opportunities which contributed to the shaping of Doxiadis' life and adventure. The list seems to be endless so I am almost obliged to skip this part of the ceremony concerning expressions of gratitude.

At the same time, I had the feeling that I am taking part in a ritual of transmission of the spirit of Constantinos Doxiadis. Of course, we, as social beings, cultivate the rational and the reasonable and this kind of "primitive faith" in the transmission of spirit is of course a metaphor. Nevertheless, a question remains: how the ideas, life, and achievements of such important men are present for generations that followed their death. It is evident that we face the metaphysical dilemma of "presence" and "absence," the eternal drama of "influence," the permanent challenge of "continuity" and "discontinuity."

I have the feeling of a *"rite de passage,"* a kind of ceremony and ritual. Are feelings sufficient, as they are necessary or inevitable? The answer would be "no," if they are not accompanied by an intellectual and scientific inquiry. Therefore, I will formulate some questions, the content of which has already been given a first form at a previous meeting of WSE in Athens (three years ago).

- What is the scientific status, the knowledge texture of ekistics in the context of modern science? (1)
- How does a scientific field, such as ekistics, shape its trajectory in a globalized economy, science, technology and socio-cultural practice? (2)
- Is it possible for scientists, scholars, engineers, from the "periphery of the scientific and technological agora," to propose and sustain a new scientific field (ekistics)? (3)
- To what degree does the personality of the inventor (if one considers that he was the only innovator) predetermine the evolution of his invention? To what degree and how have the epigones contributed to the formulation of the previously mentioned trajectory? (4)
- Will ekistics claim the title of a "discipline," "school of thought/analysis/action," "intellectual horizon" in the future? (5)
- If Constantinos Doxiadis were alive today, what kind of innovative projects and visions would he propose to the citizens of our globalized and complex world? (6)

I am not sure if all members of WSE give the same meaning to these questions, and I am not sure if these questions are pertinent, given the variety of scientific origins and experience of professionals related to the "kingdom" of human settlements. Simultaneously, I am sure that I cannot answer them, but only present some elements in order to clarify this kind of questioning, that is the socio-cultural "destiny," socio-cultural challenges of scientific knowledge and technology in the so-called risk societies.

Second perspective: Multidimensionality

Under the Acropolis: At the end of an afternoon, a magnificent sunset begins over the hill of the Acropolis. Along with the philosopher Michel Serres we discuss the eternal ques-

tion: What is the most important contribution of the ancient Greeks to the cultural heritage of mankind? For the French philosopher the answer was quite easy and straightforward: "geometry." The reasons according to him are obvious: geometry is a knowledge systematically and logically taught with a universal character; at the same time extremely local, because the spirit of geometry was the basic (cultural) device of thought and perception of reality. Our answer to the question was quite different: Greek "tragedy" was the "absolute" Greek achievement; this form of theater is not dedicated, of course, to knowledge, but it contains or refers to forms of human experience capable of provoking serious questions about human existence and dignity.

The sunset was at its most glorious moment, the red-purple color covering the Parthenon, the horizon and the ugly city of (today's) Athens.

Dis-locations: In a simplified manner we can say that as far as AIDS is concerned, the epidemic of AIDS is in the south while knowledge is in the north of the planet. The south is poor, the north is rich. Part of this wealth is produced by multinationals which use the south as their market, and this applies even to the cultural industry which sells its products (clothes, CDs, films, video games) to young people in the south (victims of the epidemic). During international meetings or conferences on AIDS, it was suggested that an international fund could be raised to buy a big pharmaceutical company active in the field of vaccines and/or products against the HIV virus. (This can be achieved in different possible ways by the financial markets of late capitalism, e.g. stock exchange method, merging techniques, etc.). Such a company could produce the necessary material for the prevention and treatment of AIDS. This simple idea confronts a lot of obstacles, and its non-realization demonstrates the non-convergence between human pain, needs, solidarity and knowledge; and also, it suggests that the capacity in technico-scientific level does not lead to a capacity of creating (in an easy or automatic way) organizational schemes to transform research results into means for humanitarian action.

Spiritual wealth: Sir John Templeton (pioneer and successful global inventor, founder of the Templeton Foundation in 1987), after a period of helping people to obtain high profits, decided to help the world to build up spiritual wealth. He declares: "Well, I believe some of the great questions awaiting an answer are: Why is there something rather than nothing? Are there realities that humans cannot yet comprehend that are vastly more awesome than things we can see or touch? Is there an intellect more vast than humanity can imagine? Does the whole universe have purpose, and a role for us in it? Can open-minded competition by millions of brains bring a multitude of blessings? Are humans designed to serve as helpers in the acceleration of divine creativity? Why do people who devote their lives to a noble purpose usually become happy?

These questions fascinate me, so much so that I decided to put my money where my mind was. Each year my foundation donates $20.3 million to encourage the many entrepreneurs who are trying various methods to increase our base to spiritual information. Today, 65 medical graduate schools teach courses in spirituality. Some medical schools now offer a variety of courses on spiritual health. The John Templeton Foundation sponsors courses at more than 400 universities worldwide on what has been or might be discovered through scientific research to enlarge human concepts of divinity." (TEMPLETON, 2000).

Brutality? In the middle of the 1980s, UNESCO organized an international meeting/conference on the future of science and research (KOUTOUZIS and AGRAFIOTIS, 1985). One of the basic questions was to find out and to classify different forms of research (e.g. basic, oriented, precompetitive, applied, etc.). The whole discussion was rather poor in ideas, except the moment when a Japanese participant asked for the floor, saying that he had a simple and clear idea about the whole problem. The audience was excited by his remark and promise. So, the participant declared that there were two types of research: "Research controlled by the companies who finance it and research published in magazines and reviews." The "brutality" of the statement blocked the whole discussion. Have "knowledge and research" become simple tools of corporate strategies, stripped of any other justification and legitimacy? This question cast a heavy burden on the conference and probably explains the silence and the astonishment of the participants after this intervention (UNESCO, 1985).

Wilderness: Three years ago a delegation from the American administration came to Greece to present the positions of the American Government concerning the question of Genetically Modified Organisms (GMOs). They expressed complaints, anxiety and questions concerning the fact that Europeans (and Greeks amongst them) refuse to use GMOs and they resist by not consuming products of the bio-technology industry. They presented the loss to the U.S. economy from the "stubborn attitude of the Old Continent." However, the participants of the workshop had formulated two issues for debate.

- The first, that "science and technology" as practices take different socio-cultural forms and receive different types of acceptance;
- the second, that agricultural activities have their own cultural histories.

For the first, their answer was that science is one, unique and universal; legal acts and international conventions prescribe its content and its methods and since the different states have signed agreements such as that of the World Trade Organization, they cannot put into question scientific activities.

For the second question, they asked for some explanations in order to understand it. The clarifications were the following: in Europe the agricultural landscape is a part of a historical landscape continuously modified and closely related to all expressions of the cultural and political life of its inhabitants. In the USA, the agricultural landscape is almost "autonomous" because it is part of industrial space having the wilderness – "nature vierge" – as its border (no longer existent anywhere in Europe). This kind of discourse was quite strange to the high level experts of the American administration. Their answer was quite clear: for anything that the American public wants to know, they can request and have access to different official web-sites in which they may find any statistics about GMO trials. The cultural gap between the American speakers and the Greek audience was quite marked. In the end our American colleagues felt obliged to repeat the norms of international trade (freedom and openness of the market) and to formulate some predictions for a future "war" (commercial and scientific) between the USA and Europe, if Europeans cannot find a solution to their "fantasies" and the European governments and other institutions do not accelerate the mechanisms of acceptance of GMOs (MENRAD, AGRAFIOTIS et al., 1999).

The above five narratives are only sources of inspiration and raw material to formulate some questions. The limits of this exercise are numerous: narrativity is always more subjective than scientific discourse, the rhetorics of narration aim

more at conviction than argumentation, the "stories" come from different societies, in different time periods, from different socio-cultural contexts. Beyond the above weaknesses and limitations, and in the framework of contemporary societies, these "five pieces" of reality lead mainly to the formulation of questions.

A set of urgent questions

If we use the above-mentioned two perspectives, two ways to explore the "reality," it is reasonable in relation to contemporary societies to ask questions of the following nature:

- What modes of knowledge, or what articulation of the modes of knowledge, play a crucial role for an interdependent and interconnected world?
- To what degree does the financing of public science influence the form and the content of different modes of knowledge?
- Is it possible to imagine an effort to reduce the gaps of knowledge (between experts, experts and the general public, between regions, sections of the economy or fields of actions)?
- What forms and types of knowledge are produced, used and promoted in different levels of social life?

By accepting interdisciplinarity as the approach of which the objective is the creation of new ways of thinking, posing questions, treating problems, beyond and by the limits of the conventional borders of different scientific fields, it is legitimate to ask:

- What are the new forms of interdisciplinarity? What are their cognitive textures?
- To what degree are the organizational and strategic choices (both nationally and internationally) able to influence its character?

It is evident that this "problématique" is rather vast and complicated; and also, there are many ways to provide elements of answers to these questions. This paper is centered on typologies of knowledge and the issue of interdisciplinarity. Its whole approach is based on the concept of mode of knowledge and takes into consideration the cultural changes and challenges of "late capitalism" (BOLTANSKI and CHIAPELLO, 1999; AGRAFIOTIS, 1999 and 2000; IPTS-REPORT, 2001).

Typologies of knowledge

If we apply a "processual approach" then it is reasonable to argue that in any society we can distinguish amongst processes and procedures those which offer some answers to fundamental questions, issues, expectations and objectives, such as:

- Origin and evolution of a particular society (e.g. history, roots);
- Transformation of material conditions not only for the survival of societies but also in the quest for a cultural specificity (e.g. not only exploitation of natural resources, production of food, but also keeping alive cultural patterns);
- Elaboration of mechanisms of communication and channels of exchange between members of a society or between societies (e.g. objects, artifacts but also know-how);
- Constructions of symbolic and semiotic systems for assuring meanings for the action of communities, social groups and citizens.

Amongst all these mega-processes, social practice plays an important role because this practice assures us of:

- Correspondence between ends, means and actions;
- Reasonable or logical relationship between the order of words, symbols and collective life or phenomena in general (physical, social, etc)
- Dialogue along the lines "society" and "nature" and also the permanent dialogue inside a society about the "nature of nature" *(nature naturée / nature naturante)* (DUFRENNE, 1976).

The product and the conditions, cognitive and communicational (ALRØE, 2000), for the integration of the above-mentioned practice we may call "knowledge." Taking as our point of departure this general statement, it would be interesting to search for some socio-cultural patterns which govern the field of knowledge or to elaborate typologies of knowledge in order to have an overview of this complex area of social life. We propose two forms of typology, taking into consideration the character both of knowledge and of contemporary societies.

First typology – Forms of knowledge/results of learning

If we take the form of existence of knowledge or knowledge as a "final" product, we can distinguish knowledge as:

- **Tool:** – For the selection of material for the construction of an object.
  – For realizing, developing a style of life in a urban or metropolitan area.
- **Commodity:**
  – The whole system of intellectual and industrial property permits the regulation of price and circulation of scientific or technological knowledge.
  – Conferences and congresses can be considered as a "stock market" mechanism for scientific fields, teams and "scientific investments."
  – The "Black market of knowledge" related also to industrial espionage.
- **Symbol:**
  – Proof and indicator that a life can be dedicated to the investigation and study/inquiry of the "nature of things."
  – Field in which "humanness," dignity, and actualization are possible and valuable.
  – The Nobel prizes every year offer/give the official recognition that the life of a researcher-scientist is worthy and meaningful; and also, they offer the opportunity for states to prove and demonstrate their capacities to organize and support scientific endeavor.
- **Social sign:**
  – The ownership and the capacity of using knowledge give the (status sign) opportunity to both individuals and groups to manage their problems and their challenges successfully, and at the same time to produce a social difference (e.g. the knowledge and capacity to take care of health problems and to cope with health risks).
- **Element of power:**
  – The distribution of knowledge contributes to social inequalities.
  – Social alienation is increasingly related to an inability to access and acquire knowledge.
  – The geopolitical presence of states, companies or organizations depends on (scientific) knowledge and more precisely on the control of learning mechanisms.
- **Matrices of transformation:**
  – As late capitalism modifies the content and the forms of work, knowledge has become the matrix which transforms human labor from "cost" to "resources," creating the crucial difference between a "stagnant life career" and an "autonomous personal trajectory."

It is possible, of course, to propose other forms of existence of knowledge, but this first list gives the multiplicity and variety of areas-*topoi* in social life where knowledge appears as an issue and challenge of a different character and a different intensity each time. However, on a macro-scale and in the framework of contemporary societies, knowledge is conceived and "cultivated" as a fundamental "fuel" for their functioning because, as they try to exercise a systematic action on their own existence and their "evolution," they need knowledge for their

– continuous analysis of the present;
– well-founded foresight of the future;
– invention of the actions in order to assure the change from the "defectuous" present towards the desired and designed future.

In other words, in this mega-process knowledge, the system of knowledge or the production and diffusion of knowledge play an important and crucial role. And a sign of "maturity" for contemporary societies is their capacity to produce both "knowledge" and "society" – "knowledge society".

Second typology – Mode of knowledge

The multi-dimensionality of knowledge allows different types of taxonomy, i.e. classifications. We assume that it is possible to propose a taxonomy-typology based on the notion of "mode of knowledge." But what do we mean by this expression? First of all, let us give some basic assumptions:

• "Knowledge" refers to different forms of knowledge. One of them is the well-constructed, solidly-founded, socially (widely) accepted and culturally legitimate knowledge. Another form is knowledge that is latent, diffused, without a well-elaborated discourse, sometimes closer to the inexpressible and undefinable. The French language offers the words *savoir* and *connaissances* to name the two forms. (It is clear that for the first form of "knowledge" we can make reference to the case of quantum mechanics/physics as a solid scientific field, while for the second form of "knowledge" we can consider the case of a citizen of a metropolitan area who has to face so many constraints and obstacles in order to "survive" in such a complex environment, by using a multiplicity of experiences and small-scale skills and competencies, accumulated throughout his life). (i)

• Knowledge is a point of departure and a product of both personal and collective initiatives. (ii)

• Knowledge presupposes a complex articulation of conditions – cognitive, bodily, material – in order to be recognized as such. (iii)

• Knowledge offers the possibility to elaborate/construct versions of reality or patterns which lead us to explore the limits of reality. (iv)

• Knowledge is produced under concrete procedures and its access and diffusion depend on procedures and institutions. (v)

• Knowledge is provoked, demanded, expected, produced, addressed to social actors or active members of communities in different levels and fields of society. (vi)

• Knowledge is supported and realized with the aid of rhetorical schemes, discourse devices and symbolic/semiotic processes, using words, images, representations, forms, signs, etc. (vii)

• Knowledge permits us to obtain a combination of:
- description
- recognition
- understanding
- explanation
- exploratory capacity
- interventionist potential
- transformational power

vis-à-vis the things to which it refers. (viii)

The above-mentioned assumptions are quite general but they authorize us to say that a mode of knowledge is a rather coherent arrangement of the elements of assumptions i-viii, with their socio-cultural relevance and meaning. In this perspective we may distinguish different modes of knowledge such as:
- religious
- philosophical
- scientific
- artistic
- journalistic
- narrative
- rumorous.

It is clear that each mode of knowledge
• leads to a different representation of the world, to a specific understanding of the "nature of things"
• opens a particular perspective and view of "reality"
• provokes the mobilization of different powers and processes, and finally,
• establishes a relatively coherent correspondence between:
- emotions
- mental images
- representations
- thoughts
- experiences
- words
- discourses
- gestures
- objects
- events.

The above approach and especially the notion of *mode of knowledge* is evidently inspired by the perspectives of anthropology and cultural sociology and it is preferred to the notion of "production of knowledge" (GIBBONS, 1994; LEYDESDORFF, 2001) as more pertinent to our inquiry into the cultural transformation of contemporary societies. The use of the terms "mode of production" or "production" suggests a systematic or systemic character, which is dominant mainly in the case of scientific knowledge.

Beyond typologies

This first overview of the issue of knowledge is characterized by a very general approach, of an almost positivist flavor. It is necessary to correct or to complete this first image by questioning the limits of this overview, by pointing out some persistent uncertainties. The latter are of a different kind and, of course, are not just some probabilistic alternatives of a supposedly well-founded and established pattern. That is to say, the uncertainties come from the fact that knowledge is related and connected with a variety of other factors, variables and dimensions of social life, which themselves are also in a transitional phase. With a metaphor, knowledge is a knot of socio-cultural networks in continuous transformations; this dynamic is the source of **uncertainties** and not of simple variations of a relatively stable structure (MEYERSON and MARTIN, 1987; HATCH, 1997; AGRAFIOTIS, 1999).

● The first uncertainty comes out of the typologies themselves, because each of them satisfies the assumptions and the objectives of a specific analysis. Each typology an-

swers some preoccupations and questions. For instance, the above two typologies could function as a complement to the typology proposed by Callon and the variation of the latter by Audetat (2000) which are more institutional, more processual and more oriented towards the mechanism or production of knowledge. Are all these typologies compatible? Is it possible to imagine a "hypertypology" by which we could combine the three typologies (in our case)? It is clear that only fieldwork could specify the domains of society in which the combined elements of these typologies emerge as entities, taking into consideration the fact that the number of combinations and concrete social conditions seem enormous.

- The second uncertainty comes from the socio-cultural arbitrariness of the mode of knowledge. More precisely, which mode of knowledge has to be taken as the point of reference, as the system of coordinates, in order to assess the relative presence of a mode of knowledge? In contemporary societies, the scientific mode is dominant but in "every day epistemology," individuals and organizations create hybrids from the "pure" modes of knowledge and sometimes the role of a minor mode of knowledge could play a catalyst type of role for the production of hybrids. In other words, by choosing a mode of knowledge (almost a language game according to Wittgenstein) we create a specific universe of understanding which will vary according to these crucial initial choices of perspective. Finally, is pursuit of "wisdom" (practical and theoretical) behind the production of the hybrids? Or are tradition and the socio-cultural context important factors in this inquiry of an active-performative epistemology?

- The third uncertainty comes from the "global" socio-cultural orientations of the so-called postmodern societies. If we look into the naming of the "postmodern" technological transformation (table 1), there is almost an inflation of expressions which attempt to grasp the essential part of change of contemporary societies. The triptych: technology, economy and cultural patterns are the most frequent categories in this long list of expressions. However, the central question for this mega-evolution of collective life can be phrased as follows: What degree and what types of knowledge, especially scientific knowledge, and what logic of distribution are necessary? Is it possible to plan or even to conceive the issue of regulation of the production of different types and forms of knowledge? Do we have some criteria for rational decision making? And what kind of rationalities can be applied for this challenge? Is it sufficient to intervene only for technological and scientific knowledge and to leave the other modes of knowledge "on their own"? How much "scientific reality" can be supported and absorbed by the members of our societies?

The recent shift of emphasis from "knowledge" to "learning" indicates the potential impact of knowledge and culturally promotes the idea that the process is more important than the explicit orientations and the "values." Does that mean that change is more important than the reason and the nature of the change? The uncertainty comes from three sources:

- the boundlessness of knowledge,
- the power of knowledge production processes, and
- the acceptance of risks as a major socio-cultural characteristic of contemporary societies.

To use another expression, we expect a lot from one mode of knowledge based on its speedy performance and not its durability. So, on the one hand the future depends on knowledge, but this knowledge is fragmented, partialized and itemized: the future seems increasingly near, but at the same time increasingly unpredictable. This projection to the future, but at the same time the precariousness of this future, seems to create a new feeling and concept about the meaning of personal and collective life. We may call this situation or this symptom post-cultural (AGRAFIOTIS, 1999).

The question of interdisciplinarity

In the international bibliography one can find terms and words such as: multidisciplinarity, interdisciplinarity, transdisciplinarity, hyperdisciplinarity, *polidisciplinaire* (E. Morin), pluridisciplinarity. Very often, these terms are translated into other languages carelessly and, as a result, a terminological confusion has been created concerning the content of these terms. In the Greek case, we have all these terms but not composed on the same word: the notion of "disciplinarity" is expressed through the word "scientificity." For instance, we use the term "diepistimonikotita"/ "inter-scientificity" for "interdisciplinarity." Culturally speaking, the general spirit of science prevails over its "disciplinary" character in the Greek case.

The debates about the definitions of the above terms are numerous; sometimes they have a historical, or an institutional, or a philosophical character (DURAND and WEIL, 1994; TSOUKAS and CUMMINGS, 1997). On this work, we present in the Note (at the end of the text) some hypotheses for the nature of the scientific mode of knowledge and additionally we assume that:

- A ***pluridisciplinary*** approach presupposes that
  - the cooperation and union of scientific fields is established in order to solve a concrete problem;
  - the mutual influences between the sciences do not provoke serious or radical changes to any of the collaborative sciences; and finally,
  - the criterion of success of pluridisciplinarity is itself the solution to the problem.

- An ***interdisciplinary*** approach presupposes that the cooperation and articulation of the scientific fields is established according to the following conditions:
  - The origin of the collaborative effort is not always a well-defined problem or issue.
  - An essential part of the effort is to clarify the foundations concerning the pertinence of the problem or the issue.
  - The above-mentioned clarification is based on scientific endeavors which have as their aim or ambition going beyond the already established objectives and practices. The whole inquiry aims at the creation of new concepts, new types of analysis, new rhetorics in relationship with an open and innovative "problématique."
  - With the completion of the interdisciplinary project each collaborative science has been strongly influenced, and serious changes have taken place on the level of its concepts, techniques, methods and areas of reference and/or pertinence.
  - The criterion of success or failure is not the solution to a problem or the answer to a question, but the test *(l'épreuve)* itself of the scientific fields, especially at their limits, by their limits, and beyond their limits.

The above definitions, in reality, create a spectrum in which different mixtures of pluri- and inter-disciplinary efforts might be classified. (An example of a pluridisciplinary project can be found in the MAB (Man and Biosphere) of the U.N. and one of interdisciplinary experience is Physical Chemistry). Also, the same definitions can be used as a tool for the detection of the mixture of pluridisciplinarity/interdisciplinarity in any scientific and technological initiative. At the same time, the same definitions permit us to ask some questions of a more socio-cultural nature. Why has the question of interdisciplinarity acquired such importance? What is its texture in

Table 1
Naming the postmodern technological transformations

Year	Transformation	Sources
1950	Lonely crowd Posthistoric man	Riesman (1950) Seidenberg (1950)
1953	Organizational revolution	Boulding (1953)
1956	Organization man	Whyte (1956)
1957	New social class	Djilas (1957); Gouldner (1979)
1958	Meritocracy	Young (1958)
1959	Educational revolution Post-capitalist society	Drucker (1959) Dahrendorf (1959)
1960	End of ideology Post-maturity economy	Bell (1960) Rostow (1960)
1961	Industrial society	Aron (1961, 1966)
1962	Computer revolution Knowledge economy	Berkeley (1962), Tomeski (1970), Hawkes (1971), Machlup (1962, 1980); Drucker (1969)
1963	New working class Post-bourgeois society	Maller (1963); Gintis (1970); Gallie (1978) Lichtheim (1963)
1964	Global village Managerial capitalism One-dimensional man Post-civilized era Service class society Technological society	McLuhan (1964) Marris (1964) Marcuse (1964) Boulding (1964) Dahrendorf (1964) Ellul (1964)
1967	New industrial state Scientific-technological revolution	Galbraith (1967) Richta (1967); Daglish (1972); Prague Academy (1973)
1968	Dual economy Neocapitalism Post-modern society Technocracy Unprepared society	Averitt (1968) Gorz (1968) Etzioni (1968); Breed (1971) Meynaud (1968) Michael (1968)
1969	Age of discontinuity Post-collectivist society Post-ideological society	Drucker (1969) Beer (1969) Feuer (1969)
1970	Personal society Post-economic society Post-liberal age Prefigurative culture Technetronic era	Halmos (1970) Kahn (1970) Vickers (1970) Mead (1970) Brzezinski (1970)
1971	Age of information Communications Post-industrial society Self-guiding society Superindustrial society	Helvey (1971) Oettinger (1971) Touraine (1971); Bell (1973) Breed (1971) Toffler (1971)
1972	Limits to growth Post-traditional society World without borders	Meadows et al. (1972); Cole (1973) Eisenstadt (1972) Brown (1972)
1973	New service society Stalled society	Lewis (1973) Crozier (1973)
1974	Consumer vanguard Information revolution	Gartner and Riiessman (1974) Lamberton (1974)
1975	Communications age Mediacracy Third industrial revolution	Phillips (1975) Phillips (1975) Stine (1975); Stonier (1979)
1976	Industrial-technological society Megacorp	Ionescu (1976) Eichner (1976)
1977	Electronics revolution Information economy	Evans (1977) Porat (1977)
1978	Anticipatory democracy Republic of technology Telematic society Wired society	Bezold (1978) Boorstin (1978) Nora and Minc (1978); Martin (1981) Martin (1978)
1979	Collapse of work Computer age Credential society Micro millennium	Jenkins and Sherman (1979) Dertouzos and Moses (1979) Collins (1979) Evans (1979)
1980	Micro revolution Microelectronics revolution Third wave	Large (1980, 1984); Laurie (1981) Forester (1980) Toffler (1980)
1981	Information society Network marketplace	Martin and Butler (1981) Dordick et al. (1981)
1982	Communications revolution Information age	Williams (1982) Dizard (1982)
1983	Computer state Gene age	Burnham (1983) Sylvester and Klotz (1983)
1984	Second industrial divide	Piore and Sabel (1984)

(*Source:* Tom Forester (ed.) (1991), *Computers in the Human Context: Information Technology, Productivity and People* (Cambridge, MA, MIT Press), pp. 50-51).

"post-cultural" societies (AGRAFIOTIS, 1999)? To what degree are organizational, institutional and strategic choices able to influence its character?

The interdisciplinary approach, in substance, is not a new approach. The historians of science argue that there was always a collaboration and mutual influence of scientists (e.g. the use of Mathematics for the solution to problems of Physics or Economics; and also the role of the latter as a stimulus for Mathematics). The new element is that interdisciplinarity has become a tactical variable for all scientific fields, because scientists and technologists hope to improve the effectiveness of their scientific action, knowing that innovation and novelty arise at the interfaces of sciences and technologies.

We accept as our point of departure the following facts:

- The complexity and the cruciality of the scientific mode of knowledge in the framework of contemporary societies or of the so-called "planetary society."
- The existence of multiple levels and domains in social life in which the scientific mode of knowledge is produced, diffused and used.
- The scientific fields are modified in a continuous manner by re-examining and re-defining their questions, objects, "problématiques," methods, mechanisms of review and evaluation and, finally, their relations with other fields. In this eternal metamorphosis we have to add the strategies of scientists, the policies of administrative bodies, the political conflicts and cooperations, the influence of traditions and stereotypes.
- The above-mentioned dynamics of scientific fields lead to the hypothesis that in every scientific field a version and pattern of "scientificity" is cultivated and not a concept of "truth."
- The focus on processes and the relative suspension of the "final truth," the existence of variations and differences in "scientificity" and the rapid exchange of practices and skills between scientific fields prevent the establishment of rigid typologies of scientific fields, well-defined frontiers between sciences and also the demolition of hierarchies between sciences (e.g. Mathematics is no longer the measure of scientificity of other sciences).
- The explosive and multiform fragmentation of science leads to the idea, even to the desire, of re-organization of *"corps morcelé du savoir scientifique."*

With the framework of the above hypothesis, it is reasonable to ask if interdisciplinarity is feasible, since the parts involved in the collaboration are not as stable or as pure as they used to be or were supposed to be (e.g. as different institutions control different parts of scientific fields with an unequal degree of power and resources (enterprises, firms, research centers, consultancy agencies, universities) how can we ensure a minimum of coherence or interdisciplinarity?). The effort to obtain a degree of interdisciplinarity becomes uncertain as the whole field of science becomes more diffused, interrelated and interpenetrated.

This new situation becomes more complicated as science is called to face almost any problem of modern societies (from the environment to the design of health systems, from the management of metropolitan areas to pain) – the number of combinations and permutations are infinite. So, it is almost impossible to have a clear vision of favorable moments, types and opportunities of interdisciplinarity in a rapidly changing world. If (additionally) we consider that from the laboratory to human needs, and from social demand to laboratory, there are so many institutions, so many social actors and so many interfaces, so many types of experts, then the question of interdisciplinarity is diluted in many ways. At the same time, interdisciplinarity is needed because it might be the tool in order to establish a communication between the interfaces.

Finally, there is a tendency for post-cultural societies to analyze (in a rather systematic and generalized manner) every aspect of thought and action, and to re-define concepts, forms of action and practices. Interdisciplinarity is both the domain where this global tendency is tested, treated and re-modified, and a condition of any scientific and technological endeavor.

Statement and interrogations

The assumption of "the postcultural condition" as a dominant trend of contemporary societies implies that the processes of fragmentation/differentiation on the one hand and integration on the other co-exist and their coherent articulation is an objective in itself, and its achievement is being realized without meta-social guarantees of success. In this mega-trend, knowledge and interdisciplinarity participate in both processes and contribute in several ways. By using our approach of mode of knowledge, typologies and interdisciplinarity (as work of limits by the limits), it is possible to demonstrate how scientific knowledge and interdisciplinarity contribute to continuous change of norms and some practices and the destabilization of other practices; and at the same time, knowledge and interdisciplinarity are asked to contribute to re-unify the dispersed domains of social life and, of course, their own domain. This double expectation, double function or double social mission are at the origin of many cultural uncertainties.

Which of these uncertainties is the most crucial from the socio-cultural point of view? Or at least, which uncertainties play an important role for the socio-cultural change of the destiny of contemporary societies? We might propose **three uncertainties:**

- The first one has to do with the collective memory: the speed of changes in the area of knowledge creates a "terrorism" of the obsolete, as the chronological depth of knowledge tends to diminish on the scale of months, even weeks. The memory becomes instantaneous, or at least under continuous reconstruction. What will happen to the triptych past-present-future, as the last two tend to absorb the first one? Will collective memory be useless?
- The second uncertainty comes from the expression "knowledge society," as the question which arises is the following: taking as our point of departure that knowledge is the "fuel and the catalyst" of socio-cultural evolution, is society organized consequently? (e.g. do interdisciplinarity and socio-professional power converge? or "should we be paid for learning not to work?"). What changes have to be realized and by whom in order to pass from knowledge economy to knowledge culture or to knowledge as culture? If not to culture as knowledge?
- The third uncertainty emerges as a distribution of modes of knowledge will be established according to which scientific knowledge will be present in any human activity transforming everything "natural" to "mono-cultural" (e.g. human reproduction will not be "natural" but "scientifically and technologically" feasible, "even, emotions could be treated in the name of science or at least any treatment could be justified in the name of their bio-physiological basis). What will be the result of this domination? What might the other modes of knowledge and the arts claim as their specific field? What could be the path between scientific knowledge and the other modes of knowledge? Will we find incompatibility? Unbridged differences? Total separatedness?

Science working for the known and knowledgeable creates at the same time the unknown and mystery; science working for the possible creates at the same time challenges for the impossible; science working for solutions to problems generates the problems of (past and future) solutions. Does scientific knowledge finally cultivate paradox and uncertainties instead of robust solutions?

If Constantinos Doxiadis had the opportunity to begin his adventure today, some of his ideas and analyses would be extremely pertinent, efficient and fertile: for instance the idea of networks is now a universal concept, and his interdisciplinary spirit is the key concept not only for pure scientific investigation but also for decision making in a complex world. He would face a more favorable environment on at least two levels:

- in Greece, a more solid scientific atmosphere and more diversified institutional setting (universities, research centers, consultancy companies, agencies, social associations active in city planning);
- in the international arena, the acceleration in the exchange of ideas, products and influences would permit his innovative ideas and methods to be spread widely.

However, he might be obliged to modify his schemes of analysis and inspirations.

- First of all, in a more fluid scientific setting, "ekistics" would constitute a school of thought rather than a "discipline" – and he might even have to abandon the title of "ekistics," taking into consideration the rapid re-arrangements between titles, themes-objects, practices and processes in the scientific arena.
- Second modification: his multilevel approach to the organization of human settlements in spite of his wealth of variables and well thought-out complexity is rather "essentialist" and probably needs a more "constructionist" flavor, in the sense that today as we need more social participation, more cultural legitimacy for important techno-social projects, any methodology for collective action has to include mechanisms of public debate and interactive potential between social groups, institutions and innovators.

Are these suggestions in the spirit of Constantinos Doxiadis? Are these speculations relevant to the experience of city planners, or specialists in human settlements or analysts of socio-cultural changes of the present and future? The World Society for Ekistics is certainly the field of debate and control of these types of arguments. If Constantinos Doxiadis was an imaginative initiator to utopia, is it reasonable and feasible (for us today) to be utopian in a more participatory and interactive way?

Note

On the question of interdisciplinarity, we thought it would be useful for the reader to refer to the following which concerns the **Socio-cultural dimensions of the scientific mode of knowledge.**

Taking into consideration that our interest is focused on socio-cultural uncertainties, we present some indications about the use of the term "science." This presentation is quite selective and, of course, it makes no attempt to summarize the rich and heterogeneous debate about the nature of contemporary science. The only ambition is to show the multifaceted "nature" of the scientific mode of knowledge, which is characterized by:

i. Articulation of acts and activities (parallel and consecutive): formulation of "problématique"/selection of methodological strategy/fieldwork or any activity for the collection of data from observation or experimentation/elaboration of discourse/production of conclusions/evaluation of the whole effort.
ii. Application of the above-mentioned chain of acts on different levels of reality or different levels of the energy scale (e.g. from nuclear particles to galaxies, from viruses to the ecological system of Earth, for the individual person to the population of the planet).
iii. Application of the above chain of acts for the observation, description, understanding, interpretation and explanation of both immutability and change of reality, and very often with a view to formulating predictions for the evolution of phenomena or situations.
iv. Elaboration of types of discourse and the invention of rhetorical schemes of words, images and forms of logical cohesion (e.g. mathematics or mathematical symbolism) in the name of "Reason" and by exploring the limits of language (e.g. grammar).
v. Procedures to transform the rough reality, the first vague impression, intuition or events to scientific phenomena by using theories, bibliography, previous experiences and efforts, international expertise by continuous dialogue with peers.
vi. "Arsenal" from theories, hypotheses, axioms and a mechanism of verification either by experimentations or by testing data and conclusions for their relevance to reality(ies) based on discussions, workshops, meetings.
vii. Continuous and systematic re-definition, re-formulation of the above elements through verifications or non-verifications as new questions, new phenomena, new paradoxes emerge. (This continuous process is completed through open discussion and mutual control).
viii. Establishment of mechanisms for the attribution of scientific pertinence by peer review, publications, assessment of methodological strategies with the aid of critical analysis, discussions, conferences and other collective procedures.
ix. Cultivation of patterns of creativity, imagination and potential for synthesis of cognitive elements, in spite of the fact that these elements are not present in an explicit manner in the final form (e.g. articles, books) of scientific endeavor. Especially in scientific life argumentation, theoretical foundations, references are both values and tools; also there is a tendency to promote the consensus and not the conflicts or the unjustified differences.
x. Establishment as a major cultural event not only in Europe but on the universal level, beyond the origins (e.g. Greek), the influences (e.g. Arab). In relationship with the industrial revolution, this unique cultural achievement has marked and continues to mark the destiny of humanity.
xi. Mobilization of resources (material, institutional, financial, human) for the conception and realization on specific policies (from a wide spectrum of social actors) for scientific and technological development and its integration in the global effort of contemporary societies to exercise a systematic influence or control on their "evolution." In other terms, the scientific mode of knowledge presupposes and is based on schemes of mobilization of resources, division of work and existence of norms, and its social impact is measured and assessed by its contribution to the solution of (big and small) problems of modern societies and its relevance on both national and international levels.
xii. Permanent redefinition of the scientific mode of knowledge depends not only on the other modes (e.g. philosophical) but also on issues and practices related to private/public, risk, social control of the "destiny" of the world, the distribution of power and decision making (e.g. experts), the realization of "legitimate/legitimation"; the social acceptance of new knowledge depends during the first phase on its autonomy (management of pertinence and validity of its products) but during a second phase in relationship with other social practices in a continuously changing socio-cultural context.

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The 2001 Meetings of the World Society for Ekistics

III. Symposion: Defining Success of the City in the 21st Century

DAILY PROGRAM

THURSDAY, 25 OCTOBER

09.00 – 10.50 **1st Session – Introduction**

Chairman: Udo E. Simonis: The successful city of this century: Relevant criteria

Presentations

C.C. Benninger:	**The Structure Plan of Thimphu, Bhutan**
Voula Mega:	**City and energy: The sustainability (r)evolution**
Koichi Tonuma:	**Going toward the 21st century civilization, dystopia or utopia?**

10.50 – 11.10 Coffee Break

11.10 – 13.00 **2nd Session – Nature: Good Use, Protection and Improvement of Natural Elements**
(Criteria for environmental assessment; Climate; Habitability; Utilization of resources: Water, land (use of soil and subsoil), air (pollution, etc.); Flora and fauna; Landscape: Coastal zones, Recreation areas, etc.)

Chairman: György Enyedi

Presentations

Serge Antoine:	**Sustainable development of cities in the Mediterranean**
Ekhart Hahn:	**Ecological urban restructuring: Future perspectives**
J. Oestereich:	**Ownership and command over local resources: Their effect on sustainability**

Discussion: Peter Herrle, Sarah Ricketts, Udo E. Simonis

Ekistics framework: homas W. Fookes, Panayis Psomopoulos, Sarah Ricketts

13.00 – 14.30 Lunch

14.30 – 17.30 Visit to town by coach with Coffee Break

17.30 – 21.30 **Presentation on Berlin and visit to an exhibition on the New Berlin**

Chairman: Udo E. Simonis

Lecturer:	**Hans Stimmann, Berlin Chief Architect**
Theme:	**Re-establishing a Capital City**

Discussion to be followed by a light meal

13.00 – 15.00 Lunch

15.00 – 16.50 5th **Session – Shells: Conditions for a Built Environment Favorable for All**
(Housing; service facilities – shops, offices, factories; Cultural, health and educational units; Compatibiiity of urban functions and corresponding installations; Tension between functions (exampie: Shells and Networks in a metropolis); Importance of neighborhood and human scale; Costs, etc.) etc.)

Chairman: Lawrence D. Mann

Presentations

Takashi Doi:	**What is the success of a historical local city in Japan in the 21st century?**
Barry Rae:	**Assessment criteria for successful intensification of the built environment**
Alvaro Uribe:	**Integration of the former Canal Zone to the city of Panama**

Discussion: Ray Bromley, Aldo Cuzzer, Haruhiko Goto, Ian Munro

Ekistics framework: Ian Munro, Wu Weijia

16.50 – 17.10 Coffee Break

17.10 – 19.00 **6th Session – Networks: Desirable Infrastructure Planning and Use of Technology**
(Public utility systems – Water, energy, sewage, sewerage, waste disposal, etc. (small-scale versus large-scale engineering infrastructure); Transportation systems: Terrestrial (the changing role of the car versus public transport), railways, river and maritime transportation (system of ports, etc.), air transportation (system of airports, etc.); Personal and mass communication systems, Computer and information technology)

Chairman: Dieter Frick

Presentations

Kjell Dahlström:	**(Market and structure of) a Pan-European, competitive public transit system**
Mit Mitropoulos:	**Relationship between physical and electronic space: Movement and communications for the last 30 years**

Panel Discussion: John Docuметzides, David Johns

Ekistics framework: David Johns, Barry Rae

Evening free

FRIDAY, 26 OCTOBER

09.00 – 10.50 **3rd Session – Anthropos: Prerequisites for Human Development and Comfortable Individual Living**
(Biological, physiological, psychological human needs (men and women, young, old, children, disabled, etc.); Allocation of human time, human energy; Safety and security; Affection, belonging, esteem; Self-actualization, knowledge and aesthetics; Conditions for achieving individual identity; Co-existence of the young and the elderly; Local Agenda 21; etc.)

Chairman: L. El Hamamsy

Presentations

Charles Collins:	**The impact of internecine conflict on the structure of cities**
W. Michelson:	**Success for Whom? "The Place of People" in the 21st Century**
P. Psomopoulos:	**Disabled people in disabling settlements**
Bjørn Røe:	**What is good about Athens – what makes quality of life in cities?**

Discussion: Mao Qizhi, Aimee Redknap

Ekistics framework: Aimee Redknap, John Reid, Barry Rae

10.50 – 11.10 Coffee Break

11.10 – 13.00 **4th Session – Society: Social Structure; Social Institutions: Social Dynamics: Implications and Prerequisites for Constant Improvement**
(Public administration, participation and law, local democracy, minorities, etc.; Social relations; Population trends, migration, emigration; Cultural patterns; Time budget; Urban systems and urban change; Economics (from work opportunities to investment)

Chairman: Ekhart Hahn

Presentations

L. El Hamamsy:	**Planning and development of rural and semi-urban settlements**
György Enyedi:	**Social sustainability of cities**
Peter Herrle:	**Social and institutional inclusion as an indicator for success for cities of the 21st century**
Petros Petsimeris:	**Urban diffusion in Southern Europe**
Amos Rapoport:	**The role of neighborhoods in the success of cities**

Discussion: Charles Collins, Ross Holland, Krisztina Keresztély

Ekistics framework: Demosthenes Agrafiotis, Serge Antoine, Ross Holland

SATURDAY, 27 OCTOBER

09.00 – 10.50 **7th Session – Education and Research**

Chairman: Demosthenes Agrafiotis

Presentations

Wu Liangyong:	**Search for the theory of the science of human settlements**
David Johns	**A Town within a City: Maungarei o Tamaki 2050.**
Ian Munro	**A project looking ahead to 2050 for a part**
Aimee Rednap	**of Auckland City**
Sarah Ricketts:	
T.W. Fookes:	**Ekistics theory and practice research**

Discussion: Alexander Papageorgiou-Venetas, Mao Qizhi, Alvaro Uribe

Ekistics framework: Mit Mitropoulos, Kjell Dahlström

10.50 – 11.05 Coffee Break

11.05 – 12.30 **8th Session – Synthesis**

Chairman: P. Psomopoulos

Presentations

Ray Bromley:	**Doxiadis and Dynametropolis: A retrospective view of planned axial growth**
Haruhiko Goto:	**Urbanization and population density in Japan**
Rusen Keles:	**Local authorities, sustainable development and international cooperation**
L.D. Mann:	**Basque Planning and the Human Settlements of Europe's Western Pyrenees Region: Present patterns and future tendencies**

Discussion: John Reid, All the students

12.30 – 13.00 **Closing Session – Conclusions**

Chairman: Udo E. Simonis

Presentations

T.W. Fookes:	**Summary**
P. Psomopoulos:	**Identification of priorities for further WSE work**

13.00 – 14.30 Lunch

14.30 – 17.30 Free. Visit to Berlin

Note: The names of contributors are in alphabetical order. The sequence of the papers will be decided upon by the Chairperson.

Symposion: Defining Success of the City in the 21st Century

Apart from the C.A. Doxiadis Lecture, the main contents of this effort refer to the material collected before, during and, in some cases, after the Symposion. More specifically, the issue contains:

a) **Papers reflecting the presentations made during the Symposion and these concern papers delivered before and during the Symposion or documents that were prepared by the presenters after the Symposion.**
b) **Papers that were made available at the Symposion by members who intended to attend but finally were totally unable to do so. These documents were made available to all participants but were never presented or discussed. Some were revised and edited by the authors.**
c) **Papers that were prepared after the Symposion by members who could not attend.**

Documents of all three categories above are classified and presented by main theme and sub-theme and in the sequence defined by the Daily Program (p. 19) that the reader is requested to consult.

Furthermore for each one of the nine sessions, the program provided for a Chairman, presentations, discussion, and a statement relating the presentations to the ekistics framework. However, no record was kept either of the statements by the Chairmen or by the discussants and the presenters of the ekistics framework.

For purposes of clarity and other practical reasons, the documents were classified into Parts 1 to 9 corresponding to the themes and sub-themes in the Daily Program as follows:

Part 1: Introduction
Part 2: Nature
Part 3: Anthropos
Part 4: Society
Part 5: Shells
Part 6: Networks
Part 7: Education and Research
Part 8: Synthesis
Part 9: Conclusions

In the indication of the structure and number of participants involved in each part, those who were not present in Berlin are considered as contributors.

Symposion: Defining Success of the City in the 21st Century

Part 1: Introduction

Chairman : **Udo E. Simonis**

Presentations : **Udo E. Simonis, Koichi Tonuma, Voula Mega, Christopher C. Benninger, Hans Stimmann***

Contributions : **Edward Leman, Calogero Muscarà**

Discussion* : **All Participants**

***No written record exists of any statement made during the sessions.**

Success of the City in the 21st Century: An introduction to the 2001 Symposion

Udo E. Simonis

The author is Research Professor of Environmental Policy, Wissenschaftszentrum Berlin für Sozialforschung GmbH (WZB), Berlin, Germany. Professor Simonis is a member of the World Society for Ekistics (WSE); he was Vice-President of the Society for four years and, since April 2000, has been President. *The text that follows is a slightly edited and revised version of the introductory statement by Professor Simonis in his capacity as President of the World Society for Ekistics at the opening session of the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

Foreword

Good morning to everybody!

Before starting, I would like to ask you for a minute of silence in memory of the members of our Society who have passed away since our last meeting: Wesley Posvar, the immediate Past President of the Society, Lord Butterfield of Stechford, Garrett Eckbo, Thomas Howarth, Arthur Scheepers, and Herbert Strawbridge.

Thank you!

The city in the 21st century: What is it all about?

Well, that could be a long story. To make it very short:

In the year 2000 we were 6.1 billion people on Earth. In the year 2050 we might be 9.4 billion, and in the year 2100 we could be 12.2 or only 9.2 billion. However that turns out, population growth will mean further urbanization, rapid urban growth particularly in the developing countries.

The city of the 21st century, therefore, will

- increase in numbers,
- expand in size,
- get more Southern...

Increase, Expansion, Southernization. If this is so – does it imply success or failure?

To quote our member Demosthenes Agrafiotis[1]:

> The criterion of success or failure is not the solution to a problem or the answer to a question, but the test *(l'épreuve)* itself of the scientific fields, especially at their limits, by their limits, and beyond their limits!

Successful city, successful urban growth, successful human settlements: all these topics are old, and at the same time new.

Old, in at least two different ways:

- Old, regarding the Ekistics philosophy, for example, as one can read on the back cover of each issue of the journal *Ekistics, the Problems and Science of Human Settlements:*

> Ekistics – The ancient Greek adjective οἰκιστικός meant: "concerning the foundation of a house, a habitation, a city or a colony; contributing to the settling." All these words grew from the verb οἰκίζω, "to settle," and were ultimately derived from the noun οἶκος, "house," "home" or "habitat"... The Shorter Oxford English Dictionary contains a reference to an oecist, oekist or oikist, defining him as: "the founder of an ancient Greek ... colony"... In addition, the adjectives ekistic and ekistical, the adverb ekistically, and the noun ekistician are now also in current use.

- Old, in a truly historic sense: Last week, I visited Regensburg, a beautiful old city (and once one of the centers of the Holy Roman Empire of the German Nation), going back to the first century of our era and developing around a Roman garrison of 6,000 men (served by 2,000 women). In the City Hall built in the 17th century, there is an impressive painting, which contains a message on "good urban policy," including five basic virtues for success of city development. These virtues are represented by figures of charming women in delightful mediaeval costumes: *Caritas, Justitia, Prudentia, Pax* and *Ceres* (fig. 1).

Again, there are at least two things about this painting which deserve special notice:

- The five virtues, these colorful women, are united by a rope symbolizing what we nowadays would probably call the need for integrated assessment and implementation – or the Ekistics framework.

- This picture has been part of the City Hall since 1663, when the "Immerwährender Reichstag," a permanent Imperial Assembly residing at Regensburg, came into being. The Holy Roman Empire ended in 1806. The picture, however, still dominates the City Hall of Regensburg – and it is a fascinating allegory...

If we are prepared to learn from the past when talking about the future, we might learn – I would underline: we *should* learn from that past...: *Caritas, Justitia, Prudentia, Pax* and *Ceres* – all of them still valuable criteria for successful urban development? Certainly so!

Of course, knowledge and science nowadays, in modern times, use different language. So, with your permission, we could call the mediaeval virtues predecessors of modern pol-

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Fig. 1: Good urban government – Five basic virtues: Caritas, Justitia, Prudentia, Pax and Ceres. A painting by Isaac Schwendtner, 1592, in the City Hall of the historic city of Regensburg, Germany, since 1663.

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icy criteria. But what then is *Caritas* in the language of modern planning, what are *Justitia, Prudentia, Pax,* and *Ceres?*

I must admit that I have not come across a convincing modern interpretation of those historical concepts. And, probably, it may be difficult to translate the old Regensburg wisdom into a kind of guidance for this year's Ekistics meeting in Berlin. One would need time to go into a serious comparative discussion of the issues. An interesting research topic, I think.

As this is so, I would like to draw your attention, instead, to a global agenda for 21st century cities, a book resulting from the work of the World Commission URBAN 21 and its Expert Group: *Urban Future 21. A Global Agenda for the Twenty-First Century Cities*,[2] edited by Peter Hall and Ulrich Pfeiffer and published by Alexandrine Press in 2000. The authors of that report speak of "urban essentials" and "dimensions of the sustainable city."

Urban essentials - Dimensions of the sustainable city

What are all the world's urban millions going to want in the 21st century? What will be their principal and most basic concerns?

The expert group started with what they called the most basic principle of all: sustainable urban development, a principle easy to state in general terms, much harder to operationalize in terms of everyday decisions. They quote the Brundtland report:

> Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987).

This means that we should not rob the generations that come after us; rather, we should seek to leave them a better legacy than we have had ourselves. The notion of sustainability holds good for several dimensions. From the start the term has been extended from the environmental sphere, with which many people associated it, to the economic, the social and the cultural dimensions of policy. A society could become richer in material terms yet poorer with regard to its quality of life. As Amartya Sen put it: "... a society or an economy can be Pareto-optimal and still be perfectly disgusting." It could become materially richer by mining non-renewable natural resources, it could enjoy affluence while producing global warming, which threatens the lives of all future generations.

We are arguing that a paradigm shift towards sustainable development is in the making. It is not an easy notion to operationalize though, but it includes among other things the maintenance of non-renewable resources, the preservation of biodiversity, and the reduction of greenhouse gas emissions.

Applied to the city, sustainable development has a number of key dimensions. To be called sustainable in the proper sense, a city must score well on all of them.

Work and wealth

A basic problem throughout human history has been that many of the world's urban populations lack the resources to lead decent lives. In our days, lack of access to useful employment, to adequate shelter, to good public health, to public safety, to adequate childcare still afflicts hundreds of millions of poor city people.

Economic growth, however, is not enough as an objective. We also need to consider income distribution, democratic participation, people's empowerment. Historical evidence shows that it is possible to have both growth and equity, and examples of relative success could be given. But there is a major problem: both in the developed and the developing countries, large sectors of employment are simply disappearing. Here is the real significance of that much-overused word, globalization.

Cities can and do adapt, by converting themselves into service cities like Glasgow, Birmingham, Rotterdam, Dortmund, Boston, Singapore or Hong Kong. But technology is making inroads into service employment too, and this will continue: structural unemployment and segregation are looming large.

Social cohesion and solidarity

The problem of work relates to another phenomenon: social and political exclusion which is related to income distribution, but also to illegal activities of all kinds.

There is thus a specific dimension of sustainability: a city that prospers economically but fails to distribute its wealth with some degree of equity runs the risk of disintegrating into a "civil war" between the haves and the have-nots.

Here, too, are many basic questions. How can policy makers prevent social exclusion? How can cities integrate their new immigrant communities into the mainstream political process? What is the role of education in all this?

Robust ecosystems

A further basic dimension of sustainability lies in the problem of the environmental deficit. In nearly every city there is concern with the depletion of non-renewable resources, with negative externalities arising from pollution and contamination, and the threat of irreversible damage to the ecosystems.

How to resolve this dilemma? Unsustainable forms of development may continue because of dire poverty. One message, therefore, cannot be repeated too often: Poverty is a great threat to preserving local and global ecosystems.

In highly developed cities, by contrast, the enemies seem to consist of a combination of ignorance, vested interests, sunk capital and trade-offs between private goods and public goods.

Urban mobility

Mobility is a special case of the dilemma of environmental sustainability. *The Economist* has put it this way: "The world has gone car-crazy, and the measure of a metropolis is the size of its traffic jams" (Levinson, 1998).

There has been dramatic traffic growth in a short period of time. In Mexico City, for instance, the number of vehicles has grown by 30 percent since 1991; in Seoul, traffic more than doubled between 1990 and 1996; and in Bangkok 300 new vehicles a day went on to the streets. The problem is dramatically illustrated by these developing mega-cities; but it is universal.

Unfortunately, most transport experts do not agree on the remedies to be chosen. Some argue for yet greater concentration; others assert that policy should seek to disperse jobs. So there is an urgent question: Has the process of urban diffusion any limit? Can it, should it be ended and even reversed?

In many highly developed countries, above all in congested Western Europe, citizens and politicians have awakened and have begun to look for solutions. Thus, in cities like Karlsruhe and Freiburg, they have begun to promote more compact urban forms. The difficulty, however, is that in cities where this sort of stranglehold will shortly become most acute – the mega-cities of the middle-income developing world – there is little consciousness of the need for new options.

So there is a real dilemma here: by the time the problem is recognized and action is taken, it may be too late. Some believe in the best of all worlds: unlimited mobility through zero-emission vehicles, electronically guided to their destinations. This is a vision that has been haunting futurologists for years.

Citizenry

The end of the 20th century sometimes seemed like a political miracle: democracy recaptured most of the ground it earlier lost to totalitarian or autocratic dictatorships. Two dilemmas, however, remain. The first is pressure-group politics. The second is the failure of local democracy in many cities of the world. City governments are thus often seen as impotent in the face of larger economic and social forces.

Summing up

These were some of the key dilemmas for policy makers in most cities of the world. They are experienced in London and Lima, in Stuttgart and São Paulo, in New York and Nairobi. But they express themselves most acutely in the fast-growing cities of the middle-income countries. And this is so for three main reasons:

- first, many of these cities are already bigger than their equivalents in the developed world and are projected to become even larger;.
- second, they have only recently embarked on their development process, so that the main consequences may emerge only in the next decades; and,
- third, neither their structures of local government nor their administrative traditions are developed in a way to tackle the problems adequately.

What seems to be needed now is two streams of transfer of resources and skills:

- first, from the developed to the developing world; and,
- second, from the successful cities of the developing world to the rest.

A final word: I would very much appreciate it if we could make some progress during our conference in:

- evaluating, re-evaluating the old virtues of the Regensburg type and their relevance for today;
- discussing the relevant new criteria for defining success of city development now and in the future.

As President of the World Society for Ekistics, I really would like to learn what the Ekistics concept could contribute to answering those two basic questions.

Thank you for your patience.

Notes

1. See D. Agrafiotis, "Knowledge and interdisciplinarity as socio-cultural uncertainties," first C.A. Doxiadis Lecture just prior to the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24 October, 2001, in *Ekistics,* vol. 69, no. 412/413/414 (January-June 2002).
2. See Peter Hall and Ulrich Pfeiffer (eds.), *Urban Future 21. A Global Agenda for the Twenty-First Century Cities* (London, Alexandrine Press, 2000).

Whither 21st century urban civilization: Dystopia or utopia?

Koichi Tonuma

The author, Professor of Planning at Waseda University, Tokyo, is currently Chairman of the townscape design committee of Tokyo Metropolitan Government and also Vice-President of the World Society for Ekistics (WSE). Dr Tonuma is the author of a book entitled Japan in the 21st Century *with emphasis on planning for residential surroundings, and of numerous articles, some of which have also been published in* Ekistics. *The text that follows is a revised and edited version of a paper presented by the author at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

Introduction

I would like to share with you some thoughts on the future of human settlements – the basic theme of our Society – following the recent New York terrorist attack though limiting myself to only two themes:

- Urbanization and counter-civilization; and,
- Whither 21st century urban civilization

with special reference to C.A. Doxiadis' concept of Ecumenopolis and the prospects of human settlements in the era of a world population of 10 billion.

Urbanization and counter-civilization

There has never been an incident that has shaken the world as much as this year's multiple terrorist attacks that directly hit targets in the metropolises of New York and Washington, that are the pride of the United States of America.

Even among the group of skyscrapers that stand together on New York's Manhattan Island, the 110-storey twin towers of the World Trade Center stood out above the others. In the eyes of the world they were pioneers of the image of the modern metropolis.

They were a showcase of New York's urban landscape, epitomizing American Dreams like the Statue of Liberty. One could even say they were the very symbol of modern American civilization.

On the 11th September, at around eight o'clock in the morning in New York, it was already night in Tokyo, and I was at home watching television when I saw on the screen the familiar outline of the World Trade Center Building, with smoke billowing above the North Tower. While still pondering this phenomenon, a jet aircraft flew straight into the South Tower, exploding and causing red flames to flare out of the building. Several hundred million people watched this live on the worldwide information networks, seeing the real-time image. The suicide bombers who hijacked private commercial aircraft also attacked the Pentagon in Washington. As I sat glued to the TV, before long the towers of the Trade Center could be seen crumbling perpendicularly, from the top down. The steel columns that held up the skyscrapers seemed to melt, the floors caved in with intensity, and soon there was total collapse.

In the face not of a natural disaster but of a man-made (terrorist) one, how weak this building that was the quintessence of modern architectural technology proved to be. As the days went by, it was reported that 50 tons of rubble from the collapsed main tower was scattered around the blocks within a 500 m periphery, and 20 adjacent buildings had suffered damage. The fact that the contiguous blocks were connected below ground seemed to be a primary factor in the chain reaction of the damage. The wreckage of the fallen buildings became a mountain of fragments and building debris. The death toll from this tragic disaster is estimated in the thousands, causing confusion in the rescue operations.

The two elegant towers of the World Trade Center Building sharply rising to a height of 400 m were, in the way they were conceived and designed, a straight expression of American capitalism. This building contained the heart of the key node of the world's economic and monetary system networks, which wrap the globe like veins on the skin of a muskmelon. The blasting of this key node of the global economy especially affected American economic activity, but also reverberated throughout the world. The world was struck by a foreboding of worldwide recession.

The irony is that it was with one stroke of the terrorist's knife, with one old-fashioned tool, that such an unpredictable blow was struck to contemporary mechanized civilization. It is a civilization of skyscrapers, super jet aircraft, IT, high-tech information systems, huge economic and financial systems and the high-rise high-density cities that are swallowing them up. The terrorist stronghold is thought to be in an arid land of scattered traditional settlements and remote highlands. Seen from the perspective of the civilization of the modern city, mechanized and tailored in every corner, it is a backward area. It could be called a counter-civilization world. It is a region of human settlements where poverty is the norm, due to continuous wars and the droughts and famines of recent years.

The 20th century was a period of continuous war. Following the First World War, there was the Second World War accompanied by a massive death toll from atomic bombs, and the latter half of the century saw the Korean War, the Vietnam War and the Gulf War in the Middle East

What sort of an age was this 20th century? During the latter part of it, the high-density urban agglomeration came to be the typical form of human settlement – metropolises of a

million people, huge urban complexes of 10 million people. A new urban lifestyle made its appearance.

The era of the classical static city co-mingling with natural ecology gave way to the era of dynapolis, the embodiment of modern civilization with its gay and lively urban life. On the other hand, modern urban civilization brought with it a new neurosis. There was a dramatic increase in problems such as drug abuse, violence, homicides and other atrocities in cities like Moscow, Rio de Janeiro, Warsaw, Bogotà, London, Paris, Rome, Athens, Johannesburg, Delhi, Karachi, New York, Shanghai and Tokyo.

Added to the fatalities due to accidents and human crime, cities also encountered a large death toll from natural disasters such as earthquakes. Recently in Japan the Kobe earthquake crushed 6,000 people to death. It is forecast that the 30 million Tokyo Metropolitan Area is likely to experience a large-scale earthquake in the near future. If it is a direct hit, fatalities could number a million, two million or even more.

Modern cities are vulnerable to all sorts of potential causes of disaster, large and small, and now this huge tragedy of the simultaneous attack on New York and Washington has been brought about. People from 80 countries happened to be in the World Trade Center Building that collapsed in minutes. The dimensions of this incident have a worldwide impact in a variety of aspects, and their root causes are deep.

The static and stable mosaic of past human settlement patterns has been stirred up globally by various agents of modern civilization. Culturally diverse civilizations have mingled with each other. Boundary conditions have become unstable. It can be taken that the negative phenomena of dynapolis have begun to express themselves.

What sort of a century will the 21st one be for the people of the earth? Will it be Dystopia or will it be Utopia?

Whither 21st century urban civilization?

C.A. Doxiadis used the concept of "Ecumenopolis" to describe the image of the inevitable form that human settlements on this earth will take in the future. Arnold Toynbee used the term "World City," having as a background, among other considerations, the continuous growth of world population and the limits of the earth's resources, especially habitable land. Although restrictions on habitability continue to be overcome, it is estimated that the optimum world population is around 20 billion (15-25 billion). It is predicted that people will live in a more or less continuous belt at the global scale, quite unlike the scattered towns and isolated villages of the pre-mechanization era – even completely different from the metropolises and megalopolises evident at present. According to Doxiadis and his research associates, in the Ecumenopolis era this wildly different pattern of global settlements will emerge around the year 2100 and is predicted to reach maturity around the year 2200. If this is just left to happen, there will be utter confusion on this earth. The way to avoid this is to confront the situation by developing appropriate policies and intentionally showing the way towards a healthy balance between the main ekistic elements – Nature, Anthropos (Man), Society, Shells and Networks – and essential prerequisites for livable human settlements.

Doxiadis emphasized the particular importance of taking a clear stance towards Nature. He proposed 12 global land use zones with varying degrees of human intervention, ranging from wildlife areas and natural cultivation to the high-density city. He even submitted an estimate of the relative area for each zone.

Furthermore, Doxiadis stressed that balance must be maintained between the respective achievements of economic, political, government, technological and cultural systems, as well as an appropriate balance for each scale in the community hierarchy of human settlements, from the house, the neighborhood, the city to megalopolis, eperopolis (a 5 billion continent-wide community) and Ecumenopolis. There may be some societies where the social balance resembles that of George Orwell's *1984,* but hopefully by the year 2084, Ecumenopolis with its one world system will have conquered this problem. However, we cannot be so optimistic about the question of man's mobility. On the one hand there will continue to be short-term globetrotters, but there will also be a tendency for society to become unstable. Because of living in a World City, individuals will have the choice of moving if they so wish, and it will be an age with plenty of leisure and the possibility of second and third careers. However, Doxiadis makes the proviso that due consideration be given to the consequences.

One of the more difficult aspects to imagine is that of political balance. Who will organize it and how; whether World Government can really be achieved; what sort of administrative authority could be appropriate for reaching the rank and file in a community of such mobility, or even whether it will be done by man or by God is not discussed.

Besides the confusion as to the nature of the administrative organization that will deal with the problems of this New World Order, there is the question of the decline in the significance of the small community, the family and the neighborhood, within this mega-community. Another difficult question is how to treat the process of decline in regional culture as the world becomes more unitary.

When the world becomes one interacting body, in a sense it will have entered the phase of the complete globalization of the earth. When it reaches this point, the realistic future of the globe is more likely to resemble Orwell's *1984.* Doxiadis, by projecting current world problems into a global perspective, provided us with many suggestions, but even he sometimes lost heart. However one of the conclusions that Doxiadis quoted seriously shortly before he died was that there may be a season of passing through anthills, but a breakthrough can be made by bravely stepping forward.

Human settlements in the era of 10 billion world population

While C.A. Doxiadis has given us an image of the ultimate form that human settlements will take on this earth, we can borrow Buckminster Fuller's image of "Spaceship Earth" to focus on the root causes, the limits to the earth's resources, population increase and population migration.

Besides the absolute (natural) increase in population, there is the factor of its world geographical distribution. This means that spheres of civilization have been established in certain habitable areas, and population movements within each sphere will have a direct impact on the make-up of Ecumenopolis. Furthermore, there will be movement of people between the spheres of civilization and the problem of population migration beyond modern man-made national boundaries. Modern capital cities and other main cities also face the complications incumbent in having a multi-national multi-cultural population structure.

According to United Nations population projections, some time after the year 2050 world population will have reached 10 billion. Regionally, North America, Central and South America, Africa, Europe, the former Soviet Union, Asia and Oceania have their own unique and distinct human groups. The recent international state of affairs also showed the great variation between countries that still existed as they passed through the 2000-year line. Current world population is over

5 billion and has reached 6 billion. In less than 50 years it will have reached 10 billion. The world's system for accommodating human beings will in one way or another have to adjust to double the current capacity.

In speculating about this point, it is possible to be both pessimistic and optimistic. Even in the current world of 6 billion, humankind is shouldering all sorts of environmental and globalization problems. Food, energy and resource problems, air and water pollution problems, lack of habitable land, conflicts in an increasingly crowded world, the seeds of headaches of problems with no apparent solution are piling up. If one imagines these seeds of headaches blowing around and growing larger as the population increases to 10 billion, then the mid-21st century can be portrayed as a picture of hell.

In order to imagine the contrary, a picture closer to paradise, that somehow or other the 10 billion people manage to live together peacefully, the people of the 21st century will need to have a particular sort of intelligence, and to discover and invent new styles of living.

The opportunities of the 19th century Industrial Revolution – Energy Revolution – led to a population explosion so that over a span of 200 years it doubled to reach 5 billion.

The Industrial Revolution brought into play the huge power potential of energy resources. Materials (inanimate Nature) that lay sleeping deep underground were dug up. Methods were evolved for land reformation works. It can be said to have brought forth human settlements shaped by mechanization. Typical manifestations are large metropolises of over 1 million and the invention of huge mega-cities of over 10 million. On top of this, these days there is the Information Revolution.

In a matter of only 50 years, it is said the population will reach 10 billion. Put in an extreme way, the equivalent to the population achieved over 2 million years of human history will be brought forth into this world within another 50 years.

If the near-future period from now until the middle of the 21st century were to be described as a revolutionary era of human history, following the Agricultural Revolution and the Energy Revolution, it would be called the era of the Information Revolution.

The Information Revolution and the Information Technology Revolution are penetrating human settlements in network fashion at many levels. The world is connected in seconds by an information network, the Internet. Above it is an economic network. The density of the globalization of human settlements is intensifying. This suggests that the recent development of the Information Society will inevitably lead to the world's population living linked together. Certainly the conditions of a mega-scale human society of 10 billion people with its incumbent environmental problems and need to ascertain the truths of the international situation moment by moment and sensitively, would seem to indicate it.

How will the world's 10 billion people be distributed regionally?

If one takes a look at the world's population distribution by region (table 1), the Asian element of the total is enormous. According to United Nations estimates, Asia's population will have reached 6 billion by the year 2050 (fig. 1). The mega-population energy of this Asian component will define the trends of world human settlements in the 21st century. Second to Asia, the fast population growth in Africa is likely to be problematic for the conditions of human existence.

If countries are placed in order of population size (for 2000), China has 1,280 million, India 1,010 million, United States of America 280 million, Indonesia 210 million, Brazil and Pakistan each 170 million, Japan 130 million and Russia 120 million.

Among these, Japan's future population growth curve is likely to peak around the year 2011, reaching around 130,440,000, and it is predicted that it will then begin to decline. Incidentally, the population of Afghanistan is around 20 million.

World population distribution is likely to be discontinuous and uneven, as it has been in the past. The world's areas of possible habitation – habitable lands – are limited by physical factors (Nature).

So far, mankind has adapted to population growth by inventing a framework for various forms of habitation, the house, village, town, city, country, modern metropolis and modern nation.

When imagining the trend in the era of 10 billion, simultaneously there will be dynamic settlements and migration across national borders. It can be imagined that border-less settlements will be very vibrant. Among the various borders

Table 1
Long-term population estimates for the major regions of the world: 1950-2150 (in millions)

Area	Year								
	1950	1995	2000	2025	2050	2075	2100	2125	2150
World Total	2,524	5,687	6,091	8,039	9,367	10,066	10,414	10,614	10,806
Group 1	732	1,053	1,068	1,111	1,067	1,030	1,029	1,043	1,061
Europe	547	728	729	701	638	589	579	585	595
North America	172	297	309	369	384	393	401	407	414
Oceania	13	28	30	41	46	48	49	50	51
Group 2	1,792	4,634	5,023	6,928	8,299	9,036	9,385	9,572	9,745
Africa	224	719	820	1,454	2,046	2,457	2,646	2,715	2,770
Latin America & Caribbean	166	477	515	690	810	864	889	903	916
China	555	1,220	1,276	1,480	1,517	1,509	1,535	1,565	1,596
India	358	929	1,007	1,330	1,533	1,595	1,617	1,641	1,669
Rest of Asia	490	1,289	1,405	1,974	2,393	2,611	2,698	2,747	2,795

(*Source*: United Nations, *World Population Projections to 2150*).

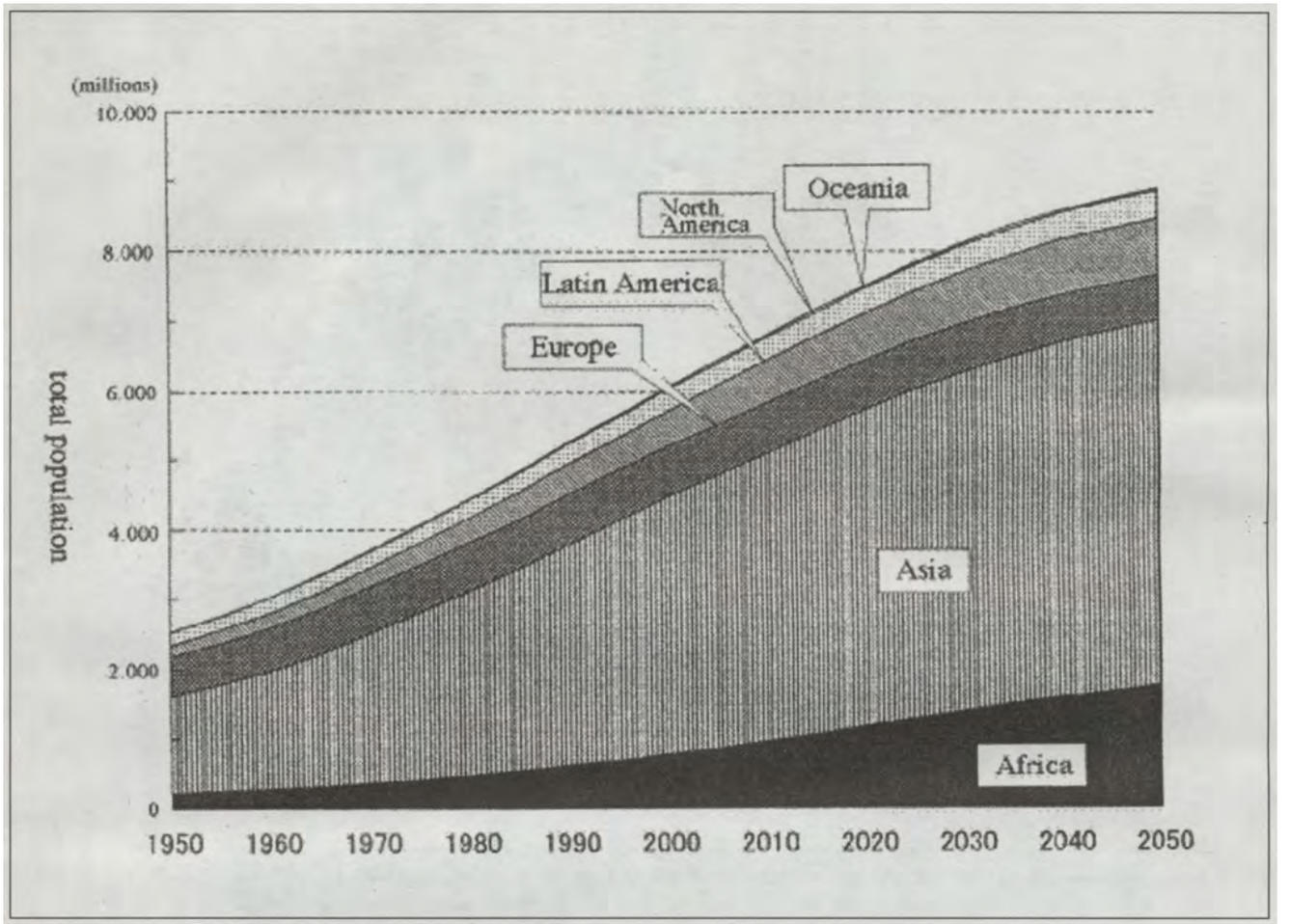

Fig. 1: Population of major regions, 1950-2050. (*Source:* United Nations, *World Population Prospects: 1998*).

that affect human life, that is to say boundaries, walls, and frameworks that are extremely man-made, the most typical is that of the nation, the national boundary. There are currently about 200 countries in the world, which cover the continents of the earth and their territory. Their boundaries denote a certain mutual understanding derived from the economic and political drama of human habitation during the 200 years when the world's population was growing from 10 to 50 million. Yet even now there is no end to the troubles arising regarding their appropriateness.

The origins of countries or nations can be retraced to the past. The nation is one of the prototype frameworks of human settlements, as well as the family and the house. These two poles guarantee the conditions for mankind's existence and security, thus providing shelter for human settlements.

Continuously since the beginning of history the smallest unit of the human community has been the family and the house. Looking at the details, a trend can be seen of getting smaller, from the extended family to the small family, the nuclear family to the elementary particle. Lately this trend is particularly conspicuous in Japan, America, Europe and the more developed countries.

By contrast, in the more unstable regions of the less developed countries, family unity is still strong and a framework of firm and trusting family networks stretches beyond national boundaries. There, religious credo lives on.

When the framework of the modern state is taken as the presupposition for imagining the human habitat of the era of 10 billion people, there is the problem of the huge gap in expectations. That is, expectations as to per capita food and resources, the whereabouts of technology, the economy, politics, social structure and the vitality of space. The migration of people beyond the 20th century modern national boundaries is likely to accelerate. The fact is that here and there in the world, national borders are already being weakened because of economic regions such as the EC, OPEC and NIES (Newly Industrializing Economies) that operate beyond national boundaries. When it comes to transportation and information, to a large degree there is no longer much meaning in having national boundaries.

Nevertheless, mankind's habitat is on this earth. The grim reality is that there are prosperous regions and poor regions, and situations where large numbers of people from the less advantaged regions put pressure to migrate to the more prosperous ones cannot be avoided.

What will be the human settlement pattern of the 21st century city? What will be called for as the basis for a stable (world) order as border-less habitation progresses, in the face of absolute population increase and international cross-border migrations? The dilemmas of this mega-peopled society will probably lead to even greater world chaos. The 21st century is a probationary period preparatory to the emergence in the 22nd century of a mature Utopia, Ecumenopolis, so will there be times when it shows dystopia-like aspects?

Arnold Toynbee, who was a WSE member, postulated that 5 spheres of civilization of the past made up the framework

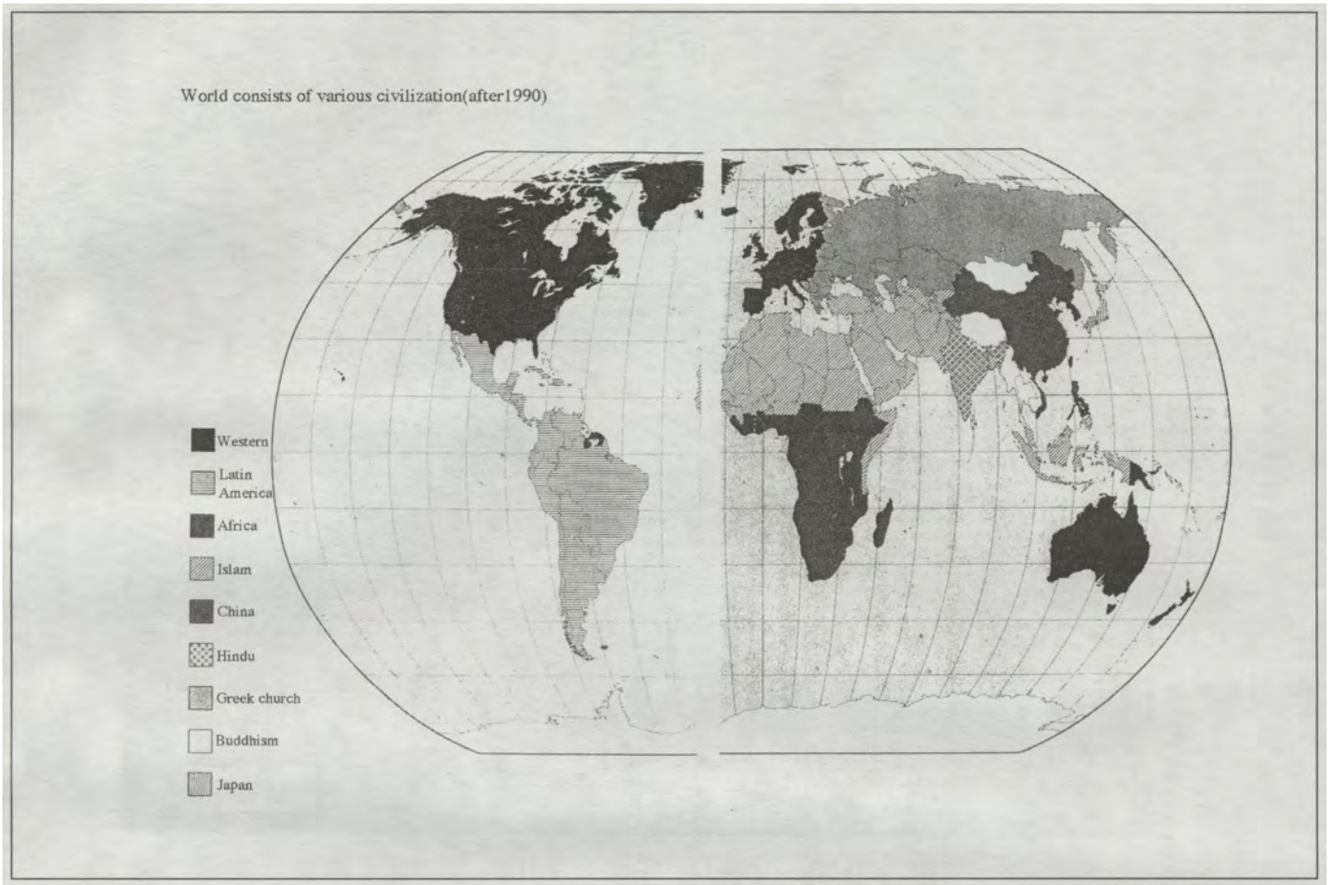

Fig. 2: Indicative presentation of the variety of cultures in the world after 1990. (*Source:* Huntington, 1996).

for the order of human settlements on this earth. These five are Western Christendom, Eastern Christendom, the Islamic World, Hindu-Indian and East Asian Civilizations.

Also, because of the focus on the Islamic World due to the recent terrorist attack in America, other observations have been added. Huntington (1996) divides civilizations into 8 categories: Western, Chinese, Japanese, Islam, Hindu, Arab, Latin American and African. The crash of a civilization is the biggest threat to world peace, and he thinks the most reliable safety device to prevent world war is an international world order that depends on civilization (fig. 2).

The terrorist incident of 11th September, 2001 in front of the very eyes of the people of the world is suggestive of the urban civilization of the 21st century. Even before this big tragedy that involved many civilians, there cannot have been anyone who did not hate terrorism. The President of the United States is calling it a new sort of war. On 8th October, America attacked Afghanistan, as being the regional base of the terrorists. Whatever form war takes, it means that people die, a large death toll cannot be avoided. Modern armaments are available in great variety to an ominous degree.

Let us hope that revenge for the terror will not become an unhappy chain of slaughter of civilians and the poor. Let us listen to the voices of the people in various parts of the world who feel strongly about these issues. We can eagerly hope for wise solutions from the leaders of the world's nations.

Conclusion

World human settlements of the 21st century call for peace. For that to happen, symbiosis between races must take many forms, and the co-existence of a variety of cultures must be acknowledged. The people of this century are also facing serious problems such as global warming. For the sustainability of Spaceship Earth, the people who are riding it during the 21st century must learn to give way to each other and take up a posture of co-existence and co-suffering.

We, as members of the World Society for Ekistics, especially share C.A. Doxiadis' concern for recovery from Dystopia.

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Cities and energy: The sustainability (r)evolution

Voula Mega

The author graduated as an engineer from the National Technical University of Athens, and completed her DEA at the National Geographical Institute in Paris. She continued with a DEA at the French Institute of City Planning where she also obtained her Ph.D. Her post-doctorate studies include research on Regional Policy at Oxford Brookes University and Environmental Economics at Harvard University. She started her career as Special Adviser to the Greek Ministry of Transport and Communications, and the European Union. She has been an official of the European Union and Research Manager at the European Foundation for the Improvement of Living and Working Conditions. She has co-written 25 EU publications, and has published nearly 100 articles on sustainable development, urban dynamics, regional capital, city and spatial policy and cultural value-added. She worked as a consultant on issues of sustainable development at the Directorate for Science, Technology and Industry of the Organisation for Economic Co-operation and Development (OECD) She is now Scientific Officer at the Directorate General for Research, European Commission, Brussels, where her main duties are on energy research. The text that follows is a slightly edited and revised version of a paper presented at the World Society for Ekistics Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Introduction

Cities are first and foremost places of social synergies, economic interactions and cultural efflorescence. Their success depends largely on the quality of life they offer to citizens and their capacity to generate and distribute wealth. Energy is the common denominator of all human activities, synonymous with life and vitality. At the dawn of the millennium, cities and the energy sector are on the verge of dramatic changes. Many strongly entrenched ideas start to vacillate and innovative approaches challenge the inertia of old infrastructures. New concepts and technological breakthroughs emerge, often as consequences of scientific progress, policy and market initiatives and citizens' expectations. The paradigm of sustainable development inaugurated a new civilization, enriched with concerns about the quality of development. The most inexhaustible energy resources are not only renewable sources, but also knowledge and innovation.

Cities are the places where most knowledge is created and most innovations take place. Even if their hegemony is often disputed by other dynamic territories, cities are not only the sum of their people, places and historic facts. They are made out of relationships and conflicts, convergences and divergences, with unique systemic results. The dynamic synergetic effects are more important than the merely accumulative ones. Sustainability means also "sustain ability to create and innovate." Cities have to provide their citizens with secure, reliable, competitive and clean energy and reflect socio-economic vigor and cultural energy. They have to promote technologies and consumption patterns that lead to a more sustainable future. More efficient and renewable energy systems, micro-power and co-generation can help them to improve their metabolisms.

Urban energy policy is normally developed and implemented at national, regional and local level. The European Community has a responsibility to act as a catalyst and promote technologies and approaches that raise the bar of excellence towards sustainable development. Energy is one of the pillars of the EU strategy on sustainable development. Special efforts are made to ensure that EU policies are "urban sensitive." The current EC Fifth Framework Programme for research and technological development is the first one to include a part dedicated to urban sustainability. The "Key action" on the "City of tomorrow and cultural heritage," especially designed to address strategic multi-disciplinary urban questions, promises to bring visible and tangible improvements to the life of European citizens.

This paper presents a series of innovations in cities linked to energy. It should be remembered that there are no "accreditation systems of best practices" at the European level and this *tour d'horizon* should be seen under the prism of relativity, intrinsically linked to the very notion of innovation, born to be surpassed. The paper is largely based on the author's previous work on urban issues, although it is impregnated by her present work with the European Commission on energy research policy. Any views and statements are personal and do not engage the European Commission.

Urban challenges and "built politics" in the era of sustainability

Cities are theaters of civilization, schools of abilities and temples of values. They have been defined as places in which the human genius is expressed, palettes of possibilities, yet to be realized (EC, 1997a). Criteria for their success can already be found in some master definitions. According to Aristotle, the city is "built politics." Vitruvius stated that cities should be solid, beautiful and useful. Jacobs (1969) defined cities as places that generate, in an ongoing way, their economic development from their own resources and from the "disordered order" of human interaction.

"Habitat II," the last UN summit of the 20th century, highlighted the role of cities for achieving global sustainability (HABITAT, 1996; UN, 1997). At the dawn of the third millennium (the *"urban" millennium*), the world, steadily urbanizing for centuries, stood at a very important crossroads. For the first time in the history of the planet Gaia, urban dwellers outnumbered

the rural ones. Since 1970, most urban growth has taken place in developing countries; it has been fuelled by both rural-urban migration and natural population increase (UN, 2000). Europe was the first continent to enter the *urban age,* half a century ago. Endowed with the most dense and mature urban network, it can provide models and lessons (BEATLEY, 2000; MEGA, 2000).

The concept of sustainable development derives originally from the scientific literature, where it implies the management of natural resources in ways consistent with the preservation of their reproductive capacities. Renewable resources should not be depleted to a degree higher than their reproductive capacity and non-renewable resources should be preserved, and technology race for substitutes. In the waning years of the 20th century, "sustainable development" became a most popular and emblematic, yet subversive and controversial, concept. It has been defined as a process and not as an endpoint, as a journey rather than a destination. Like the journey to Ithaca, it may be construed as a struggle between the Scylla of exclusion and the Charybdis of over-consumption (EC, 1996, 1997a and 1999a; EFILWC, 1997; HALL and PFEIFFER, 2000; MOPTMA, 1995; OECD, 1994 and 1996; WHO-OECD, 1996).

The paradigm of urban sustainability projects cities onto the global scene of the future. It advocates a balance between the quality and quantity of development and asks for integration of socio-economic and environmental concerns. The Charter of European Cities and Towns Towards Sustainability, seen as the European version of Local Agenda 21 (CEMR, 1996), states that sustainable development helps cities and towns to base living standards on the carrying capacity of nature and progress towards social justice, prosperous economies and environmental improvements (ICLEI, 1995). Energy has deep and broad relationships with each of the three pillars of sustainable development and has a significant role to play in the journey towards an environmentally sound, socially integrated and economically flourishing future, promoted by active citizen participation (EC, 2001b; OECD, 2001a).

Energy is a precondition and a catalyst of development. During the 20th century, the number of people on earth increased fourfold, but energy use was multiplied by sixteen (McNEIL, 2000). The degree of electrification has served as an indicator of development and it is still a valuable yardstick for measuring welfare. Fundamental divides can be crystallized by the relationship of electric consumption per capita in the least developed and developed world: 80 kWh versus 8,000 kWh. Access to energy services is considered to be a sine qua non condition for well-being and quality of life. Two billion people on earth are still deprived of access to modern energy services. In the developed world, fuel shortages can paralyze cities and countries (OECD, 2001b).

Cities consume 75 percent of energy in the EU. In order to offer citizens the conditions for fulfilling life, the internal energy market holds new challenges. Member States and cities are interdependent as regards action against climate change, security of supply and the completion of the internal energy market. Cities have to meet the growing energy demand in a secure and sustainable way, diversify energy supply and enable a smooth transition from a fossil fuel-based energy economy to one based on renewable sources. The role of technology and innovation in advancing towards efficient energy systems, gradually integrating new and renewable energy sources, is fundamental.

Improving energy efficiency across all sectors and throughout activities is a key factor for advancing towards sustainable cities. The Action Plan to improve Energy Efficiency in the European Community indicates that there is an estimated potential for energy efficiency improvement of more than 18 percent of present energy consumption. The Action Plan includes policies and instruments for overcoming obstacles and enhancing opportunities, such as the integration of energy efficiency into regional and urban development, taxation and tariff policy (EC, 2000d).

Sustainability may symbolize a continuous invention of new opportunities, and a permanent aspiration for a better world. Pure evolutionary change and adaptive responses to new technologies, within the established rules and procedures, are not sufficient for progressing towards sustainable energy pathways. Sustainability demands adroitness in maximizing resources, skills and chances. Any innovation creates the conditions for its own demise. The more established a system, the more difficult it is to change. Vested interests resist change, and resistance increases when innovations touch the core interests or boundaries of institutions. This is particularly relevant for energy, because infrastructures, investments and practices are long-lived and well established. Innovation is "creative destruction" (SCHUMPETER, 1976), the key to progress (OECD, 1996). It implies a radical shift to the creation of new ideas, products and processes, at the expense of conventional ones. Innovation theory distinguishes innovation from invention, at the one end, and transformation, at the other. Invention is often identified with the research and technological development of a concept, while innovation includes all the politics of its implementation. It is a process involving a dramatic and thorough change that opens up the range of opportunities and an organizational restructuring that allows the new product, concept or idea to bring about the desired transformation. The most challenging innovations address the long-established, capital-intensive infrastructures and practices and the urban energy field includes many of them (M.I.T., 1997).

Cities are huge, untapped reservoirs of ideas, enthusiasm, commitment and labor. They are places where creativity concentrates, since its only sources are human brains and hearts. From a new idea to its grafting into a mainstream policy, the birth, growth and death of an innovation depend on a city's creative assets and their mobilization towards meeting urban challenges. As nobody holds the monopoly on innovation, the recognition of the creativity of every individual actor and willingness to accept shared responsibility are essential. All approaches require vision, strategy and planning, concerted action and effective coalitions to build on radical change and incremental progress. Change is inevitable, the challenge is how best not simply to keep abreast of the change, but to drive it (BURA, 1997). Cities must harness the power of new technologies and social innovation to explore their "truly endless frontiers" (SAPOLSKY, 1995) and optimize their concentration of knowledge and information.

The knowledge-based, service-oriented economy may lead to digital cities experiencing a radical modification of the relationships between people and space. Many more cities and regions may be given the opportunity to become world players, but a global conglomeration can have strong central quarters and weak peripheral ones. Globalization may trigger a process of change which cannot be influenced by peripheral local communities but which can reshape them against their will. An increasing body of research suggests that the strengthening of the urban core may be the best way of rising to the challenges brought about by globalization, sustainability and social cohesion. It may provide a human face to global achievements. Cities are the political institutions most able to create new democratic spaces between the world economic macro-regulations and the micro-regulations of the local communities (MEGA, 1998).

An Odyssey in search of innovative energy projects for the improvement of the multifunctional and multicultural urban spaces and functions may be a journey to the cities of tomor-

row. The most successful projects are often the results of well-integrated approaches, combining environmental achievements with economic benefit and favoring social integration and local democracy (*Polyvations* versus *Monovations*). Polyvation may lead to multiple dividends and can have lasting broad effects if invested in a true strategy. The incorporation of cleaner, renewable energies will only be achieved if an appropriate global planning is developed for urban areas. This will, in return, require a new local socio-economic environment in order to facilitate the penetration of new technologies in the market place.

Energy as a criterion of the resourceful city

Planetary and local ecological problems call for new policy formulae in cities, the principal perpetrators and main victims of global damage. Cities are dynamic ecosystems that underpin socio-economic and cultural activity. They have enormous ecological footprints, estimated after the evaluation and aggregation of the biophysical capacity of land surfaces needed to produce the necessary resources and to absorb the waste. London's ecological footprint is estimated to occupy an area 125 times larger than administrative London, even if assessment is limited to the consumption of food and forest products and the capacity to generate emissions of carbon dioxide. Its life has to be supported by an area equivalent to 94 percent of Britain's productive land (EEA, 1998).

Agenda 21 provided an international benchmark for urban performance. The preparation of Local Agendas for the 21st century created a global momentum for the analysis and the enhancement of the urban environment. European cities were among the first to adopt local plans 21 and energy is a fundamental field for action. All 288 Swedish local authorities had prepared local plans 21 by the time horizon set in Rio. In Finland, the Lahti Environmental Forum brought together all societal actors in order to boost sustainable development in the region. Commitment of each and everyone is a key concept. In France the Charter of Mulhouse is a model for improving the environment and public health.

An ecological city strives to become more competitive and offer a better quality of life, while incorporating environmental considerations into public and private decision making (OECD 1996). Urban ecology offers new visions to cities (RUEDA, 1995), which convert themselves into laboratories of ecological innovation, with high experimental value. Schwabach, Germany, offers an example of the efforts to implement an urban ecology planning strategy. The adopted driving principles highlighted that nothing is impossible and everybody has to participate. Energy actions are an important part of the 1993-2003 Model Urban Development Strategy, towards Schwabach Ecological City (SCHMIDT-EICHSTAEDT, 1993; WHO-OECD 1996).

Leicester was the first city to be awarded the status of Environment City in the UK. It is assisted by the "Business Sector Network" to bring together ideas from the city's commercial sector and provide assistance to businesses, while "Environ," a non-profit-making company, helps local organizations with environmental audits and advice (EFILWC, 1997). The "energy efficiency centre" promotes action for improving the efficiency standards for buildings and schools, introduces an energy education package for teachers and invites students to contribute to the energy monitoring of their schools. The "energy efficiency bus," equipped with solar panels and connected to the Internet, visits schools and enterprises to promote consciousness about renewable energy. "Energy passes" to optimize the energy conditions of houses is a common measure in the German *Länder* (*Energie-Cités*, 2001).

The energy balance of cities depends on the city and energy planning and policy, the urban infrastructures, transport patterns and citizen lifestyles. City structures and policies can contribute immensely towards minimizing the material and energy intensity of goods and services, reducing toxic dispersion, enhancing material re-use and maximizing the use of renewable resources. Sustainable urban policies should be carried out with respect to the carrying capacity and the equilibrium of the urban and sub-urban ecosystems and with regard to the availability and the distribution of resources. Energy flow analyses and impact monitoring are crucial instruments. Urban eco-auditing, with energy and environment balance sheets, provides assessments and forecasts. The balance sheet of Sundsvall, including the accounts of stocks and flows of environmental resources and the environmental auditing in Kirklees, offers a horizon of models and lessons at the forefront of current practice (EFILWC, 1997).

Sustainability appraisals, reporting and indicators may serve as compasses in the journey of urban sustainability. Urban indicators include series of environmental, social and economic indicators (EFILWC, 1998a; OECD, 2000) and their significance extends beyond what is directly obtained from observations. Energy consumption can serve as a yardstick for measuring the progress of cities towards sustainable development. Energy indicators are increasingly promoted to improve city management. They should be policy-significant, clear, simple, scientifically sound, verifiable and reproducible. Aggregate indexes, like the genuine savings indicator, may inform if a city becomes more or less sustainable. However, no indicator can inform if a city integrates socio-economic and environmental objectives in its overall development strategy (OECD, 1996).

Air pollution indicators developed for 45 European cities, with a total population of 80 million, show that 35 percent of the inhabitants are exposed to concentration levels that exceed the short-term air quality guidelines for SO_2 and/or winter smog conditions. An even higher percentage are exposed to ozone-related summer smog conditions. The primary source of pollution is the combustion of fossil fuel in energy generation, industrial processes and transport (EEA, 1997). During the last ten years, there has been significant success in reducing certain pollutants, through source control measures and abatement strategies. Lead concentrations dropped sharply. Sulphur dioxide and nitrogen dioxide have decreased; however, WHO guideline thresholds for sulphur dioxide, carbon monoxide, nitrogen oxides and particular matter are exceeded in a great number of European cities (EEA, 1998).

The dominant sources of atmospheric pollution in cities are shifting from the combustion of high sulphur fuels and industrial processes to motorized traffic and the combustion of gaseous fuels. In terms of EU NO_x emissions, the reduction accomplishments of the power generators have been counteracted by the increasing emissions from the growing transport sector. Nitrogen oxides, particularly nitrogen dioxide, are known to cause specific damage to lung tissues. Air pollution from traffic is expected to mark one of the most significant exceedances of the recommended threshold concentrations (EC, 1999c; EEA, 1997). Studies indicate that life expectancy in polluted urban areas in Poland and the Czech Republic is significantly lower than the average for these countries as a whole. In addition to its effects on human health, air pollution may also damage ecosystems, buildings and monuments (EEA, 1998).

Urban energy consumption has a critical contribution to global warming, which is partially the end product of millions of individual decisions made by citizens and businesses within their immediate environments (EC, 2000c). Emission patterns are influenced by long-lived investments in energy supply, transport infrastructure, housing and industrial installations. A

network of global-minded cities, the Alliance of European Cities for the Climate, brings together hundreds of cities dedicated to achieving a 50 percent reduction in CO_2 emissions by 2010 as compared to 1987. The Tokyo Metropolitan Government is committed to cutting carbon dioxide by 6 percent off 1990 levels by the target year 2010, substantially higher than the Kyoto targets for Japan. The Tokyo action plan to promote the creation of an "eco-society" includes comprehensive actions on resource management, water recycling, energy, transportation demand management and environmental education for citizens (UN-TOKYO METROPOLITAN GOVERNMENT, 1998).

Power supply is the single most important contributor to GHG emissions and it is expected to be so over the near future (EC, 2001a). Electricity consumption per capita in the EU increased by an average of 2 percent per annum between 1995 and 1998, in line with GDP, while total energy consumption increased at an average annual rate of 1.1 percent (EEA, 2001b). In 2000, electricity in the EU was generated from nuclear (35 percent), solid fuels (27 percent), oil (8 percent), natural gas (16 percent), hydro and other renewables (15 percent). Electricity production is predominantly centralized. An important change in energy supply could be the transition towards networks of smaller decentralized power plants nearer to the consumers. Micro-power is expected to develop gradually alongside the grids and increasingly use renewables or natural gas, reducing greenhouse gas emissions (DUNN, 2000).

Heating, and increasingly cooling, of buildings accounts for about one third of total consumption. Unlike electricity, heat production is predominantly decentralized, whether it takes the form of individual heating systems, or of dedicated heat stations with their associated networks. Combined heat and power (CHP) enhances "waste" energy from electricity production, while allowing for the environmental impacts from additional heat generation to be avoided. The generated heat can by used locally for district heating and industrial use. CHP and decentralized district heating are not a novelty for European cities. Saarbrücken installed its first district heating system in 1964. It now uses co-generation plants for almost all its electricity production. CHP systems accounted for 11 percent of electricity generation in the EU in 1998, 7 percent short of the indicative target of 18 percent by 2010 (EEA, 2001b, OECD, 2001b).

Promoting renewables and energy efficiency in buildings and urban spaces

The fast-growing use of renewable energies in cities is a positive signal and authorities are investigating ways to reduce their still prohibitive cost and open the path to their wider exploitation. The share of renewable energy in total consumption in the EU is 6 percent, despite a consistent annual growth of 30 percent, particularly for hydropower and biomass, and spectacular growth of more than 2,000 percent in the wind energy sector over the last ten years. The target is to double the share of renewables from 6 percent to 12 percent in 2010, with 22.1 percent of electricity produced from renewable sources in 2010 (EC, 1997c).

The EU now possesses over two thirds of the global wind-generated power capacity (12.8 GW of cumulative installed capacity in 2000, compared to 17.6 GW for the World). The annual wind energy installed capacity is 3,507 MW (3,763 for the World). Wind energy technologies develop very quickly. The average weight of wind turbines has halved in five years, the annual energy output per turbine has increased fourfold, and costs have decreased by a factor of ten in ten years. The average wind turbine size installed is now 900 kW, compared to 440 kW five years ago. Wind turbines of 3 MW and above are being developed. The price of wind-generated electricity continues to drop steadily. For several countries, where the market stimuli make wind power attractive, the main barrier is the difficulty of obtaining land use planning consent. Efficient urban frameworks are essential (IEA, 2001a).

Clean and environmentally friendly solar energy can be harnessed by using photovoltaics (PV), which generate electricity directly, and solar thermal collectors which convert sunlight into heat. Photovoltaics made of silicon, the most common element of the earth's crust and the basis of the global electronics industry, can convert radiation directly to electricity, through the intrinsic photo-effect, realized in layers of semiconductors. Cities become increasingly equipped with solar panels powering houses, streetlights, traffic lights, parking meters, billboards and advertising panels.

Freiburg is a pioneer city in the use of renewable energies. Bio-climatic architecture, enhancing physical parameters to the maximum, enabled the city to optimize its energy performance. Political and public support created favorable conditions for the city to be the center of two international renewable energy research institutes, the Oko-Institute and the Fraunhofer Institute. Solar water heating and photovoltaic systems were introduced long ago. The city has the oldest active solar demonstration house in Germany, built in 1978. The Freiburg utilities adopted a new tariff structure encouraging demand-side management and offering more favorable buy-back rates for photovoltaic energy. The latest developments include the first self-efficient energy house in Germany that uses only the sun as a source of energy and combines the most advanced solar and energy storage technologies. The virtuous circle of technical demonstration, awareness-raising and participation has been established, thanks to the commitment of the city and its citizens (MEGA, 1998).

The Kronsberg development in Hanover uses some of the latest energy technologies, while the city of Malmö invests in energy innovation. Barcelona provides a prime example in energy management. Energy efficiency in buildings has been the focus of integrated efforts. The Municipal Action Plan included the replacement of incandescent lighting by low-energy lighting, improvement of air-conditioning devices, installation of solar heat collectors in educational, office buildings and sport complexes and of photovoltaic panels in university and office buildings. A range of improvements was introduced to save energy in city buildings. These activities have brought savings of 1,700,000 kWh per year, translating into 243,500 Euros per year.

In terms of energy options, Barcelona has given priority to the promotion of thermal solar energy. The BARNAMIL project, conceived by the Barcelona City Council, has involved many local organizations and groups, together with the local energy agency BARNAGEL and the Catalan business association APERCA. The adoption of the Thermal Solar Municipal Ordinance, which encourages the installation of solar heat collectors in buildings, marked an important step forward. The ordinance defined the rules and conditions for the installation of solar collectors and addresses all new and renovated public and private buildings.

The city of Mataro, to the north of Barcelona, took advantage of the construction of a new library to experiment with photovoltaics and to create a prototype building to demonstrate that the use of solar energy is not only feasible but also profitable. A computerized monitoring system enables the photovoltaic installation to operate at 62 percent efficiency. The project has been well received by citizens and the city supports it through the dissemination of leaflets and brochures explaining the advantages of solar energy (*Energie-Cités*, 2001).

The "Aachen Model" for supporting renewable energy has gradually been implemented since 1994. Two feasibility studies had shown that overall wind energy potential was sufficient to cover 10-12 percent of the urban needs, while efficient solar panels on all the south-facing roofs could supply 55 percent of it. Owners of wind or photovoltaic equipment receive a guaranteed payment per kWh for 15-20 years. The overall cost is included in the cost calculations of the municipal power utility and it is passed on to all consumers. This resulted in only one increase in tariffs amounting to 0.005/kWh. The trans-border Aachen-Heerlen industrial park Avantis is an innovative CO_2-neutral experiment. Bioclimatic architecture principles were already taken into account at the design and construction phase of the buildings. A local piped-heating system is being set up to heat the buildings and a biogas plant is to be incorporated into the heat supply system. A photovoltaic facility is expected to be installed on the roof of the biogas plant and a wind farm, composed of nine large wind turbines of a capacity of 1.5MW each, is planned next to the industrial park (*Energie-Cités*, 2001).

Bio-energy sources, including organic, agricultural and forest residues, have the advantage of being versatile and used to generate electricity, heat, or transport fuel. In addition, the use of biomass as a fuel source could reduce the problem of waste storage and disposal. Urban waste is increasing in line with GDP and absorbs a large fraction of the municipal budgets. Bio-energy can transform a liability into an asset.

Buildings constitute the largest overall energy end-user, mainly for heating, lighting, appliances and equipment. They account for 45 percent of the total energy consumption in the EU. Increasing floor space per capita and higher levels of heating and cooling comfort for homes and offices constitute the main reasons for growing consumption. The urban built environment has a large potential for cost-effective energy savings. Energy efficiency measures include the retrofitting of older housing with double-glazing, insulated cladding or low-energy light bulbs and the introduction of an "energy pass" to optimize the energy conditions.

Measures to improve the energy performance of buildings are integrated in a common framework by a directive proposed recently by the European Commission. Buildings in Europe have a lifetime of 50 to more than 100 years. Given this low turnover, the largest potential for improving energy performance in the short term is in existing buildings. The directive suggests that harmonized measures throughout the EU are necessary for the development of integrated energy performance standards, which should be applied to new and existing buildings when renovated. Energy performance standards should lead to certification schemes presented to the public. Especially for public buildings, standards would recommend the optimal climatic conditions to be set for energy efficiency. Last but not least, the importance of the inspection of boilers and other heating and cooling systems is essential for energy efficiency. A global energy saving of 22 percent could be achieved by 2010 with these measures.

The certification schemes founded on the above methodology would be applied to buildings and dwellings when they are built, sold or rented. The specific inclusion with the rental of buildings could counteract any negative aspects of the different interests of the building owner and tenant. As owners are not responsible for the energy bills, they are often less motivated to improve the energy efficiency of the buildings, and are unlikely to invest in energy-saving features such as insulation. However, if tenants are authorized and exhorted to view the energy efficiency standards when choosing a property to rent, there are incentives for owners to invest in improvements.

Public buildings and privately owned buildings that are used by the public can act as pioneers and contribute to awareness-raising. Symbols are important, such as the buildings hosting the Danish and Dutch ministries of Environment. Effects can be enhanced by display of energy performance certificates and recommended optimal climatic conditions, e.g. the most favorable indoor temperatures in relation to the external conditions.

Towards a less unsustainable mobility

Urban transport is a major voracious energy field of attention and action (EC, 2001d). Mobility has long been regarded as a cardinal social value, a supreme symbol of freedom. However, fragmented decisions, in the presence of multiple externalities, created serious traffic problems that concentrate in place and time. Mobility patterns depend on both infrastructure supply and, increasingly complex and unsystematic, transport demand. Many metropolitan areas suffer from a vicious circle of road construction and further suburbanization. Commuting times show an extraordinary stability through time and experts suggest that there is an anthropologic constant in the form of a fixed time budget (EC, 1992a).

Energy consumption in the transport sector, depending almost entirely upon oil (98 percent of transport consumption, representing 67 percent of final oil demand), has increased steeply. The sector is the fastest-growing energy consumer in the European Union. Energy use increased by 47 percent since 1985 compared with 4 percent for the rest of the sectors. This is mainly due to the continuing growth of road transport, passenger and freight, while air transport is also increasing rapidly, due to the rise of leisure trips. The shares of rail and inland waterways transport are declining and modal split is deteriorating. Current price structures continue to favor private over public transport (EEA, 2001b).

Increased transport demand has largely outstripped gains from fuel efficiency and technological improvement. Even if fuel efficiency improvements in cars account for the deepest cuts in carbon emissions, growth in demand for transport seems to be a long-term obstacle to emission reduction. The automobile industry, under its voluntary agreement with the European Commission, has multiplied its efforts to reduce CO_2 emissions from passenger cars. Even if a reduction of 6 percent in emissions from new cars were achieved between 1995 and 1999, all three manufacturing associations (Europe, Japan and Korea) have to intensify their efforts in order to meet their longer term objectives.

Urban transport conditions vary widely among cities, both in terms of the demand and the degree of the response. The extraordinary rapid growth in the number of private cars, income-elastic goods, is the main factor of congestion in most cities. A "Car-Free City" could be composed of self-sufficient microcosms, fully accessible on foot from one end to the other, separated by green spaces and united by high-speed public transport. The car-free city seems to be not only ecologically efficient, but also even economically efficient, as it appears to be two to five times less costly, depending on population density (EC, 1992a). Decreasing dependence on private cars requires high quality public transport. Cities, aspiring to excellence, invest in highly performing underground systems, upgraded surface systems, silent tramways, intermodal transport linkages, car pooling and car-sharing schemes.

The human leg is the only truly sustainable transport means. A pedestrian-friendly city is more human. Copenhagen has been a pioneer city in recognizing the social value of pedestrian streets. Strøget, the first pedestrian scheme in the heart of a European capital, has successfully reached almost 40 years of age. The creation of new pedestrian paths was in tune with the downtown parking policy targeting the elimination

of 2-3 percent of parking spaces per year. With the improvement of the public system and enlargement of the bicycle network, more and more space has been taken away from traffic and given to people, who duly started returning to the center (RAUTSI, 1993). Amsterdam is the European city with the most elaborate bicycle network, complementing the road and canal routes. In Naples, places like Piazza de Plebiscito have rediscovered their former splendor after the removal of private cars. Although Venice remains the archetype of car-free cities, Basle and Zurich rate first in the world in terms of the number of trips per passenger by public transport per year. Bologna was the first European city to organize a referendum (1985) on the restriction of private cars in the city center.

Rapid, reliable, affordable, comfortable, flexible, easily accessible, noiseless and well-designed public transport is a precondition for persuading citizens to use fewer private cars (EF, 1995c). Examples at the leading edge include experiences from Swiss and German cities. Zurich is considered to have one of the best urban transport systems in Europe and the world. Electric and hybrid buses and filobuses are appearing on the urban landscape. Tramways are returning in European cities. Nantes, Grenoble and Strasbourg introduced from 1985 onwards three technological generations of tramway. In Germany, the concept of "short distances" is gaining ground. Heidelberg, Freiburg and Basle have been pioneers in introducing low-noise vehicles in noise protection districts and eco-tickets for public transport. Intelligent and effective inter-modal linkages are progressing. In La Rochelle, the multi-optional concept Autoplus has been introduced through a partnership between municipalities, the semi-public owners company for public transport, taxi owners, two private bus companies, one ship owner, one hotel and one bank (CFCC, 1994; MUNICIPALITY OF AMSTERDAM, 1994).

An OECD/ECMT research, building upon 18 national policy reviews, concluded that car dependency in cities could only be reduced by integrated approaches, combining measures reinforcing each other. Reducing energy consumption and traffic congestion and advancing towards better environments require a mix of pricing constraints and effective land-use planning. Integrated policies should aim at reducing the demand for travel, increasing accessibility, internalizing the cost of travel to reflect the burden on space and the impact on the environment and promoting attitudes and lifestyles consistent with environmental sustainability (OECD-ECMT, 1994). The introduction of road tolls is linked to the pricing of the use of infrastructures, according to the marginal cost for supplying the service. It is intended to bring equilibrium between transport supply and demand. From Seoul to Oslo experiences highlight the benefits in dealing with traffic congestion and raising funds for new transport infrastructure.

Promoting sustainable urban mobility requires a balanced portfolio of integrated measures. They include the promotion of lower-consumption vehicles and new propulsion technologies, improved collective and non-motorized modes, demand-management schemes, such as parking controls and access restrictions, information systems for better traffic management, integrated intermodal freight and passenger systems, fair and efficient pricing regimes and land-use and urban planning to minimize the need for transport. European initiatives include ELTIS (the European Local Transport Information Service) jointly funded by the EC and the International Union of Public Transport (UITP), the citizens' network benchmarking initiative and the European platform on mobility management. The EC-supported CIVITAS initiative launched in 2000 aims at introducing a radical strategy for Clean Urban Transport. Fourteen EU cities and 5 in the candidate countries have been selected to integrate their efforts in developing attractive alternatives in the use of private cars.

Biogas fuels give new opportunities to cities that strive to lower vehicle emissions. The inhabitants of Stockholm make four million daily trips, while $10x10^6$ tonnes of freight cross the city every year. Even if the modal split reveals that 55 percent of trips are made by public transport, 70 percent to 80 percent of air pollution is the result of motorized traffic. The municipality developed – in collaboration with other European cities – the project ZEUS (zero and low emission vehicles in urban society), partially funded by the EC Thermie programme. One of the ZEUS sub-projects is the introduction of vehicles fuelled by biogas, originated from recycled liquid organic waste. A pilot station for biogas production has been constructed and hybrid vehicles, fuelled by petrol and/or biogas, were gradually introduced. A fleet of 200 vehicles (lorries and private cars) has been the result of the cooperation among the municipal enterprise for waste water management, fuel companies and city infrastructure services. The transport of biogas to the filling station is ensured by a biogas-fuelled lorry (*Energie-Cités,* 2001).

Demonstrating Innovative Urban Transport measures to improve the environment and reduce energy consumption has been the objective of the JUPITER initiative and other targeted transport projects supported by the EC since 1993. Investments in advanced vehicle technology and clean fuels and the introduction of measures favoring environment-friendly forms of transport were the main elements of this initiative, the fruit of collaboration between the European Commission and a network of European cities. The JUPITER II project achieved a reduction in energy consumption of 20 percent and emissions of harmful air pollutants of between 16 percent and 25 percent. Modal shift has been particularly significant in most cities with a 12 percent increase in public transport and this could double through a more extensive implementation. A substantial reduction of over 4 percent in CO_2 and 20 percent in particulate emissions demonstrated the potential of the commercial mainstream of innovative energy-saving and the environment.

The car, oil and electricity industries around the world are all working to develop new low emission propulsion and generation technologies. Fuel cells, electrochemical devices that produce energy from hydrogen (or other fuels first transformed into hydrogen) and oxygen, much more environmentally friendly and efficiently than conventional combustion engines, are expected to mark the beginning of a new transport era. The modularity and cleanliness of fuel cells make them very attractive, even if they present a high cost of energy generation compared to conventional modes. The main breakthrough of the last years has been the radical reduction of the size of the fuel cells to run a car. It seems that costs in transport applications can be reduced by a factor of 50 and this brings a challenge for accelerated research and demonstration.

Particularly in buses, tests are being run in Munich and Erlangen in Germany, and this is expected to increase by a further ten European cities by 2002 (HART, 2001). Car manufacturers Ford, General Motors, DaimlerChrysler, Honda, Toyota expect to have a significant number of fuel-cell cars on the market by 2004. Developments such as the Californian zero-emission laws, which require 2 percent of vehicles sold to be electric battery of hydrogen fuel cell powered, may hasten the movement. The HyperCar or the hyper-green power car of the near future can bring a true revolution if linked to smart electronics and energy Internet (OECD, 2001b).

New districts as energy laboratories of the future

City planning can greatly influence energy and environmental performance. The New Charter of Athens, issued by the European Council of Town Planners, indicates a clear shift in

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prevailing planning principles (ECTP, 1998). The 1933 Charter of Athens had introduced functionalistic principles in planning, demanding the separation of spaces for work, living, leisure and communication. Emphasis is now being placed in achieving sustainable human settlements for all, based on true involvement. The preference for the compact versus the diffuse city is constantly gaining ground. Most cities opt for renewal rather for expansion, for consolidation of the urban fabric and improvement of the suburbs. Concepts such as the "urban villages" suggest that settlements should grow by multiplication and not over-expansion of their vital cells, in order to promote interactions and yield diversity and dynamism. Functional coexistence and mixed land uses already govern many urban regeneration plans.

Sustainable regeneration and urban renaissance schemes are reinforcing the economic diversification, social heterogeneity and cultural diversity throughout a city. This may lead to huge energy savings, since urban sprawl represents disproportionately high levels of energy consumption, compared to the core parts of a city. Compact settlements imply a clear definition of the urban/rural boundary to discourage sprawling processes, regeneration of open and derelict spaces, functional diversification of land uses at the neighborhood level and the environmental improvement of the external sub-centers, well served by public transport and services. The Danish model of "decentralized concentration" highlights the importance of all these components, while the Dutch compact city policy is based on the principle of spatial multi-functionality, reflecting a need for "a little of a city throughout the city" (MEGA, 1997 and 1998). *Building Entopia* has become a sustainable planning aim (DOXIADIS, 1975).

Sustainable regeneration tries to inject new life into petrified spaces and transform idle city assets into sustainable resources and revenue generators . In Barcelona, the rehabilitation of the Ciutat Vella, comprising four quarters in the historic center, has been an unprecedented and unique event, in terms of dimension, time and civic commitment. Following the opening of the city towards the sea and the creation of the Villa Olimpica, the urban fabric is being progressively remodelled, with the injection of key improvements, through selective renovation, rehabilitation, construction, pedestrian paths and green spaces. Citizen centers have been created and have provided cultural references (EFILWC, 1997).

Unique events hold special chances. The Lisbon 1998 World Exhibition with the theme "The Oceans, an heritage for the future," offers a model. The city grasped this irreplaceable opportunity for redeveloping a significant stretch of the waterfront chosen as the location for the EXPO. A derelict urban area, which had played a role in the past life of the city but went into decline as its activities became obsolete and marginal, has been transformed into a site for innovation. The project was not confined to the exhibition precinct of 50 ha but aimed at creating a whole new resourceful city of 330 ha, to be completed by 2010. Prevailing winds and climatic conditions were exploited to the maximum. Advanced energy management concepts have been implemented from the initial stage. An eco-efficient distribution system for thermal energy, heat and cold, was set up, together with a system for observing and monitoring the results. The "terms of reference" increased the requirements for efficiency beyond the Portuguese thermal regulations (EC, 1998).

Industrial, technological and business parks have been created throughout Europe and many of them provided models, both of design and of public-private partnerships for turning deprived areas into healthy spaces of environmental and economic profit. Stockley Park, a former derelict area, within the green belt to the west of London, offers an inspiring example. A partnership between the developer, the local authority and the university created an international business park and public leisure land including recreational facilities. In exchange for the right to construct the business park over 36 ha, the developer guaranteed the reclamation of the whole site (140 ha), removal of groundwater pollution, environmental enhancement and landscaping. Local residents were involved in the process through extensive community consultation.

In Germany, the IBA Emscher Park has been an important pole for urban development and ecological renewal within the northern Ruhr district. It constitutes a unique "Best Practice" on a regional level for the ecological and economic renewal of a former industrial region, with the modernization of coal mining settlements, the creation of new housing, the development of fallow land and the promotion of attractive locations for industry and services. The preservation and re-use of industrial sites, the landscaping of the Emscher area into a park, the ecological restructuring of the river and the protection of the water environment are creating a healthy and productive space (IBA, 1999).

The conversion of waterfront areas, seaside and riversides for activities of the future is a major feature of several European cities, whose city-center ports have disappeared, leaving behind the husk of an infrastructure in search of a new face and function. The Salford Quays development on the Manchester Ship Canal came about through the will to turn a derelict space into an ultimate leisure area, respecting the environment and promoting culture. Disused dock buildings are being turned into exhibition halls, shops, craft workshops and cultural centers. The conversion of the former harbor area in Gothenburg transformed an abandoned area into a multifunctional city through a multiple partnership between the city, the architects, the former shipbuilding companies and the public. In Turku, the new cultural complex has been the result of the award-winning "Despina" project, which remodelled the waterfront after the closing-down of the shipyards.

Sound housing environments, the living cells, constitute the second most important factor of social integration, next only to fulfilling employment. Social and subsidized housing has often been remote, uniform, collective, reactive, anonymous, devoid of management and created tensions. In many cities, housing is now beginning to be intelligent and environment-friendly, self-regulated, personal, individualized, proactive, with corporate neighborhood space and responsive local management. Vibrant local communities are replacing void neighborhoods, after a radical rethinking of space and its social significance. Housing may provide a field of innovation and excellence for energy. The "solar village," created in the north of Athens, for low-income households, offers an example of an urban structure that intends to maximize the overall energy efficiency. Many cities introduce residential low-energy developments and sometimes entire environment-friendly neighborhoods. In Bremen and Zurich, some new residential quarters can accept only residents who accept to live without a private car. In Denmark, co-housing communities, each comprising 20-50 households, consist of individual houses, designed by their owners, and communal houses, workshops, playgrounds, organic gardens and wind turbines for the production of electricity (MEGA, 1998 and 1999b).

Enhancing socio-economic vitality and cultural energy of cities

Even in the most prosperous cities, there are spatial islands where economic deprivation, environmental degradation and social exclusion concentrate and reinforce each other. Rundown city centers and chaotic suburban zones are most often places of functional impoverishment, with insufficient equipment and facilities, lack of private investment, high unemploy-

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ment, poor housing, low mobility, delinquency and crime, little access to information, education and entrepreneurship. The fragmentations of the urban fabric and the cumulative spiral leading to poverty and distress become an obstacle to the creation and distribution of urban wealth. Unequal sharing has draining effects on the vitality of urban activities and it is a source of both unsustainable lifestyles and obstacles to cultural change. Inequality must not be seen as the ransom to pay for success, but as an obstacle to sustainable prosperity. Solidarity is the cement of society and social justice is a precondition for advancing towards a good society, offering opportunities for a fulfilling life to all (GALBRAITH, 1996).

Fulfilling employment is considered to be the very first factor of social integration in cities. Energy may offer new opportunities for sound employment in cities and bring double dividends for the environment and the labor market. In the Netherlands, long-term unemployed were trained as energy-saving advisers (OECD, 1994). In Denmark, a program aimed at reducing energy consumption in heating by 30 percent would create thousands of permanent jobs. In Berlin, in Kreutzberg, unemployed young people, former squatters, were given the opportunity to own a residential block, if trained to become high level technicians in sustainable regeneration.

Many environmental charters and actions create needs for new skills and generate employment, especially in the field of eco-counselling and energy and waste management. The preparation of agendas 21 in the UK created many new jobs in local authorities. Renewal works are highly labor-intensive and provide opportunities for a wide variety of professional skills. A study on urban regeneration programs in Portugal shows that, for the same budgetary expenditure, twice as many people were on average employed for rehabilitation works as for new buildings. Residential energy improvements have proved to generate employment. A EU study highlights that 900,000 new jobs could be created by the renewable energy industry by 2001.

The creation of new enterprises is a central element in enhancing urban capabilities and small and medium-sized energy businesses may be important for producing local wealth. Many renewable energy generators are small enterprises with uncomplicated industrial relations, capable of a high degree of specialization. Clusters of highly performing and networking SMEs, able to compete in "niches" and specialized markets, may have an important potential for revitalizing territories. As well as providing competitive products and services while offering a variety of employment opportunities, the presence of SMEs also fosters the development of a diversified economic fabric, resistant to fluctuations. SMEs can spark the creation both of new energy services and produce positive ripple effects, by stimulating the development of subcontractors and auxiliary services.

Last but not least, cities, "objects of nature and subjects of culture" (Levi-Strauss), are high places of cultural energy. They have unique aesthetics and identity. The notions "Euroaesthetics" and "Euroculture" do not exist. Creating quintessentially urbane cities demands science and art and can only produce prototypes. Urban design and planning involve responsibility for the well-being of cities and citizens. It needs strong leaders, thoughtful citizens and enlightened private developers to deal with land management, the built environment and the historic identity.

Public spaces are "radioactive places," islands of social life in the archipelago of the city. Koolhaas called them fortresses of freedom, reconciling nature with culture and fostering democracy. Public spaces should be given priority and shaped as civic places, freeing, and not blocking urban energy. The unification of the archaeological spaces in Athens and their functional and aesthetic links to green spaces is expected to enrich the cultural capital of the city. The Manual of Public Spaces in Brussels offers a fine example in setting up qualitative recommendations for the functional, environmental, cultural and aesthetic character of the spaces, roads and pavements, roadside plantations and public lighting, forging cultural identity.

Cities are made from men able to grasp opportunities

> But cities are not made from their roofs, stone walls, bridges and canals, but from men able to grasp opportunities ...
>
> (Alcaeus, 7th century BC)

Governance is the art and science of co-governing societies with the participation of societal actors. An invigorating debate between governments and the constituencies they represent is everywhere in the making. Policy options cannot be based on artificial system management, but on the evolving dynamics and preferences of society. New civic contracts are being sought with civil society to increase public transparency and accountability, reduce the risk of inconsistent and ineffective policies and enhance capacity for reflection, decision and co-action. In the era of globalization, sustainability and cohesion, interactive communication can facilitate considerably the accessibility and credibility of public authorities and chart the way forward on closer citizen participation and co-operation. Energy is one of the domains where citizen participation is crucial.

Citizenship means participation. Citizens are the political stakeholders. They should be transformed from mere consumers into true actors (METROPOLIS, 1996). Residents, users of public infrastructure and energy services, may contribute decisively in creating a collective momentum of development (EF, 1998c; HEALEY, 1997). Partnerships may make the community more knowledgeable, help people to shape and control their localities and promote citizenship. Demonstration projects and media publicity should target the participation of the under-represented social groups and open the decision-making process. Projects ranging from the improvement of exceptional vernacular architecture to the tracing of new metro lines have been crowned with success thanks to the active participation of residents (EFILWC, 1997 and 1998c).

The move from governrnent to governance is fundamental for social actors wishing to envision and build, individually and collectively, a better energy future, offering more opportunities for security, sustainability and equity. Developments in market liberalization, co-generation, new and renewable energy sources and decentralized distribution require the sharing of responsibilities, together with an adequate transfer of powers and resources.

The channels of representation and participation have to get enriched with new communication instruments and methods. Scenario workshops, bringing together different local groups, traditionally opposed, on "neutral grounds" and on "equal terms" can be precious for achieving consensus on future actions (IIUE, 1995). Action Planning weekends involve the organization of carefully structured collaborative events that bring together all local stakeholders on issues of great sensitivity. They can disagree intelligently among themselves and in a constructive civilized manner, but they may also find some points of anchorage. Other projects offer new opportunities to volunteers, not simply for exercising charity, but for investing in the common future. The charrette method inspires and teaches. It constitutes a highly transferable community-based design process that allows professional designers and community participants to present alternatives and influence projects (OECD, 1996).

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The democratization of scientific expertise is judged essential in progressing towards good governance. Objective and incontestable expertise is increasingly required for a wide range of policy issues and different levels of governance in the European Union. It has to be robust and credible across a variety of scientific and policy cultures (EC, 2001e). Stimulating genuine citizen involvement and promoting informed and fruitful public debate need, however, much more action. An EC study on "democratizing expertise" suggests that the key issues are access to sound information and knowledge and transparency, accountability, effectiveness, early warning and foresight, independence and integrity, plurality and, last but not least, scientific excellence (EC, 2001c).

Knowledge has not only to be "scientifically robust," but also "socially acceptable." It has to be trans-disciplinary, multi-sectoral and pluri-cultural and get cross-fertilized through the active input of scientists, social experts and civil society. Greater integration in the governance of processes involving risks is fundamental in order to have wider and deeper interaction of expertise during the full cycle, including risk identification, assessment, evaluation, management and communication. This will enhance early warning, encompass plurality and promote an effective interface between risk assessment and management. Trust, transparency and accountability are key words. The "mutual trust," versus the "top-down and bottom-up" paradigms is gaining ground (EC, 2000e).

New governance models should pay particular attention to the citizens of the future. The "fifty-fifty" project in Hamburg involves all 423 schools of the city, committed to reducing energy and water consumption by 59 percent. In Finland, the "Children as Urban Planners" project in Kitee aims at educating active citizens in environmental awareness and responsibility for their built and natural environment. Eco-stations and science museums organize education programs targeting the younger populations. Hundreds of municipalities are creating "municipal councils of children" to promote civic awareness. New visions emerge, towards a human face for the cities of the future (WORLD BANK, 1995a).

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Venice: Myths of the past in cities of the present and in the age of the media

Calogero Muscarà

The author is Professor of Urban Geography and Dean of the Department of Town and Country Planning at the University of Rome, "La Sapienza"; Director of the GIS School of the same university; Scientific Editor of Sistema Terra; *Fellow of the Ateneo Veneto in Venice; and a member of the World Society for Ekistics (WSE). The text that follows is an edited and revised version of a paper distributed to participants at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001, which the author was finally unable to attend.*

Foreword

While I was preparing this essay, terrorism, which we knew as an incomprehensible and isolated act of madness, struck New York City and Washington, DC. To my generation, New York is the heart and the symbol of the American world. It expresses the spirit of the history of this young country, born out of the hopes of millions of men and women who migrated there from other parts of the Earth. It represents Prometheus' spirit: man's desire to build his own destiny with courage, tenacity, trust in his own abilities, sustained by eternal values, the very same symbol of the success of the city. This calamity does not change in anything such values or this symbology. New York continues to represent the civic strength of man as a builder. And the calamity does not bend it, but rather strengthens it. This essay is dedicated to a wounded America and to New York, which, as Jean Gottmann often said, is the Venice of our time.

Introduction

My scientific experience in studying the historical dimension of cities has brought me to a few conclusions on the weight of myths in the life of the modern city.

- Out of the myths of the past, the contemporary city draws a great impulse to change. But the weight of such myths on actual life could also be quite strong, to the point of creating an opposition to the same changes to which those myths have given place, if such changes seem at some point to contradict the myth itself.
- A second point refers to the weight that myths have acquired in the life of the contemporary city with the development of democracy and of the connected media to maintain the conditions that will ensure historical continuity or get the democratic consent of people for change. But the search for consent through the media always demands that the government of the city should not lose touch with reality, in relation to those myths in the life of cities with an important past which continue to exist in the contemporary city too.
- A third issue is that historical continuity between the past and the present of a city presupposes that its actual life is framed in an urban context with characteristics which are not very different from the former ones and of a much greater size than that of the past. In such cases the problem is that of the territorial context in which the city with a long life – now turned into an historical center – inserts itself, a context that does not allow for great differences. And this represents a strong handicap for historical cities, if – due to their cultural myths – they are not or they are not lived like a myth of the territory (the best part of it), but as a separate entity.

There are four meanings of the word "myth":

- A myth means a sacred story about the origin of gods and of religions as in ancient Greece;
- A myth can also mean an idea expressed allegorically;
- A myth is also an imaginary and schematic idealization of an event or personage playing a determinant role in the behavior of a human group; and, finally,
- A myth means a utopia or illusion.

In the context of the present paper – my contribution to our debates on "Defining success of the city in the 21st century" – I prefer to deal with the second meaning of the word "myth," without excluding the last.

I focus here on the city of Venice. I have devoted my attention to it for many years and I know it better than others, but also because there is no doubt that the theme of the preservation of ancient historical centers represents one of the big challenges for the new century.

As a matter of fact, not only have the defence of the natural environment and the defence of the quality of life gradually imposed themselves among the concerns of city administrations, but also the preservation of the architectural and urban heritage has acquired greater importance within a culture that is more and more oriented towards the defence of historical continuity. In a certain sense, Venice is paradigmatic of this attitude in contemporary culture, because it has inspired other cities in imposing the need for preservation. The lagoon by which Venice is surrounded represents a real "breakup of load" compared with other cases of contemporary urbanization, much more than in the case of wall-bounded cities. And it is paradigmatic by the presence in its historical center of a large number of monumental buildings – churches and *palazzi* – which are not easily replaced by modern constructions.

In this sense, with the exception of the compromises from which the city has suffered, especially on its outskirts, Venice has become a model of continuity between past and present. This model could be applied also to the case of other cities with a long historical tradition, if their administrators had the objec-

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tive to safeguard the historical part from the necessary transformations required by contemporary urbanization.

Furthermore, Venice presents another advantage: it is particularly well known to many scholars – as it is to those gathered for the Berlin symposion of the World Society for Ekistics – who will find the issues that I am addressing here of almost immediate comprehension. I thought that even if it were not possible for me to be present at the symposion, with all the advantages of a live presentation and debate, discussing Venice for the simple reason that Venice is a symbolic case that I know well, will be a way to attenuate my sense of guilt for not having been able to participate in a debate that certainly has been of great interest for its objectives, for its panelists, and finally for Ekistics that deserves more and more our applause for its longstanding attention to the great problems of world urbanization.

The myth contradicts itself

The first issue that emerges from the examination of Venice refers to the ancient myths. Myths of the past are often important in preparing the conditions for modernization. But at the same time they constitute a risk because modernization can hardly occur in the same places and ways to which the myths refer. Thus, those myths mobilized in favor of change-return can try to get back what they think was lost, giving way to a schizophrenic condition of the historic city for its inhabitants and its rulers.

The contemporary city and the myth of maritime destiny

Let us start with the first question that every historian of cities has to face. It can be formulated in this way: when does the past end in the case of Venice and when does the history of the contemporary city start? There is little doubt that, in an historical perspective, the first task is to single out the time when the city of the past became a contemporary city, and the real qualitative gap that this represents. With contemporary urban expansion, size was in fact modified in every way, beginning with unprecedented speed in growth. It is not pure chance that historians, geographers, sociologists and economists always use the term "revolution" suitably to appropriately mean a radical change compared to the former situation.

In the case of the city of the lagoon this fundamental turn can be traced to the end of the First World War, many years after the arrival of the railroad to connect the city with Lombardo-Veneto (1847) and over 50 to 60 years after the birth of the Kingdom of Italy and the annexation of Venice to the new political context (1866).

With the peace treaty of Campoformido (1797) – that marked the formal end of the Republic of Venice – what remained of the old State was politically surrendered to the Austro-Hungarian Empire. In becoming one of its provinces, the new empire built a railroad connection hinged on Verona. But if the arrival of the railroad did not really start the process of the modernization of the city, this political change – after the brief government of Napoleon – did not really affect the city from an urban studies' perspective either, because it did not change the conditions of the economy or the demography. The city continues to exploit resources that were accumulated in the past and are no longer renewed – a process that has been going on for centuries.

After the end of its role as a maritime port that had constituted the great engine of the urban, architectural and cultural development of Venice and the very same reason for its life in the first centuries, the interest of the Venetian oligarchies turned to the exploitation of the agricultural resources of the vast contiguous continental hinterland where Venice had extended its control through the military conquest of the so-called *terraferma*, that altogether stretched to Lombardy, up to Brescia and Bergamo, at the gates of Milan. Yet, the nature of these economic resources had not had the same effects of the maritime-port economy, that involved the great accumulation of capital giving vent to the expression of the architectural-cultural complex of Venice known to the whole world. Instead it gave way to the construction of main residences on the *terraferma,* the so-called "Ville Venete," often masterworks of great artists. Still they did not modify the condition of the city, which continued the construction of monumental buildings, above all churches and *palazzi.* But neither the Venetian Renaissance, nor its Baroque epoch will be as rich in buildings and monuments as its Byzantine age, with the so-called Gothic Venetian style. Whoever has studied the history of art and particularly of architecture has been able to ascertain the close relation between the accumulation of wealth in the developmental phases of the economy and its use in the masterworks of art and culture. Venice represents an evident demonstration of this connection.

To understand what happens in Venice in the long centuries that intervened between the end of the maritime-port economy – which for the historians coincides with the battle of Lepanto around the middle of the 15th century – and the beginning of the contemporary city, it is necessary not to forget the important change that happens when, from "engine-city" of its State, Venice becomes only its capital. It is a change of conditions. It induces the capitalists to change investments and to aim at other resources, but it will never succeed in erasing from the mind of its inhabitants the idea that the fortune of the city was founded on the sea and on its traffic. This will return as a recurrent idea in every century of the "stasis" epoch and it will always be in the mind of those who wished for the return to its past strength and fortune. A real myth. It is not by chance that this call to the splendid Mediterranean perspectives was imagined by Napoleon himself, into whose hands fell the last resistance of the ancient Republic. Master of the city and of many of its goods, he would dream of returning to the splendors of a renewed Mediterranean destiny with an eye turned towards the Red Sea and to what would later become Suez. Even when, with the end of the Republic, what used to be for many centuries one of the greatest States of the Mediterranean became a province of the Austro-Hungarian Empire, the greatest concern of its inhabitants continued to be the port and sea traffic. To the Venetians, the ships that arrived in St. Mark's basin – the pulsating heart of urban life – continued to represent the image of the glory and wealth of the past. This call did not weaken during the dominion of the Austro-Hungarian Empire, not only for the above-mentioned reasons, but also because Venice certainly felt the consequences on the economy of the city and because the new rulers aimed at the development of the port of Trieste.

The ancient myth in 19th-century Venice

All this explains why the principal efforts engaged in after the end of the Republic of Venice – and for the entire century that followed – are addressed to reactivating the maritime traffic and the economic vitality of the port. Particularly the objective is pursued through projects that aim at making the port of Venice more appealing, with the reduction of taxes, the adjustment of port structures to the new ship technologies, and finally the adjustment to the new inventions for terrestrial transportation. In this sense it is easy to understand why the construction of the Milan-Venice railroad is greeted with great favor, as it crosses the lagoon with a bridge allowing the trains to reach the west side of the city. It will be this important tech-

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Fig. 1: On an ancient map of Venice the water penetrates the city and small boats join the big vessels anchored in front of St. Mark's.

nological innovation to subsequently sustain the birth of a real modern port as a substitute for St. Mark's basin, where, in the 19th century ships still continued to be reached by smaller boats forwarding commodities on arrival and departure. Only a few real piers existed previously for lumber, salt, wine and coal. Storehouses for cereals were also available on the shore of St. Mark and on the eastern tip of the Giudecca.

A modern port with docks, piers, cranes and stores came into being only at the end of the 19th century. It was built with the intent of connecting it to the railroad that reached the city around the middle of the century. New works were accomplished in the lagoon – from the excavation of more suitable channels for the traffic of motor-ships to the maintenance of the water mirror of the lagoon – continuing in fact a tradition in which the Venetians had specialized in the preceding centuries, as the city kept living between the anvil of rivers that, with their load of sediments, threatened to bury it, and the hammer of a sea that from the outside pressed on the long and tight sandy islands *(lidi)* and on the mouths in which the necessary exchange of water between the outside and the inside of the lagoon occurred. Finally, reductions of costs (free port) were planned, to appeal to maritime traffic, as in the new times the port function maintained just in the least part its character of a commercial, international center.

There is little doubt that all this acted on the urban texture of the city in at least two ways:

- In the first place, with the construction of the above-mentioned infrastructures – from the docks to the piers – and with the reclaiming of new areas, constructions of *rive*, interment or excavation of channels inside the city.
- More remarkable is the second change. That is the overturn of the urban orientation which, from sea transport through the basin of St. Mark and the channel of access to the Adriatic, shifted in large part to the *terraferma*, where the revolution of transportation was establishing a new logic. And the barycenter of the city, that for many reasons continued to be solidly anchored to St. Mark and the Rialto, felt this greatly as new attention had to be brought to the terminal of the terrestrial transports, compared to previously.

This represents the condition of change of the economy. The real breakthrough – that will open Venice to the perspectives of a radical change – has not happened yet, as the economy is still limited to the growth of maritime traffic, recalled with various expedients, such as the free port, the construction of the new port and the arrival of the railroad. In fact it is not possible to say that the urban economy of the 19th century had drawn from the maritime-port activities anything comparable to the great prosperity of the past, due to the radically new conditions following the industrial revolution and the different political context in which the city had come to operate.

Certainly, from the financial point of view if the shipyard activities were certainly not comparable to those once developed in the Arsenal of Venice, other businesses were developing: a navigation company, an insurance company and a hotel company – that started to look to the tourist exploitation of the beach (Lido) and to exploit the fashion of sea bathing. These are just the first signs of change because, while the investment in insurance and in tourist hotels will have the ten-

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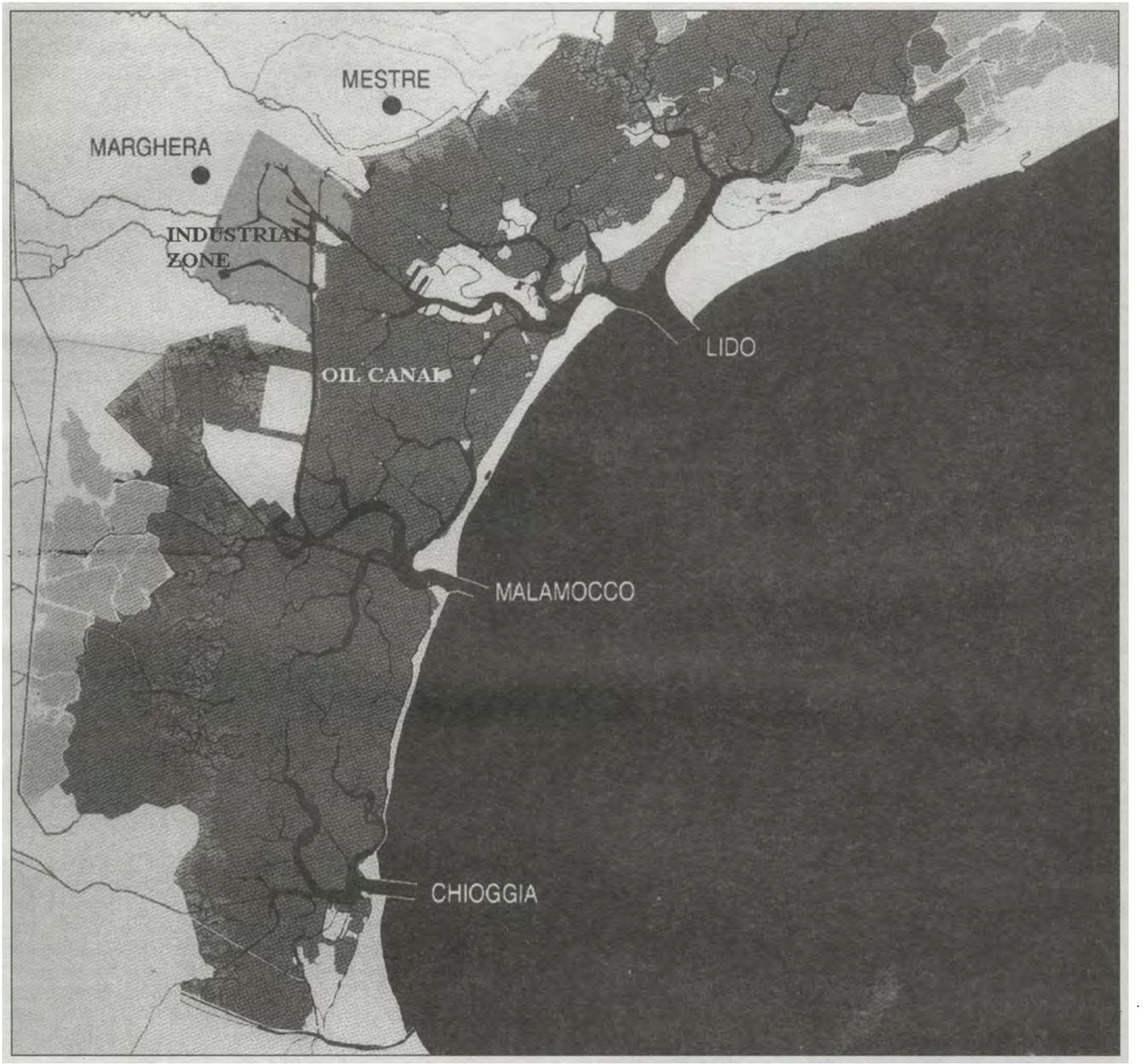

Fig. 2: Map of today's lagoon where it is possible to see the development in the *terraferma* in front of Venice of the industrial zone, the new seat of Mestre and the large "oil canal" permitting big ships to connect the industrial zone with the Adriatic Sea far away from the old city. But the oil canal is accused of altering the hydrographic rhythm of the lagoon (erosion) and exposing the nearby historical city of Venice to dangerous traffic.

dency to gather in the city, the maritime-port activity to which the Venetians continued to look as the true destiny of Venice was destined to move elsewhere and to change radically.

From this moment the city becomes schizophrenic. The myth sustains the creation of conditions that will allow the modernization of its economy. But, since this modernization will not address the historical city but will take place outside it, the same myth will have to fight, naturally in vain, in order to have modernization look to the historic Venice. Among the numerous projects that accompany these events and try to catch up with them, a few propose to lengthen the railroad in the lagoon, up to the basin of St. Mark and even beyond. But the logic that prevails is another and it looks to the *terraferma* for the objective difficulties that a city like Venice faces.

- On the one hand in fact this relates to a medieval city structure that the construction of buildings of monumental type and the presence of a capillary articulation of interior canals makes less easily modifiable than elsewhere.
- On the other side, before the resistance posed by cultural and artistic concerns imposes itself in terms of civic awareness and political responsibility, this minute texture of narrow streets and buildings, of churches and small waterways and short *rive* offers impracticable conditions to modern technologies of transportation.

Venice will necessarily be excluded by the contemporary maritime traffic, way before the issue of pedestrian-dedicated areas matures in so many big cities of the world today. And the presence of the lagoon barrier, necessary to the life of the

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inner canals and to the daily flow of water exchange, necessarily transforms the contemporary growth of the city in a split way. In the last century, on the contiguous *terraferma* a new city was born, and a new maritime-port, both destined to overcome economically and demographically the city of the lagoon.

The rising of a new Venice

The new picture is clear by now. Precisely because the Venetians plan to give new life to the city they inherited and their true interest is tied to the sea, they prepare the conditions for the actualization of the economic role of the city and the way of life of its inhabitants to look to the *terraferma* as the fit place to realize such aspirations. The future is prepared with a vision of the city life that originates in the past. The new technologies, the character of the new economy, and the new political context will impose a relocation in a new place different from the one originally envisioned. It is paradoxical that a Venetian-centered vision leads to an extra-Venetian solution. The efforts to keep the modern economy in the ancient part of Venice become frustrating, even harmful, as they sabotage the actual realization of change. The case of Venice is very explicit in this regard and in this sense it appears interesting because it allows a kind of first general law to be formulated. In past myths concerning a historical city, the actual city finds great strength to change. But the weight of such myths on actual life is so strong that they can oppose the change to which they have given place, even if this seems to contradict the same myth at some point. Every effort to maintain activities in the city of the lagoon is deemed in fact to be very expensive without even reaching the purpose. The weight of the myths that feed the preparation of change will not succeed in modifying the real conditions that will come. The new Venice of our times cannot effectively unwind in the urban and architectural texture of the past, even if it draws its ailment and comfort from it. If a new Venice had risen now, it would have risen on the *terraferma* and not on the lagoon, because the only way answering to modern port growth is connected to the availability of easy terrestrial access and of large areas close to the water, that the presence of a wide basin like the lagoon makes very appealing as long as access to modern ships is allowed. And the only urban economy allowed today is an economy characterized by great volatility and flexibility, one that is ready to pursue the sudden changes imposed by globalization. A myth that comes from the past favors the present only if it is possible to adapt it to the imperious conditions of the new economy.

To summarize: if the end of the independent State, the arrival of the railroad, the construction of the port represent the main stages of Venetian urban life in the 19th century, in the first part of the following century a radical change in the perspective of its maritime-port economy happens. At that time, a financial group at least in part investing in the surrounding region and taking advantage of the important gradients of the Alps for the production of hydroelectric energy, finds, on the lagoon edge overlooking Venice from the *terraferma*, the proper place for the development of maritime-industrial activity. An example recalled many times is that of Marseilles, but there is little doubt that between the end of the 19th century and the beginning of the 20th the growth of heavy industries for which the coastal location is convenient, since it allows important savings on transportation costs, starts to occur elsewhere and anywhere that environmental conditions allow. Naturally, this geo-economic reality is much more complex than what the simple savings on transportation costs seem to suggest. In the case of Venice this seems evident, since in the realization of a coastal industrial zone a complex interlacement of conditions

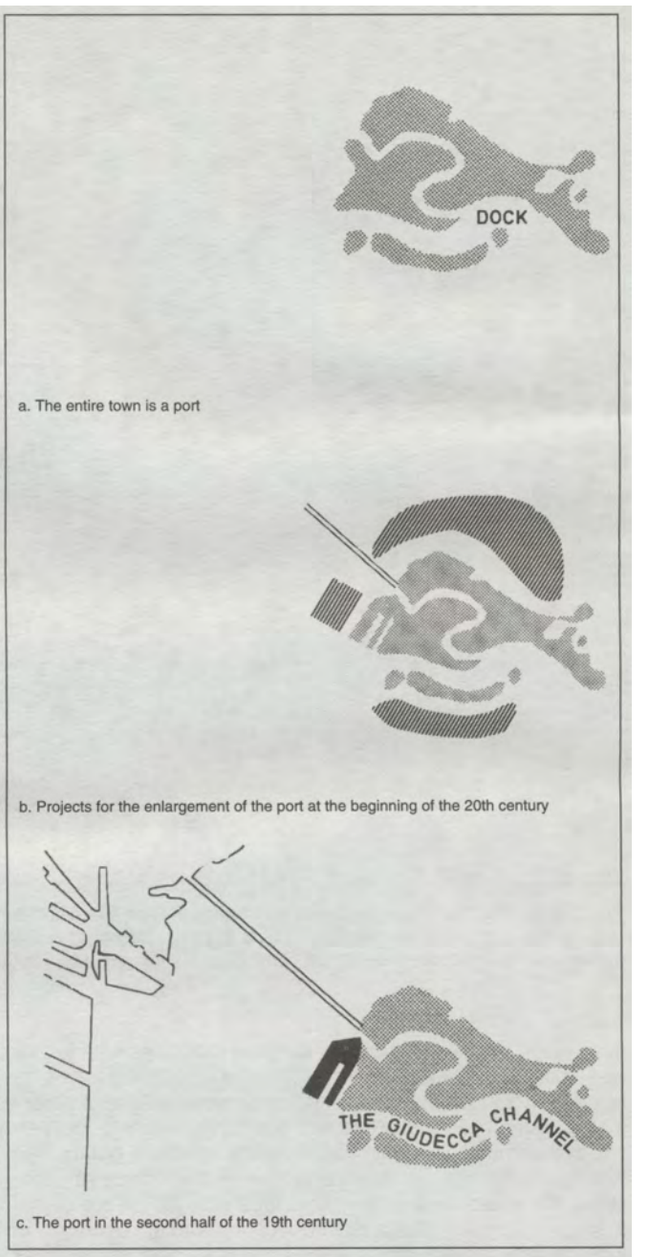

Fig. 3: Evolution of the port of Venice before the arrival of modern technologies (railway and fire vessels) (a); the actual localization of the harbor structures (b); and a few projects of the localization of the "maritime station" in the old city before the choice of the present one (c).

and circumstances intervenes, which it is not possible to mention here.

On an edge site and other areas of the lagoon contiguous to the *terraferma* facing the city, an important industrial area is realized – Porto Marghera, subsequently called the first industrial zone. It will become attainable through the deepening of a canal parallel to the railway bridge that had been realized for the birth of the Venetian port, to unload coal away from the city. On this edge area reclaimed from the lagoon a complex combination of heavy industries starts to develop. The new location appears greatly convenient, not only in terms of costs and conditions, but also because the ships directed to the new industrial port will be exempt from the traditional costs of the

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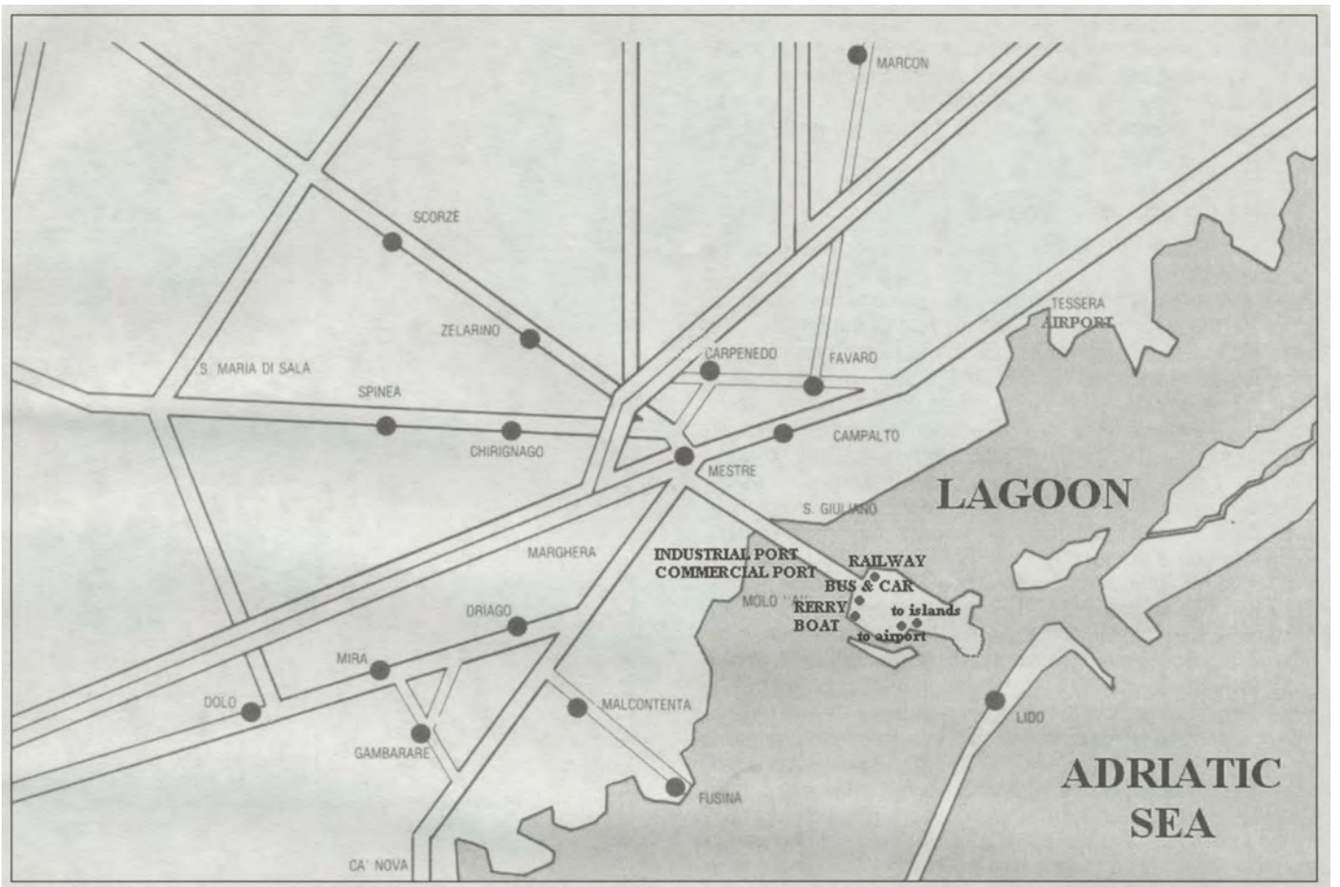

Fig. 4: Venice – Terminals of all means of transportation are distributed everywhere. The historical city accommodates the terminals of the railway, buses, cars, and boats to the islands of the lagoon; passenger vessels also arrive in Venice as well as a line of motorboats for connection with the airport. But the commercial port is located near the industrial port in the *terraferma* of Marghera and the airport is located near Mestre.

harbors. In the new area, metallurgical industries will quickly be installed. And aluminum industries, chemical industries for raw products and chemical fertilizers, shipyards and others that, in using products of the first ones, integrate productively and sometimes financially. Either for the variety of companies that take offices in the new zone and for the scarce relationships that this new economy develops with that of the city of the lagoon, and for the same connections with the economy of the new country of which Venice is by now part, the process developed in Marghera could have easily been not Venetian. But the financial group imposing itself, whose great exponents are Volpi, Cini and Gaggia, not only takes root in Venice, where the headquarters of the port-industrial development initiative are located, but appears tightly tied to the life of the Venetian city for the initiatives that are also developed in the cultural-tourist area. It is the same financial group in fact that will strengthen the above-mentioned hotel activity and that will give life to the international Biennale art exhibition, which will become one of the important events of contemporary Venice.

In this sense, at the risk of oversimplifying, I am inclined to consider that the true turn in the life of the city, if prepared by the changes that intervened in the preceding century, still coincides with the initiatives of the financial group of Volpi, Cini and Gaggia. Marghera on the *terraferma*, contiguous to the city of the lagoon, a major industrial complex that will employ directly up to 30,000 workers, is developed, as is the strong expansion of tourist-hotel activities, integrated in a cultural offer that pre-announces the actual future. It is not by chance that one of the greatest foundations in the city, dedicated also to the study of Venice-related issues, is the Cini Foundation, on the island of S. Giorgio. With this bipolar solution, the above-mentioned schizophrenia is overcome and the city seems to have given life to its actualization, by looking beyond itself, but with eyes turned to the past.

The increase of risks: Democracy and the media

The second main issue that we can draw from the examination of the Venetian case refers to the central role of the search for consensus in the age of democracy and the central role of the media in this process. In the contemporary city, in order to get people's consent and support to realize any strategy, the myth can be used finally to pursue wrong objectives. The risks are not small, as the necessity of allowing comparison between different opinions should be taken into account.

New Venice, new Marghera and the opposition to the maritime-industrial strategy

In the history of Venice's modernization, there is a second important date: November 4th, 1966, when, many years after the development of Marghera and of the cultural-touristic role of Venice, a process representing a new main turn in the

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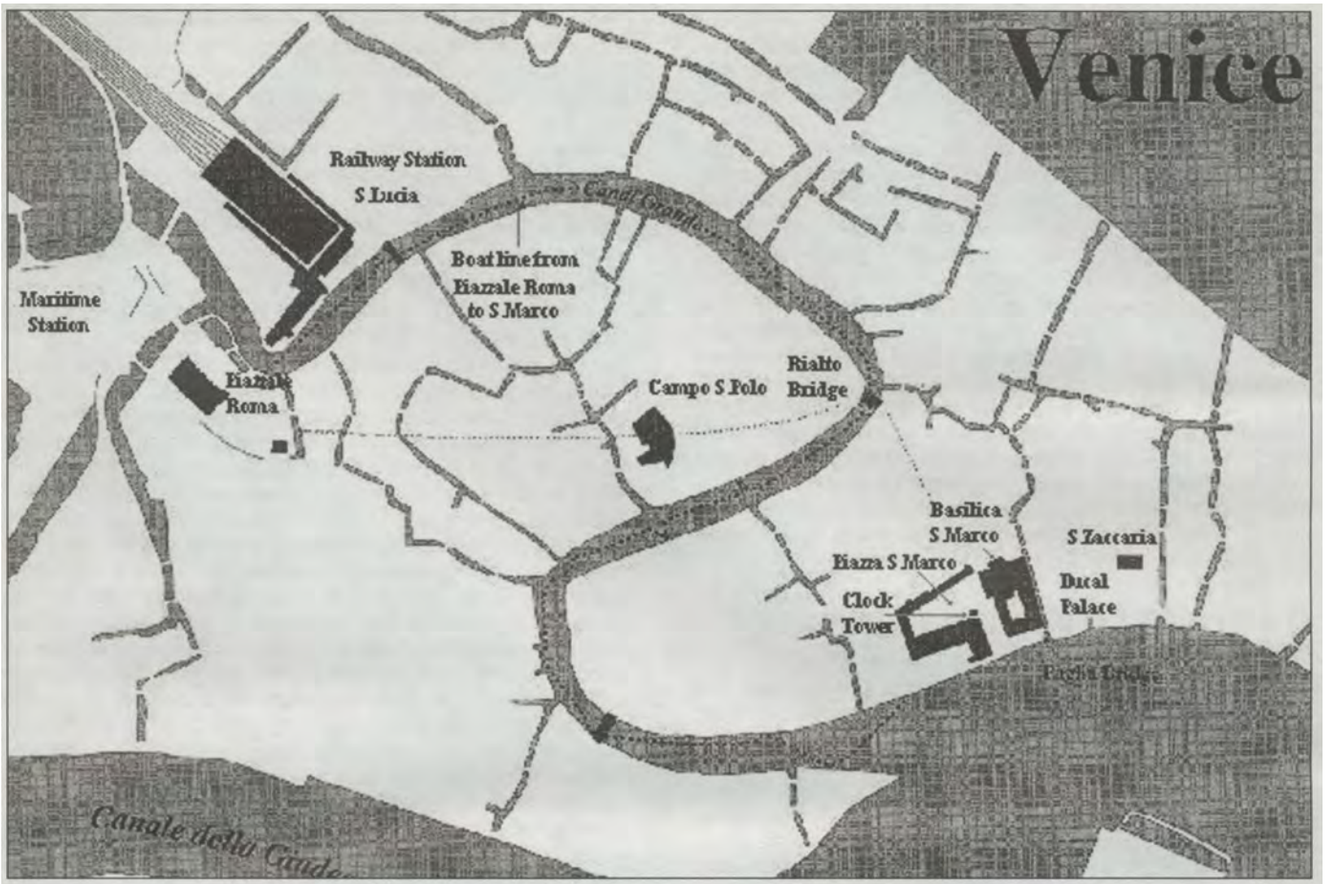

Fig. 5: Venice and tourism – The hundred thousand tourists who visit Venice daily concentrate on navigation along the Grand Canal in a *vaporetto,* and a visit to the square and church of St. Mark. In a few cases mass tourism visits the Lido, the Giardini (the seat of the Biennale) and Murano, the island of artistic glasswork.

economy and life of the contemporary city is established. In the night between November 3rd and 4th 1966 Venice is submerged by an exceptional water tide or *acqua alta* that reaches unprecedented heights. This event is so powerful to the point of preventing even the daily exchange of waters in and out of the lagoon. Seawater comes over the Lido that hems the lagoon at S. Pietro in Volta-Pellestrina and floods inside from this part. Then it remains inside, held back by a wind blowing from the direction of the sirocco, preventing it from returning out to sea. This serious event is connected to particular meteorological conditions that also affect other parts of the country, exceptionally provoking the Arno river to flood Florence. Florence shares with Venice a remarkable artistic heritage. And in Florence, this event will also attract the world's attention because of its extent, and the damage it produces, since the city is certainly not accustomed to water. By contrast, in Venice, despite the exceptionality of the event, *acqua alta* is a well-known phenomenon and the event certainly does not have the immediate resonance of the Florentine flooding. Besides, the area from where the Adriatic waters enter the lagoon had already been indicated as at risk to such an event from previous studies. In short, the Venetian exceptionality limits the external perception of the damage, and makes the *acqua alta* seem part of a well-known process.

But if Florence's flood outclasses Venice's in terms of its impact on public opinion, the less resounding Venetian event will induce Unesco to intervene. To document the damage produced by the November 1966 flood, an accurate study is launched. It would exarnine analytically many aspects of the Venetian situation, giving way to the suspicion that the city of the lagoon is already condemned. We shall return further to the awareness brought by this and to the events that followed. Here, suffice it to say that from now on starts a process of radical opposition to the solution given to the city by Volpi, Cini and Gaggia, with its two-legged logic of maritime-industrial development and the tourist-cultural industry. And this sets the problem of containing and conditioning the economic process activated in 1917 with the birth of Marghera.

Meanwhile, many processes had intervened in the dynamics of the maritime-industrial zone, because the war in Africa (1935-36) with the sanctions imposed on Italy by the League of Nations did not only have a major influence on the development of the raw products industry, installed since its very beginning. In the years immediately following the end of World War II, when Italy engages in economic development and starts an important activity of coastal transformation of the oil coming from the Persian Gulf and the Near East with the industry of the distillation and development of petrochemistry, Venice is directly involved in this process. A second adjoining industrial zone is planned, devoted primarily to the petrochemical industry. This plan also receives a remarkable push ahead from the nationalization of electric energy that in these years pours important capital into the main Italian industrial groups. Besides, a deep channel is realized in the lagoon, allowing the arrival of the big oil-tankers with much greater tonnages. This is undertaken away from the historical center, as the traditional access from the mouth of S. Nicolò del Lido shifts south to the mouth of Malamocco. A third industrial zone is envisioned.

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Once concluded, the channel for internal navigation should allow ships to continue up to Padua, and a big industrial future is forecast for the southern lagoon, where many areas are available to be reclaimed, and where a few interventions have already shown its importance.

Stopping this important process, that also had relevant political support in the city, was certainly not easy, as large enterprises like Montedison (born from the fusion between the chemical industry Montecatini and the electric industry Edison) and Eni (the big national company devoted to the search for oil in Italy, but already engaged in petrochemistry and the refinement of hydrocarbons) had become protagonists in the new life of the lagoon. On the other side, the destiny of very many workers directly or indirectly employed in Marghera was involved. Thanks to the converging of important powers, this type of development was opposed, and the third zone was not built. The navigable channel to Padua was never completed. And, above all, what still remains of Porto Marghera is subject to rigid controls and bonds that, without preventing industrial activity from continuing, certainly have taken out of the area such an alarming perspective, although polemics related to the presence of oil refineries continue to be heard.

The processes of globalization, tertiarization and environmentalism

Considering the large economic powers that ruled the Venetian maritime-industrial dimension, there is little doubt that the antagonistic powers that have competed to realize this inversion of tendency were very important. And it must be said that, whatever problems the city is currently facing and will face in the future, a perspective like that of the industrialization of the whole southern edge of the lagoon and along the internal channel to Padua would certainly not have been desirable. But it is also probable that it would not have happened without reference to the changes in the industrial economy connected in the last decades to the globalization processes. If in fact the attack on Marghera and its expansionist claims originated in the flood of November 4th, 1966, a deep upheaval in most industrialized countries also intervened beginning from the oil crisis of the early 1970s. This would have certainly reorganized the processes undertaken in the 1950s. As is well known, in fact, a first, remarkable change was the transfer of the greatest part of the investments formerly aimed at the raw and heavy industry towards the countries producing raw materials. With the elimination of those resources whose use appeared more expensive, the increasing globalization of the markets ended up selecting the richest reserves. Furthermore, the choice to divest – pushed by the cost of raw materials – is accompanied by the search for more convenient labor markets, particularly by those industries in which the weight of manpower continued to be remarkable.

This process stimulated the new Venetian port industry, as well as all the other harbors that had industrialized with iron production (Taranto, Naples, Genoa) and petrochemistry (in Sicily above all and in Puglia). The agreement imposed by the producing countries pooled in OPEC brought a remarkable rise in the price of crude oil that pushed large companies in this field to pursue a different strategy, contributing to industrial delocalization. Production will abandon petrochemistry and raw chemistry and will be oriented toward more refined "niche products," that is qualitatively remarkable but for which the cost of the first phases of the productive process was strongly reduced while simultaneously decreasing the needs for a large unqualified labor force. This is still the current production of Marghera. With the exclusion of the expanded and modernized Finsider (shipyard) and oil plants, today, the first industrial zone, born in the days of Giovanni Volpi, has been entirely converted. With the exhaustion of energy production (not having developed a nuclear industry Italy must resort to imports), the metallurgy of aluminum, that had an important presence in terms of production and occupation in the first and in the second industrial zones, also disappeared. And the big petrochemistry industry withdraws in front of the advance of high quality products like the present ones, involving high added value, but scarce work.

The process of delocalization was also the result of two other remarkable processes influencing the industrial decentralization of Marghera:

- the so-called "tertiarization" of the economy; and,
- the wide development of environmentalism.

First, in industry a process is involved analogous to that which some decades ago had impacted agriculture, with a brutal decrease of occupation, related to an important increase of productivity due to the industrialization of the productive processes and to important biological and technological discoveries, that allowed an important increase in production. This situation also occurs in the case of industry. With the increasing adoption of advanced technologies and the automation of the same productive processes, industrial productivity increased more than ever. And this increase is accompanied by the same consequences that had previously struck agriculture: strong growth of production and a remarkable decrease of occupation, especially unskilled. This process strikes particularly raw and heavy industry, where the previously prevalent low-qualified occupation is now expelled from the productive process. Together with a delocalization promoted by globalization, this brings the converted industry to replace large masses of general workers with a much smaller but highly qualified work force.

Occupation in the tertiary sector also increases, as for many decades it has developed a considerable presence in the economy of the greatest countries of the world, after the growth of a number of previously ignored activities, that proceed from the increase in wealth of the population, and from the advent of new futuristic technologies. These are all the activities related to the new information and communication tools, while the multiplication of enterprises in the most disparate fields, the growth of entrepreneurship, of specialist competences and so on, follow a well known process. The repercussions of the process of industrial decentralization and the tertiarization of the economy also have important political consequences. The inertia to the changes of Marghera, traditionally interposed by the organizations close to the previous forms of heavy industrialization, that now faces decreasing support from the receding work force, seems to vanish. Such organizations do not pose much resistance or they openly sustain the environmental movements. This represents, as previously mentioned, the third dimension of the process that in Venice strikes the maritime-industrial economy, begun at the end of the First World War and further developed after the Second.

Environmentalism and the end of the Venetian myth of maritime destiny

The role of environmentalism is more complex in this process. Being the result of the calamitous event of 1966, the environmental concerns in Venice should not be confused with the more recent form of "ecumenical" environmentalism. The environmental movement, born in Venice after the flood of 1966, is first of all a movement of opinion articulated in two main directions.

- The first one expressly refers to the degradation of the artistic-cultural heritage of the city. This degradation strikes the

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monuments – from the buildings to the churches, but also to paintings, codices and ancient furniture – and, according to the accusations of those years, is mainly the product of atmospheric pollution. In the case of Venice, this would not have been caused so much by the motorization of transportation (responsible for the wave motion that affects the stability of buildings), but more by the industrial discharges of Marghera, spread through the chimneys and the sewage. Marghera will pose resistance to such accusations, in attenuating its real impact on the city and with the adoption of provisions for the reduction of the risks.

In the case of liquid discharges it was quite soon evident that they were not due just to the industries, which will act on this problem directly, diminishing them either on their own initiative or under the pressure of legislative provisions that the State – a new protagonist of the Venetian problem – adopted in the following years.

- An important part of the water pollution originated in the articulated and capillary network of channels that, draining the fertile Venetian lowland, discharged in the lagoon the residues of fertilizers and pesticides from a vast agricultural area.
- Another relevant contribution came from water transport, particularly from the losses due to the breaking of pipes, but above all from the washing of tanks and holds that a myriad of small boats – dedicated to the most different forms of transport and in particular to those of hydrocarbons – used to perform inside the lagoon.
- Finally, the sewage system was basically lacking in the city, with residences and productive activities discharging directly into the lagoon, taking advantage of the water exchange produced by the tides. This situation had worsened, since, on one side, tourism multiplied the local population manifold for almost the whole year. On the other side, this increase conflicted with all the provisions adopted for reducing the risks of the Adriatic Sea flooding the lagoon again, and for managing other forms of hydraulic disorder in the internal waters.

Beyond the impact of wave motion on the foundations of buildings and on the whole industrial plant of the city of Venice due to motorization, the issue of water pollution ended up becoming the second direction of the development of Venetian environmentalism. Meanwhile, a well-orchestrated campaign of public opinion, directed by the Venetian intelligentzia, with the solid support of the then prince of Italian journalists, Indro Montanelli, attracted on the city the attention of world public opinion and that of the national government. Various committees, public and private, were formed and, with the remarkable financial help they were able to raise, it was possible to proceed to a gradual, but capillary work of recovery of the immense architectural, urban and cultural heritage of the city, that still continues today, but that we should consider substantially accomplished not only in the city, but also in many of the islands in the lagoon. This now appeals even more to a tourism that has assumed by now uncontrollable dimensions. We will return to this point.

- The second direction of Venetian environmentalism in the 1970s concerns the physical safeguard of the city. Such well-orchestrated media campaigns in fact communicated to the public the belief that the city was destined to disappear, submerged by the lagoon and as a consequence of the wicked effect of the maritime-industrial development of Porto Marghera. Of course, the idea to proceed to an indiscriminate industrialization of the whole southern edge of the lagoon and even of the two banks of the Venice-Padua navigable channel was not very sound. Nevertheless this media campaign condemning Marghera as if it were the only cause of the risks of erasing from the face of the earth the irreplaceable, important heritage that a city like Venice constitutes for the whole of humanity, had some serious consequences, that are still challenging the city today. Little by little, the former attitude, built in the centuries of triumph of the Republic, that tied the life of the city directly to maritime-port activity, decayed, setting the bases for a new belief. Venice was not a city suitable to contemporary life and economy, and should just live on the laurels of past wealth.

Venetian and ecumenic environmentalism

The media campaign promoted in Venice against Marghera faces an extremely complex reality that I shall try to synthetize here, before returning to the general considerations on the urban future of the city. A first dimension of this aspect of the problem of Venice that emerged with the flood of 1966 is represented by the subsidence process, or lowering of the level of the ground. A parallel dimension is the so-called eustasism or rising of the water levels, evident in the increased frequency of the so-called *acqua alta* within the city and of its extension on the urban fabric, compared to the beginning of the 20th century. While then the *acqua alta* used to occur especially during the winter season and just a few times a year, today it occurs in the other seasons also and a much greater number of times. This phenomenon, as well as the increase in the submerged area, is analytically documented by scientists. In the old days the main city paths were served by a few footbridges or sometimes by carriers who would lift people on their shoulders to cross the flooded areas. Today, footbridges have become insufficient, and a city service alerts the citizens, who would need to wear boots up to their thighs in order to walk in the streets.

Such increases are the result of the subsidence of the soil that originates from the artificial extraction of water or gas from the subsoil. There are also geological considerations related to the slope of the soil, in the areas where rocks, of more ancient origin than the sediments that constitute the Venetian subsoil, persist. To this geological movement of sinking (that recently seems to be reduced) it is also necessary to add the increase in the average water level, due to the breakup of the glacial masses as a consequence of an increase in the average temperature of the globe. Subsidence and the rise of the average sea level gave way to the concern that the city could eventually end up being definitely submerged, if it does not provide in suitable ways for the raising of the *rive* and of the whole urban floor, or with the regulation of the lagoon's water level in relation to the tides from the adjoining and connected Adriatic Sea. These are in fact the main strategic directions of defense undertaken by the company (*Consorzio*) that works in the lagoon, finalized to the attainment of these objectives and finally to fighting the feared risk that Venice will be erased from the surface of the Earth. After the strengthening of the whole system of *rive* in the city, the islands of the lagoon and the beaches facing the Adriatic Sea which consequently preserve the mirror of water from the risk of outer flooding, this *Consorzio* is operating in the direction of lifting the level of the walking plan of the city and in the building of mobile bulkheads. Examples are those of the Panama Canal in America or the Corinth Canal between mainland Greece and the Peloponnese. A first prototype, called Mose, was realized, that could become the tool to fully control the water exchange between the Adriatic Sea and the lagoon.

In this regard, two remarkable problems still remain open, which are connected to another aspect of the 1970s and 1980s debate on the lagoon: the so-called hydraulic disorder. Examining the variation of the so-called "dead" lagoon (water areas not reached by the tidal expansion) and the "barene" (semi-submerged areas according to the tidal rhythm), it is possible to realize the importance of the "canale dei petroli" (oil-tankers' canal), built to provide direct access to the maritime-industrial zone for the contemporary ships that need congru-

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ous water mirrors and adequate depths. The excavation of this canal (whose material was to be used to fill the planned third industrial zone on the southern edge of the lagoon) has produced an increase in erosion, a trend that needs to be managed. The real risk is that of having the sea come directly into the lagoon. So, the advantage of having removed from the city the transit of big ships in the canals that penetrate up to the basin of St. Mark and, beyond it, in the canal of the Giudecca and in the "canal of the ships" (modernized with the construction of the first industrial zone) becomes secondary. The consequences were not only those of soliciting a monitoring action of lagoon conditions (a physical model and a mathematical scale-model were built in Voltabarozzo) that appears a very useful and important tool in a living context necessarily submitted to continuous variations. A second important effect was that of contributing to the spread of the belief that the lagoon is an unfit environment for contemporary technology, its safeguard being tightly connected to the possibility of removing from the city any contemporary economy with an impact on the natural environment. This was another decisive blow to the conviction that the destiny of the city was connected to the maritime-port nature of its economy. The latter had already been struck by the eventual impact of the projected mobile dams (when closed) on maritime traffic. Everything in fact conspires in this direction, while the closing of the lagoon gates also seems to interfere with another aspect of the city's life: the necessity of disposal of dark waters.

In short, as the ancient Venetians had already understood many centuries ago, an awareness emerges: that the lagoon and the city are a living organism – that in order to be maintained in health, precise rules, suitable technologies, and continuous experimentation are necessary. These are certainly more available today than in olden times. Today, and for reasons that are only partly related to the Venetian polemic on the lagoon, Porto Marghera and its industrial zone have changed, since the production is now one of "niche" markets and of high added value goods, and as a consequence of the new ties and controls against this type of economic activity. It is certainly not the intention to examine here in detail this body of ties and controls. But it is necessary to remember that the environmentalism that developed in the lagoon following the flood of 1966 was subsequently married to a "second" environmentalism whose ideological roots are sunk in different ground. The whole process of integration of man in the environment context (based on the development of science and technology) is now questioned, as Western man is accused of wanting to dominate a field in which his pretensions are sacrilege. According to this environmentalism, the human pretension to compete with "Nature" and impress human order on it clashes with immense related risks, comparable only to those encountered by the builders of the Tower of Babel in the Bible, and the same God will punish them, by confusing their languages. The god of this environmentalism is a so-called "Nature," often mistaken with non-Western civilizations, to which the West would have pretended to impose its own strength and proper dynamism. The most evident sign of this will of power is represented by capitalism and industrialization, that must therefore be fought in all its forms, because it strikes at the very heart of "Nature," causing destruction and death hidden under the promise of wealth, preached by its entrepreneurs. When this environmentalism spreads in the lagoon, Marghera is not accused only for its responsibility towards Venice and the lagoon. It is the very life of workers and citizens that is now threatened by the risks of atmospheric pollution or explosions, fires, and poisonings. "Vade retro Satan" becomes the main attitude and with this anathema the long Venetian dream that envisioned in the maritime-port activity of the city the possibility of a better destiny is definitely buried.

Mass media in the age of democratic consent

This introduces the second point of our reflection: the weight that the mass media have acquired in the life of the contemporary city either to obtain the consent of people (democracy) and on conditions to assure historical continuity. In the case of cities with an important past, they are used to defend the most different theses in relation to historical events. In short, in the case of Venice we have seen the role of the media in spreading ideologies that stopped industrial developments on the *terraferma*, as they contributed to the convergence of world and government attention on the city. And finally the media spread the view that the lagoon requires a development based on activities and technologies compatible with its special conditions. This clearly shows how much the movements of opinion – thanks to the promotional campaigns sustained by the mass media – play an important role in the contemporary city. Even if it is still not possible to say which direction the economy of the city will take in the future, and even if it is true that real dynamics and consent are becoming more and more intermingled, yet it is sure that it is not possible to flatten its dynamics on the objectives prefigured by public opinion. And the condition is that the variety and the autonomy of the mass media should always allow different opinions and objectives to be voiced. The search for consent through the mass media always asks that the voices stay manifold, in such a way that reality does not become obscured by myths and ideologies that govern the life of a city with a great past, as happens with all such cities.

What happened in Venice after the flood of 1966 shows the immense weight of the tools able to mobilize public opinion today and for the success of the city in the 21st century. This is evident in the use of the media by dictatorial regimes in the 20th century. Even in democratic countries, the weight of media campaigns on public opinion is evident, as is well exemplified by the large commercial investments in the promotion and advertising of products. Moreover this is confirmed by the diffusion of new technologies – yesterday radio, telephone and television, today cellular phones, personal computers, e-mail and the Internet – which every form of mobilization of consent necessarily has to consider. Also, in the case of the city of the 21st century, the weight of this innovative combination must be put in the foreground, as is shown in the case of Venice, and as it also emerges with clarity from the forms of urban planning. The mobilization of consent has become in fact more and more a necessary tool for the realization of proposed strategies.

It is entirely evident, however, that if in the contemporary world it is not possible to put aside the binomial consent-promotion, we already know the risks involved by this in countries under dictatorial and tyrannical regimes. Besides, those risks are not lesser for democracies, as the relationship promotion-consent, if not directed correctly, can cause serious damage when public opinion is distracted from considering the consequences that can fall upon it at a later time. It would be sufficient for instance to think of the initiatives enacted to prevent the values communicated by many television programs or films in order to attract people's interest from being given to consciences not yet fully grown, like those of children, and therefore incapable of withstanding the suggestions spread by such images. Beginning with Popper, ample literature documents some of the efforts accomplished in this direction without falling into the risk of directing consciences through censorship and similar dangerous tools. In this sense many defenses against the above-mentioned risks and danger are enacted today, aiming at the autonomy of the media from economic interests, or from the parties in political life; or through le-

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gal control that however respects the right to self-determination of the individual; finally aiming at education and culture, and on ethical values of a universal course for society.

Conclusion

The lesson coming from the history of the entry of Venice into the modern age does not finish with these considerations. An important part of the change to analyze resides in the new identity of the inhabitants of Venice, and of the inhabitants of the *terraferma* but also in the penetration of the new identity, economic and social, of Venice in the territories of the Region surrounding its new development in the *terraferma*. It is a very interesting history with a continuous swing between the opposition of the Region to the new Venice, especially that of the *terraferma*, and the hope that Venice can reach the condition expressed by this affirmation: one of us, the better of us. But this history calls for a new article that I hope to be able to prepare for the next meeting of the World Society for Ekistics.

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Urbanizing regions in China's Yangtze River Basin

Edward Leman

Edward Leman is an urban and regional planner, and President of Chreod Ltd., a Canadian consulting firm that has worked in China since 1988. He is a member of the World Society for Ekistics (WSE) and a former member of its Executive Council. He has written several articles for Ekistics *over the past 20 years. The text that follows is a revised version of a papèr which was distributed at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001, that the author was finally unable to attend.*

Foreword

This article describes the findings of a two-year assessment of the speed, characteristics, and implications of the shifting pattern of human settlement within China's Yangtze River Basin conducted by Chreod Ltd for the World Bank. The purpose of this inquiry was to analyze urban and regional development trends in the Basin as background for the possible development by the Government of China (GOC) and the World Bank of a coordinated program of cooperation within the Yangtze Basin over the next ten years. The author was the Project Manager of the study.

Purpose of the study

China became the world's largest urban nation during the mid-1970s. Although only 20 percent of the population was urbanized at that time, the pace of urbanization has increased dramatically, particularly over the last 15 years. China is now going through a process of urban growth that, over the next 10 to 15 years, will result in over half of its population living and working in urbanizing areas. This fundamental social and economic shift took 50 years to occur in the United States and 25 years in Japan during the last century. The strains associated with such changes on both urban and rural economies, social systems, cultural values, governments' fiscal and governance capacities, the agricultural land base, and the natural environment have historically been severe in other countries. Given the unprecedented volume and speed of urban growth expected over the next decade or so in the world's most populated country, urbanization will invariably stretch China's capacity to manage change perhaps more than ever before in its long and rich history.

The Yangtze Basin contains China's longest river. With a watershed area of 1.8 million sq.km, it is the 11th largest river basin in the world, covering over twice the territory of both the Danube and the Mekong River Basins. Although 30 percent of the area of the Amazon Basin (the world's largest), the Yangtze Basin is the second largest river basin within a single country. The Yangtze watershed traverses all or parts of nine provinces (Zhejiang, Jiangsu, Anhui, Jiangxi, Hunan, Hubei, Sichuan, Guizhou, Yunnan) and two provincial-level municipalities (Shanghai and Chongqing), stretching from the East China Sea to the border of Myanmar and the upper Tibetan plateau.

Urbanization in China: Methodological issues

Major challenges to identifying and defining urban and regional development trends in China are:

- the current administrative definition of "urban" residents which is still based on mandatory household registration (at least attitudinally) and therefore does not include a rapidly-growing number of supposedly rural households (and enterprises) that have entered urban economies over the last 15 years;
- administrative conventions for designating statutory "towns" and "cities" that have not been consistent over the last 50 years, and that do not include settlements which in many countries would be considered urban; and,

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• the definition of spatial boundaries at the sub-municipal scale which leaves many rapidly-urbanizing suburban and peri-urban areas outside the territory that most municipal governments consider their primary responsibility for service delivery.

Despite the major shift from farming to non-farming occupations in towns and villages in suburban and peri-urban areas of China's cities over the last decade, municipal governments responsible for the provision of urban infrastructure and other public services continue to treat the traditional built-up "city proper" – populated mainly by households with non-agricultural household registration – as the spatial territory under their daily operational mandates.

In suburban and peri-urban areas where arable land is collectively-owned and far less regulated than in central urban areas, informal shifts from farming to small-scale industrial land uses have been relatively simple, particularly when firms are owned, at least in part, by town/township and village administrations. Similarly, residential and labor mobility among rural residents in suburban and peri-urban areas, including from other towns and townships, is far less constrained. The residential growth in many suburban towns and villages is supported by informal rental markets that have evolved over the last fifteen years. Therefore, while household mobility and enterprise formation have been tightly constrained within inner urban areas over the last two decades, under market reforms the reverse has been true in suburban towns, townships and their constituent villages.

China's urban growth, at least over the past 15 years, has largely been **centripetal** through locational decisions by households and firms that circumvent administrative constraints to residency, employment, enterprise formation and land tenure in urban districts (fig. 1). Given the high population densities in suburban and peri-urban areas, and the relative ease of industrial enterprise formation, it has not taken much for farming areas on the outskirts of urban districts to be rapidly transformed into semi-formal suburban precincts.

The trend towards suburban and peri-urban growth is likely to continue well into the next decade. Marketization of state-built housing, the gradual evolution of secondary residential markets, massive redevelopment of substandard inner city housing areas (causing large-scale resettlement in many cities), the increase in inner city land leasing, the gradual decrease in administrative allocation of land to enterprises, improvements to urban transportation networks and public transport, and the trend towards new enterprise formation outside of the state sector all will likely push suburban development even without the loosening of *hukou*-based mobility constraints.

The study was based on the need to define the full demand and impact areas of urbanizing settlements. This required identifying households – both permanent and migrant – in counties and statutory cities that rely on the non-farming sector for their incomes. Concentrations of these households that reached a minimum population threshold representing a critical mass of settlement that would suggest potential consumer demand for urban infrastructure services are considered "urbanizing" settlements in the study. Counties and statutory cities are defined as "urbanizing" if:

• 80 percent or more of GDP in 1996 was in the secondary and tertiary sectors;
• 40 percent or more of the registered workforce was employed in secondary and tertiary employment; and,
• the resulting population active in or dependent on secondary and tertiary economic activities was higher than 200,000 residents.

The rationale for this definition is principally that, despite the widespread notion that Township and Village Enterprises

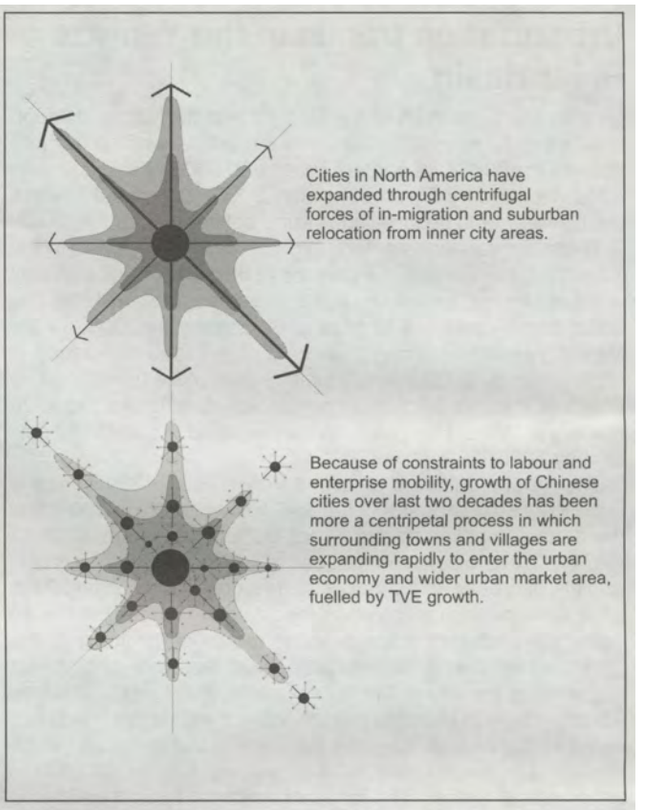

Fig. 1: Centripetal and centrifugal growth patterns.

(TVEs) and non-state developments in counties are "rural" phenomena, over 70 percent of the output and employment from this sector are actually located in suburban districts and peri-urban townships within the boundaries of statutory cities.

Using conventional definitions, the Basin's urban population in 1996 was 109 million (77 million non-agricultural residents in urban districts of statutory cities plus 32 million non-agricultural registered residents in statutory towns). The broader definition used in the study – based on non-farming residents — indicates that there are almost twice as many people depending on non-farming economic activity living in counties and cities with over 200,000 such residents, and in which GDP from secondary and tertiary sectors accounts for over 80 percent of total GDP; instead of an official "urbanization" rate of 20 percent, the Basin could have as high as 40 percent of its population actually within or about to enter wider urban economies with lifestyles and service expectations of municipal governments approaching those of inner urban areas.

The study used a definition of city sizes that is more commonly applied internationally and that reflects spatial and economic differences between small and large metropolitan areas not captured in the current typology used in China (table 1).

Table 1
Scales of urbanizing settlements

Type of settlement	Non-farming Population
Large Metropolis	> 4,000,000
Metropolis	1,000,000 - 4,000,000
Large Cities	500,000 - 1,000,000
Intermediate Cities	250,000 - 500,000
Small Cities	100,000 - 250,000
Towns	< 100,000

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Urbanization trends in the Yangtze River Basin

Overall, the proportion of the Basin's non-farming population resident in urbanizing settlements will likely increase from 40 percent in 1996 to 46 percent by around 2005. Even if growth rates declined by 50 percent after 2005, half of the Basin's population would become urbanizing between 2010 and 2012.

There are variations among broadly-defined regions. In the Yangtze Delta Region, 54 percent of the total population was non-farming and located in urbanizing settlements in 1996; this proportion is projected to grow to 62 percent by 2005. In the Middle Yangtze Region 40 percent of the total population is urbanizing; by 2005 this ratio will grow to 43.4 percent. The Western Yangtze Region is considerably less urbanized at 26 percent in 1996. This proportion is expected to grow to 32 percent by 2005.

The most significant changes from 1996 to 2005 are the large increase in number of Large Cities – from 72 to 126 – and the almost doubling in number of Metropolises from 19 to 34 (fig. 2). The projected increase in number of Small Cities (11) and the decrease in number of Intermediate Cities (from 224 to 212) is significant in comparison. While debate continues within government circles over the merits of "promoting" the growth of small and intermediate cities, the study shows that larger cities are where the bulk of demand for urban services will occur over at least the next decade. If trends in the first half of the 1990s prevail, there will be a net loss of almost 6 million residents in Small Cities, and a marginal loss of 400,000 in Intermediate Cities. The largest growth by far will be the 40 million increase at the Large Cities scale, and the 18 million increase in Metropolises. For Large Cities, 63 percent of the expected change will occur from an increase in the population of settlements that already were Large Cities in 1996, but at the lower end of population range for this city size; 37 percent will occur from growth in settlements that were Intermediate Cities in 1996 but will have reached the size of Large Cities by 2005. For Metropolises, internal growth will account for 65 percent of the 18 million additional metropolitan residents while growth of Large Cities into Metropolises by 2005 will comprise 35 percent.

From a policy perspective, the projected large increase in both numbers and aggregate populations of Large Cities and Metropolises will severely test conventional paradigms of urban management. Small and Intermediate Cities in the Basin share many characteristics: both have average urbanizing population rates of 41 percent, and rural-urban dynamics are likely similar. However, Large Cities in the Basin average an urbanizing population ratio of 64 percent and Metropolises step up to an average of 90 percent. Not only are the quantitative differences significant, but the structure of demand for urban public services, including infrastructure, differs markedly as large agglomeration economies emerge. Cities assume new regional economic roles and pass through thresholds that result in new types and scales of demand.

The largest net increases in non-farming populations in urbanizing settlements will be in Anhui (almost 13 million), Sichuan (10 million), Jiangsu (7 million), and Jiangxi (5.6 million). Zhejiang will increase by around 4.6 million, Chongqing by 4.3 million, Hubei by 4.4 million, and Hunan by 3 million. The smallest net increases will likely be in Guizhou (2.6 million), Yunnan (1.5 million) and Shanghai (less than 0.5 million). However, shifts in provincial urbanization levels are projected

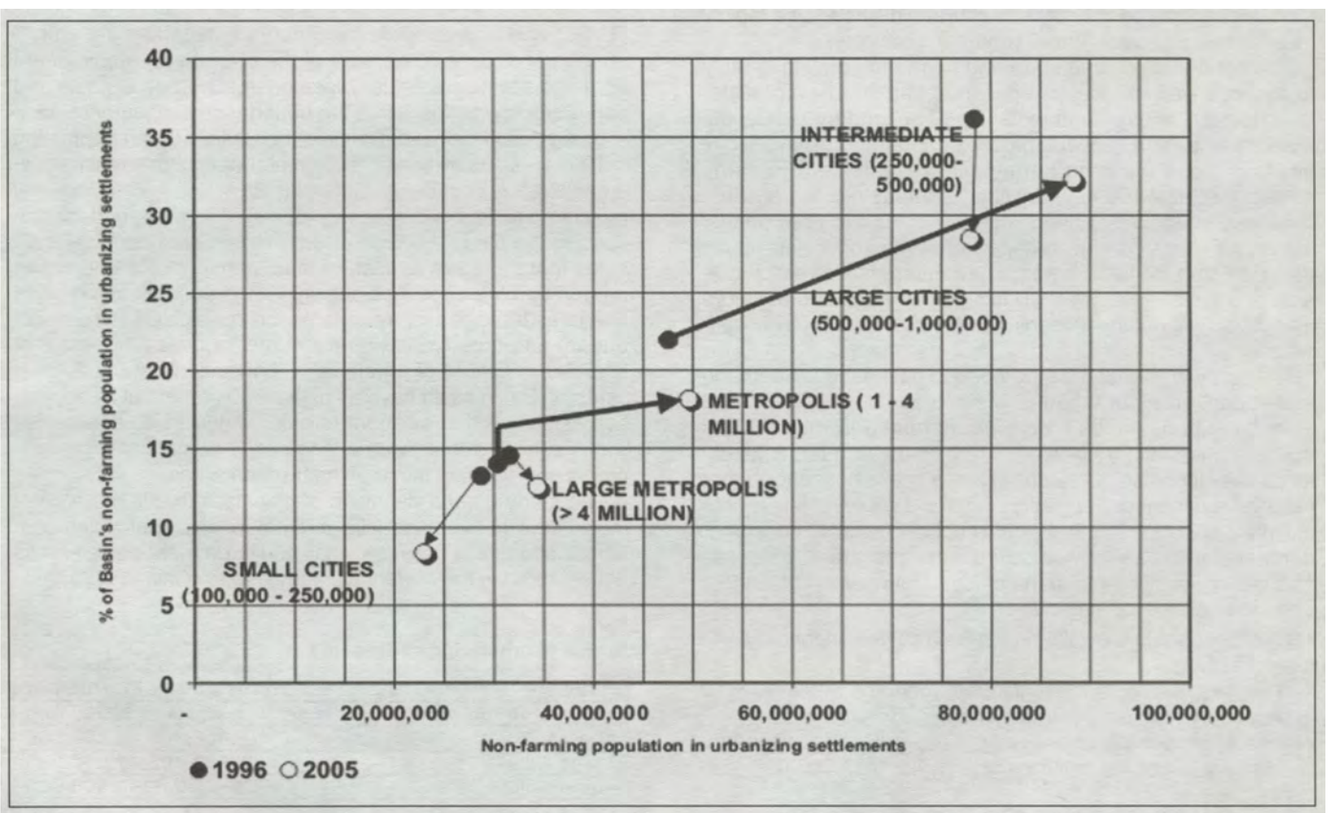

Fig. 2: Broad structural shifts in city sizes in the Yangtze River Basin, 1996-2005.

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to be most pronounced in Anhui where the urbanized population's share will increase another 15 percent, Chongqing (9.3 percent), Jiangxi (9.3 percent), Sichuan (8.3 percent), and Zhejiang (8 percent). Overall, the most pronounced urban changes will likely be in Anhui and Sichuan.

The projected shifts within provinces by type of urbanizing settlements will differ considerably. Some provinces will experience major transformations of Intermediate Cities to Large Cities, while others will see increases in populations of Small Cities. These changes are important as they underline the need for policy reforms tailored to provincial circumstances, and the assessment of different kinds of urban needs over the next decade.

The Basin's urbanizing economies

The Yangtze Basin's urbanizing settlements produced 93 percent of the entire Basin's GDP in 1996, and 42 percent of China's. Contributions to secondary and tertiary sector output within settlements (which accounted for 86 percent of GDP in the Basin's cities) were: Intermediate Cities (28 percent), Large Metropolises (24 percent), Large Cities (22 percent), Metropolises (20 percent), and Small Cities (8 percent). Cities with populations over 1 million (Metropolises and Large Metropolises) therefore accounted for 44 percent of urban output in 1996. On average:

- the economies of Intermediate Cities are twice the size of Small Cities;
- Large Cities are twice those of Intermediate Cities;
- Metropolises are over three times the size of Large Cities; and,
- Large Metropolises are almost six times larger than the economies of Metropolises.

In comparing cities, per capita GDP – which includes outputs from the primary sector – varies quite dramatically. However, when these figures are disaggregated into GDP from the secondary and tertiary sectors per non-farming resident (i.e. "urban" GDP per "urban" resident), the spread between cities diminishes quite markedly. Apart from the coastal Delta cities in Shanghai, Jiangsu, and Zhejiang which have the highest levels, GDPST (Gross Domestic Product from Secondary and Tertiary Sectors) per non-farming resident in all other provinces fluctuates within a very similar range. It is also significant that there are a few cities even in the coastal Delta with GDPST per non-farming resident levels as low as many in both the Middle and Western Yangtze Regions. Furthermore, there are cities in all Western and Middle provinces with urban per capita GDP rates that are comparable to the lower and middle ranges in the Delta. These findings disprove the notion that "all coastal cities are rich" and "all inland cities are poor." While coastal cities are by and large better off than central and western cities, there are many exceptions. Policymakers need to be aware of them and not generalize redistribution policies on a provincial basis: this would penalize poorer cities in the east, and unfairly reward richer cities in the central and western provinces.

What does appear to matter in level of income is size of city. There does not seem to be a Basin-wide improvement in per capita GDP until cities reach the size of Metropolis, whereupon there is a dramatic increase of 70 percent (fig. 3). Per capita GDP and GDPST at the Large Metropolis level are, on average, twice those of Large Cities, and almost 30 percent higher than in Metropolises. Except for several cities in the Delta, the location of Small Cities seems to have relatively little bearing

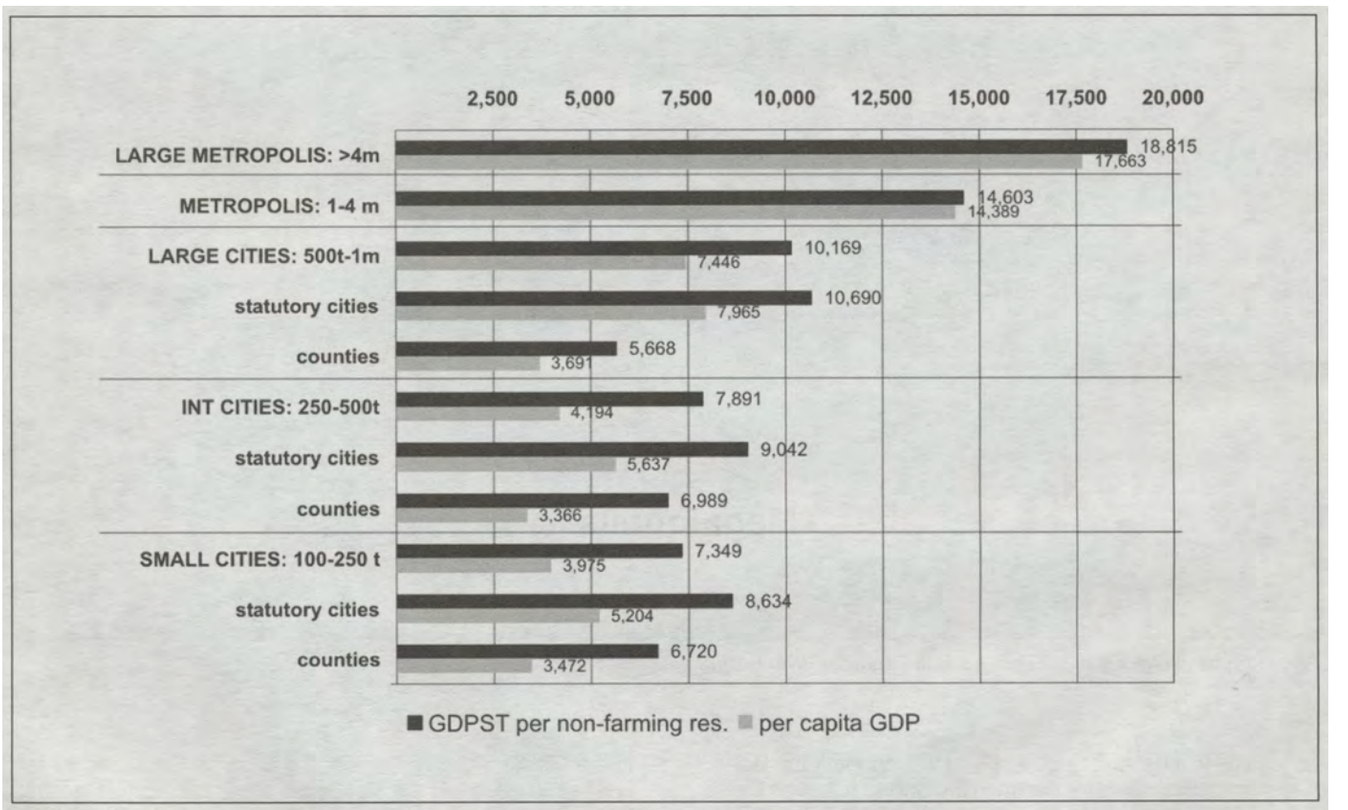

Fig. 3: Per capita GDP and secondary and tertiary GDP by size of city, 1996 (in Yuan).

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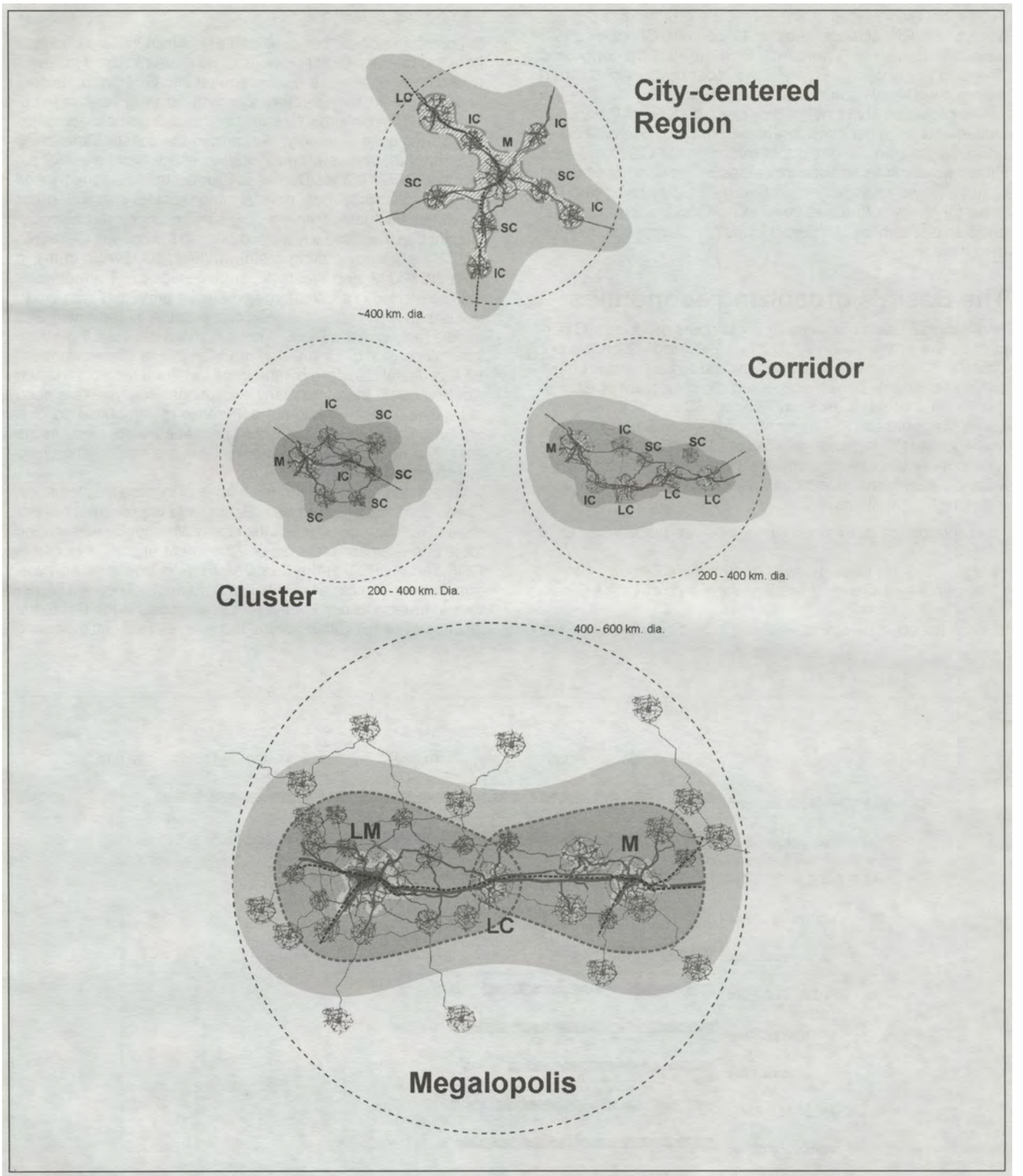

Fig. 4: Types of regional urban systems in the Yangtze River Basin.

on income level; they are generally low throughout the Basin. A similar pattern exists for Intermediate Cities. Although Large Cities with the highest income levels are in the Taihu Basin, moderate incomes were also attained in cities of this size class in the Middle Yangtze Region, the Sichuan Plain, and as far west as Yunnan. At the Metropolis scale, the highest income levels are in Kunming in the west and in the Taihu Basin. For Large Metropolises, Shanghai clearly ranks highest, followed

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by Wuhan, Chengdu, and Chongqing.

Economic growth variables were subjected to cross-sectional statistical analysis covering all regions, provinces, cities and counties in the Basin. The statistical analysis underlined the major role played by the size and growth of the secondary sector and of industrial output in determining the 1990-1996 growth performance of the Basin cities and counties. Growth in the total Basin was positively related to the importance of TVEs to the city or county economy, and negatively related to the importance of State Owned Enterprises (SOEs) to total output. Newer enterprise forms such as TVEs are a stimulus to economic growth, while SOEs have become a drag on many areas' economic growth performance and prospects.

Emerging regional urban systems

Urban economies, settlement patterns, and the movement of people, capital and goods within urbanizing settlements in the Basin are a complex web of functional and physical linkages that go beyond the inner, "built-up" parts of cities of all sizes to encompass suburban and peri-urban areas that are in major transition. These linkages have major environmental impacts and increasingly serious implications for the delivery of public services by local governments.

Transport links are key to fostering economic linkages between urbanizing settlements. While the Three Gorges construction will enable 10,000 ton ships to reach Chongqing, and while some double-tracking of railway lines is anticipated in Hunan Province, the major changes to inter-settlement transport networks to the middle of this decade will occur in the expansion of the National Trunk Highway System (NTHS). Market areas were calculated in travel times from Large Cities, Metropolises and Large Metropolises in 1996 and 2005. In 1996, there were 300 million people within a one-day return drive from one of these major cities. With the completion of strategic links of the NTHS by 2005, 420 million people will fall within these daily urban market regions, an increase of 38 percent. Few (if any) countries have so quickly extended access to urban markets for such a sizable proportion of residents, although development of the inter-state freeway system in the US in the 1950s and 1960s likely comes close. These improved linkages will occur during a period that is likely to see major sectoral and locational shifts in investment and enterprises, and reduction of provincial and municipal trade barriers, as China begins to adjust to WTO.

The impacts of the NTHS on market access in the Basin are likely to be far-reaching, including on the spatial structure of regional economies. With the urbanization trends identified earlier, electrification of counties that will contribute to extending locational choices for production, and the expansion of inter-city transportation links, the spatial organization of settlement in the Basin will increasingly be focused on Regional Urban Systems. These are defined as networks of urbanizing settlements of all sizes within which significantly higher concentrations of non-farming populations reside and along which significantly higher levels of daily interaction between settlements appear to be occurring. They are where factor and output markets and distribution hubs are concentrated.

- Five types of **Regional Systems** were identified in the Basin and a sixth by default-isolated settlements of villages, towns, some small cities, and a few intermediate cities that are not part of any regional system in any obvious way. The five types of regional systems are (figs. 4 and 5):

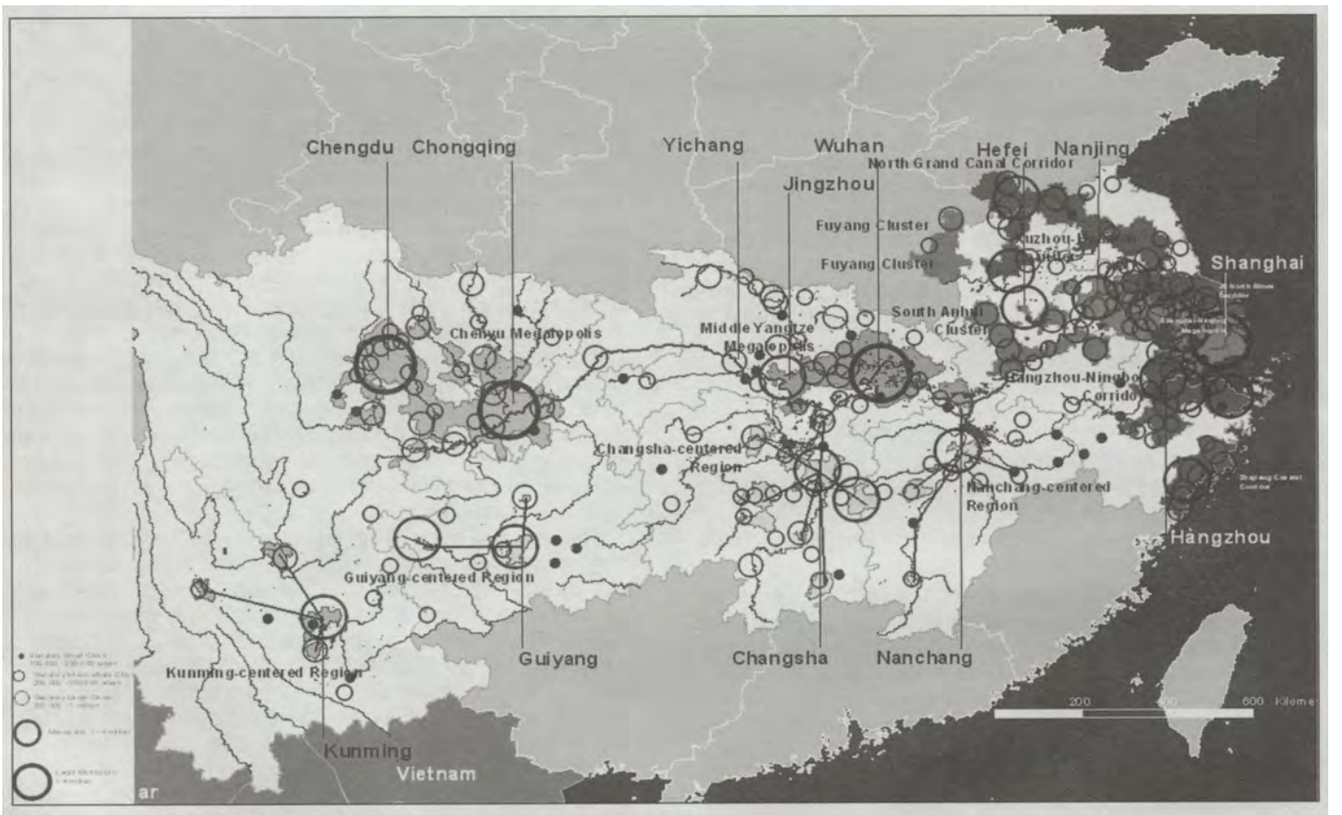

Fig. 5: Regional urban systems in the Yangtze River Basin, 1996.

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- town-centered regions comprised of a network of villages and towns, often in a loose hierarchy;
- city-centered regions in which a single Large City or Metropolis seems to play a major role in regional production, employment and distribution; these city-centered regions encompass villages, towns/townships, Small Cities and Intermediate Cities, and can cover a radius from the central city of as much as 200 km;
- clusters of villages, towns and cities at or below the Metropolis scale across an area of 100-200 km radius; unlike city-centered regions, no single town or city appears to play a dominant economic role;
- Corridors, which are very similar to Clusters but stretch in a linear form along a major road or rail line; and,
- Megalopolis.

There is a major size difference between megalopolises in the Basin, which have a median population of 26 million, and Corridors, Clusters and City-centered Regions which range from 3 to 12 million.

● Three **megalopolises** were identified in the Basin (fig. 5):

- one stretching from Shanghai to Nanjing;
- a second in the Middle Yangtze stretching from Wuhan to Jingzhou; and,
- a third between Chengdu and Chongqing in the Western Region.

A megalopolis is fundamentally different from a "mega-city" which is a very large, mono-centric urban settlement rooted in a metropolis but extending into a constellation of smaller cities and towns (Large Metropolis, as used in the study). A megalopolis is a cohesive network of numerous cities and towns stretching in a band at least 200 km long and 50 km wide, holding a population of more than 20 million people. There are usually at least two large metropolitan poles anchoring either side of a megalopolis, linked by strong transportation and communications networks such as expressways and railways. What makes a megalopolis unique and of major significance is that it is usually the principal economic powerhouse of a country or region – a concentration of consumers, purchasing power, and production that incubates new and higher forms of economic development and growth. As transportation and communications networks improve between multiple centers, "urban-rural" boundaries disappear in a rapidly changing web of economic linkages. People live and work in different cities; manufacturers are able to source competitive inputs from multiple suppliers over a much broader area; cities and towns develop specializations; and higher level services begin to concentrate within those key metropolitan areas which best provide for regional, national and international market transactions.

● Five **Corridors** were identified in the Yangtze Basin:

- the Suzhou-Huainan Corridor in Anhui;
- the North Grand Canal Corridor and the Jiangsu North Shore Corridor in Jiangsu Province;
- the Hanghzhou-Ningbo Corridor and the Zhejiang Coastal Corridor in Zhejiang Province.

Corridors hold far smaller populations than a megalopolis, do not have major metropolitan poles as polar anchors, and have considerably less economic importance at the national scale. They typically consist of at least one small Metropolis and several Large, Intermediate and Small Cities. As the term implies, corridors stretch in a linear band anchored on a central spine formed by major railways, navigable waterways (including coastlines), and good quality roads. In a corridor, no single city is a central economic node.

● Two **Clusters** were identified in the Basin, both in Anhui:

- the Fuyang Cluster in the west, and
- the South Anhui Cluster along the Yangtze.

Clusters are very similar in size and structure to Corridors but, as the term suggests, are not linear in form. While anchored on a railway line or major navigable waterway, the road network is both looped and radial, providing for greater interconnection between cities. Clusters have at least one Metropolis or Large City, and several Intermediate and Small Cities. However, as in Corridors, no single city has as yet become a principal economic node.

● Four **City-centered Regions** were found:

- the Kunming-centered Region in Yunnan;
- the Guiyang-centered Region in Guizhou;
- the Changsha-centered Region in Hunan; and,
- the Nanchang-centered Region in Jiangxi.

Unlike the other types of Regional Urban Systems identified in the Basin, City-centered Regions (CCRs) are dominated both in share of population and economic activity by a single Metropolis. They exhibit the traditional central place hierarchical relationship with surrounding Large, Intermediate and Small Cities, usually connected through radial networks of roads. Because of the dominance of the central Metropolis, the area of influence in a City-centered Region can be as wide as 200 km.

Regional Urban Systems are the core economic regions in the Yangtze Basin: the 14 systems described above hold 65 percent of the Basin's non-farming population, and create 66 percent of its secondary and tertiary GDP. Development policies related to fiscal, investment, trade and labor mobility issues need to take explicit account of the differences between types and locations of Regional Urban Systems which vary widely in size and economic structure. Across all Regional Urban Systems the key issues in economic development appear to be the degree to which the economies of smaller cities and counties are integrated into those of regional systems enjoying agglomeration benefits, the degree to which the economies of cities have diversified (sectorally and in terms of enterprise ownership) so that production responds to demands of both domestic and international markets, and the degree to which these regional systems are linked, both physically and functionally, with domestic and international markets. Considerable progress is being made with physical connections between most Regional Urban Systems in the Basin. However, more attention now needs to be paid to improving functional connections by: removing inter-provincial (and even inter-municipal) trade barriers; resolving inequitable fiscal flows and entitlements between levels of government; and removing constraints to the mobility of labor, enterprises, and capital between systems. Similarly, endogenous constraints to economic restructuring, capital formation, and innovation need to be addressed if sustainable regional development is to occur, and efforts intensified to enhance local comparative advantages, particularly of human resources in less economically-advanced areas.

The type and scale of infrastructure investment needs differ among types of Regional Urban Systems. Megalopolises in the Basin – all of which straddle sub-basins – have much greater impacts on the availability and quality of water, while City-centered Regions have comparatively little. Corridors and Megalopolises in the Basin require significantly improved feeder road connections to existing and planned NTHS links, while Clusters and City-centered Regions need more and better secondary roads connecting key cities. Given the differences among Regional Urban Systems in the size of regional economies and their contribution to national economic growth, the costs and benefits of remaining NTHS links will vary dramatically: the phasing of the remaining NTHS needs to be

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reviewed in light of urban settlement patterns and regional economic development that were not foreseen when the highway network was initially planned in the late 1980s.

Urban economies in Megalopolises are much larger and more diverse than those in other types of Regional Urban Systems; their needs for market access, human resources, capital, and more sophisticated financial intermediation are considerably different. Demands for regional coordination, particularly of transport, watershed management, and pollution control, vary markedly by type of Regional Urban System. Urban-rural dynamics also vary by type of system, and therefore have major implications for the alleviation of rural poverty.

The need for a broader spatial perspective

A key conclusion of the study is that development will increasingly need to be viewed from the perspective of large and complex Regional Urban Systems. The incremental impacts of regional transport investment on urban development, of urban development on environmental quality, of urbanization on sub-basin water resources, and of urbanization on rural development and poverty alleviation, all need to be considered in far greater depth than is currently the case in China.

Watershed management needs to be conducted within the context of demands from and impacts of Regional Urban Systems. The analytical framework proposed in the World Bank's water resources policy in the early 1990s – considering the "relationships between the ecosystem and socioeconomic activities in river basins" – needs to be taken a step further in the Basin by focusing considerable attention on Regional Urban Systems within the ten sub-basins of the Yangtze. Inter-city transport investments – particularly in roads – will have major impacts on the structure, form and growth of cities and towns in the Basin's Regional Urban Systems. These impacts will not only be felt through development of the National Trunk Highway System but increasingly through the construction and upgrading of feeder roads and secondary connections between urbanizing settlements. The most appropriate mix of investments will vary, depending on conditions particular to each Regional Urban System: a blanket investment focus on the NTHS across the Basin may therefore be inappropriate.

The study shows that the distinction between "urban" and "rural" in China is becoming less relevant. Cities of all sizes play an important role in development of farming communities by providing output markets, distribution channels, and employment opportunities for redundant labor. The nature and strength of these linkages are difficult to define, and are consequently not well understood in China (or in other countries). Improving this knowledge base should become a high priority of the Government of China and the World Bank.

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Principles of intelligent urbanism: The case of the new Capital Plan for Bhutan

Christopher Charles Benninger

Christopher Benninger has lived and worked in India for the past 30 years. He founded the School of Planning at Ahmedabad (1971) and the Centre for Development Studies and Activities in Pune (1976). He studied Urban Planning at M.I.T. and architecture at Harvard, where he was later a professor of architecture. While at Harvard he became actively involved with the World Society for Ekistics (WSE) through his colleagues Barbara Ward and Jaqueline Tyrwhitt. He attended the 1967 Delos Symposion, where he was deeply influenced by C.A. Doxiadis and the Ekistics movement. Benninger has prepared urban plans for Bhutan, where he is designing the new capital, India and Sri Lanka. He has been involved in advisory work for the World Bank, the UNO and the Asian Development Bank in Africa, Southeast Asia and the Subcontinent. His architectural studio has won the Designer of the Year Award (1999); American Institute of Architect's Award (2000) and other awards. He has published articles in journals in America, Europe and Asia. He is on the Board of Editors of Cities, *U.K. The text that follows is a slightly edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

Preamble

My work in designing and building cities started in 1972 with the construction of about 500 houses, amenities and related commercial facilities in Jamnagar, the erstwhile princely state in Gujarat. This was an urban node of 20 sq.m courtyard houses that could expand upward. It was a totally pedestrian community, which linked a series of small household and neighborhood places into a central community domain. About the same time I built a large orphanage in rural Haryana near Delhi in the form of a "pedestrian village" linking small neighborhoods and family courtyards in a hierarchy of spaces. Again, the central domain was the social gathering area, which connected a labyrinth of lanes and public courts. The next year I embarked on the design of the first large Sites-and-Services program to be taken up by the World Bank, which resulted in the creation of 20,000 houses, by the inhabitants themselves, in Madras. In this program we provided a variety of serviced plots, with access lanes and common public health infrastructural systems. This approach then became the World Bank's global strategy, for about a decade, to provide layouts with very modest infrastructure standards, and to facilitate households who then built their own shelters. At this time we were also carrying out extensive upgradation of existing shanty settlements in both Madras and Calcutta. This was followed by the design of an urban neighborhood in Hyderabad, composed of two thousand "Core Houses," which grew through self-help from one room cores, with sanitary units.

In 1980 I began to restructure six urban centers in Sri Lanka, for the Urban Development Authority and the UNCHS (Habitat). With teams of young architects living in the towns, and with the participation of the local people, we prepared innovative plans for these areas. Later in the 1980s my studio prepared urban plans for the cities of Thane and Kalyan in the Bombay Metropolitan Region, and for the 28 urban centers in the Indian state of Madhya Pradesh. These, and UNO-sponsored evaluations of urban planning efforts in Bhutan, Malaysia, Zambia, Nepal, India, Indonesia, Bolivia and many other regions made me realize that there are a set of common axioms, or principles, around which all planning debate and discussion tends to revolve. I have started to call these propositions the "Principles of Intelligent Urbanism." There has been a lot of discussion amongst my team members whether I should call these precepts, axioms, propositions or principles. I finally decided on the word principles, because I realized that these were not loose ideas, or fuzzy guidelines! These are truly principles that I feel must be followed in the creation of all urban plans and designs.

The chance to mix theory with practice came to me again in early 2001, when the Royal Government of Bhutan invited me to set up a studio in their kingdom, and to prepare their new capital plan. Though they wanted a new plan, I had to overlay my design on existing villages, the Decholing Palace, monasteries, an existing small town, temples, *chortens*[1] and the massive medieval administrative structures, the Tashichho and Simtokha Dzongs.[2] Most exciting was the Wang Chhu (river), which structures the 8,000 ft-high valley floor, with a verdant carpet of forest reaching up to the mountaintops. This is surely one of the most ecologically fragile areas under urbanization, as well as one of the richest treasure troves of cultural artifacts! To me, this would be the appropriate testing ground for the **Principles of Intelligent Urbanism**!

Ekistics, 412, January/February 2002
413, March/April 2002
414, May/June 2002

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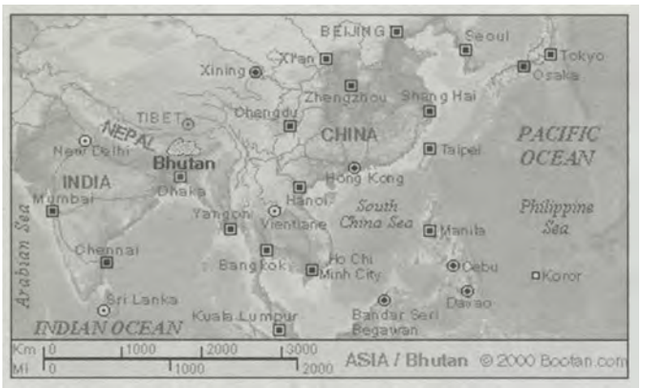

Fig. 1: Location of Bhutan within Asia.

Fig. 2: Bhutan within its broader geopolitical area.

Existing scenario

Demographic studies indicate that Thimphu's population will grow from the present 47,000 to 150,000 people by the year 2027. Even though the present population is composed only of His Majesty's Royal entourage of security forces, administrators and suppliers, the valley is already facing housing shortages, traffic congestion, air polluted roads and chaotic building patterns. A modest tourist business is expanding. The town is becoming a retail and wholesale center, and a number of professionals and construction companies are setting up shop in the central area. The forests, which preside over the city, are being encroached upon. Without reference to the carrying capacity of the land, orchards in ecologically fragile areas are being irrationally sub-divided. Private and public agencies are going about "city building" in a disjointed and ad hoc manner. This has resulted in "spotty growth," wherein fragmented pockets of development spread out along the valley require services and infrastructure. These dispersed pockets are not large enough to independently support any given city service system, and are too far apart to allow efficient linkage with city level infrastructure networks.

Alarming examples of Himalayan hill towns in India stand before Thimphu. Capital cities like Simla, Darjeeling, Gangtok and Shrinaghar have transformed from serene hill resorts, into chaotic bazaar towns. Their environments have been severely damaged through construction on the slopes, encroachment on paddy lands and riverfronts. Infrastructure has been laid out in an ad hoc manner, following development, rather than guiding it!

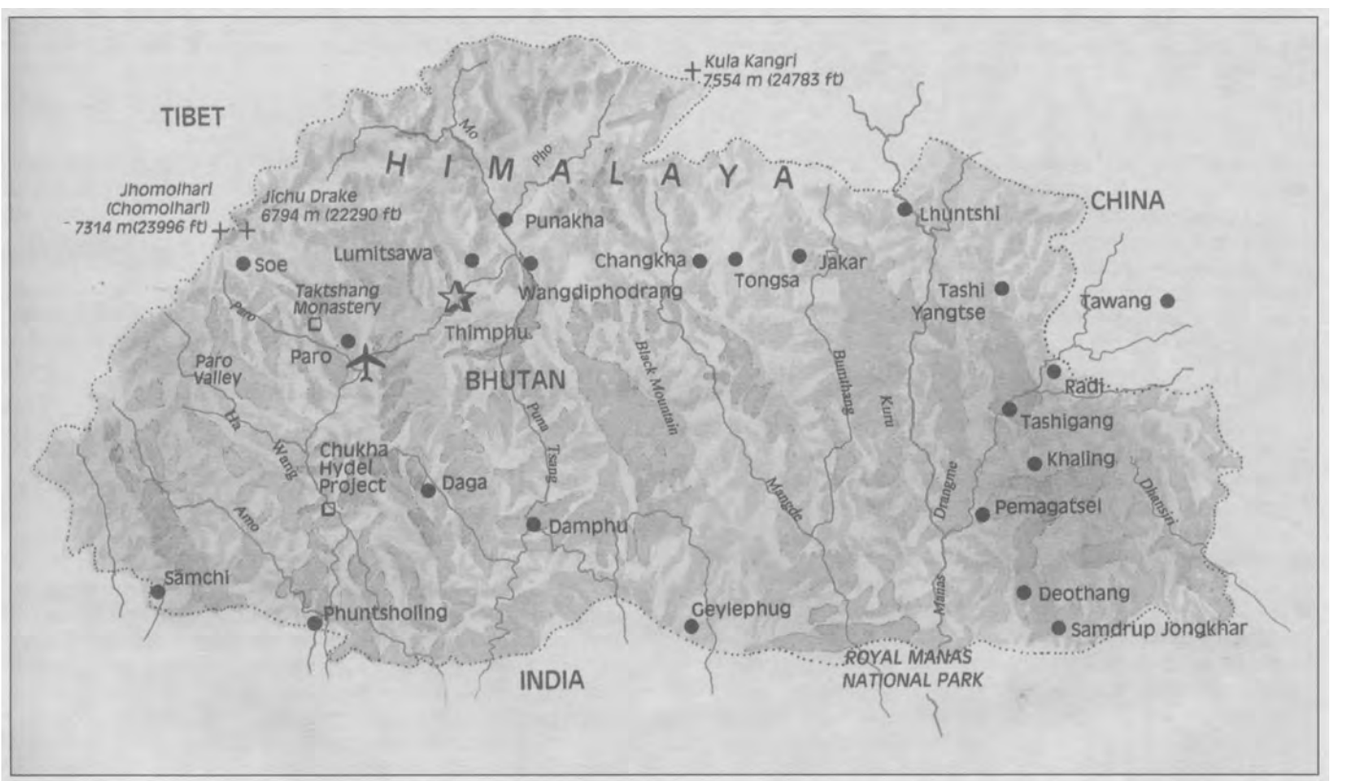

Fig. 3: Map of Bhutan.

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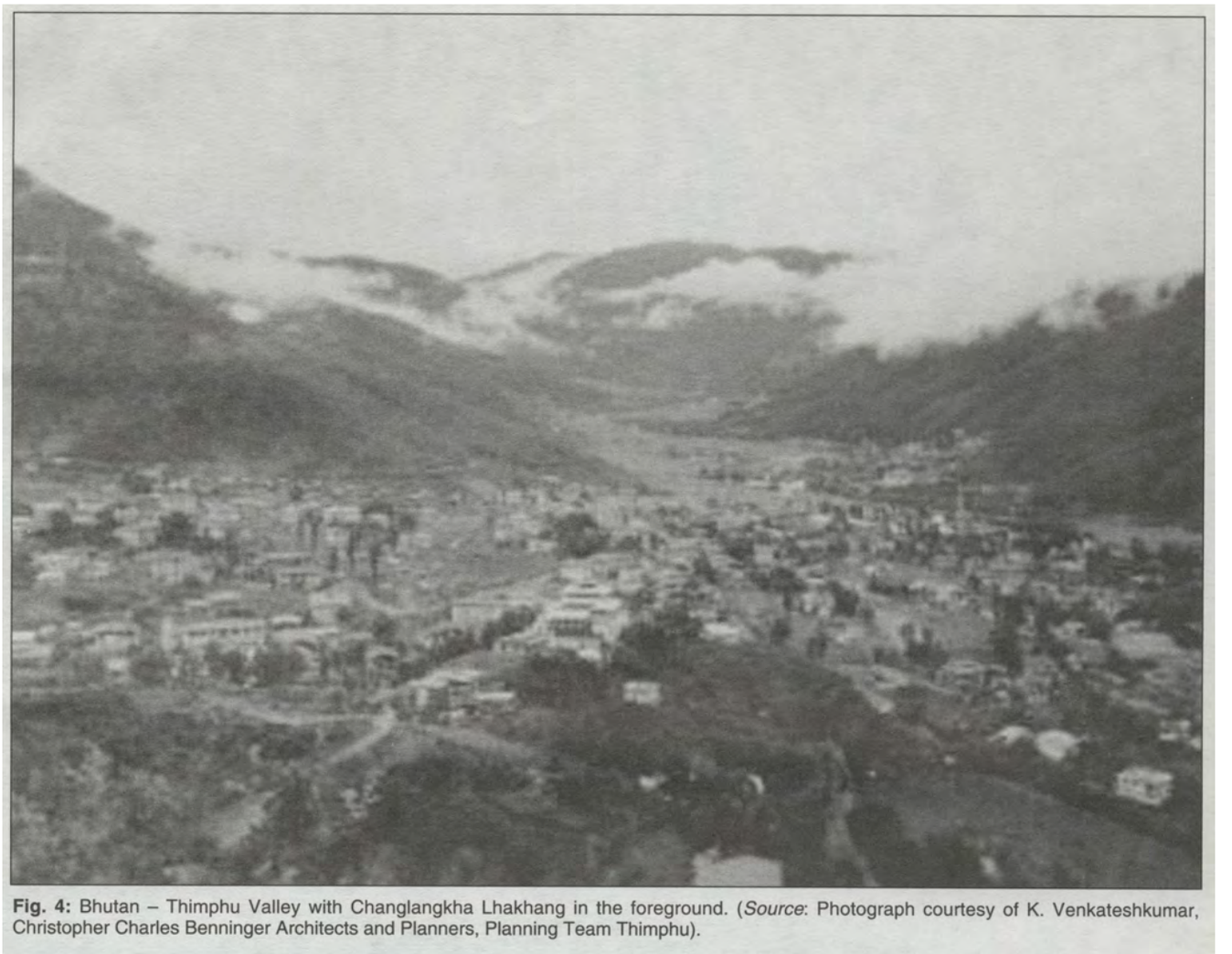

Fig. 4: Bhutan – Thimphu Valley with Changlangkha Lhakhang in the foreground. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

The quantity of land available in Thimphu is limited, yet incrementally it is being consumed on a first-come, first-served basis, without reference to any long-term plan or priority system. The process is a retrogressive one with "patchy" sprawl emerging, characterized by unplanned pockets of development. In many of the pockets the densities are far too low to support even a modicum of services. Basic utilities cannot be financed from the number of dwellings served, due to low densities. At a later date these same low-density areas will fill in with unplanned structures, for which there are no utilities and services.

Any kind of public transport service will require fairly high thresholds of population at each stop and destination. Such transport nodes are not emerging. Unless there is surety and frequency of services, people will not opt for public transport. Thus, density is the key to effective transport planning, as well as services and utilities in general. Allowing areas to grow with no density considerations is creating a dysfunctional city. There are too few users, on a per hectare basis, for economically viable maintenance. Who will subsidize these unviable levels of service? Is it sustainable to subsidize the upper incomes, while low-income settlements have little, or no, services at all? Will this process, and the resulting pattern, not lead to public poverty in a sea of personal wealth?

Unserviceable, fragmented, low-density development characterizes the city's present growth trend.

The Royal Government is cognizant of what is happening, and in its wisdom is taking action to create a better future, not just for the citizens of the capital, but also for the Kingdom as a whole.

The city of Thimphu is more than just a place where people live and work, where people are born, grow up, create households, retire and then pass away. It is more than just another habitat or dwelling place. It is the symbol and the image of a unique culture, embodied in a unique nation. Thimphu gives meaning and substance to the very idea of Bhutan.

Demographic and social transformation

With a geographic area marginally larger than Switzerland's, and a population of only 600,000 people, Bhutan has one of the lowest densities of any Asian nation.

The capital of the kingdom was shifted to Thimphu in the early 1950s when there were no motorable roads, airfields, electricity, telecommunications or other modern infrastructure. The first motorable road reached Thimphu in 1962, and over the past three decades a rapid transformation has occurred. The major aspects of change can be seen in the spread of health care, education, electrification, road transport, communications and market mechanisms. Commercial crops have replaced self-sufficient farming in many areas. Tourism has emerged as a prime sector of the economy. The country is an

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Fig. 5: Bhutan – View of the town of Thimphu. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

Fig. 6: Bhutan – Gathering to celebrate the King's birthday in Thimphu. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

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Fig. 7: Bhutan – Bhutanese lady in the market in Thimphu. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

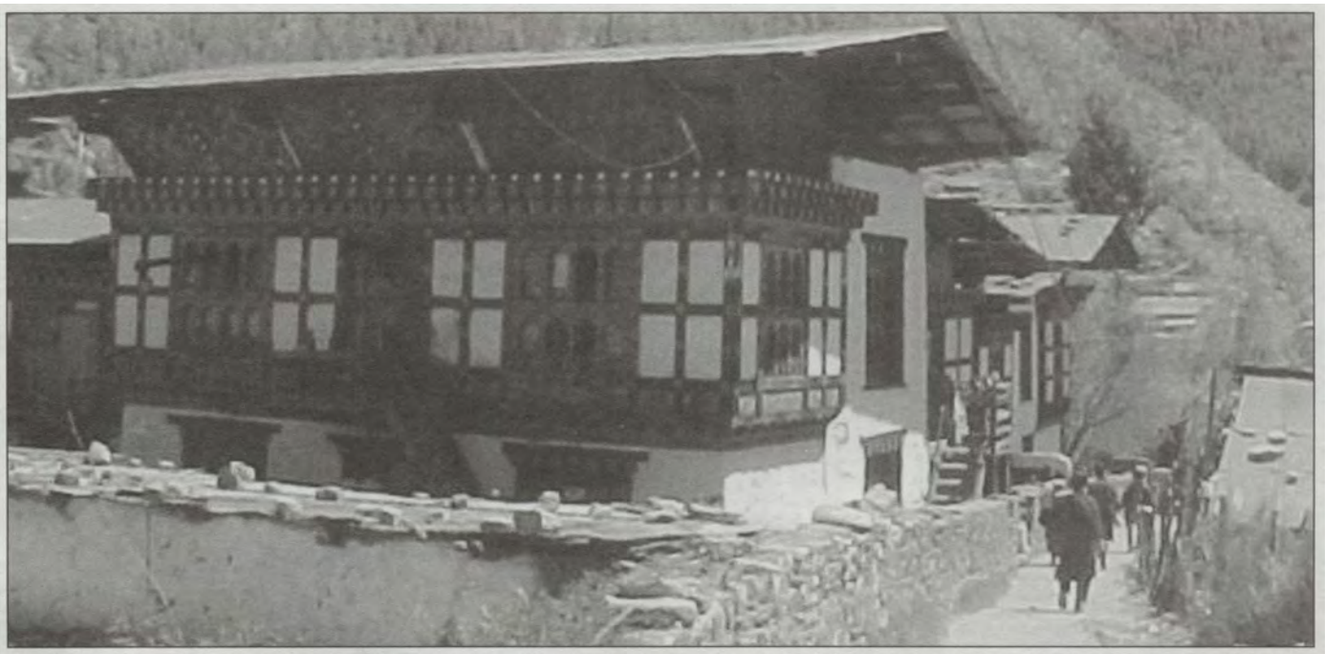

Fig. 8: Bhutan – Footpath to the market in Thimphu. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

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Fig. 9: Bhutan – A weekend market in Thimphu. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

Fig. 10: Bhutan – The folk dance at the Thimphu Tshechu Festival (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

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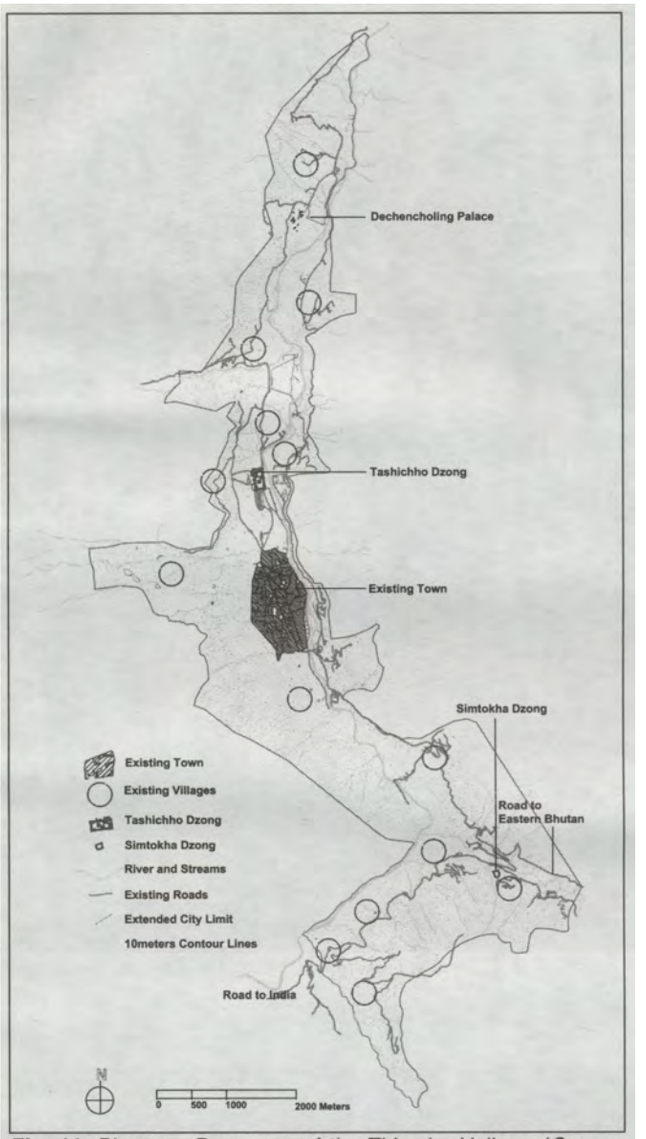

Fig. 11: Bhutan – Base map of the Thimphu Valley. (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners).

Fig. 12: Bhutan – Environmental analysis map of the Thimphu Valley. (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners).

energy exporter, due to its hydroelectric projects. Construction and transport are rapidly growing sectors of the economy. From one of the least developed countries (LDCs) a mere two decades back, Bhutan's growing per capita income has placed it as the richest nation in the region, in terms of per capita production.

Rapid growth has brought many new problems with it. Mono-cropping, and the concomitant need for food substitutes, has caused new nutritional problems. The drivers who transport commercial crops and goods, spread disease. Education has raised expectations amongst the rural youth, and communications have instilled new life patterns in the minds of the people. As people move to towns, the environment is eroded and the consumption distribution becomes noticeably skewed. The number of educated, unemployed Bhutanese youth is on the rise. These educated youngsters will not accept casual labor as a form of sustenance. Filling the resultant gap in skilled and semi-skilled laborers are foreign workers from the south, creating an underclass of casual workers. The Royal Government has adapted quickly to numerous crises over the past decade, muting Gross National Happiness as the singular national goal from which a number of objectives have emerged. Rapid urbanization has been characterized by housing shortages, pollution, congestion and inequalities. Thus, the new Capital Plan for Thimphu must respond to socio-economic demands, as well as physical ones.

A fragile ecology and environment

Thimphu is a humble city nestled into the world's most magnificent range of mountains. The Thimphu Valley has its own ecological requirements. The valley needs the green cover on the hillsides, protecting the Wang Chhu (river) from silting up and flooding. It needs space for the avifauna and fauna that maintain the fragile balance amongst a wide variety of flora and soils. The city cannot overload these fragile soils, which hold back the land from sliding down into the river basin. Such erosion will silt up the river, making it widen and flood over its banks! The downstream effects will be disastrous, and the

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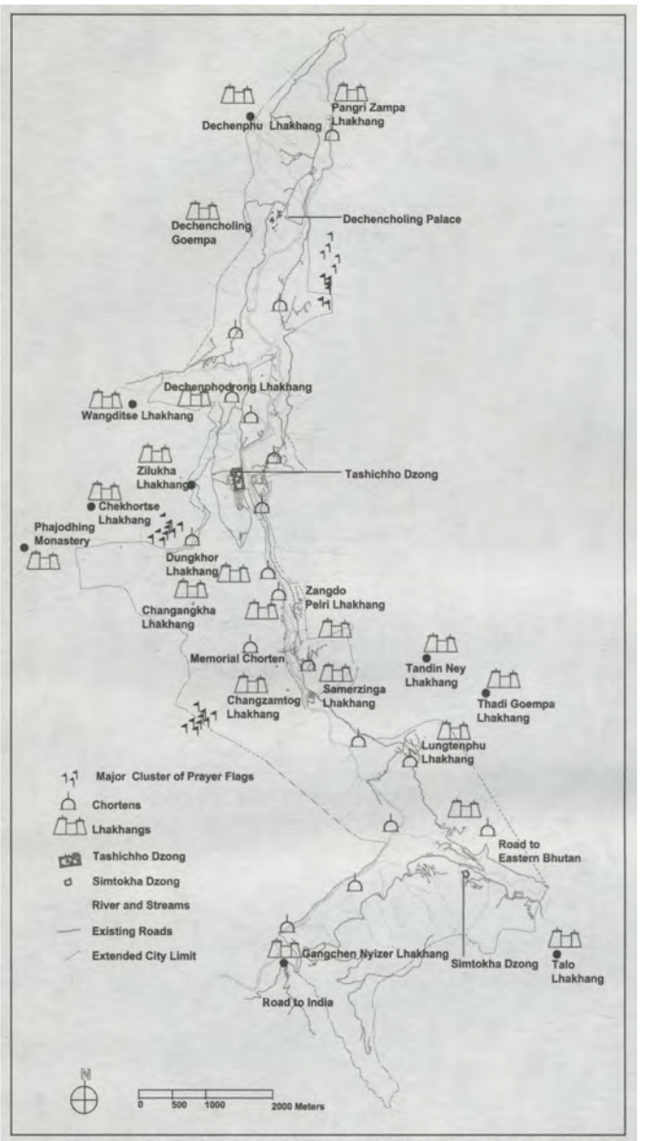

Fig. 13: Thimphu – Plan showing the existing cultural and heritage sites in the Valley. (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners).

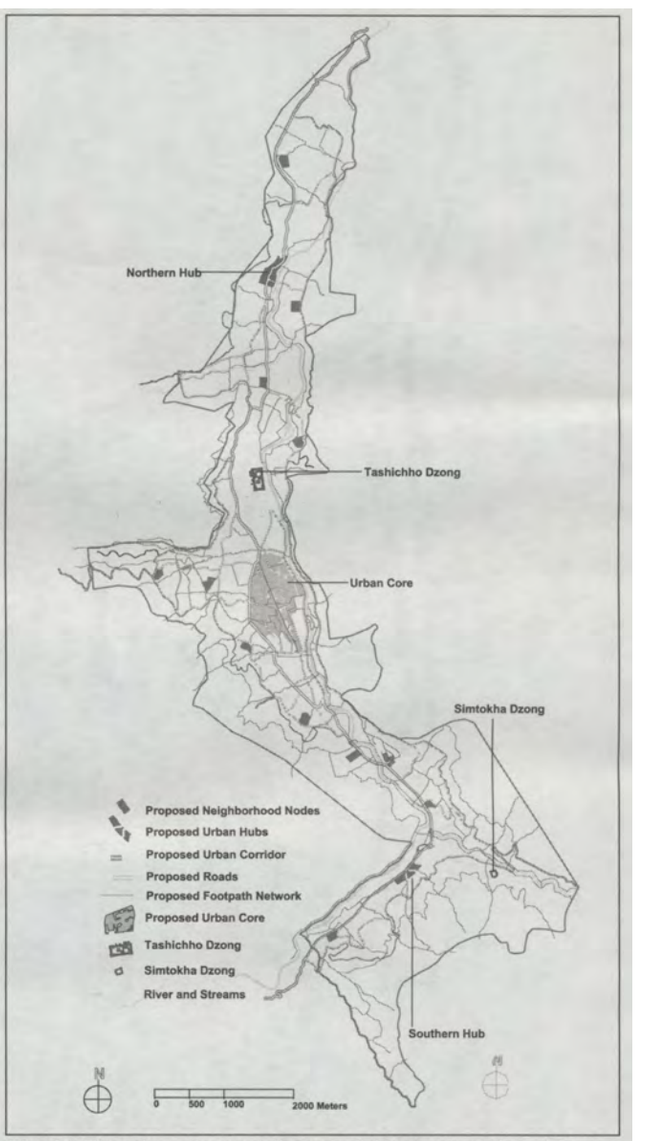

Fig. 14: Thimphu – Concept diagram of the structure plan. (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners).

costs incalculable.

Where others have failed to respect their fragile eco-systems, in a manner balancing man and nature, Bhutan is committed to follow a more dignified path. Bhutan is committed to create one of the first environment-friendly habitats in the world, where mankind and nature find a modicum of eternal harmony. Thus, this new Capital Plan for Thimphu takes on a character of epic proportions as a model for other small towns and cities, spread across the Himalayas, which will expand over the coming century.

Heritage

Rich in history and heritage, the valley needs space for an array of *chortens*, *manis*[3] (prayer wheels), *mani* walls,[4] *lakhangs*[5] (temples) and monasteries. The valley needs space for the Tashichho and Simtokha Dzongs. The city is a virtual living museum of culture. As the transient guardian of this heritage, and as the trustee of this great museum, the proposed plan of the city is the only means for the city to protect the wealth that it has inherited. The Thimphu Valley is the product of millennia and belongs to eternity. In a sense, all the inhabitants of Thimphu are mere visitors to the valley during their short life-times ... passers-by, so to speak. It is one of their life's burdens to see that this great heritage is passed on to future generations.

Precincts

Besides all of these profound requirements, the city also needs space for the mundane things that its people do. There must be spaces to work; spaces to play; places to romance, and places to settle down into "householders." There must be spaces to make and sell things; places to buy and to trade things; and places to socialize. People need to celebrate and to make merry! People need to govern themselves and to be administered. All of these needs and requirements demand space. To assure that this space is available and that it is not exploited mindlessly, a system of codes and principles is required that distinguishes the citizens of Thimphu as a civilized people.

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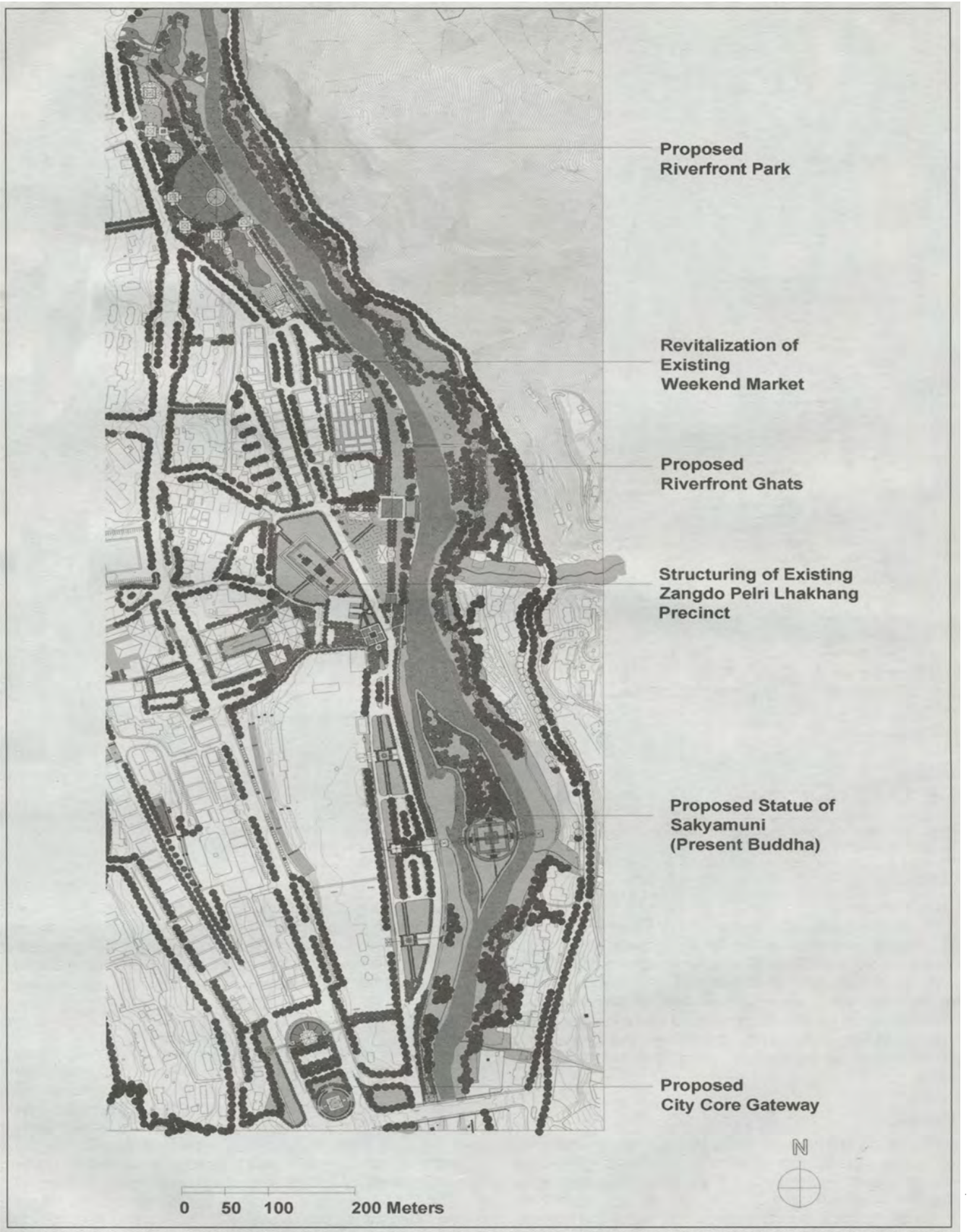

Fig. 15: Thimphu – Plan of the Wang Chhu River Front development. (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners (CCBA), K. Venkateshkumar – CCBA Planning Team Thimphu).

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Not only do different people have their unique *dharmas*,[6] their own natures and their own life missions, but also the city has to reflect those different roles and "cycles of life" that are the essence of the Bhutanese way! To celebrate that way, and to enshrine the values that distinguish the city as a place of the Drukpas,[7] there have to be unique spaces, or precincts, for various activities, moods and behaviors. Some of these activities are not compatible with each other, while others are mutually reinforcing. Thus, it is necessary to define precincts that sanctify these activity clusters into coherent functional areas. These precincts need to be sanctified, as the abodes of different *dharmas*.

The last plan

The first plan for Thimphu was prepared in the mid-1980s, when the population was less than 8,000 people. Up until then the valley was under-populated and the Royal Government used incentives to attract investors into land development and into building construction. Though land was practically given away, there were few takers for plots on which taxes would be levied! The scenario has changed dramatically over the last decade. There has been an influx of population into the capital with the growth of commerce and the expansion of government. During this period, several written plan documents have been prepared. These were hypothetical studies, which were not implementable, carried out hastily, with little data or analysis. Donor-sponsored missions prepared some rapid appraisals and plans during brief "missions." A distinguished American university even had the audacity to prepare a plan during a ten day "workshop," claiming later that they had prepared a structure plan for the city! During this period of abuse and neglect, the population grew, and along with it construction mushroomed.

But growth waits for no one, nor for any culture! It has its own mean way of moving on, leaving those who are thoughtless, ignorant and hesitant behind its great wheel of change. This is not a time for the meek, nor a place for the careless, or for those who lack the courage to make hard choices and sensitive decisions. There is but one more chance to make this last plan. By the time this planning cycle is over in 2027, the valley will be filled with people and there will be no room left for pondering and for indecision. There will be no space left for choices, for debates, or for planning. This is it! All or nothing ... the Last Plan!

Common set of Principles of Intelligent Urbanism

What is essential to allay this pending disaster is a common set of principles, which all agree upon, and all act by. Such an urban code of practice is the essence of human ascendance and of the civil society. It is what civilization is all about.

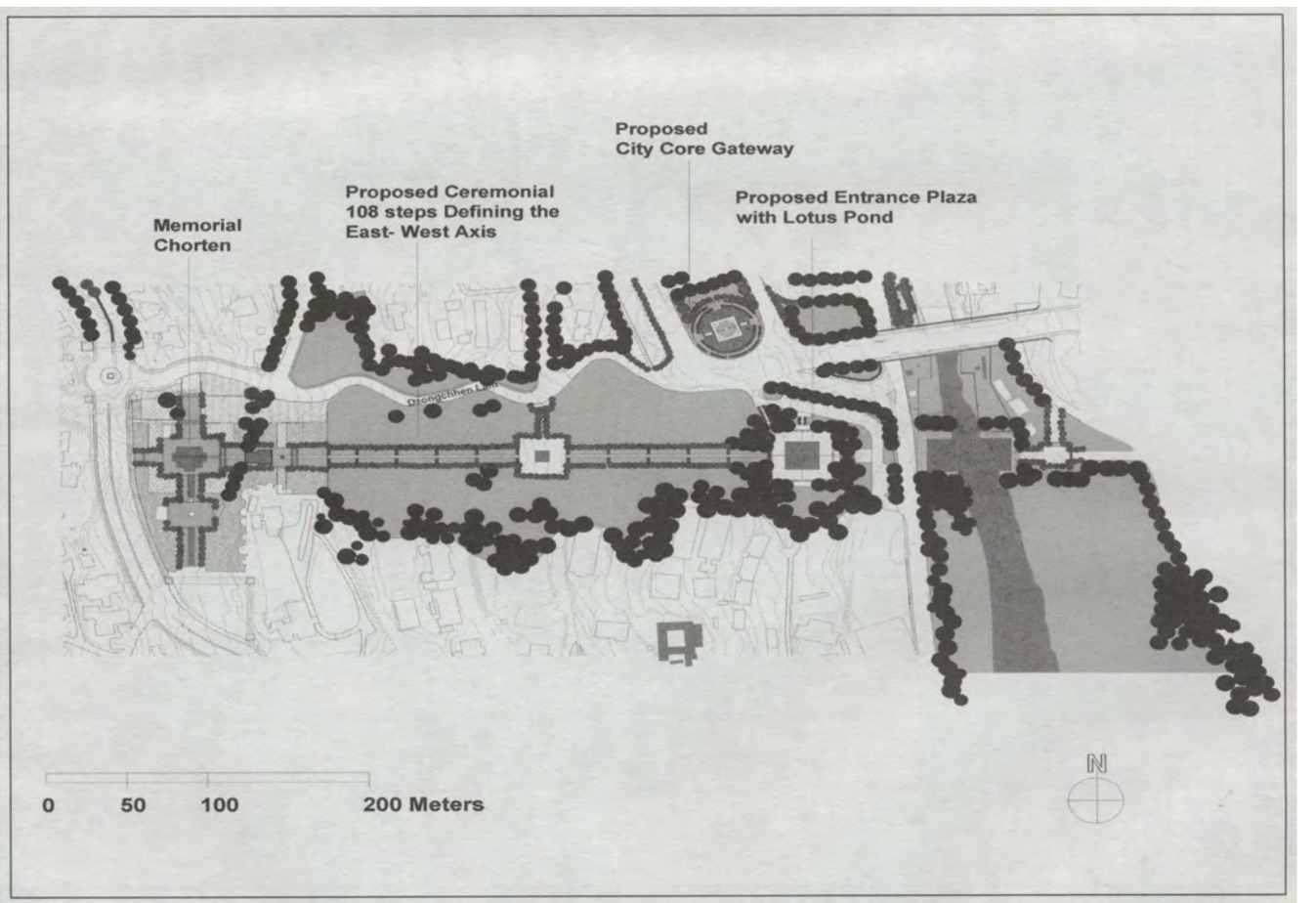

Fig. 16: Thimphu – Plan of the one hundred and eight steps, leading to the Memorial Chorten. (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners (CCBA), K. Venkateshkumar and K. Uday Bhaskar – CCBA Planning Team Thimphu).

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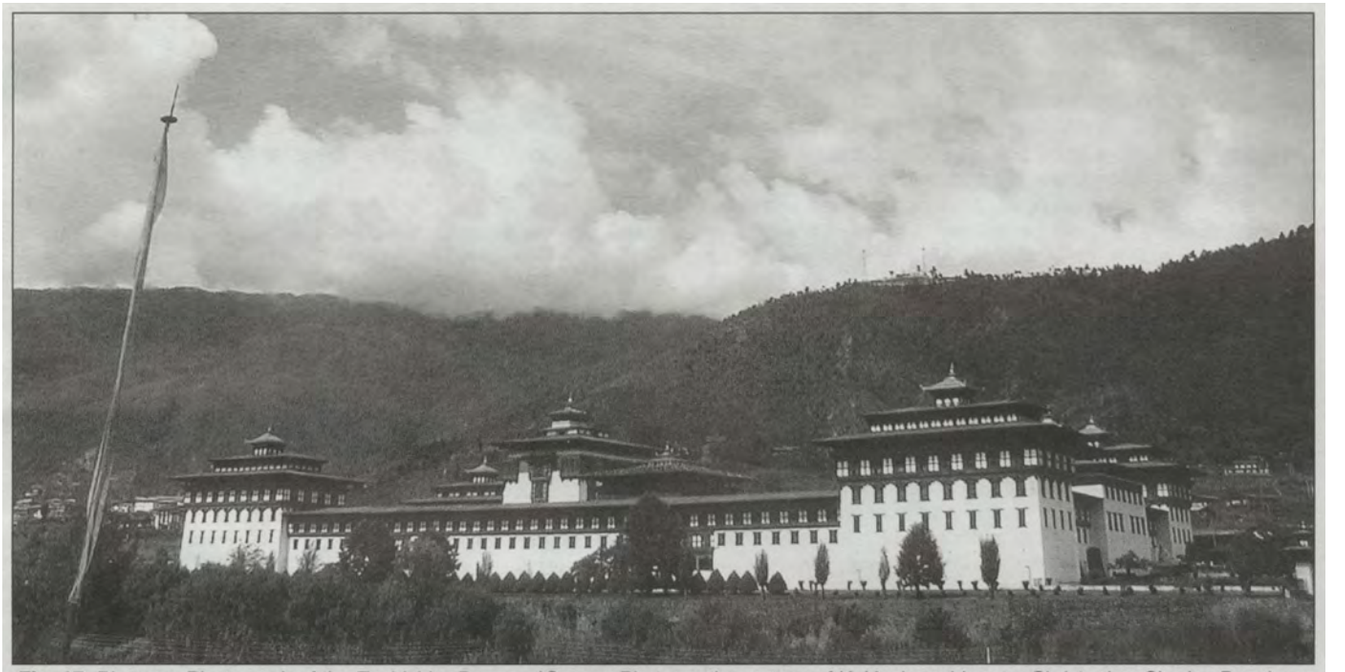

Fig. 17: Bhutan – Photograph of the Tashichho Dzong. (*Source:* Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

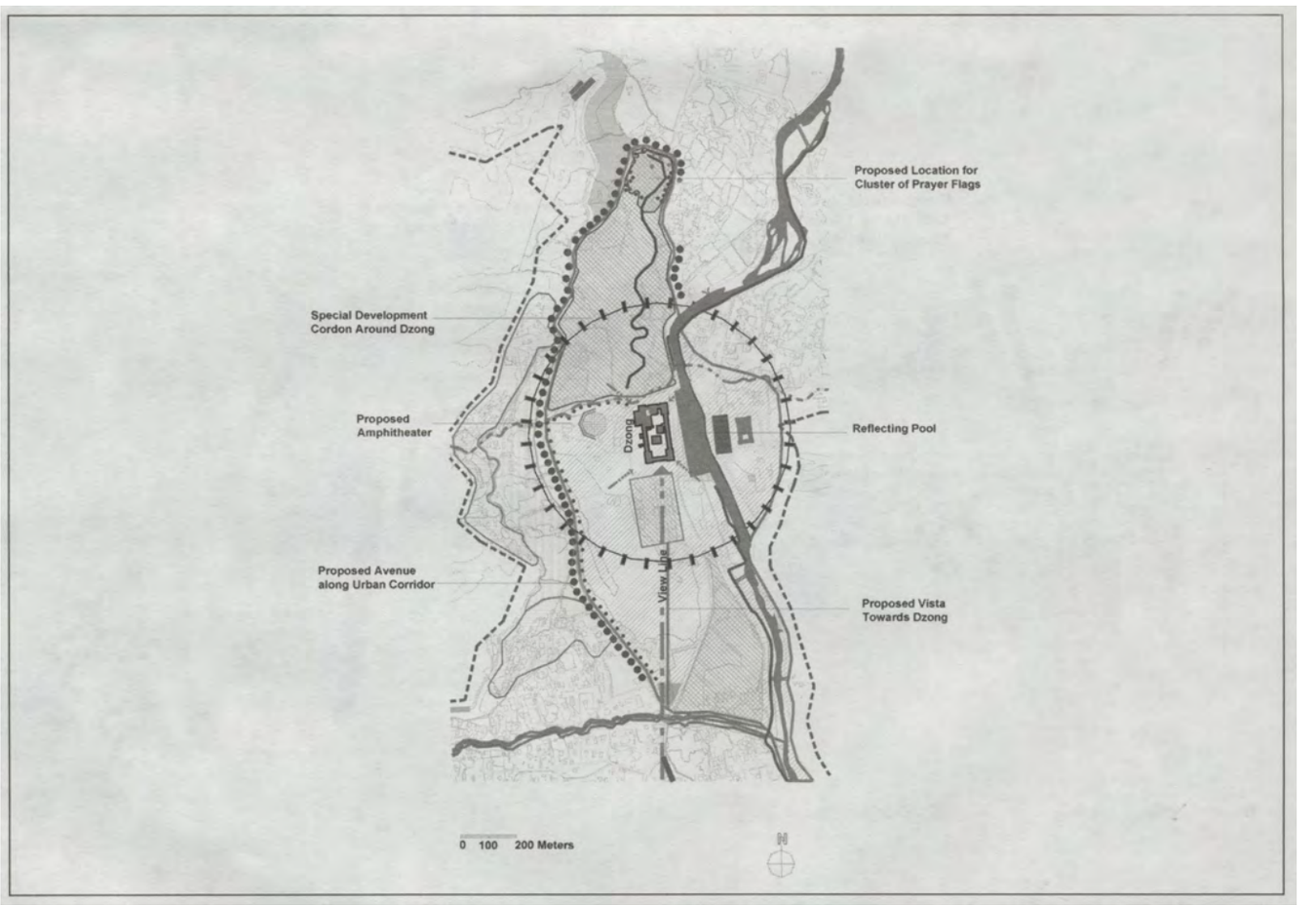

Fig. 18: Bhutan – Precinct plan of the Tashichho Dzong area (the Dzong is the main government and Monks' Body Complex). (*Source: Thimphu Structure Plan,* Christopher Charles Benninger Architects and Planners).

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Where people come and live by a common set of civil principles, a civil society is born. The word civil, in fact, is derived from the ancient word for CITY! The concept of civilization emerged from cities. Civilization matures and grows where diverse, varied and multi-interested people all join together under a banner of common rules, tempering mutually beneficial behavior. While one cannot copy any other culture, or ape any other practices, one can learn from the successes and mistakes of others, and from their laws and plans. But in the end each city must debate and finally "own" its civil principles, and follow them!

Emerging societies always have the potential to make a gift to older ones. They have a chance to think afresh what is virtuous, what is right and what will lead to the general good. This is particularly important when fads and fashions, like the New Urbanism and Smart Growth, are sweeping mindlessly across the West.

Emerging societies like Bhutan need a relevant set of principles, born out of their unique environments and special cultures, and their own concept of development. They cannot just borrow what others have done. These principles, in fact, may guide other cities in their search for environmental stability and cultural richness through urban planning and growth. This is an area where Bhutan may take the lead, and others will follow.

During public consultations in Thimphu and meetings with public officials and professionals, new directions emerged. Some were as clear as mathematical axioms, while others were more like general guidelines. We realized that it was worth noting these down and getting a picture for ourselves about where we should be going. When we started to do this we referred back to people who had influenced us, and who would have agreed with our new set of principles. These included Lewis Mumford, José Luis Sert, C.A. Doxiadis, the members of Team Ten, and more recently the advocacy and community planners in America. While the New Urbanists and the Smart Growth sponsors have some laudable ideas, their origins in resort communities, like Seaside, and retirement villages, like Celebration ... havens of the rich in seasonal Florida ... belie their isolation from the core socio-economic issues of urbanism. These cannot serve as models for urbanism in America, and certainly not in Bhutan. Neither, going back further, would the grids and geometric blocks of the old modernists serve our needs! Thus, we relied on our own research in Thimphu, and reviewed our own practical experiences applying urban theory. We needed to find our own feet, so to speak, and to write our own charter.

We realized that the new fashions in the West merely grabbed at significant "starts" from the 20th century, turning the profound into the mundane. We needed our own "starts" based in social, economic, cultural and environmental realities. When we were finished with this exercise we realized that our visions in what is considered an exotic context parallel, rather than diverge from, the needs of urban situations in the West and, moreover, the emerging nations of Latin America, Asia and Africa. The tendency to segment the world serves an agenda of centering idea generation from a few locales. We reject this! Florida and California would better network with the world than float charters, which neglect even their own urban problems. Foreign universities would rather see India and Bhutan through exotic, neo-British Raj lenses, than engage in a debate over urban principles and directions.

This new Capital Plan of Thimphu proposes that a unique set of civil principles, which guide urban growth, planning and urban management, over the coming century, be based on approaches we may call Intelligent Urbanism.

What would a set of intelligent urbanism principles include? Let us put down in writing a few of those principles.

Principle One: A balance with nature

There must be a balance between nature and human endeavor! We must understand the difference between exploiting nature and utilizing nature! There is a level of human habitation wherein the resources that are consumed will be replaced, through the replenishing cycles of the seasons, creating environmental equilibrium. So long as nature can resurge each year; so long as the biomass can survive within its own ecological system; so long as the breeding grounds of fauna and avifauna are safe; so long as there is no erosion and the tree coverage is maintained ... we are only utilizing nature.

But there is a fragile line that we cross when the fauna, which cross-fertilizes the flora, which sustains the soil, which supports the hillsides, is no longer there! When the soil is washed off the land faster than it can be replaced; when the rivers silt up faster than the natural currents can wash them clean; when river basins widen and we have to artificially contain the edges ... then we have destroyed the natural balance. There is an imaginary threshold ... a kind of line that we will cross over ... from where we cannot come back. At that point of no return, utilization of natural resources will outpace the natural ability of the eco-system to replenish itself. This is when we are exploiting nature, exploiting our city, and exploiting ourselves! From there on degradation accelerates and amplifies. Deforestation, desertification, erosion, floods, and landslides all incessantly increase.

Blatant acts against nature include cutting of hillside trees, quarrying on hill slopes, dumping sewerage and industrial waste into the natural drainage system, paving and plinthing excessively, and construction on steep slopes. Intelligent urbanism proposes that the balance of nature can be maintained when fragile areas are reserved for preservation and conservation activities, or used for low intensity habitation precincts. Primary education must include instruction on the theory of ecological and urban balance, including practical fieldwork in threatened areas. Common wisdom must include the fundamentals of balance between man and nature.

Intelligent urbanism operates within the balance of nature. Intelligent urbanism aggressively protects and conserves those elements of the ecology that nurture the environment. Therefore, the first principle of intelligent urbanism is that urbanization be environmentally sound!

Principle Two: A balance with tradition

Intelligent urbanism respects the cultural heritage of a place. It seeks out traditional wisdom in the layout of human settlements, in the order of building plans, in the precedents of style, in the symbols and signs, which transfer meanings through decorations and motifs. Intelligent urbanism respects the order engendered into building systems through years of adaptation to climate, to social circumstances, to available materials and to technology. It promotes architectural styles and motifs, which communicate cultural values.

Intelligent urbanism orients major road axes toward monuments and heritage structures. It leaves open space at the ends of such axes for future institutional buildings and monuments to rise up, or to "frame" existing views and vistas.

Intelligent urbanism respects shorelines, river edges, natural views and vistas. It assures buildings do not block major sight lines toward major public visual assets.

There is a link between signs and symbols; decoration and motifs; iconographic structures and auspicious elements of layouts; and shared cultural wisdom. This is a silent language, which bonds a people together through a meaning system. These all form part of the unwritten, unspoken traditional knowledge system of a culture. All villages, towns and cities

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have the generic elements from which such knowledge systems emerge. Some examples from Thimphu are:

- The prayer flags that preside over the city. Fashioned of auspicious colors, and block-printed with favorable mantras,[8] the wind carries their good omens in the aether above the city. Prayer flags are also in the compounds of houses, of temples and of monasteries, and they speak out to the people of their auspicious messages and good sentiments.
- *Lakhangs* and monasteries are located on promontories, overlooking the city. In a protective manner they surround the valley and portend good with their hundreds of monks giving prayers in meditation.
- *Chortens* of many shapes and sizes fill the valley, which have the prayer, "*Om mani padme hum,*"[9] inscribed within them. Larger *chortens* encase the relics of saints, and are known as stupas.[10] The smaller ones house "merit" which can be imbibed by the people nearby. They form an auspicious line along the traditional path leading into the valley. They mark out spaces, as opposed to enclosing spaces. They engender a sense of place!
- Gateways demarcate space into "external" and "internal" protected areas. They welcome home inhabitants and they greet visitors! They transform anonymous space into friendly, protected places. They are the markers between the disorganized and the organized!
- *Manis* (or prayer wheels) and *mani*-walls (that hold prayer wheels) accumulate goodness through their turnings. As these prayer wheel machines churn out thousands of prayers, they produce a wealth of spiritual meaning.
- The monumental Tashichho Dzong visually anchors the upper end of the valley. As the seat of Buddhism in Bhutan, as well as the Royal Government, this heritage site is the image and the icon of the nation.
- The ancient Simtokha Dzong is strategically set at the lower end of the valley where it turns to the west, while joining the valley of the Ola Rong Chhu from the east. Thus, this monolith presides over the meeting point of three valleys, affording it strategic views toward the Tashichho Dzong to the north, and down the river valleys to the east and to the west! It gathers in a magnificent borrowed landscape, while creating a visual landmark around which huge spaces pivot.

These examples give a clear notion of how heritage sites and artifacts can be brought into a modern-day scenario of planning, engendering a sense of place.

Every culture and every society has its iconography, its signs and its symbols. Intelligent urbanism promotes their incorporation into the spatial order of urban settings. Intelligent urbanism promotes the use of local knowledge and meaning systems, as expressed through art, urban space and architecture, to orient and structure urban plans. This is the second principle!

Principle Three: Conviviality

Intelligent urbanism sponsors a convivial society. Vibrant societies are interactive, socially engaging and offer their members numerous opportunities for gathering. Bhutanese society operates within hierarchies of social relations. The hierarchies can be conceptualized as a system of social tiers, with each tier having a corresponding physical place in the settlement structure. Intelligent urbanism identifies these places and assures they become components of the urban milieu.

A place for the individual: There must always be a space for the individual to wander in. There have always been places in the hills, along quiet streams, in open grasslands and amongst trees where one can escape to meditate and contemplate. These are the quiet places wherein the individual consciousness dialogues with the rational mind. Idle and random thought sorts out the complexities of modern life and allows the obvious to emerge. It is in these natural settings that the wandering mind finds its measure and its balance.

In ancient times such spaces were neither contained, nor artificial man-made spaces. They were the great valleys, like the Thimphu Valley itself! They were small cusps of trees, or quiet spots on hillsides. Using *chortens*, gates, *mani* walls and other "silent devices," these spaces were denoted and divined. Places of the individual cultivate meditation. These spaces may also be the forecourts and interior courtyards of *lakhangs* and monasteries, or even the modern reading rooms of libraries. Meditation focuses thought and sharpens one's control over the conscious world. Intelligent urbanism creates a domain for the individual to mature through self-analysis and self-realization. This basic tier is essential for the spiritual life of the individual and of the nation.

A place for friendship: There must be spaces for "beautiful, intimate friendship" where unfettered dialogue can happen. We cannot just assume such places will exist in a modern urban fabric. They must be a part of the conscientious design of the urban core, of the urban hubs, of urban villages and of neighborhoods, where people can meet with friends and talk out life's issues, sorrows, joys and dilemmas. This second tier is important for the emotional life of the populace. It sponsors strong mental health within the people. Intelligent urbanism creates places where friendship can unfold and grow.

A place for householders: Next there must be spaces for householders that may be in the form of dwellings for families, or homes for intimate companions, and where young workmates can form a common kitchen. Whatever their compositions, there must be a unique domain for social groups, familiar or biological, which have organized themselves into households. These domestic precincts are where households live and carry out their day-to-day functions of life. This third tier of conviviality is a very important one. It is where the individual socializes into a personality.

Worldwide, the definition of the "family" has undergone significant change. Bhutan is no exception. It has always been less rigid than other societies. While there are single mothers, childless couples, unmarried couples and friends householding, there is a trend to accommodate variety within a family setting.

Intelligent urbanism creates a variety of household possibilities, which respond to a range of household structures and situations. It recognizes that households transform through the years, requiring a variety of dwellings that respond to a complex matrix of needs and abilities.

A place for the neighborhood: These household domains must cluster into a higher social domain ... the neighborhood social group. These are social groups where everyone knows one another. Festivals are celebrated in neighborhoods, and one may passively be drawn into local functions without any proactive effort.

In rural settings these are clusters of houses in hamlets, formed of large extended families, where everyone knows each other, recognizes all of the good and bad qualities of each person, and where social patterns of behavior are enforced without written codes, or oppressive regimentation. In modern, urban social settings the neighborhood takes on some of the roles for the individual that were once sponsored by hamlets of extended family members.

In an urban neighborhood each individual knows each other's face, name, special characteristics, strengths and

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weaknesses. The neighborhood space is a domain where women and children are secure, where young girls can relax out-of-doors, fearless of careless glances and thoughtless comments. In an urban village, it is the "eyes of the street" that provides protection and reassurance.

Intelligent urbanism sponsors, through design, such units of social space. It is in this fourth layer of social life that public conduct takes on new dimensions and groups learn to live peacefully amongst one another. It is in neighborhoods where intelligent urbanism sponsors the "social contract" amongst diverse households and individuals. This social contract is the basis for rational social relations and negotiations within larger social groups.

A place for communities: The next social tier, or hierarchy, is the community. Historically, communities were tribes who shared social mores and cultural behavioral patterns. In contemporary urban settings communities are formed of diverse people. But these are people who share the common need to negotiate and manage their spatial settings. In the Thimphu Capital Plan these are called Urban Villages. Like a rural village, social bonds are found in the community management of security, common resources and social places. Urban Villages will have defined social spaces, services and amenities that need to be managed by the community. These Urban Villages will ultimately become the administrative wards, and therefore the constituencies of the elected members of the municipal body. Though there are no physical barriers to these communities, they have their unique social domain. Generally, the geographic features of the valley have defined them. Intelligent urbanism creates dense, walkable zones in which the inhabitants recognize each other's faces, share common facilities and resources, and often see each other at the village center. This fifth tier of social space is where one needs initiative to join into various activities. It promotes initiative and constructive aggression. There are opportunities for one to be involved in the management of services, and amenities and to meet new people. Intelligent urbanism promotes the creation of community places, where community-based organizations can manage common resources and resolve common problems.

A place for the public domain: At the city level, there is the public domain. This social space is where everyone can go. Everyone possesses this space. In the modern world the public domain is shrinking. In many countries one has to pay an entrance fee to access "public domains." Unlike the lower tiers of the social hierarchy, this tier is not defined by any biological, familiar, face-to-face or other exclusive characteristic. One may find Europeans, Japanese, Africans; people from the subcontinent; visitors from the districts ... all kinds of people in the public domain. By nature it is a system of accessible and open spaces. There are no physical barriers. It is the rules of human conduct that set this domain's behavior. It is civility, or civilization, which protects and energizes such spaces. At the lower tiers, one meets people through introductions, through family ties, and through neighborhood circumstances. In the public domain, one can make chance meetings with total strangers, who may become lifelong friends! Public domains are "serendipity places," where pleasant, unexpected meetings and events may occur!

The public domain, at its most basic level, includes the city footpaths; the parks and gardens; large shopping areas; and theaters. The public domain is composed of public places, which belong to everyone. These are places where outdoor exhibits are held, archery matches take place, vegetables are sold and goods are on display. These are places where visitors to the city meander amongst the locals. "Newness" is characteristic! The places may stay the same, but the people are always changing. When one is lonely or bored, one drifts toward such spaces, if not to make a new acquaintance, then to play around with the possibility. There is always a tinge of excitement in public domains. Something new and unexpected may happen. Most important, the public domain fosters public interaction; it sponsors unspoken ground rules for unknown people to meet and to interact. It nurtures civic understanding of the strength of diversity, variety, a range of cultural groups and ethnic mixes. In fact, it is this higher category of social space, or the public domain, which defines truly urban environments.

Intelligent urbanism emphasizes the creation of public domains, nurturing the possibility of chance meetings, catalyzing human interaction, and promoting communications, friendships and even love! Intelligent urbanism is focused on conviviality and social interaction!

Every social system has its own hierarchy of social relations and interactions. These are reflected through a system of "places" that respond to them. A **place** catalyzes a set of human relations and interactions! A space is just four walls around a floor plane!

The fourth principle of intelligent urbanism promotes the planning and design of such "places," as elemental components of urban structure.

Principle Four: Efficiency

Intelligent urbanism promotes a balance between performance and consumption. Intelligent urbanism promotes efficiency in carrying out functions in a cost-effective manner. It assesses the performance of various systems required by the public and the consumption of energy, funds, administrative time and the maintenance efforts required to perform these functions.

A major concern of intelligent urbanism is transport. While recognizing the convenience of personal vehicles, it attempts to place the costs (energy consumption, large paved areas, parking, accidents, negative balance of trade, and pollution) on the users of private vehicles. Presently the private automobile is subsidized by the Royal Government, even to the extent of lower interest rates for car purchases, than for home purchases.

Road taxes cover a fraction of the costs of roads! The costs of respiratory diseases, cancer, and heart ailments generated by the automobile's pollution are borne by active travelers and passive travelers, pedestrians, the public health system and the taxpayers.

Intelligent urbanism promotes alternative choices to dependence on personal vehicles. It promotes affordable public transport. It promotes nodes of medium to high-density residential development along with complimentary social amenities, convenience shopping, recreation and public services in compact, mixed-use settlements. These compact communities have shorter road lengths, water pipe lengths, wire lengths, cable lengths, drainage canal lengths and sewerage system lengths per capita. More people share gardens, shops and transit stops. This pattern is more cost effective, cheaper and the cost recovery for infrastructure is easier. High-density urban neighborhood nodes become the centers of lower density plotted areas, which can use the facilities these nodes support.

Compact urban nodes are spaced along regional urban corridors that integrate the region's urban nodes, through public transport, into a rational system of growth. Intelligent urbanism promotes clean, comfortable, safe and speedy, public transport, which operates at dependable intervals along major origin and destination paths. Such a system is cheaper, safer,

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less polluting and consumes less energy. It is more efficient!

The same principle applies to public infrastructure, social facilities and public services. Compact, high-density communities result in more efficient systems. There is an appropriate balance to be found somewhere on the line between wasteful low-density individual systems and over-capitalized mega-systems. For example, individual septic tanks and water bores servicing individual households in low-density fragmented layouts cause pollution of subterranean aquifer systems. The bores dramatically lower the ground water levels. Alternatively, large-scale, citywide sewerage systems and regional water supply systems are capital intensive and prone to management and maintenance dysfunction. Operating costs, user fees and cost recovery expenses are high. There is a balance wherein medium-scale systems, covering compact communities, utilize modern technology, without the pitfalls of large-scale infrastructure systems. Intelligent urbanism promotes the middle path with regard to public infrastructure, facilities, services and amenities.

When the coverage of these appropriate systems physically overlaps communities with elected representatives, the "imagery" between user performance through tax and fee payments, systems dependability through management, and official response through effective representation, all become transparent. Intelligent urbanism fosters and dignifies the pedestrian, linking footpaths and walkways with public transport systems at strategic high-density nodes and hubs. Intelligent urbanism promotes medium-scale infrastructure systems whose catchment areas overlap political constituencies and administrative jurisdictions.

Intelligent urbanism promotes compact settlements along urban corridors, and within networks, such that densities support effective and efficient infrastructure systems. The fourth principle of intelligent urbanism is to plan efficient urban fabric!

Principle Five: Human scale

An abiding axiom of urban design and city planning has been the promotion of people-friendly places, pedestrian walkways and public domains where people can meet. These can be galleries covered with glass, arcades, cozy courtyards, street side walkways and a variety of gardens and semi-covered spaces. In salubrious climates, out-of-doors spaces can be exploited.

The last three decades have seen the loss of such spaces where the public domain has shrunk into privately managed shopping malls, entertainment complexes and gated suburban communities. Development has spread out privately managed, "limited access" public amenities along automobile roads and highways. This has divided society into ability to pay groups and made the automobile essential, not just for every household, but for every person. In some cities, "through grid road networks" have been atomized into dead end cul-de-sacs by closing off roads. Webs of human movement, access and interaction have been cannibalized into limited access "trees," with an entrance gate, a congested trunk road, arteries and small branch streets, "dead-ending" into under-utilized, isolated cul-de-sacs and loop lanes!

In most of the world, where economies are in a transformational stage, this pattern divides already fragmented societies. There are common interests between up-market developers, the energy industry, politicians and investment managers. The interests of the individual are lost in what is often called the "new economy" and a massive infrastructure system is built around this divisive system. The seeds of this deterioration were sown in America when General Motors bought up and then dismantled urban tram systems. The flotsam of this deterioration can be seen in the privatization of Holland's public transport system. In countries like India and China the automobile is being promoted over the bicycle and the pedestrian, excluding 90 percent of the population. Walkable communities remain an image and not a reality.

Movements like Smart Growth have recognized the inefficiency in this system, but have as their goals merely the reduction of pollution, the savings in energy and the creation of more efficient infrastructure. They are not focused on the plight of the individual and the divisions in society. Their goal is not conviviality. The New Urbanism focuses on isolated enclaves. These New Urbanism communities are in fact hideaways for an alienated elite. One must bring human scale, efficiency and, yes, urbanism back to the city where the majority of people actually live and will congregate over the coming century. There is a sleight of hand in these movements and charters that use sound design and planning axioms to marginalize people, subdue traditional solutions and exploit the environment. Personal wealth is created at the behest of public poverty.

Intelligent urbanism promotes the human dimension in a hierarchy of public and semi-public social places, as opposed to atomized and isolated private spaces. Elite enclaves are not the case studies for intelligent urbanism!

A good measure of this hollow faddism was promoted by a clique of elitists who propounded that one could be "*Learning from Las Vegas*." They fooled a generation of young architects into believing that they could go to the periphery of the city and learn, as if they were in Rome or Florence! Students were told that their cultural building blocks could be deciphered from hoardings, visual cacophony and conspicuous consumption. They believed that McDonald's Yellow Arch and the Mickey Mouse icon were their cultural memorabilia! While urbanists were dabbling in suburbia, they could have been learning from the core of the city about interaction, stems and networks and conviviality.

Architecture, campus planning and city planning, over the past half century, have all focused on isolated monuments on their own isolated plots, often enclosed in their own compound walls and behind lockable gates. The emphasis has been on artistic "grand-standing" and institutional self-aggrandizement. Stunts like Potsdamer Platz in Berlin and the Guggenheim Museum in Bilbao, which are over-scaled and grandiose, detract from the human scale. Largeness, grandness and technological feats have been the new trend, where the goal is often to amaze the naïve public, rather than to create humble, walkable human experiences! The end results are tourist destinations and not communities. This anti-people approach to design is anathema to intelligent urbanism.

Intelligent urbanism promotes the scale of the pedestrian moving on the pathway, as opposed to the scale of the automobile on the expressway. Intelligent urbanism promotes the ground plan of imaginable precincts, as opposed to the imagery of façades and the monumentality of the section. It promotes the personal visibility of places moving at eye level, as opposed to vast images, moving in hyper sequence, past one as they move in a high-speed machine.

While city planners talk about mixed land uses they are still merely placing chunks of mono-functional blocks of activity adjacent to one another, on a chessboard-like plan. Each institution, corporation and housing block has their own lockable and secure enclave, surrounded by roads!

Intelligent urbanism conceives of mixing a variety of uses within a rich, integrated urban fabric. This brings into play mechanisms like "the eyes of the street," round-the-clock activities and a more compact networking of services and infrastructure. It greatly enhances accessibility. It brings people together.

In the contemporary city, the automobile is the only link between activities; between work, school and house; between

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individuals and group interaction. Intelligent urbanism removes this artificial barrier and promotes face-to-face contact. The automobile, single-use zoning and the construction of public structures in isolated compounds, all deteriorate the human condition and the human scale of the city. The relegation of "good practices" to isolated enclaves of the rich undermines the very concept of the community!

This trend can be overcome by developing pedestrian circulation networks along streets and open spaces that link local destinations. Shops, amenities, day care, vegetable markets and basic social services should be clustered around public transport stops, and at a walkable distance from work places, public institutions, high- and medium-density residential areas. Public spaces should be integrated into residential, work, entertainment and commercial areas. Social activities and public buildings should orient onto public open spaces. These should be the interchange sites for people on the move, where they can also revert into the realm of "slowness," of community life and of human interaction. These should be the interchange nodes at modal split points ... where pedestrians, cyclists, taxi passengers, bus passengers and light rail passengers alight, run errands, stop to rejuvenate and sip coffee.

Human scale can be achieved through building-masses that "step down" to human scale open spaces; by using arcades and pavilions as buffers to large masses; by intermixing open spaces and built masses sensitively; by using anthropometric proportions and natural materials. Traditional building precedents often carry within them a language of human scale, from which a contemporary fabric of built form may evolve.

The focus of intelligent urbanism is the ground plan, the plan, human movement and interaction along lines, stems, at crossing nodes, at interactive hubs and within vibrant urban cores. We have a lot to learn from Transit Oriented Development, but our goal is not merely to replace the automobile, nor to balance it. These are but the mundane requirements of planning, which we all are assumed to seek out in every design and urban configuration. These are but the "base-level aims" of all reasonable plans!

Intelligent urbanism recognizes that "urbanity" emerges where people mix and interact on a face-to-face basis ... on the ground, at high densities and amongst diverse social and economic groups. Intelligent urbanism nurtures "urbanity" through designs and plans that foster human scale interaction. The city must link together a matrix of human scales and human possibilities. It must create activity nodes, which promote interaction, communication, discussion, and the exchange of ideas, play, fun and romance! This is the essence of intelligent urbanism.

Intelligent urbanism conceives of urbanity as a process of facilitating human behavior toward more tolerant, more peaceful, more accommodating and more sensitive modalities of interaction and conflict resolution. In intelligent urbanism, human scale does not merely refer to the human dimension. It refers to the human perspective, and to humanism as a general guiding principle of making things.

Our goal is to enrich the human condition and to enhance the realm of human possibilities!

Principle Six: Opportunity matrix

The city is an engine of economic growth and human development. This is generally said with regard to GNP and balance of trade. More significantly, this is true for the individuals who settle in cities. Moreover, cities are places where individuals can increase their knowledge, skills and sensitivities. Cities provide access to health care and preventive medicine. They provide a great umbrella of services under which the individual can leave aside the struggle for survival, and get on with the finer things of life.

The city provides a range of services and facilities, whose realization in villages are the all-consuming functions of rural life. Potable water; sewerage disposal; energy for cooking, heat and lighting are all piped and wired in; solid waste disposal and storm water drainage are taken for granted. The city offers access through roads, buses, telephones and the Internet. The peace and security provided by effective policing systems, and the courts of law, are just assumed to be there in the city. Then there are the schools, the recreation facilities, the health services and a myriad of professional services offered in the city market place. There are snack shops, fast food joints, restaurants, and grocery stores with food substitutes, precooked and processed foods and ready-made meals. Cooking has become a hobby in the city!

Citizens of urban places are free from the tyrannies of disease, crime, harassment, exploitation, isolation, hunger, ignorance, and drudgery!

While the rural woman is fetching firewood, fetching water, growing vegetables and nurturing backyard poultry, washing clothes, boiling water and cooking, her urban sister may be doing a Ph.D. on "gender issues in rural development!" All of this leaves free time to develop one's own human resources, to pursue business, or gainful employment. One can pursue the arts, community work, politics and social work. This is all a result of the surety and security provided by the city. The city is an opportunity system! It offers a matrix of opportunities.

From the above it is self-evident that by urbanism we mean a process of personal transcendence over the constraints of life dictated by survival ... into a life of dreams and expectations. Urbanization is not just a movement of people from villages to cities; it is the transcendence of individual self-images from "involuntary, dependent conscripts" to self-defined, creative individuals.

Contrary to common wisdom, urbanism is a move away from the mundane objective of consumption, and toward goals of self-redefinition, social contribution, and spiritual realization through creation. Hyper consumption and blatant opportunism are but the ugly shadows of oppressive, subsistence, rural economies ... reflected in the insecure yuppidom of the New Economy. The expansive mansions illustrated in *The Charter for the New Urbanism* are anathema to intelligent urbanism. These excesses are visitors from an insecure and dangerous past into the present! Just as rational utilization of resources can grow into environmental exploitation, so opportunities can expand into crass opportunism. There is both a promise and a danger in urbanization. Intelligent urbanism sees much of the New Economy and the New Urbanism as a retrogressive diversion into exploitation and opportunism.

Intelligent urbanism sponsors opportunities to achieve the finer thoughts, finer things and more sensitive realizations. Life's journey in well-conceived urban places is a pilgrimage to find the "good;" is a seeking for ideals; and not a postmodern accumulation of grandiose possessions.

Yet these opportunities are not equally distributed. Security, health care, education, shelter, hygiene, and most of all employment are not equally accessible.

Intelligent urbanism views the city as an opportunity system. It sees the city as playing an equalizing role allowing citizens to grow according to their own essential capabilities and efforts. If the city is an institution, which generates opportunities, intelligent urbanism promotes the concept of equal access to opportunities within the urban system. If a city is a well-tempered one, it creates an "even playing field" from which the youth of the city seek out their futures!

Intelligent urbanism promotes a guaranteed access to education, health care, police protection and justice before the law, potable water, and a range of basic services. Perhaps

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this principle, more than any other, distinguishes intelligent urbanism from other elitist, efficiency-oriented urban charters and regimes. Those are charters more fit for mechanical engineering than for the planning of people's futures!

Intelligent urbanism does not say every household will stay in an equivalent house, or travel in the same vehicle, or consume the same amount of electricity. It says every citizen will have an access to shelter, to transport, to electricity, to potable water, to sanitation, to waste disposal, to the public domain, to knowledge, education, and to basic health care.

Intelligent urbanism recognizes the existence of poverty, of ignorance, of ill health, of malnutrition, of low skills, of gender bias, of sexual orientation prejudices, and ignorance of the urban system itself. Intelligent urbanism is courageous in confronting these forms of inequality, and backlogs in social and economic development. Intelligent urbanism sees an urban plan, not only as a physical plan, but also as a social plan and as an economic plan!

The ramifications of this understanding are that the people living in cities will not experience urban development in "standard doses." People may be born equal, but they grow inequitably! An important role of the city is to provide a variety of paths and channels for each individual to set right their own future, against the inequity of the past. This is a more salient aspect of a free society, than even voting rights. Access to opportunity, to a variety of paths to achieve single ends, is the essence of self-liberation and human development.

There will be a variety of problems faced by urbanites and they need a variety of opportunity channels for resolution. If there are ten problem areas where people are facing stresses, like health, shelter, food, education, recreation, transport, etc., there must be a variety of opportunities through which individuals and households can resolve each of these stresses. There must be ten channels to resolve each of ten stresses! If this hundred-fold opportunity matrix is understood and responded to, the city is truly functioning as an opportunity matrix. For example, opportunities for shelter could be through the channels of lodges, paying guests, rented rooms, studio apartments, bedroom apartments and houses. It could be through the channels of ownership, through a variety of rentals and through various types of tenancies. It could be through opportunities for self-help, or incremental housing. It could be through the up-gradation of "bagos" and slums.

Intelligent urbanism promotes a wide range of solutions, where any stress is felt. It therefore promotes a range of problem statements, options, and variable solutions to urban stresses.

Intelligent urbanism sees cities as processes and not as objects. Good urban plans facilitate those processes and do not place barriers before them. For example, it does not judge a "slum" as blight on society. It sees the possibility that such a settlement may be an opportunity channel for entry into the city! Such a settlement may be the only affordable shelter, within easy access to employment and education, for a new immigrant household in the city. If the plan ignores, or destroys such settlements, it is creating a city of barriers and despair wherein a poor family, offering a good service to the city, is deigned a modicum of basic needs for survival. Alternatively, if the urban plan recognizes that the "slum" is a mechanism for self-development, a springboard from which children have access to education, a place which can be upgraded with potable water, basic sanitary facilities, street lights and paving ... then it is a plan for opportunity. Intelligent urbanism believes that there are slums of hope and slums of despair. It promotes slums of hope, which contribute, not only to individual opportunities, but also to nation building.

The opportunity matrix must also respond to young professionals, to skilled, well-paid day laborers, to the upper middle class and to well-to-do entrepreneurs. If ranges of needs, of abilities to pay, of location requirements, and of levels of development of shelter are addressed, then opportunities are being created.

Intelligent urbanism believes that private enterprise is the logical provider of opportunities, but that alone it will not be just or effective. The regime of land, left to market forces, will create an exclusive, dysfunctional society. Intelligent urbanism believes that there is an essential role for the civil society to intervene in the opportunity matrix of the city.

Intelligent urbanism promotes opportunities through access to:

- Basic and primary education, skill development and knowledge about the urban world;
- Basic health care, potable water and hygiene;
- Urban facilities like storm drainage, solid waste disposal, street lights, roads and footpaths;
- Recreation and entertainment;
- Transport, energy and communications;
- Public participation and debate;
- Finance and investment instruments;
- Land and/or built-up space where goods and services can be produced;
- Rudimentary economic infrastructure;
- Shelter systems offering a variety of "paths" to housing;
- Institutions addressing equitable justice, efficient administration and open debate over the wheedling of public authority; and,
- A wide range of zones, districts and precincts where activities and functions can occur without detracting from one another.

Intelligent urbanism proposes that enterprise can only flourish where a public framework provides opportunities for enterprise. This system of opportunities operates through public investments in economic and social infrastructure; through incentives in the form of appropriate finance, tax inducements, and subsidies; and regulations that protect the environment, safety, hygiene and health. It is through government regulations that private investment can be protected from fraud. It is through government regulation that an equitable "playing field" for free enterprise can be made to function!

Intelligent urbanism understands that the city is not just a thing, or group of objects, that support human endeavors. The city is an institution, which promotes development processes and opportunities.

Intelligent urbanism facilitates a wide variety of channels and paths through which individuals can solve their problems, liberating them to redefine and recreate themselves.

Principle Seven: Regional integration

Intelligent urbanism sees the city as part of a larger social, economic and geographical organism ... the region. Likewise, it sees the region as an integral part of the city. Planning of the city and its hinterland is a single holistic process. Intelligent urbanism respects the fact that a city exerts an influence over its immediate surrounds. It can catalyze upliftment, or deterioration of the hinterland that supplies its raw materials, food, workers, recreation areas and environmental cushion. City growth and development is an organic part of a much larger organism. If one does not recognize growth as a regional phenomenon, then development will play a hopscotch game of moving just a little down the valley, or up the hills, keeping beyond the path of the city boundary, development regulations and the urban tax regime. If one does not recognize the wholeness of the city and its region, the city will ruthlessly exploit its surrounds, denuding the forests of trees, quarrying out hillsides for stone, grassing off the biomass for milk and meat.

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Socially the region may be defined as the catchment area from which employees and students commute into the city on a daily basis. It is the catchment area from which people choose to visit one city, as opposed to another, for retail shopping and entertainment. Economically it may be seen as the zone from which perishable foods, firewood and building materials supply the city. The economic region can also be defined as the area managed by exchanges in the city. Telephone calls to the region go through the city exchange; post goes through the city post office; money transfers go through the city's financial institutions and Internet data pass electronically through the city's servers. The area over which "city exchanges" disperse matter can well be called the city's economic hinterland or region. Usually the region includes dormitory communities, airports, water reservoirs, perishable food farms, hydro facilities, out-of-doors recreation and other infrastructure that serves the city. Intelligent urbanism sees the integrated planning of these services and facilities as part of the city planning process.

Intelligent urbanism understands that the social and economic region linked to a city also has a physical form, or a geographic character. This character may be the plain that connects mountains to the sea, or a river valley and the hill-forms framing it. A hierarchy of watersheds usually patterns the geographic character. Forest ranges, fauna and avifauna habitats are set within such regions and are connected by natural corridors for movement and cross-fertilization. Within this larger, environmental scenario, one must conceptualize urbanism in terms of watersheds, subterranean aquifer systems, and other natural systems that operate across the entire region. Economic infrastructure, such as roads, hydro basins, irrigation channels, water reservoirs and related distribution networks usually follows the terrain of the regional geography. The region's geographic portals, and lines of control, may also define defense and security systems deployment.

Intelligent urbanism recognizes that there is always a spillover of population from the city into the region, and that population in the region moves into the city for work, shopping, entertainment, healthcare and education. With thoughtful planning the region can take pressure off of the city. Traditional and new settlements within the urban region can be enhanced and densified to accommodate additional urban households. There are many activities within the city, which are growing and are incompatible with urban habitat. Large, noisy and polluting workshops and manufacturing units are amongst these. Large wholesale markets, storage sheds, vehicular maintenance garages, and wood working mills need to be housed outside of the city's limits in their own satellite enclaves.

Thus, the holistic integration goes beyond the city's immediate region into the entire national system of growth centers and service centers. Growth Centers are urban nodes that can accommodate retail, wholesale, productive, administrative, higher education, health and other higher-level functions. Growth Centers can support and catalyze a nation's decentralization process. They can stimulate the utilization of productive resources of a region. They provide a convergence of services, amenities and economic infrastructure that support various productive and employment-generating activities. Service Centers supply the basic needs of the population, in areas like health care, education, agricultural inputs, surplus production collection and transport. Service Centers provide broad-based and general services. They act as referral points from which people are referred to appropriate higher-level facilities and services. Service Centers operate on smaller thresholds of population than do Growth Centers. But both accommodate a convergence of services and facilities, so that visitors can achieve several objectives in one trip. Each has its own catchment area of users who are connected in an appropriate system of roads and public transport in a hierarchical system of demand and supply. Thus, the preparation of an urban plan, and the plan for its surrounding hinterland must dovetail into a larger and more complex system of human settlements.

Intelligent urbanism is not planning for the present; it is planning for subsequent decades, centuries and forever. Intelligent urbanism is futuristic, in that it must forecast the scenarios to come, within its own boundaries, and within the boundaries of the distant future.

Intelligent urbanism nurtures the potential complementary relations between nodes of activity and the more distant areas that feed and support them. Intelligent urbanism recognizes the holistic and integrated nature of social, economic, political and ecological systems as they act through city systems.

Principle Eight: Balanced movement

Intelligent urbanism sees movement and transport in the city, and in the urban region as a whole, as a balanced group of systems that are integrated with one another. These overlapping systems, or modes of transport, include pedestrians, cycles, automobiles and buses. These modes may be light rail systems, trams or funiculars. Common sense provides for future generations by leaving enough space along corridors to accommodate higher levels of technology when the need arises.

Intelligent urbanism sees the interchanges between transit systems, as the public domains in which intense activities must occur. These should be high-density areas with compact urban fabrics.

Intelligent urbanism sees the automobile as a permanent feature of the urban pattern, but as only one of the modes of movement! Hidden subsidies on energy, roads and parking, or on the interest rates charged to purchase automobiles, should not give an undue advantage to the use of vehicles.

Intelligent urbanism sees a grid of roads serving automobiles, instead of a hierarchy of lanes, arteries and expressways, which funnel traffic into congested collection roads. Dead ends, large gated communities, cul-de-sacs and "feeder roads," are seen as bad practices, as they are socially divisive and slow vehicular circulation, which is concentrated at the gathering areas and junctions where the hierarchy of roads meets.

Intelligent urbanism promotes service roads off of the grid and into pedestrian-dominated lanes. Here, parking along streets, with planting along side walkways act as buffers between pedestrians and vehicular movement.

Intelligent urbanism sees rapid buses, traveling in dedicated express lanes, as the most promising and cost-effective solution for smaller regions. In larger regions, a light rail system can link rapid bus routes and onwards integrate walkable enclaves.

Intelligent urbanism recognizes that even in contexts where there are comparatively high automobile ownership levels, access to these vehicles, even within the same households, may be low. Wives and children must seek other modes of travel. Students, skilled workers, domestic servants and young professionals – just to name a few – need to avail of alternative means of travel.

For all of these integrated modes of transit to operate in a balanced manner in an urban and regional setting it means the pattern must be planned as high-density, compact centers, linked together along a transit corridor.

Societies that have grown to depend on the automobile never seem to move ahead of congestion, nor ahead of the insatiable demand for new roads, widened roads and improved roads.

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Intelligent urbanism says a city cannot build its way out of congestion within a one-mode system of transport.

Intelligent urbanism promotes a balanced system of pedestrian communities, integrated with public transit, through networks of compact centers. Intelligent urbanism promotes open-ended grids of streets, using parked automobiles as buffers between the dangerous road and the secure footpath. Within such grids, channels, stems and corridors must be identified to link urban nodes and hubs with the vaster region.

Intelligent urbanism promotes the separation of pedestrians and automobiles through logical design and rational planning. It recognizes that transport is the single most defining crafted element of urban structure. It sees movement as the key experiential element of the city, as well as the most integrating functional component.

Principle Nine: Institutional integrity

Intelligent urbanism recognizes that none of the principles, or good practices, it promotes can be implemented unless there is a strong and rational institutional framework to define, channel and legalize urban development, in all of its aspects.

Intelligent urbanism envisions the institutional framework as being very clear about the rules and regulations it sponsors and that those using discretion in implementing these measures must do so in a totally open, recorded and transparent manner.

Intelligent urbanism proposes that a Development Management System must temper each city and each urban region. This would lay out all of the procedures, through which all proposals would be submitted and assessed. It would clearly define all of the parameters that are being considered and provide the reasons and the conditions on which proposals will be assessed.

Intelligent urbanism facilitates the public in carrying out their honest objectives. It does not regulate and control the public. It attempts to reduce the requirements, procedures and documentation required for citizens to process their proposals.

Intelligent urbanism is also promotive in furthering the interests of the public in their genuine utilization of opportunities. It promotes sites-and-services schemes for households who can construct their own houses. It promotes upgradation of settlements with inadequate basic services. It promotes innovative financing to a range of actors who can contribute to the city's development. This includes financing for entrepreneurs engaged in the production of building materials, in the packaging of land parcels, in the construction of houses and in the promotion of projects. Intelligent urbanism proposes a cautious and limited, yet crucial, role of government. For example the public sector can play a facilitative and promotive role by "packaging" large-scale urban development schemes, so that the private sector is promoted to actually design, build and market urban projects, which government agencies previously built themselves.

Intelligent urbanism is not naïve! It recognizes that there are developers and promoters who have no long-term commitment to their own constructions, and their only concern is to hand over a dwelling, gain their profit, and move on. For these players it is essential to have Development Control Regulations, which assure the public that the products they invest in are safe, hygienic, orderly, durable and efficient. For the discerning citizen, such rules also lay out the system of "civil understanding" by which a complex society agrees to live together.

There must be a Cadastral System wherein all of the land in the jurisdiction of cities is demarcated, surveyed, characterized and archived, registering its legal owner, its legal uses, and the tax credits and defaults against it.

The institutional framework can only operate where there is a Structure Plan, or other document that defines how the land will be used, serviced, and accessed. The Structure Plan tells landowners and promoters what the parameters of development are, which assures that their immediate investments are secure, and that the returns on, and use of such efforts are predictable. A Structure Plan provides owners and investors, alike, with predictable future scenarios. This is essential for an economy to grow and for investors to become active. Cities require efficient patterns for their main infrastructure systems and utilities. Land needs to be used in a judicious manner, organizing complementary functions and activities into compact, mixed use precincts and separating out non-compatible uses into their own precincts, which also have unique mixes of functions. In a similar manner, it is only through a plan that heritage sites and the environment can be legally protected. Public assets in the form of natural features, religious places, heritage sites and open space systems must be designated in a legal plan.

Intelligent urbanism proposes that the city and its surrounding region be regulated by a Structure Plan, or equivalent mechanism, which acts as a legal instrument to rationally guide the growth, development and enhancement of the city.

There must be a system of participation by the "Stake Holders" in the preparation of plans. Public consultations, hearings of objections and transparent processes of addressing objections, must be institutionalized. Intelligent urbanism promotes Public Participation.

Local Area Plans must be prepared which address local issues and take into account local views and sentiments regarding plan objectives, configurations, standards and patterns. Such plans lay out the sites of plots showing the roads, public open spaces, amenities areas and conservation sites. Land Pooling assures that all of those who benefit from the provision of public infrastructure and amenities equally contribute, and that a few individuals do not suffer from reservations in the plan.

There must be a system of Floor Area Ratios (FAR) to assure that the land and the public services that support urban activities are not over-pressured. No single plot owner should grab more than their fair share of utilization of the access roads, amenities and utilities that service all of the sites. Floor Area Ratios temper this relationship and equalize the manner in which public services are consumed. The Transfer of Development Rights benefits landowners whose properties have been reserved under the plan. It benefits the local authorities that lack the financial resources to purchase lands to implement Structure Plans. It benefits concentrated, city center project promoters who have to amortize expensive land purchases, by allowing them to purchase the development rights from the owners of reserved lands and to hand over those properties to the plan-implementing authority. This allows the local authority to widen roads and to implement the Structure Plan, with a minimum expenditure of funds. The local authority then transfers the needed development rights, in the form of additional FAR, to the city center promoter. Intelligent urbanism favors such innovative mechanisms.

Intelligent urbanism supports the use of Architectural Guidelines where there is a tradition to preserve and where precedents can be used to specify architectural elements, motifs and language, in a manner that reinforces a meaningful cultural tradition. Building designs must respect traditional elements, even though the elements may vary greatly to integrate contemporary functions. Architectural Guidelines are required to assure harmony and continuity of building proportions, scale, color, patterns, motifs, materials and facades. They give cities and cultures alike their unique identities and character.

Intelligent urbanism guarantees access to all public services and amenities to the specially-abled. It facilitates access to pri-

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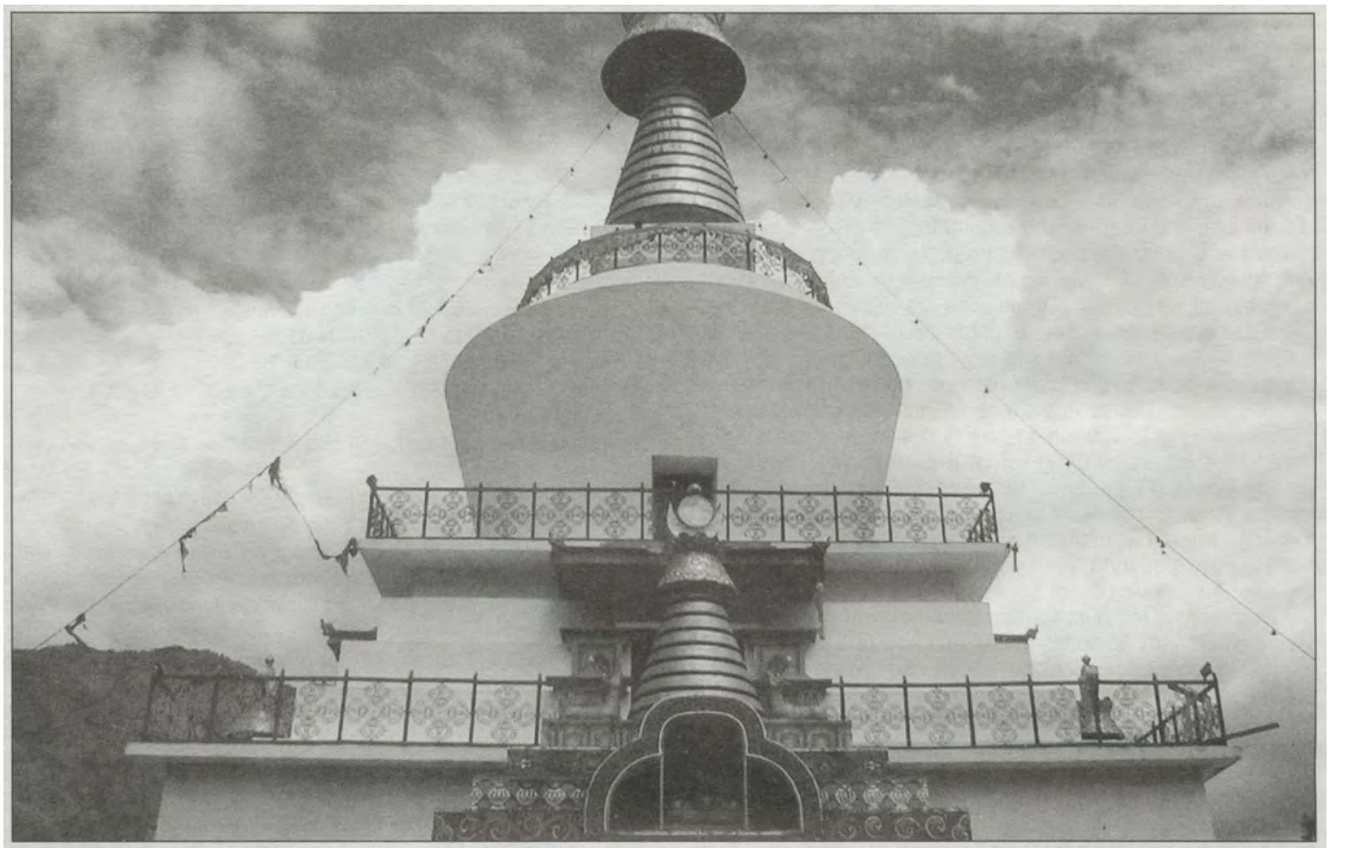

Fig. 19: Bhutan – Detail of a Chorten in Thimphu. (*Source*: Photograph courtesy of K. Venkateshkumar, Christopher Charles Benninger Architects and Planners, Planning Team Thimphu).

vate areas as well! Intelligent urbanism insists on safety, hygiene, durability and utility in the design and construction of buildings. Where large numbers of people gather, in schools and hospitals, which may become emergency shelters in disasters, special care must be exercised. A National Building Code is the reasonable instrument to achieve these aims, in the public's interest.

Those who design buildings must be professionally qualified architects; those who design the structures (especially of structures more than ground plus two levels) must be professionally qualified structural engineers; those who build buildings must be qualified civil engineers; and, those who supervise and control construction must be qualified construction managers. Intelligent urbanism promotes the professionalization of the city-making process. While promoting professionalism, intelligent urbanism proposes that this not become a barrier in the development process. Small structures, low structures, and humble structures that do not house many people can be self-designed and constructed by the inhabitants themselves. There must be recognized Professional Accrediting Boards, or Professional Bodies, to see that urban development employs adequate technical competence.

Finally, there must be legislation creating Statutory Local Authorities, and empowering them to act, to manage, to invest, to service, to protect, to promote and to facilitate urban development and all of the opportunities, which a modern city must sponsor.

Intelligent urbanism insists that cities, local authorities, regional development commissions and planning agencies be professionally managed. City Managers can be hired to manage the delivery of services, the planning and management of planned development, the maintenance of utilities and the creation of amenities. This must be institutionalized.

Intelligent urbanism insists that appropriate institutions be established and that these clearly separate the roles and the powers of government from those of administrators. Elected officials are all ultimately responsible to their Council of Ministers and Head of Government. Competent administrative officials are ultimately responsible to the Head of State. This distinction assures that implementation remains in a professional arena, and that policy formation and law making are in the sphere of elected representatives. This is an evolutionary process wherein a clear distinction between the chain of command down from the Head of State and the Head of Government separate and become distinct.

Intelligent urbanism views plans and urban designs and housing configurations as expressions of the people for whom they are planned. The processes of planning must therefore be a participatory one, between professionals, administrators, elected officials, users and stakeholders. The process must be a transparent one, which makes those privileged to act as guardians of the people's will accountable for their decisions and choices.

Intelligent urbanism sees urban planning and city governance as the most salient expressions of civility. Intelligent urbanism fosters the evolution of institutional systems that enhance transparency, accountability, rationality and participation in public decision making.

Principle Ten: Vision

The last principle of intelligent urbanism is that decision making, even the smallest decisions, must be based on a broad vision of the future. This vision must be nurtured from positive and constructive dreams of the nature of the future. These

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dreams must go beyond the scientific projection of future states of the city; they must form ideal patterns of living and qualities of life! The visions of intelligent urbanism are not just images of physical forms and end products. They are not the dreams of things that architects often ponder. They are about processes, about the ways things happen, and about the means through which things happen! They are not just dreams about social spaces and special events; they are visions of more tolerant and equitable societies. They are dreams of a convivial people who enjoy meeting and being with other people. The visions of intelligent urbanism are about laughter and about love! The images are not about new freeways and expressways, nor about functional cities and efficient transport. They are about sustainable economies that have equitable impacts on employment, consumption and on access to basic needs. The visions are about affordability and access!

These are not just dreams of living in a verdant valley, with pure white waters running within a pure river. These are visions about the balance between the human race and mother earth! These are visions of a balanced ecology in which we are but a small part.

Vision goes beyond the extrapolations of population size; beyond the calculation of services thresholds; beyond the establishment of facilities standards and the setting of targets. Vision entails making an integrated and holistic assessment of the future; evaluating possible options based on their likely impacts. Vision is not an easy dream, but a difficult assessment of strategies and their resultant scenarios.

Intelligent urbanism proposes there can be no intelligent city plans, or intelligent urban designs, unless there is a common vision of the city by the city users and their leaders. There can be no urban virtues, which are greater than the inherent virtues of the people for whom the plan is made. Virtues don't just happen!

Intelligent urbanism is therefore a process of communication, of realization, and of education. Intelligent urbanism is about creating knowledge systems, debating knowledge systems, and about questioning the underlying meaning systems on which knowledge itself is built. Intelligent urbanism is the difficult task of turning meaning systems and knowledge systems into concrete actions. It is about vision!

Notes

1. **Chorten:** A small, stupa-like structure, commemorating a saint or the Buddha often near a house, a public building, or along a path used as a "marker."
2. **Dzong:** A castle in which the monks' bodies and the administrative cadre of an area reside and function. In the Tashichho Dzong in Thimphu, these bodies rule the entire nation.
3. **Mani:** A prayer wheel, derived from its meaning as a script recited for the accumulation of merits to be carried to the next life.
4. **Mani Wall:** A wall, in which prayer wheels are fixed.
5. **Lakhang:** A Buddhist temple where rituals are performed. These can be grand, or mere gathering places in villages for festivals.
6. **Dharma:** Conduct, morals and ethics suitable to one's station in the social system.
7. **Drukpa:** A Buddhist sect brought to Bhutan in the 8th century from Tibet. While most of the people of Bhutan are "drukpas," the sect is in harmony with other Buddhist sects and religions.
8. **Mantra:** A verse or phrase believed to have magical or religious efficiency. These are printed on prayer flags and these favorable ideas float off with the wind over the valleys.
9. **Om Mani Padme Hum** meaning, "I am the Gem and the Lotus." These six syllables are recited for the accumulation of merits in the next life. They are found on chortens, stupas and other spiritual devices.
10. **Stupa:** A mound commemorating Buddha's Death, often purporting to have his relics buried within.

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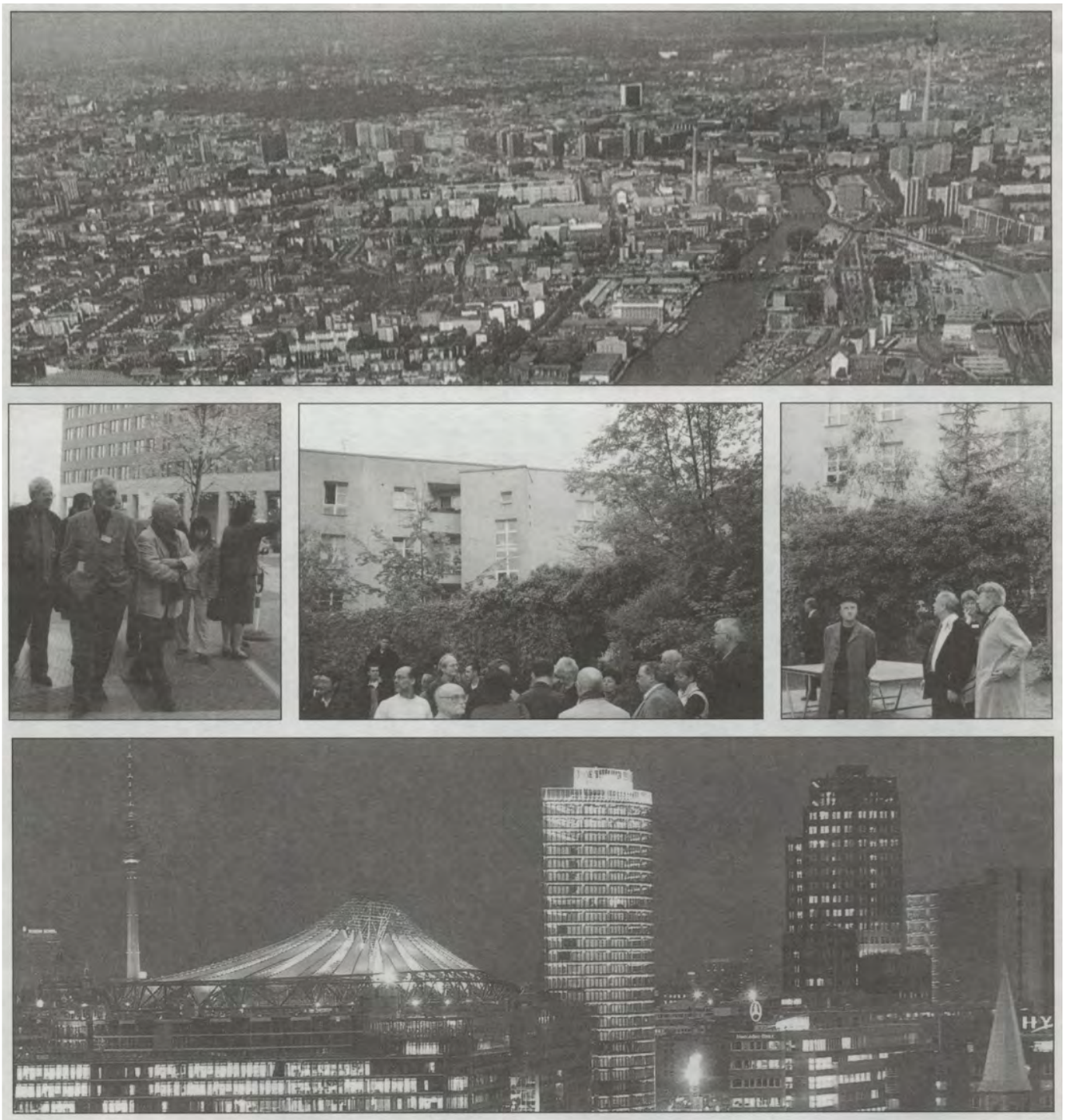
Berlin: A unique planning experience

In addition to the other opportunities that participants had to to visit the wonders of the city individually or in groups, the program provided an organized coach tour with expert guidance on the afternoon of Thursday, 25 October with stops at places of interest, and in anticipation of a lecture by Dr Hans Stimmann.



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Re-establishing a capital city

Hans Stimmann

Dr Stimmann, an Engineer and Architect, is Assistant Secretary for Planning at the Ministry of Urban Development, Environmental Protection and Technology, Berlin, and also Director of Urban Development at the same Ministry. His professional experience as architect and urban planner includes his involvement in industrial, housing and school construction and he has been Technical Advisor and Director of the Ministry of Building and Housing in Berlin, Urban Planning Department. He has been a member of the academic staff of the Technical University (TU) Berlin, Institute for Urban and Regional Planning; Lecturer at the TU Hamburg-Harburg carrying out research on urban renewal and the preservation of values. He has also done free-lance work for the Office for Urban Construction and Urban Research in Berlin and has been Director of Urban Development at the Ministry of Building and Housing, Berlin. He is a member of the Social-Democratic Party (SPD) of Germany. He has published numerous articles in journals and books on urban planning and architecture, and has taken part in several urban planning exhibitions.

Following the last part of the tour to key sites in Berlin with the personal guidance of Dr Hans Stimmann, the group ended up at a major exhibit on New Berlin with a very large number of models, maps, plans, designs and photographic material, covering a wide spectrum of themes. Dr Stimmann referred to the first phase of reconstruction that proved necessary for the transfer of the Government to Berlin and the redevelopment of the city following the fall of the Berlin Wall. A number of other issues were addressed while the displays and interactive models at the exhibition gave us great insight into the extent of change and development that has occurred in Berlin in the 20th century in general and more directly as a result of World War II and the division of Germany and the city of Berlin into east and west.

The extended discussion that followed – by far exceeding the planned time – continued during a light meal reception provided by the WSE on the site.

Dr Stimmann was offered a volume on recent excavations for the establishment of the subway of Athens, A City Below a City, as a token of gratitude and admiration for the very rewarding experience he so generously provided.

At the time of going to press we did not have a written text on the contents of this presentation. We are therefore limited here to the reproduction of a selection of photographs as a reminder of the warm ambience that prevailed during this event. We hope to include a paper by Dr Stimmann in a future issue of *Ekistics*.

From left to right: Bjørn Røe, Hans Stimmann, Wu Liangyong, Amos Rapoport, Alexander Papageorgiou-Venetas, Serge Antoine, Phil Reid, Udo E. Simonis, John Reid and John Docoumetzides.

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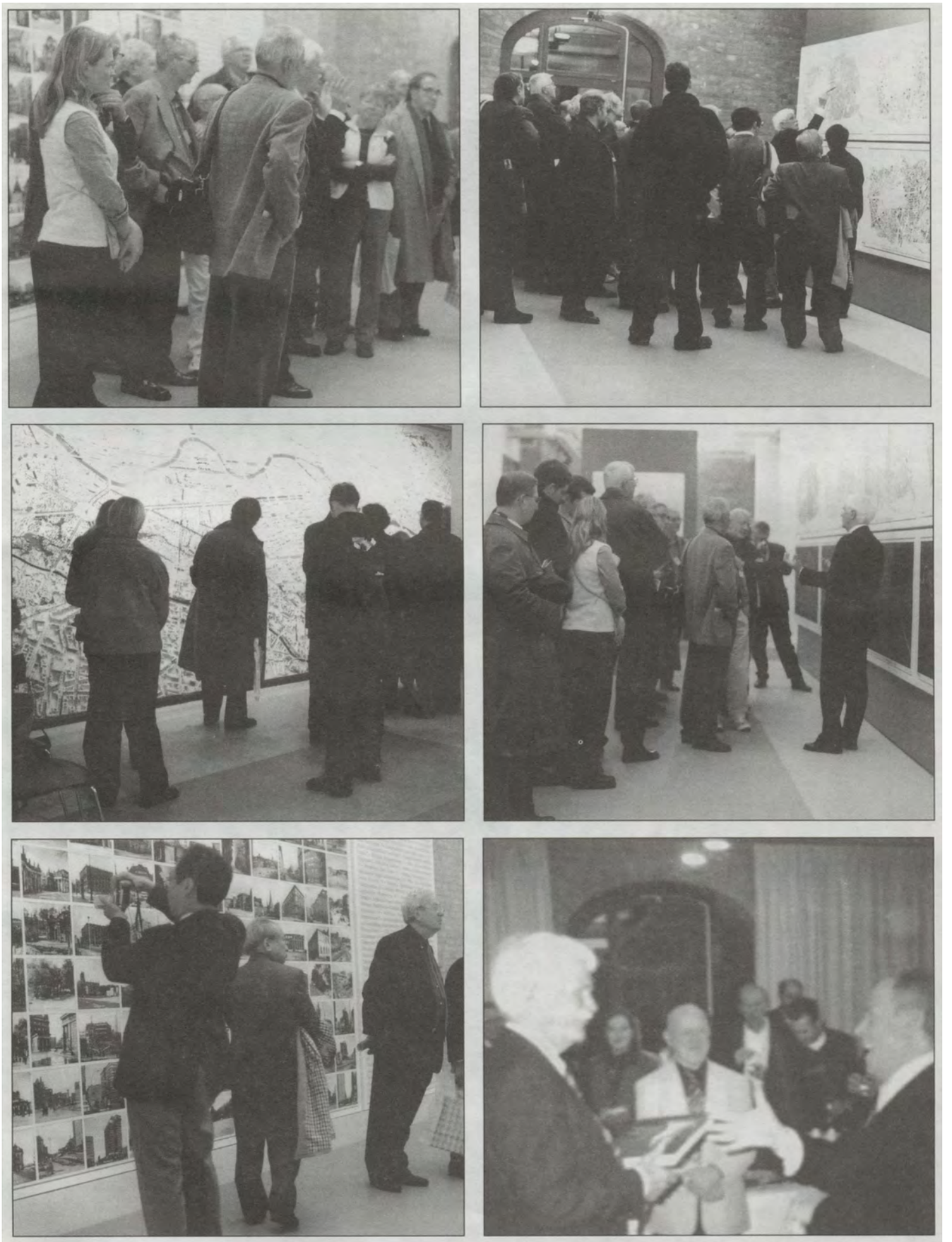

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Symposion: Defining Success of the City in the 21st Century

Part 2: Nature

Chairman : **György Enyedi***

Presentations : **J. Oestereich, Serge Antoine, Ekhart Hahn**

Contributions : **Akhtar Chauhan**

Discussion* : **Peter Herrle, Sarah Ricketts, Udo E. Simonis, Thomas W. Fookes, Panayis Psomopoulos**

***No written record exists of any statement made during the sessions.**

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Ownership and command over resources in the Sahel town of Abéché

Jürgen Oestereich

Dr Oestereich, an architect and town-planner, graduate of Aachen Technical University, Germany, after a period of collaboration with prominent architects' offices and consultancy agencies in Paris, London, Berlin, Lusaka and Mettmann (Germany), has acted since 1973 as a freelance planner and consultant on human settlement matters with German and international development agencies on projects concerning town planning, slum upgrading and local government matters in many countries of Africa and Asia; as Guest Lecturer at the DPU/University College, London, and the Institute for Regional and City Planning of the Technical University Berlin and also as a Delegate of Habitat International Coalition at various international conferences. His publications include Elendsquartiere und Wachstumspole (Misery-Quarters and Growth-Poles), *Cologne, 1980; as well as* Ländliche Entwicklung und Selbsthilfeforderung (Rural Development and Assistance to Self-Help), *Munich, 1989; and numerous articles published in various professional periodicals and scientific compilations. Since 1983, Dr Oestereich is Co-editor of* TRIALOG, *a bilingual German-English journal on planning and building in the South. He is also a member of the World Society for Ekistics (WSE). The text that follows is a slightly edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

Introduction

Around 1850, in an island situation far out in the Sahel, a town of 15,000 inhabitants had overexploited its life resources, soil and water, and thus had become uninhabitable. Its rulers decided to move the entire population to a place some 70 km away. Until today, after six generations, this is remembered as a traumatic collective experience, comparable to a cruel war, ruinous flood or a fatal volcano eruption. At the beginning of this century, the life resources of the new place – water and fertile soil – are again nearly depleted. However, today there is no alternative place offering sufficient resources for all of them and the people are asking themselves what to do instead.

This exemplary situation of a fairly isolated town and its poor hinterland of several hundred kilometers in radius made me stumble over a question which I feel is crucial for the use of life resources, but utterly neglected by planners and decision makers responsible for the future of our planet. It is the question of who is in control of the resources of livelihood and what are the rules in force: the question of real property and territorial sovereignty. My object of observation is exemplary, too, because it features the three (or four) successive stages of societal control over life resources: scattered autonomy, feudal division of labor and the present private-public dichotomy, respectively public-private synergy.

Small-scale flow-equilibrium in autonomous social units

For thousands of years, the steppe south of the Sahara desert used to be inhabited by people following basically two types of ways of life.

- Nomad groups of five to fifty families (30 to 300 people) wandered with their herds of bovines, cattle and camels seasonally over several hundreds of kilometers north and south, back and forth along more or less established routes (fig. 1).
- A more or less sedentary population of millet farmers lived in small hamlets of 100 to 1,000 people amidst their fields of a size and distribution just above their carrying capacity.

The resources for livelihood for both groups depended on the unreliable rainfall. There is a rich literature describing many variants of these societies that lived in a kind of symbiotic relationship. The common feature of these societies is the direct responsibility of each and every community for a specific territory on a continuous surface in the relentless circle of seasons. The rationale of this community subsistence is based on a very conservative use of land and water, and on a defensive position towards flora and fauna.[1] Any aggressive new frontier mentality of such units must have led to self-extinction or to a change of lifestyle towards ultimate sustainability. Analysts of evolution hold that even the aborigines when reaching Australia survived only after having caused a near-collapse of the local ecosystem and subsequently adapting to the new situation (fig. 2), now at an ecologically lower level.[2]

Sustainable cultures by definition follow a way of life that limits the number of people and domestic animals, and restricts consumption. Women are occupied with domestic functions keeping them busy from dawn to sunset interrupted by long periods of rest and entertainment. Hard work is reserved for men, who are occupied still more discontinuously. Thus the annual time budget reserved for reproduction is for both sexes roughly equal with peaks for the one or the other due to seasonal events such as migration or harvest. It is estimated at 1,500 hours per year.[3]

A common feature of these subsistence cultures is that there is no individual real property in the sense of excluding anybody else from touching it. But there is a strict control of life resources, especially the territory of a given community. This complies with the notion of sovereignty. Given a relative stability of the units through self-control, competition over resources is modest. Correspondingly, war technologies are

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Fig. 1: Nomads' camel herds.

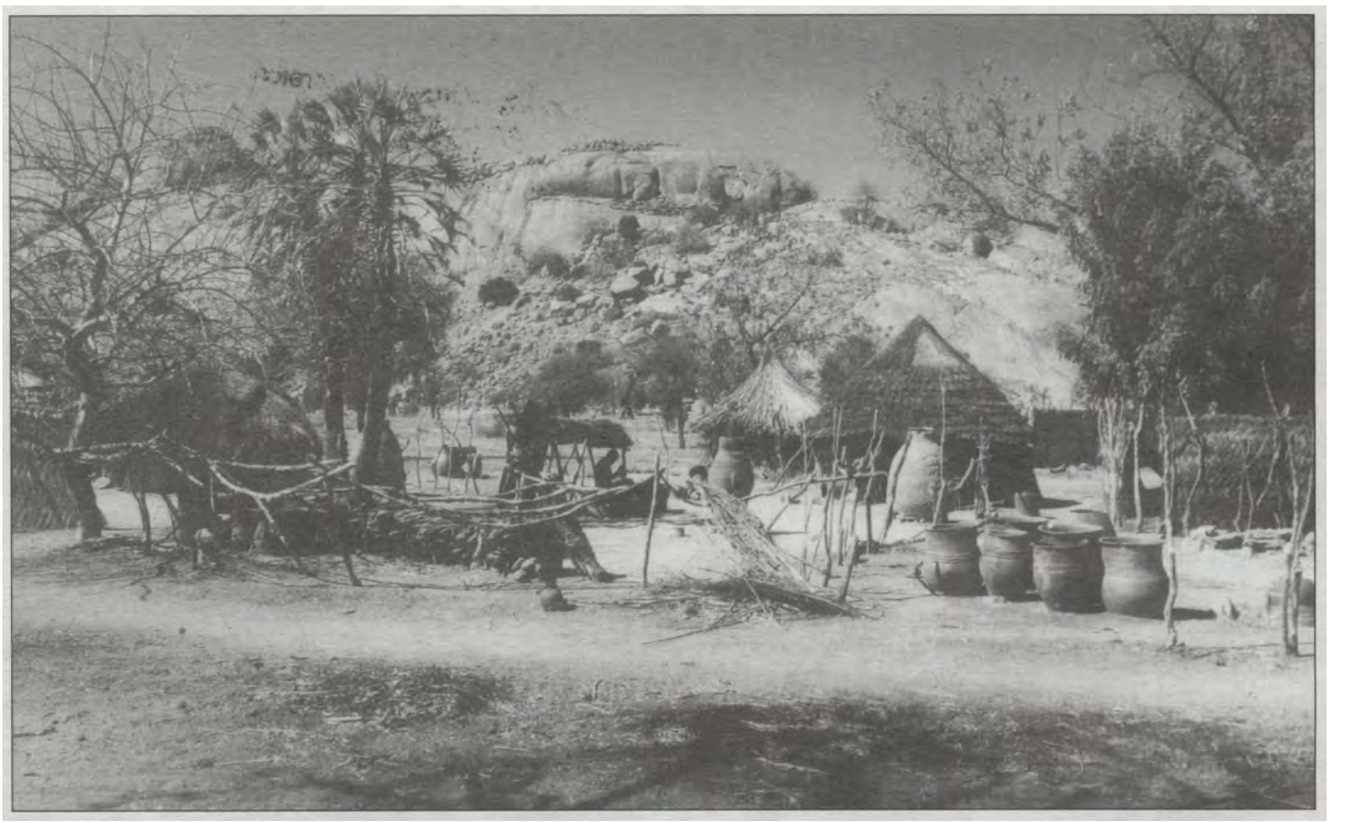

Fig. 2: Sedentary village.

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Fig. 3: Rural settlement.

feeble. This makes these communities vulnerable in the encounter with cultures that have developed more effective weapons under conditions of a more vivid competition (fig. 3).

Feudal core-building and collection of surplus

In such a fabric of scattered communities it may happen that an outstanding individual, a military leader of one of the units, manages to assume control over several other units. As a feudal lord he makes these units transfer certain latent reserves, which they normally possess or produce beyond their needs, as a kind of security. Once this surplus reaches a certain level in quantity and quality, interest emerges for exchange with his peers, for trade. A network of collection and exchange posts living under feudal protection unfolds.[4] A helpful prerequisite for the running of such feudal units is a culture which provides the techniques of reading, writing and calculating greater numbers, a pattern for the (hierarchical) division of tasks and the spiritual legitimation for governing at all. Feudal units therefore cultivate religion and rituals. Based on this, feudal lords assume responsibility for what will be seen and understood as the riches of the community vested in him, embracing the local resources of subsistence and certain luxury commodities. Thus, the islamic Sahel has seen bigger and smaller "sultanates." The Sultanate of Waddaï founded around AD 1700 in what is now the northeast of Chad was one of them, linked up with already existing units such as Dafur (in the extreme West of Sudan) and with numerous kingdoms west of Lake Chad, such as Kanem-Bornu, Mossi, Massina and the Hausa Sultanates.[5]

While the settlement fabric and the corresponding time budget in such a feudal state does not change substantially in rural areas, it does so in towns. Women continue to bear the burden of everyday reproduction. Being now less supported in their daily reproduction by the male population their tasks include also (seasonal) labor in the fields, averaging 2,300 hours/year plus/ minus 500 hours field labor. The male time is devoted mainly to occasional building, repairing of houses and the like (fig. 4).

Fig. 4: Traditional horticulture by irrigation.

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Fig. 5: Ruins of Wara (siege of the Sultan of Adana).

Men, especially in the centers, are kept busy with other matters:

- First of all, the expanding trade demands extra labor and attention. The Waddaï, for example, dealt with ivory, ostrich feathers and slaves, all of which were in high demand in the Muslim countries around the Mediterranean Sea, offering weapons, iron, and jewellery in turn, much sought-after in the Sahel region. The trading network across the Sahara became intensified along the north to Tripolis/Cairo and east to Mecca/Cairo. It was run by import-export traders licensed by the Sultan and drawing from the local retail markets, also under the protection of the Sultan.
- Second, because of a growing population and increasing consumption, more and more men are needed as warriors to fight for new land or more water, or, if attacked by other feudal armies, to defend the status quo. Feudal states do not necessarily add up to a continuous plain as subsistence communities do, but consist of a core region surrounded by more or less dependent communities. The perspective of winning control over additional regions for exploitation is an ever-present temptation for feudal wars or raids. Since feudal units continuously fluctuate, they cannot be peaceful either towards the exterior or internally.

In view of these ongoing fluctuations which feudal units are exposed to, a substantial part of (male) time has to be devoted to building social communication and coherence. This means on the one hand administration and arbitration of internal conflicts, and on the other hand legitimizing the status quo through religious and worldly rituals and magnificent buildings and elaborate fine arts.

The residence of the Sultan of Waddaï, Wara, was built around an impressive palace with majestic brick walls (now a candidate for the Heritage of Mankind List).[6] However, after 150 years, around 1850, the groundwater had become exhausted and the soil rendered infertile through salination. The Sultan decided to shift the entire town to a place 70 km further south which offered more water. This new capital, Abéché, which still exists, was visited, in 1873, by the German explorer Gustav Nachtigal[7] (fig. 5).

The pattern he described is still in use in the region and is reflected in the field names of Abéché. Each *zaribe* with its garden for subsistence farming was populated by one extended family or, in the case of immigrants, by people of the same provenance. They formed the well-known "large household" governed by a chief in the patriarchic mode of near absolute power, the common pattern of running agrarian society.[8] Since the individual hamlets kept their cultural specificities, the town ended up in a kind of ethnic mix which required considerable administrative skill to keep peaceful.

Disregarding the nomads who continue (until now) to travel their routes on a kind of tacit consensus with the sedentary population, feudal societies usually organize the control of land, water, fauna and flora at two levels:

- the rights of use as "use-ownership" vested in the chief of concession who will pass it parcelwise to the members of his household according to their needs; and,
- the right of attribution, restriction and withdrawal of use-ownership.

The latter is seen as given by God, exercised by the lord as

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"sovereignty" usually through a council on behalf of the people – without whom of course the riches could not be realized at all. On both levels there is, except in fully literate societies, no separation of person and office.

While use-ownership, normally exercised along the lines of subsistence economy, builds on the experience of countless generations, the handling of feudal units has always been a matter of trial and error. Many such errors are found in the Sahel, too.[9] In the case of Wara, the overambitious construction of the palace as a symbol of power was the cause for the area's ecological collapse. It demanded an ever-increasing number of burned bricks which in the end caused the cutting of the entire vegetation, so that the groundwater was exhausted and the soil rendered infertile through salination.

However unsustainable, compared to the monotony in rural areas, a town is attractive because of the multi-colored urban lifestyle and its stimulating culture and fine arts. Supported by some purposeful religious or non-religious indoctrination, a WE-identity is created in the core region, but not necessarily in the fringe regions. This identity includes the lord and his court. When the Abéchois recall the collapse of Wara and their move to the new place like a trauma they do not blame the Sultan and his overambition. "At that point of time WE had no choice, WE were forced to move," they say. And some analyze: "WE had overused nature."

Private-public dichotomy

The French after their conquest of the region in 1909 introduced an entirely different regime. Political power became vested in institutions such as the State and its bureaucracy and not in persons. Government was built on the people's material well-being as legitimation. The pacification of the countryside went along with the transformation of a discontinuous to a continuous plain of territories arranged as a territorial hierarchy of nation, province, district cantons and local communities. European technologies were introduced, above all, the truck and the water pump. The latter led to a considerable increase in agricultural production, the former brought the perspective of free movement of people and long distance exchange especially of mass products (fig. 6).

Abéché started to produce a great amount of vegetables, onions, okra and tomatoes grown under intensive irrigation and exported them to as far as the Congo River. In exchange it received and supplied its hinterland of 500,000 or more inhabitants with tea, sugar, textiles, metal tools and other commodities. The distance to other centers is up to now still important enough to leave the area in an island situation. Abéché grew, especially in the years from 1940 to 1960, to a population of 40,000 inhabitants or more. The density in the existing quarters grew and new ones became added. What used to be hamlets of extended families or condominiums of people of the same ethnic origin became multicultural quarters, one adjacent to the other to form a braid fabric of mud-structures. Each quarter contained at least a small well. Institutions and privileged consumers were supplied by a water tank fed by a borehole while for the rest of the people water delivery was arranged by means of donkeys carrying water bags. Public services such as refuse collection were introduced and infrastructure elements such as a hospital, a French-Arab high school and a bilingual teachers' training college installed. A town council of quarter chiefs was convened by the French to deal with those community matters that were put before them. In order to come to terms with ethnic conflicts, for example, they created a special structure between peace judge and tutor. This resulted in a special WE-identity with the Sultan, whose office had been cut down to a kind of local bishop, incorporated as an element of history and culture.[10]

The growing number of the population, rising consumption and increasing economic activities soon began to exceed the local carrying capacity. Most of the old gardens in the vicinity had been transformed into residential plots. Subsistence farming had to be performed on more and more distant fields. But these areas were not uninhabited. Their owners, understandably, let to the Abéchois-only land which was marginal. This could not stand cultivation in the long run. The soil and vegetation soon degraded. Signs of salination appeared now in the entire region. In Abéché the upper horizon of groundwater feeding the *zaribe* wells became depleted. The big tank of the

Fig. 6: Modern transport.

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Fig. 7: Airview of Abéché.

borehole fell dry, perhaps because it had only tapped a bubble of fossil water that was now exhausted. A second horizon of groundwater found in some privileged fringe areas had to be exploited promulgating the donkey delivery. Altogether water became scarce and very expensive, especially at the end of the dry season when the consumption fell to 5 liter/person/day. A 30 km-long pipeline, financed and built by German aid, brought some relief. But in view of the deficit to recover and possible further growth, the relief was only temporary and, above all, connected with the risk of depleting the water resources of a wider area (fig. 7).

Trades and crafts offered less and less work. The hitherto constantly rising aspirations were met by declining potentialities. The majority of the people fell back into subsistence. The time budget connected with subsistence farming deteriorated further because of increasing distances to and decreasing yields from the fields. The time dedicated to the day-to-day reproduction rose to 4,000 hours/year for women and 1,000 hours/year for men. This meant the absolute maximum of work in the season for a minimum of yield. The personnel of the hospital and schools did not get their pay regularly which made them negligent in every respect. The refuse collection broke down. The streets many of which were cut schematically into the built-up fabric were left to decay. People started to leave for good and left their premises to dilapidation. "Unkept private property" posed problems to the neighbors and quarter chiefs. The analogy to Wara became obvious to any more sensible Abéchois.[11]

This state of affairs was not brought about by individual faults. On the contrary, every private actor had behaved as was expected by making the best use of his individual capacity and his private property. There was no exploiter such as the Sultan in Wara unintentionally had been. The State bureaucracy as its successor had more or less done its job in its role as actor by investing in infrastructure and profitable enterprises. But in its role as the one to give the rules, it had failed. The rules had, by not assessing the ultimate carrying capacity, set the pace for the overuse of the local life resources.[12] And it must be asked, at this point of the presentation, whether a State bureaucracy as agent intervening and rule-giving and, at the same time, authoritarian sovereign far away from local problems, is able to create sustainability at all.

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Private-public synergy

The failure of the Chadian authorities and a number of other reasons made the State authority in Abéché completely fade away. The resulting de-facto autonomy led to an unexpected effect. The population, realizing that they had no other choice but to live on subsistence, started to use their dead season time for organizing themselves in exercises of development by launching their own collective actions for the common good:

- Refuse collection was organized by a group of young people in one quarter. Its rationale was local pride – requiring just a little backing by the GTZ for take-off (fig. 8).
- Alleviation from and protection against stormwater erosion threatening so many structures after heavy rains was introduced by concerned inhabitants. It required collective work for moulding the drainage appropriately in private and, especially, in public spaces. Such exercises start in one quarter and are replicated in other ones. "WE, said a quarter chief, have shown the way for the others!" (fig. 9).
- A group of brickmakers started with a tree-planting enterprise. They bought tree-seedlings, planted them on public land and built a fence around to protect them. They calculated that repeating this exercise for a couple of years would give a forest the careful harvesting which would one day feed their kilns and supply the population with firewood instead of continuing to deplete the vegetation of the entire region. Their vision was that the ecosystem of former times would re-appear. The brickmakers look forward: "We are showing how to transform the desert into a garden" (fig. 10).
- The local leaders cooperated to create a register of private property and a set of rules to maintain it for the sake of sustainability.[13]

All such enterprises have as a common denominator collective actions in the public sphere with the perspective of improving individual well-being in the long run. Private property is understood as a bundle of rights that depend on the common, i.e. public, domain while, at the same time, the public realm has to be controlled by the collectivity of the individual proprietors having an interest in durability and sustainability. This concept of synthesis suspends the meaning of the originally Latin word: "private" meaning "robbed" to replace it by the perspective of public-private synergy (which is not the same as public-private partnership!). In this concept sovereignty is not something descending from heaven, but being created and installed, the ladder of subsidiarity upwards. The precondition for it is a kind of collective autonomy in a geographically restricted area of a village, a town quarter, a town or a culturally defined region. The concept of civic "identity" and of "integrity" seems to play an important role, which means that any collectivity defines and develops itself, i.e. from inside.[14] Instead of destroying the commons they can be reestablished.

Concluding remarks

Obviously, there are two notions of "public":

- "public" as a level higher than and opposed to private endeavors, i.e. "government"; and,
- "public" as a communal sphere of solidarity or at least possible consensus.

Hidden behind this are also two competing concepts of "public" as a complex of cease-fire arrangements by competing parties (the Anglo-Saxon supposition) and as consensual togetherness (the Continental – and African – supposition).

These understandings are based on collective historical experience. Therefore, the presumption of an ubiquitous concept of private ownership and public control such as propa-

Fig. 8: Refuse collection team.

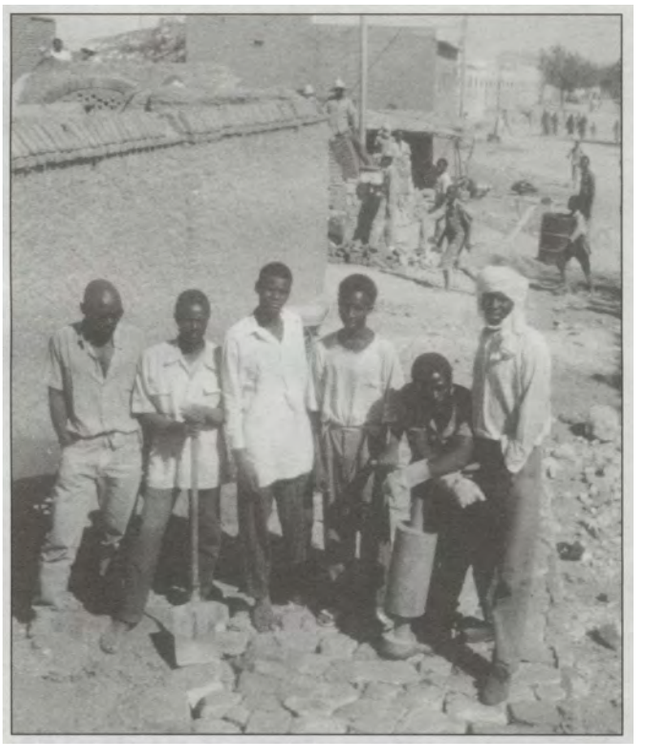

Fig. 9: Drainage/pavement team.

Fig. 10: Afforestation team.

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gated by the World Bank and recently Hernando de Soto,[15] must be felt by all who do not agree from their own practice as a hegemonical challenge.

On the other hand, the historical evolution is blind, too, as shown by the example of feudal unsustainability. There is no way one should rely on collective subjects to learn from collective errors. Learning sustainability, as my example shows, can best (or even exclusively) take place in small socio-geographical collectivities. If this is so, the foremost precondition is not to kill spontaneous autonomy and integrity which small units have, but to encourage, to empower them.[16]

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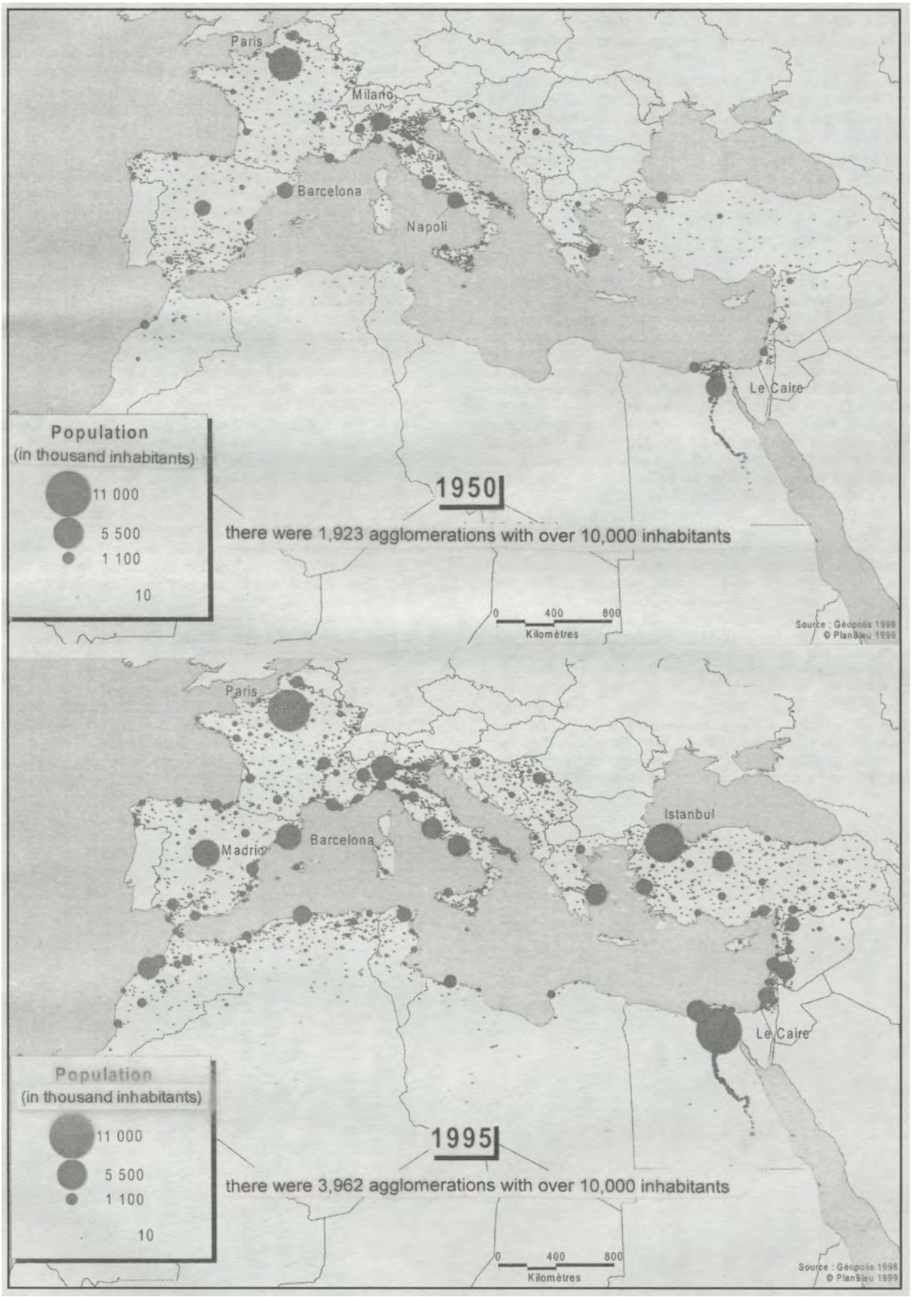

Fig. 1: Agglomerations of Mediterranean countries in 1950 and 1995. (*Source: Géopolis,* 1998; *Plan Bleu pour la Méditerranée*, 1999).

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Changing urban policies towards sustainability in the Mediterranean

Serge Antoine

Serge Antoine, a high-ranking civil servant (Conseiller-Maître à la Cour des Comptes) who, among his other distinguished posts, has been responsible for international relations at the French Ministry of the Environment and originator of the Mediterranean Blue Plan, *is President of the Claude Nicolas Ledoux Foundation for future-oriented studies, member of the board of the international association Futuribles, and member of the World Society for Ekistics (WSE). The text that follows is an edited, revised and expanded version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

Foreword

"Urban Management and Sustainable Development" was chosen to be one of the main topics to be considered by the Mediterranean Commission for Sustainable Development (MSDC) in the period 1999-2001.

This Commission was created following the 1992 Rio Earth Summit. It is an institution unique in the world working at a regional scale. It groups 20 representatives of states and 15 persons from environmental NGOs, socio-economic actors and local authorities.

The MSDC was set up and is working in the framework of the "Mediterranean Action Plan" (MAP) launched in 1975 by the 20 Mediterranean riparian states, under the umbrella of the United Nations, whose headquarters are in Athens.

A Working Group on towns was established at the beginning of 1999; it launched a number of activities in order to respond to its mandate, defined, together with its composition, in July 1999 as follows: "*The Working Group on Sustainable Development and Urban Management was, within its present mandate, established at the Meeting of the Mediterranean Commission for Sustainable Development in Monaco (20-22 October 1998). The task managers of the Group are Egypt, MEDCITIES and Turkey. [...] The Group is supported by the Priority Actions Programme and the Blue Plan Regional Activity Centres of the Mediterranean Action Plan (MAP). The meeting also decided that the Group will concentrate its work on the issues of urban development and sustainable management ...*" (excerpt from the Report of the Fifth Meeting of the MCSD, Rome, July 1999)

After two years, the main activities[1] implemented can be summarised as follows:

- organisation of three meetings and fora (Split, 1999; Paris, 2000; Sophia Antipolis, 2001), each enjoying the participation of fifteen-odd experts in urban issues in the Mediterranean;
- preparation of a preliminary assessment of urban issues and challenges of urban management aimed at a sustainable development of the Mediterranean region;
- implementation of an "information campaign" through questionnaires sent to the authorities of 50 Mediterranean towns and 20 coastal states;
- mobilisation of 12 experts (national, sub-regional, regional) from three shores of the Mediterranean in order to get a better insight into the priority urban problems of each sub-region, as well as the principal obstacles and difficulties standing in the way of a sustainable urban development;
- identification of 6 examples of urban management (Malaga, Ismailia, Split, Iskenderun, Tetouan, Limassol), illustrating the diversity of methods of progressing towards a more harmonised urban future;
- creation of an overview of international and regional initiatives towards a sustainable development of Mediterranean towns;
- organisation of a Mediterranean meeting on "Urban Management and Sustainable Development" (Barcelona, September 3-5, 2001), attended by 55 participants from the three shores of the Mediterranean, representing all the members of the urban group.

The document presented at the Berlin meetings of the WSE in October 2001 was the latest draft for approval by the 20 riparian states of the Mediterranean region. The four orientations and 10 propositions contained are directed to states, city managers, socio-economic actors and civil societies.

The figures and forecasts mentioned here come from the *Blue Plan* (Dr Michel Batisse, V.P. Serge Antoine) located in Sophia Antipolis (France), working in the framework of the MAP.

Introduction

Throughout the world, urban reality is a major issue of our contemporary society. This was recognised as one of the priorities at the Habitat II Conference (Istanbul, 1996).

The Mediterranean does not escape to the global evolutions; moreover, it has its specific features and its history. This history, often several thousand years old, gave birth to a true urban network and the living concept of "a town" where urbanism, institutions and society meet.

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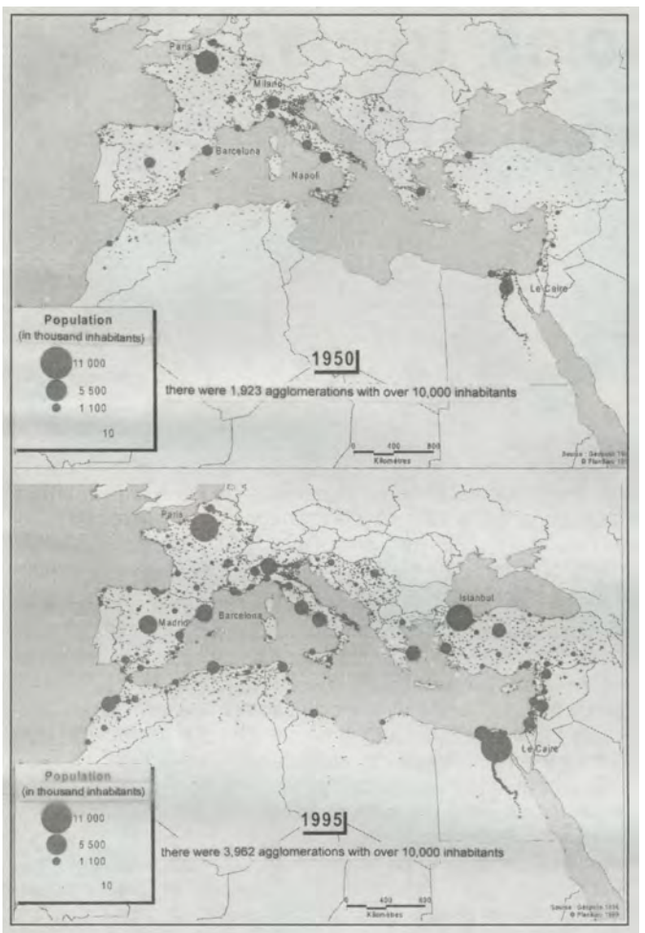

Fig. 1: Agglomerations of Mediterranean countries in 1950 and 1995. (*Source: Géopolis,* 1998; *Plan Bleu pour la Méditerranée,* 1999).

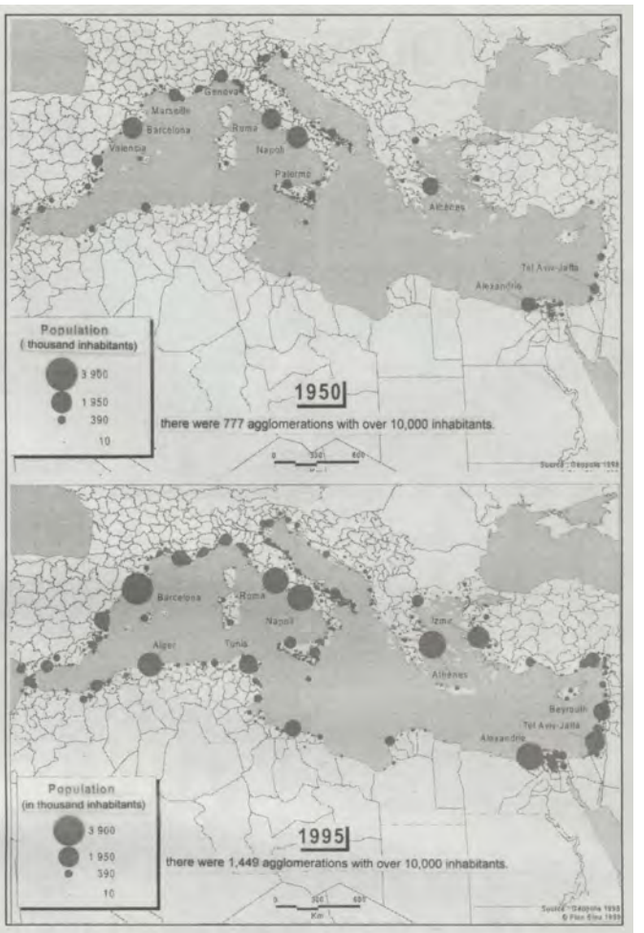

Fig. 2: Agglomerations of coastal Mediterranean regions in 1950 and 1995. (*Source: Géopolis,* 1998; *Plan Bleu pour la Méditerranée,* 1999).

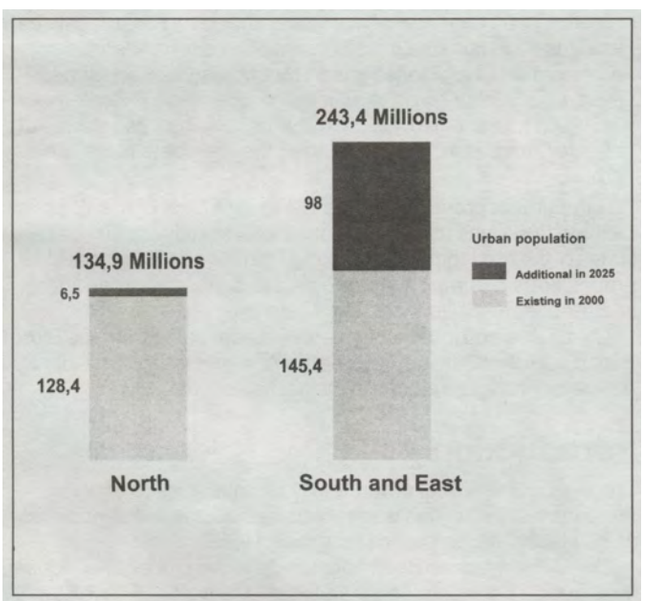

Fig. 3: Estimated evolution of urban population in the total Mediterranean Basin, 2000-2025. (*Source: Plan Bleu pour la Méditerranée,* 1998).

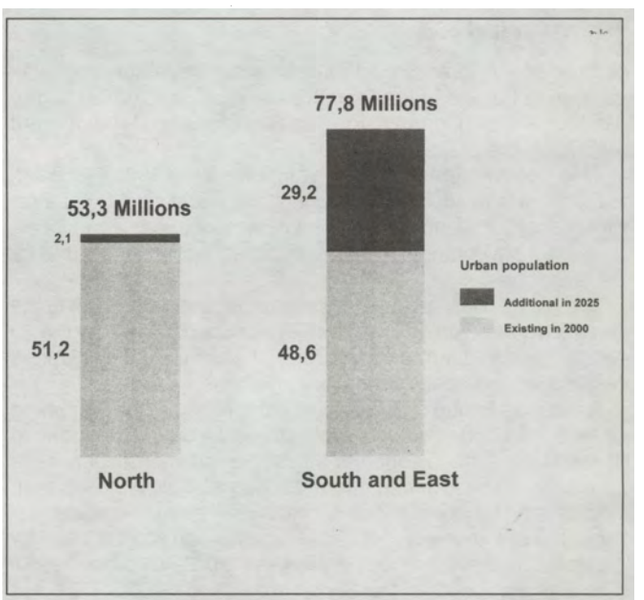

Fig. 4: Estimated evolution of urban population in the coastal Mediterranean regions, 2000-2025. (*Source: Plan Bleu pour la Méditerranée,* 1998).

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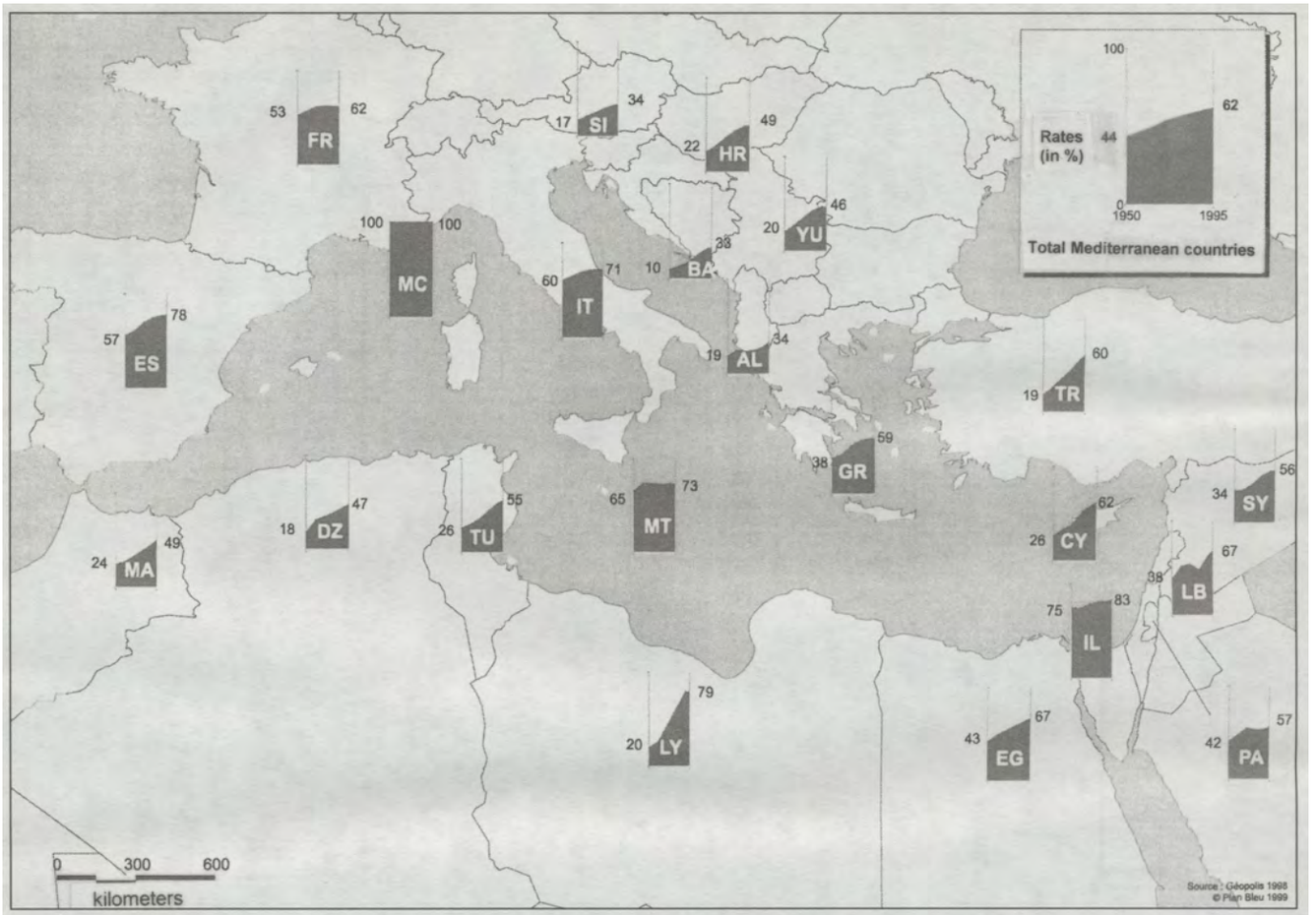

Fig. 5: Growth of urbanization rates in Mediterranean countries or territories between 1950 and 1995. (Source: Géopolis, 1998; Plan Bleu pour la Méditerranée, 1999).

Mediterranean societies are predominantly urban

After half a century of intensive urbanisation (1950-2000) and the accompanying transformations of the way of life and consumption, Mediterranean societies have become predominantly urban. The urban population of the coastal states grew from 94 million in 1950 to 274 million in 2000. From 1965 to 2000, the urbanisation rate in the countries between Spain and Greece (northern shore) has grown from 58 percent to 67 percent, and between Turkey and Morocco (eastern and southern shores) from 37 percent to almost 62 percent (figs. 1, 2, 3, 4 and 5).

In spite of a recently noted deceleration in the demographic growth in the countries of the northern shore, which is growing or expected to grow in the countries of the south, and in spite of a relative slowing down of rural exodus, in the future the heavy urbanisation trend will continue, even if it might be modified by the evolution of migratory flows which is hard to predict, and in 25 years, more than 7 inhabitants of 10 in the Mediterranean region will probably live in a town.

In absolute figures, the urban population could grow from the present 274 million to approximately 378 million in 2025, with a very important growth potential lying in the towns of the eastern and southern shores (probably, an additional 100 million inhabitants) (figs. 3 and 4).

The population littoralisation is not a general phenomenon, but is highly pronounced in a number of countries. According to demographic trend prospectives, in the next 25 years the coastal urban population of the northern shore will remain relatively unchanged, while that of the southern and eastern shores could grow by additional 30 million inhabitants. However, coastal urban sprawl, the touristic para-urbanisation in some areas, and concentration of certain economic activities, such as transport infrastructure, will probably continue turning natural coastal spaces into artificial environments (47,000 km length of coast).

Urbanisation prospectives, long-term environmental concerns, the burden of the towns in the national economies, lead to considering the towns and agglomerations as strategic places for sustainable development in the Mediterranean. In fact, the following are concentrated in the towns and agglomerations:

- most of the economic growth of the countries, and of the supply of production factors relevant to the land,
- consumption of an important part of both renewable and non-renewable resources,
- "production" of most of the waste, as well as being the source of a considerable portion of pollution of various environments (air, water, surface and underground soil, sea ...),
- critical social situations, sometimes extremely serious (economic, social and environmental dualities, insufficient services, deterioration of the quality of life and sanitary risks, bursting of urban services, segregation, conflicts and violence, ...).

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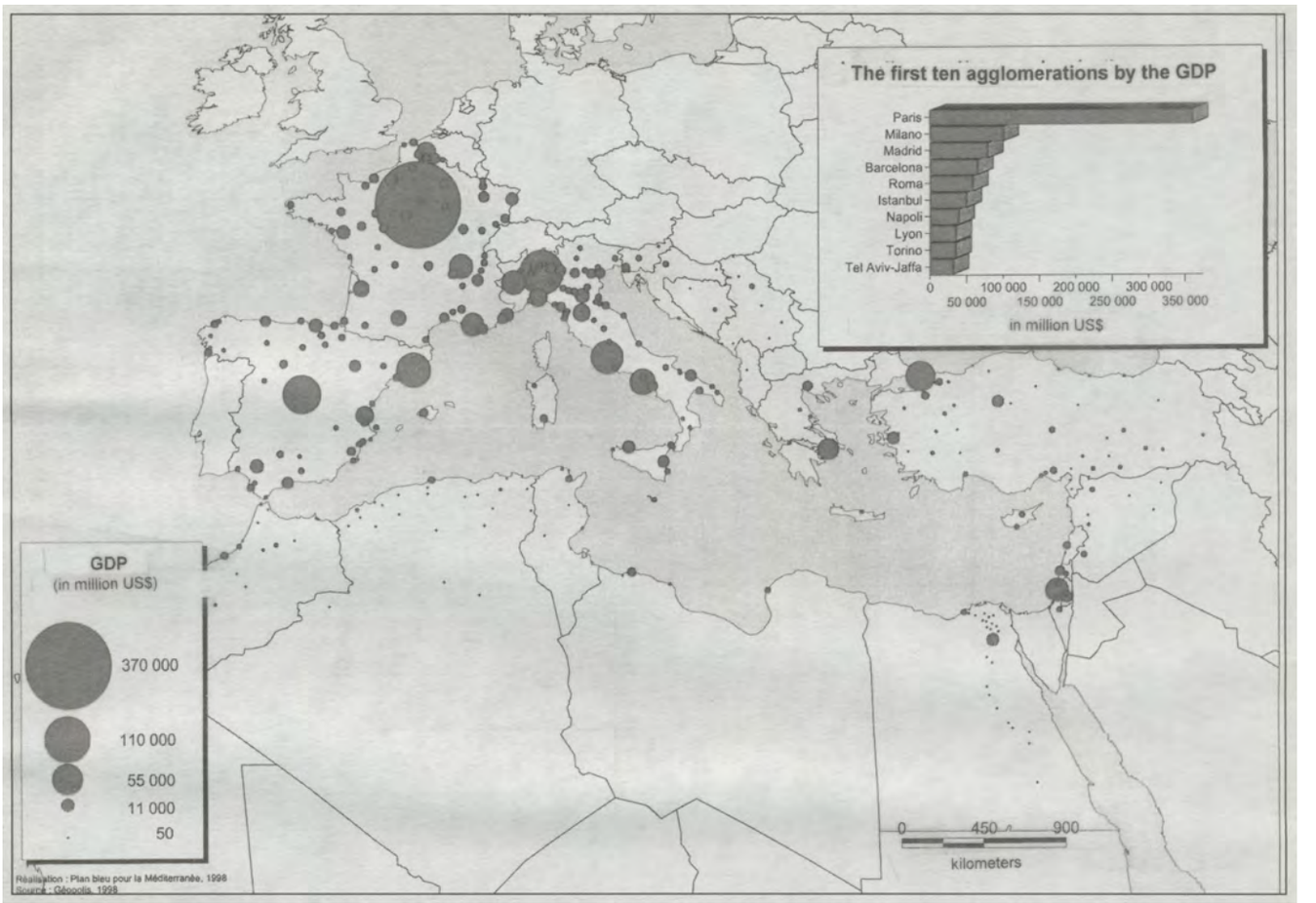

Fig. 6: The GDP of Mediterranean agglomerations in 1995. (Source: Plan Bleu pour la Méditerranée, 1998; Géopolis, 1998).

The problems are serious and even critical, even if in the Mediterranean space where the first nuclei of urban life developed and flourished, the negative features have rarely reached the intensity or severity thresholds observed in other regions of the world.

Moreover, the towns are vectors of innovation and key points of maintenance and promotion of significant models of social and cultural diversity.

Urban economies in a globalisation context

Regardless of the contexts varying greatly from one country to another, globalisation affects the Mediterranean region just as any other region in the world. The countries of the south and the east join this dynamic, one aspect being their approaching the European Union, pre-empted by the association agreements preparing an area of free market and a Euro-Mediterranean space (fig. 6).

Although modalities vary from one country to another, all towns are confronted by challenges of globalisation of economy, progressive liberalisation of the market, displacement of enterprises, relative restriction of the production sectors, an ever growing importance of the services sector, commerce, urban tourism and new information technologies, various privatisations of public companies, and an ever more frequent transfer of responsibility in the management of public urban services. Urban areas are priority factors of progress within this new global scenario.

The current economic changes, as well as socio-economic or geographic contrasts within the Mediterranean urban subsystems lead to situations which are sometimes competing and sometimes complementary. Apart from the positive aspects, the globalisation concept implies numerous de-structuring effects, between territories, between towns and even within the towns themselves, which risk to get even more pronounced in the future; hence the need for the towns and cities to affirm their identities.

Urban management institutions and methods

Both in the countries of the north, with a long tradition of municipal organisation which is now being re-considered, and in the countries of the south and east, involved for just a few decades in the profound institutional changes, all the towns are today faced by the need to respond to common challenges, notably:

- responses to segmented demands coming from urban societies which are getting more and more exigent;
- implementation of a negotiated, pragmatic urbanisation involving a large panel of actors, including those coming from the civil society;
- harmonisation of public urban policies, still too often sectorial;
- partial retreat of the States and the growing decentralisation;
- insufficient resources and funds of the local communities which depend in practically everything on external support;

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- adoption of the public/private partnership formula, especially in the domain of public urban services;
- necessary training and sensibilisation, especially in the developing countries, for the leaders and municipal administrative staff, on the most recent knowledge of more complex urban issues.

Facing the real difficulties in tackling urban problems, it is necessary to find responses adapted to the specific context and traditions of each country. When proceeding towards a more sustainable development, voluntary actions are possible, but must not remain alone. Aimed in each country by different actors – State, local communities, civil society – these will differ considerably.

Four groups of proposals for a sustainable development and urban management

Sustainable development of the Mediterranean towns and agglomerations should not only respect the environment, but has to be socially accepted and have a solid economic base. Sustainable urban development requires measures characterised by a search for coherent actions. Moreover, in the Mediterranean towns, culture, in a broad sense, imposes itself naturally as a fundamental dimension for the objectives of sustainability which inevitably combine material and immaterial criteria, especially in an area where towns have written the history for millennia. It is in the towns that the art of living together has developed; it is there that the degree of interdependence of the people is manifested; it is also in the towns and around them that one usually sees the development of new spatial and environmental interdependencies.

The activities of the MCSD's urban group allowed for the defining of four groups of proposals. These groups are often "transversal", multidimensional, and characterized by a search for coherence and solidarity mentioned above:

A. *Mobilising actors and means of action towards achieving sustainable urban development* (institutional coherence);
B. *Acting towards a better management to guide urban dynamics* (territorial coherence, spatial and environmental interdependence);
C. *Improving public urban services management* (coherence of management methods);
D. *Strengthening Mediterranean and Euro-Mediterranean cooperation for sustainable urban development* (better synergy of regional and international initiatives).

Each axis is divided into several proposals for action by decision makers, managers and various urban stakeholders (socio-economic actors, associations, urban professionals, population).

Certain proposals are strictly targeted, addressing the State, local communities, urban networks, non-governmental organisations, international organisations. Others are "shared": they advocate joint work of different stakeholders in order to achieve the objectives of sustainable development.

A total of 12 proposals are submitted to the attention of the MCSD. The stress has been placed on the need to anticipate, to be "proactive", i.e. to act before the negative impacts of urban growth are actually felt, and to propose actions regarding life in the towns itself – economic, social, and institutional.

These proposals are not intended to just define "good" solutions, but rather to encourage the decision makers, managers and various stakeholders to choose, through several tracks, the one or the ones that are best suited to the context in which they operate and to the specific needs or requirements they have to meet.

The progress towards sustainable urban development requires a strong political will of the decision makers, both national and local, as well as a dialogue and dedicated participation of numerous town stakeholders, in order to resolve the problems, often very serious, relevant to non-viable economic growth, absence of social involvement, and disregard of the environment.

A. Mobilising actors and means of action

Today, throughout the Mediterranean basin, in spite of several pioneering initiatives (Tripoli, Malaga, Essaouira, Ismailia, Rome, ...), the relevant stakeholders have not been in a position to offer their full support to the policy of sustainable development. It should be possible for the local authorities to express a strong political will regarding more transparent choices for the town and its inhabitants. They should be able to "tailor" it according to the size of the agglomeration and the specific situation. Particular attention should be paid to the small and medium-size towns (65 percent of the urban population of the region lives in agglomerations with less than 64,300,000 inhabitants).

The stakeholders are often municipalities which are either isolated or under the "sectorialised" tutorship of ministries and other administrative bodies which operate too separately from each other, while sustainable development requires a more "transversal" action and a synergy between the local communities grouped at a suitable level and the State, provinces or regions, which should be true partners in land-use management and, accordingly, urban planning.

Civil society as a whole – population, associations, professions, enterprises – is not yet fully involved in practice as required by the Rio Declaration (chapter 28 of the activities). Very often, throughout the Mediterranean, the local expressions of Agenda 21 are good check-lists, but are not followed by decisive action. Citizen groups, organised as early as possible, enable better formulation of requirements and expectations over a long-term period and with respect to the mobilisation of available funds (participatory budgeting).

Training of stakeholders not yet aware of the ideas of sustainable development, and strengthening of local capacity building are prerequisites of good participation.

International financial means, and especially European support, very seldom identify urban programmes as such, although local communities are the best places for implementing transversal projects that, for example, link transports, habitat and greenhouse effect, or water demand pricing and social equity. Euro-Mediterranean meetings like, for example, the Ministerial Conference to be held in Athens in 2002, could be good occasions for a new opportunity for the towns which, by the year 2025 in the Mediterranean, will account for 70 percent of the population and where a large part of the problems relevant to sustainable development will be concentrated.

As regards the resources, national and local financing in the region is still controlled by, often outdated, fiscal frameworks. Changes are expected in order to enable the local communities, depending on the situation, to redirect revenues and useless expenditures to environmentally friendly services or social objectives like the reduction of poverty.

Recommendations to the Contracting Parties

1. Sustainable urban development calls for the elaboration and implementation, by the urban municipalities and groups of municipalities, of medium and long-term development strategies, plans and programmes. These actions, of the Agenda 21 type, should be initiatives shared and contracted by all of the concerned stakeholders (services of the State, local communities, various actors of the civil society, socio-economic partnerships).

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They should have integrated in character, not only at the national interministerial level or at the inter-services local level, but also between national, regional and local levels. The Contracting Parties are invited to promote and facilitate the elaboration of this approach.

2. Recognition of the role of various actors of the civil society in urban governance should take the form of their involvement in the process as early as possible. It is advised that this participation be in the form of a continuous consultative and management process. The local expressions of Agenda 21, and other similar initiatives such as Urban Strategic Plans, could become dynamic exercises for the realisation of this participative democracy.

3. The Contracting Parties are encouraged to create the necessary conditions for strengthening the administrative, technical and financial capacities of the municipalities. The strengthening of the local capacities should be implemented at all levels and involve directly the new stakeholders which have emerged from the process of decentralisation (local communities, community organisations, local or neighbourhood associations, ...). Capacity-building mechanisms require transparency and actions aiming at popularisation of and sensibilisation to the issues and challenges of sustainable urban development, as well as specific training adapted to the role and prerogatives of the various local stakeholders (leaders, technical municipal services, associations, ...).

4. The present financial resources of urban municipalities are largely insufficient to cover increasing needs for sustainable urban development, and in particular for fighting urban poverty. Contracting Parties are invited to review and, where needed, to increase the financial resources allocated to local authorities. This could be done, *inter alia*, by increasing transfers from the State budgets to the local authorities and/or by using innovative local economic instruments. International donors are invited to increase their funding targeted at specific urban development programs.

Recommendation to the Secretariat

5. MAP should prepare an overview of the recent evolution and distribution of international (multilateral, bilateral and decentralised) and national financing intended for urban development in the Mediterranean. Criteria could also be defined in order to better guide future financing towards sustainable development.

B. Acting towards a better management to guide urban dynamics

Urban planning, from Hippodamos of Miletus to La Cerda in Barcelona, has marked the organization of the Mediterranean towns, and still today physical planning is an indispensable affirmation of public interest in the towns where speculations and individual initiatives could not become lasting components of the systems which are becoming more and more complex. Over the past 30 years, urban and regional planning in the Mediterranean has provided good examples of what physical and land-use plans could be. The coast, which is generally exposed to most of the urban pressure in the Mediterranean, calls for ever stricter control (coastal laws, coastal programmes, "contrats de baie" /a tool for protecting and managing the coastal areas, created in France some 10 years ago; the contract is made by the local authorities concerned – municipalities, urban communities, ...).

However, placed within a time frame, as requested by sustainable development, "the plans" should be reconsidered and formulated as strategies and programmes paying greater attention to the dynamics, organised or spontaneous, of urbanisation and to the ever faster changes of civil society. Participative planning is a present day request expressed ever more frequently and strongly.

The Mediterranean towns and regions will draw long-term benefits from the exchange of new experience (Catalonia 2010, Egypt 2020, etc.) and from regional strategic programmes with time horizons of 2010 or 2025 (France, Egypt, Morocco, etc.).

Some issues, characteristic of the entire Mediterranean basin, which were examined more thoroughly, are briefly discussed later.

- **Sprawl prevention.** In the compact Mediterranean town the territory spreads through pavilion housing, cars, tourism, and especially the very strong demographic growth (an increase of 100 million urban inhabitants in the South by 2025), prices of land. Urban spreading is often to the detriment of the neighbouring agricultural land in the coastal plains, already scarce in the region. Other negative consequences are the risk of marginalisation (uncontrolled, often illegal housing), the high vulnerability of urban areas to natural and technological risks, and an increased greenhouse effect due to longer trips in motor vehicles. The "reconstruction of the town on the town", the importance of town cores require renewed urban strategies. A long-term maintenance of the peripheral agriculture is often the most economical way of securing aeration of the town, upkeep of "landscape areas", and reconnecting, in a positive sense, of the town and the countryside.
- **Urban transports** are one of key issues of sustainable development. Increased numbers of private cars, already considerable in the region or expected to become so (by the year 2025 an increase of more than 400 percent in the number of cars in Morocco, and an increase of more than 40 percent in freight transport and 30 percent in human transport in Southern Europe), will bring a considerable risk of air pollution in a part of the world where, in summertime, meteorological inversions are important.
- **Demographic explosion,** uneven distribution of revenue, unemployment, have led in the towns, sometimes in the degraded ancient centres, and sometimes in marginalised suburbs, to the appearance and development of uncontrolled housing. In view of a progressive reintegration of often unhealthy housing, the local communities have to develop appropriate social and environmental policies that would benefit from being adopted with the involvement of the concerned population.
- The desired **revival of the urban centres,** but sometimes also the degradation of the housing fund or implosion due to traffic congestion, are very strong facts. The "reconstruction of the town on the town" is necessary; yet it could pose risks if a careful and subtle strategy is not applied with regard to the historic heritage, both ancient and more recent. Local authorities, as well as State agencies (historic monuments, archaeology) should join forces, and the State itself should play its role in order to ensure that the clear laws on historic heritage are respected. It is evident that if the approach is global, in the Mediterranean the stakes are higher since this region is the most important tourist destination in the world. Furthermore, the directly interested population should be more involved in protection and rehabilitation measures.
- Finally, some more aspects typically Mediterranean like the **harbours and harbour zones** which, often in decline, had to or still have to be "rehabilitated" or converted to open the Mediterranean towns to the sea. But also to give all their space to inter-Mediterranean maritime navigation that could, in the years to come, have a renaissance in a new form, especially if we want to avoid air traffic congestion already indicated by an annual increase of more than 8 percent, or negative environmental effects of freight traffic along the coastal roads.

Recommendations to the Contracting Parties

6. Each Mediterranean country is invited to prepare guidelines,

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aimed at upgrading the existing planning tools in their towns in order to move towards global, integrated and prospective strategic planning, taking into account the social, economic and environmental aspects.

7. The Contracting Parties are invited, within their regional development policies, to encourage balanced development of towns and regions, so as to prevent the excessive concentration on the coastal areas and/or the explosion of too large urban agglomerations.

8. Contracting Parties and Mediterranean towns, with the support of international programmes and the participation of the population concerned, are encouraged to increase efforts to prevent natural and technological risks. They are invited to prepare and implement rehabilitation programmes for degraded or unhealthy neighbourhoods in central and peripheral neighbourhoods of significant poverty, and contingency plans in risk-exposed urban areas. The preservation of the urban historic heritage should take into consideration not only the heritage or tourism objectives, but also aim at improving the living conditions of the local population.

9. Rehabilitation programmes for harbour fallow land should be established by the towns concerned, bearing in mind at the same time their interest in the use of the space, urban opening to the sea, and the possible future renaissance of inter-Mediterranean maritime navigation.

10. The Mediterranean towns are encouraged to prepare and implement, in cooperation with the civil society stakeholders, municipal "greenhouse effects" combating plans. These plans should integrate all aspects of resource management (waste minimisation, recycling, energy saving, limiting urban sprawl...). They should also adopt specific plans for improving urban mobility and transport, favouring the modes of transport that require less space and energy. Those plans would be harmonised with the principle of mixing of urban functions and uses.

Recommendations to the Secretariat

11. MAP is invited to assist countries in preparing the guidelines for upgrading the planning tools and in publishing and disseminating them. It is also encouraged to prepare cost-effectiveness analysis of urban sprawl.

12. MAP should promote the exchange of experience in the field of policies for controlling urban sprawl, upgrading of poor neighbourhoods, the preservation and rehabilitation of historic settlements, and harbour rehabilitation and their integration in urban structure.

C. Improving public urban services management

The Mediterranean towns evidently share most of the urban management dysfunctions with the rest of the world, but especially those on the southern and eastern shores are characterised by the great problems relevant to following the rhythm of urban growth and to the lack of their own means. The priority problems concern water supply, sewerage and solid waste management, and urban transport.

Faced by this situation, and within their efforts to mobilise means needed to finance infrastructure and urban services or to initiate social policies in their competence, the Mediterranean urban municipalities, even those that have managerial competence, search for external resources, and sometimes partner enterprises for the management. The States play a decisive role for good management of the services, in the planning, regulation, financing, and distribution of competencies among various levels of administration.

The public urban services of municipalities or groups of municipalities could be managed either directly by the municipality personnel or by transferring those duties to public or private enterprises. In fact, it has been realised that neither the rules of the public market, concession charts, monitoring of sub-contractors, public accountability of the heritage, nor technical control are sufficiently taken into consideration in this respect. As for the methods of assessing public opinion and impact assessment, these are still insufficient.

The need was also realised to implement legislative measures in order to improve the financial and control capacities of the administrative bodies in charge of services management. Ways should be explored of how to secure the necessary control by the communities where some partners tend to impose inadequate conditions in terms of costs or sustainable development.

The pricing (adapted to economic and social criteria) and the administrative or techno-economic tools of control are the instruments on which good implementation of sustainable development will depend.

Recommendations to the Contracting Parties

13. The States should strengthen the capacities of the authorities (national, regional, local) in charge of urban services and clarify, whenever needed, the institutional framework in order to improve service quality and management efficiency.

14. In the case of management transferred to private companies or public-private partnerships (PPP), the municipalities or groups of municipalities should ensure that the contractors integrate sustainable development concerns in their mandates, and that they are capable of implementing efficient monitoring methods (progress and performance indicators, tariff control, etc.). When evaluating bidding applications the selection criteria should not be solely based on the "least cost" principle, but also on taking into consideration social and environmental goals and the costs of sustainable development. The cost recovery principle in pricing public urban services should ensure access to services for the poorest citizens.

Recommendation to the Secretariat

15. MAP should compile regional databases on management of public services and its costs in the Mediterranean towns which would facilitate the comparative analysis of the efficiency of these services, as well as of the pricing policies applied.

D. Strengthening Mediterranean and Euro-Mediterranean co-operation

For several decades now, co-operation among nations has become an instrument for improving social, economic and environmental development. The United Nations Charter, the declarations and action plans from Stockholm (1972) and Rio (1992), Vancouver (1975) and Istanbul (1996) are some of the important milestones of the sustainable development of countries and towns.

The towns level is essential, and its interest was shown in Curitiba and Rio in 1992, in Istanbul (1996), and confirmed in New York in 2001 (Habitat+5). The local authorities and urban NGOs should be present in Johannesburg as they were in Rio and Istanbul. The Rio+10 Conference in Johannesburg will be an occasion to reaffirm that interest, and the Mediterranean States would benefit from a joint approach, and from showing also their own efforts at the regional level. The Conference could provide a new impetus to sustainable urban development.

At their level, the Mediterranean countries have already undertaken initiatives of co-operation, launched in Barcelona in 1975 and confirmed, from the point of view of sustainable development, in Tunis in 1994, and again in Barcelona in 1995. This also refers to the Euro-Mediterranean process.

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However, a significant benefit would be drawn from bringing this co-operation down to the level of towns. Twinning of towns (more than 200 towns), existence of a network created in 1991 (Medcities), opened a path that could now be enlarged by a joint effort made by the towns, provinces or regions, and States.

This approach does not require the creation of an ad hoc institution or an RAC, but the use of guidelines prepared by the States, identification of urban programmes by European and international donors, and a boost, on a voluntary basis, for thematic networks comprising regional and national towns and experts. Little by little, the associations and other representatives of the civil society, as well as the socio-economic partners would draw benefit from their active participation in this co-operation.

Recommendations to the Contracting Parties

16. The existing co-operation networks, both general (Medcities, MEDForum, MIO-ECSDE) and thematic (Medener, Healthy Cities, Medsafe, etc.), would be strengthened. They would be supported, as necessary, by European or international financing.

17. The local authorities and associations should be encouraged to be better connected with and benefit from the programmes of international co-operation in the Mediterranean: identification of urban programmes by donors would facilitate this task, as well as the work of various institutions concerned, such as Euromed Partnership, UNEP, UNDP, UNESCO, The World Bank, EIB, METAP, CEDARE.

18. The Mediterranean Commission for Sustainable Development, supported by the Mediterranean towns, could address the Euromed Partnership making better use of the existing funding possibilities for establishing or promoting a specific funding instrument and supporting urban sustainable development in the Mediterranean region.

Recommendations to the Secretariat

19. Sustainable development is not a uniform model: it should be tailored to local conditions. MAP should encourage exchange of experience by organising, *inter alia*, thematic workshops and web conferences for the towns sharing common problems and similar objectives, and maintain the information exchange, whenever possible, together with the existing networks.

Note

1. A number of those activities were implemented with the support of the European Commission – DG Environment.

Editor's Note

Because two important appendices to this paper could not be reduced or edited, they were unfortunately omitted for lack of space. It is hoped that they may be used on another occasion in *Ekistics*.

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Towards ecological urban restructuring: A challenging new eco-cultural approach

Ekhart Hahn

The author is Professor at the Faculty for Spatial Planning, University of Dortmund. In the 1980s he developed the "Theory and Concept of Action on Ecological Urban Restructuring" at the Wissenschaftszentrum Berlin. Parallel to his research work he directed several model projects on ecological urban restructuring in Berlin and in other cities. The projects ranged from experimental eco-houses, pilot projects on the ecological restructuring of neighborhoods and urban districts, up to model projects on the ecological revitalization of urban-rural development. Besides the University of Dortmund he teaches as guest professor at the University of Aalborg, Denmark, and has received invitations for lectures and guest professorships at several other universities in various countries. Since 2001 he has been a member of the World Society of Ekistics (WSE). The text that follows is an expanded version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Global urbanization

The topics with which I am concerned will not reveal their deeper sides without a closer look at the development of today's industrial society, the urbanization process that goes along with it, and its specific effects on the changing relationship between man and his environment.

Global urbanization started out with industrialization and scientific-technological progress, which led to an explosive, and continuing, increase in population. In less than 200 years, the earth's population has risen from scarcely 1 billion people at the beginning of the 19th century to over 6 billion by the end of the 20th century – more than a six-fold increase. This led to a historically unparalled urbanization process that, in the industrialized countries, practically reversed the ratio of rural to urban population. At the beginning of the 19th century, 80 percent of the global population still lived on and from the land and 20 percent in cities. By the end of the 20th century, the world's population had changed its collective preference and urbanized to the point that 80 percent of people now live in cities, with only 20 percent residing in the country.

While the urbanization process in the industrialized countries has stabilized at an urban population level of 80 to 85 percent, some initial countervailing trends are already beginning to appear. For instance, in the last 20-30 years urbanization got underway in the least developed countries and now continues unchecked there. Even today, more than 90 percent of world population growth is taking place in cities. In the underdeveloped countries, the urban population is presently growing by 60 million people per year, and it is likely that by 2020 as much as two thirds of the world's population will be living in cities.

From a broader perspective, the urban shift of modern industrial society and the social conditions typical of it are characterized by great dynamics. This process of change is unfolding as a function of incessant surges of innovation in modern industrialized society and its specific social conditions, which have differentiated and altered both the mode and the forms of the urbanization process. Thus today's forms of urbanization have little to do with the surges of urbanization typical, for instance, of the industrial societies in Europe and America at the end of the 19th and the dawn of the 20th century. Especially since the middle of the 20th century, the process of urbanization has continuously changed its face: first, due to mass motorization, then through major revolutions in social living conditions, in leisure and work, but also due to migration processes.

Urbanization was followed by a phase of suburbanization, then by de-urbanization, and we are now experiencing the emergence of new forms of reurbanization. But new and previously unknown types of city and of urbanization are also emerging; these range from the so-called Zwischenstadt (SIEVERTS, 1997), the intermediate city or interurbia, to the telecity or the sunbelt city and the colossal urban agglomeration of the megacity type; in other words, cities with more than 10 million inhabitants – Tokyo already has a population of over 30 million – or so-called global cities like New York, London, and, again, Tokyo, which are becoming the dominant nodal points and control centers of an increasingly globally networked world.

In the context of a dynamically developing world and the challenges it entails, the urbanization process continues apace – with current upheavals dominated by the triumphant advance of the new information and communication technologies, the reorganization of worldwide capital flows, the development and powerful expansion of new forms of the international division of labor, and related increases in poverty and poverty-related migration with their untold consequences.

Another form of differentiation may be seen in what is known

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as "virtual urbanization." According to this theory, in the future urbanization (regarded as urban forms of living and working) will, at least for a certain segment of mankind, become detached from concrete places and develop in the direction of the virtual and global megacity.

We now come to the environmental factor. It continues to play a subordinate role in present urbanization theory and discussions, and I will focus on this factor in what follows. Proceeding from my studies on urban ecology and ecological urban restructuring (see HAHN, 1982, 1983 and 1993).[1] I will look into the thesis that the environmental factor will, in the course of the 21st century, increasingly come to be seen as the actual key factor of a new and crucial phase of urbanization. This I refer to as the catharsis phase of modern urban development. My thesis is that the sustainability of post-industrial urban society will be determined by the course taken by this phase, and that all past forms of urbanization will tend more and more to lead to an ecological dead end.

The environment factor

To start out with, a look back at historical developments. It goes without saying that pre-industrial urban cultures were not a model of ecological rectitude. If they were to survive, however, they had to ensure that the highest possible amount of the resources they needed were available in all important areas of basic needs (food, energy, water, building materials, and other essential goods), and they used recycling techniques to secure the longer-term availability of these resources. Depletion rates had to be kept to an absolute minimum. The concern was to deal economically with resources that were for the most part scarce. This also implied that manufactured products were mainly designed for high efficiency and long usage.

The size and prosperity of a city was essentially dependent on a region's fertility and resource potential. Resource management was handled in tight supply and disposal cycles within the city, between the city and its environs, and with the aid of a marked regional energy, water, and materials management. The guiding principle of system conservation was ecological efficiency and preservation of material ecological capital.

All of this was not done voluntarily or from a high eco-ethical consciousness but because it was the basis of what prosperity had been attained. At pre-industrial levels of development and technology, possibilities to import goods and externalize negative effects detrimental to the system were very limited. To maintain an often highly sensitive system stability, it was essential to organize lifestyles accordingly and to base them on appropriate ethical and behavioral norms. Ecological scarcity and system-stabilizing restrictions were decisive factors of land-use planning and urban development.

With the advent of industrialization, these millennia-old restraints on and obstacles to development were broken in favor of an approach allowing for some completely new liberties in relation to nature. Industrial science and technology made possible hitherto unknown potentials and seemingly boundless possibilities to overcome closed cyclical systems and to design open systems to replace them. It appeared possible to break away from local and regional dependencies, from the cycles of life and regeneration, indeed even from the cycles of the days and years. The resistance posed by time and space was overcome, and resources and sinks were made globally available for the development of industrial cities and industrialized nations.

A new urban civilization, released from ancient natural and environmental dependencies, seemed to have become possible. The result was the emergence of wholly new types of city and entirely new urban life cultures, freed from old attachments and marked by a previously unimagined prosperity: what we now refer to as the modern urban lifestyle.

This "triumph over nature" through modern technology and logistics seemed to have overtaken the model of an economy geared to traditional recycling principles. The task that architecture and city planning were now expected to address and find artistic and feasible practical solutions for was no longer dependence on nature, its scarcities, its sensitive effective and relational contexts, and the rules of behavior this meant for the inhabitants and users of urban environments. On the contrary, the focus now was the liberation from and triumph over these dependencies. While I was studying, I was part and parcel of this movement, celebrated it and drafted visions of the future, which very soon thereafter seemed highly questionable to me.

What finally emerged were urban city, settlement, and economic structures, consumption styles and lifestyles that multiplied the use of energy, water, and materials as well as the rates at which materials were depleted. The consequence was that growing consumption and depletion more and more had to be covered or compensated for with the aid of outside resources. Urban systems grew more and more dependent on the highly complex and sensitive logistics and transportation infrastructures required, on a global scale, to provide needed resources and to dispose of waste products. This called for a greater and greater use of matter and energy. This in turn led to an explosive increase of technological and political risks. An additional consequence was an autonomization of internal materials and energy requirements. The effectiveness and efficiency of the overall system declined apace, while at the same time emissions of pollutants and toxic wastes affecting climatic conditions increased exponentially, to say nothing of system-related social and cultural costs.

It became increasingly obvious that this model of urban prosperity cannot work out in the long term. It can only function as long as the majority of the world's population is excluded from this model of prosperity – i.e. until the global supply of resources and sinks for a privileged minority has been consumed, or until so-called "critical loads" have been exceeded, tipping the balance of ecological and social systems. Both are pushing toward increasingly obvious boundaries. These issues have been the subject of considerable research, from the Club of Rome's *The Limits to Growth* (1972) to the Rio Earth Summit (1992) and the UNEP millennium report *GEO 2000* (1999).

In summary, it can be said that the problems facing the overall system are intensifying and will continue to intensify as long as ecological system productivity and stability at the local and regional level continue to face unparalleled pressure.

The task

The theory of the key role of the city – on the one hand as the central causative factor of today's environmental crisis and on the other as the point of departure for the development of new, sustainable solutions – is not new. As already mentioned, it was developed in the early 1980s. But at that time it was highly controversial and found little acceptance.

Since then, this position has gained wide currency. Meanwhile we know very much more about the real extent of the task, in part up to and including magnitudes or even figures. The decisive breakthrough was achieved mainly at the World Conference on Environment and Development in Rio de Janeiro in 1992. The summit's final document, signed by 170 countries, set out the crucial role of the local level, particularly of municipalities, in implementing a sustainable policy of ecologically oriented development. To cite Article 28:

28.1: Because so many of the problems and solutions being

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addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and subnational environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development.

Article 28.2 further states that "*... by 1996 most local authorities in each country should have undertaken a consultative process with their populations and achieved a consensus on 'a local Agenda 21' for the community ...*" and 28.3 goes on: "*... each local authority (...) should enter into a dialogue with its citizens, local organizations and private enterprises and adopt 'a local Agenda 21'...*"

In these formulations, the Rio summit laid the cornerstone for the worldwide local Agenda 21 process and a systematic ecologically sustainable restructuring of cities that has now been set in motion. Since then for example, in Germany the parliaments of more than 2,300 municipalities have adopted appropriate resolutions and initiated official Local Agenda 21 processes (as of September 2002). This interim result is in line with the situation in other European countries like Denmark, Austria, the Netherlands or the UK.

The Rio summit itself had little to say on what particular goals are to be attained in this worldwide process. The framework was to be defined by higher-level National Agendas 21, which the 170 signatory countries have committed themselves to work out over the short term: this is one of the conference's main results. Bearing in mind their very different national conditions as well as the principle of international equality, the signatories are to set out national goal and action frameworks for sustainable development in the 21st century.

In Germany this commitment, voluntary in nature, has been addressed in two different ways.

- One was described in the report "Towards a Sustainable Germany," published by the Wuppertal Institute for Climate, Energy and the Environment on behalf of MISEREOR and BUND (1996).
- The other came two years later with the publication of the findings of the so-called Enquete-Kommission of the 13th German Bundestag,[2] "Protection of Man and the Environment."

Referring to the "five basic rules of sustainable development" (fig. 1), both studies came to very similar conclusions. Both aimed at a quantification of goals, specifying time horizons in which the goals for sustainable development were to be reached. This is also indispensable for the creation of orientations and binding commitment at the national and local levels alike.

The findings of both studies demonstrate that the necessary goal and time targets can be met only through efforts and standards that go far beyond present environmental policies, i.e. by means of a paradigmatic reversal of current social trends and by achieving a turning point in socio-technological development. In particular, the studies note that dependence on fossil fuels and finite resources, on movements of goods and flows

The five basic rules of sustainability

1. **The rate of depletion for renewable resources should not exceed the regeneration rate of the resource in question.**
2. **Non-renewable resources should only be used if an equivalent renewable resource is created, or if an equivalent increase in resource productivity is achievable.**
3. **Insertions of material in the environment should be orientated to the load capacity of the environment. Of course all functions have to be given due weight, last but not least the unobtrusive and sensitive regulatory systems.**
4. **The time frame for human intervention must be in a balanced relation to the reactive capabilities of environmental systems and relevant processes.**
5. **Dangers and unacceptable risks for human health due to social activities must be avoided.**

Fig. 1: The five basic rules of sustainability. (Source: Based on 12. Deutscher Bundestag, Enquete-Kommission "Schutz der Menschen und der Umwelt," Drucksache 13/7400, 1966).

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Table 1
Environmental goals for a sustainable Germany

Environmental indicator	Environmental target	
	short-term (2010)	long-term (2050)
RESOURCE WITHDRAWL		
Energy		
Primary energy consumption	at least –30%	at least –50%
Fossil fuels	–25%	–80 to 90%
Nuclear power	–100%	
Renewables	+3 to 5% per year	
Energy productivity [1]	+3 to 5% per year*	
Materials		
Non-renewable raw materials	–25%	-80 to 90%
Material productivity [2]	+4 to 6% per year*	
Land use		
settlements and transportation	• absolute stabilization • annual additional use: –100%	
Agriculture	• extensive conversion to organic farming methods • Regionalization of nutrient cycles	
Forestry	• extensive conversion to ecologically adapted silviculture • increased use of domestic timber	
SUBSTANCE RELEASE/EMISSIONS		
Carbon dioxide (CO_2)	–35%	–80 to 90%
Sulphur dioxide (SO_2)	–80 to 90%	
Nitrogen oxides (NO_x)	–80% by 2005	
Ammonia (NH_3)	–80 to 90%	
Volatile organic compounds (VOC)	–80% to 2005	
Synthetic nitrogen fertilizers	–100%	
Agricultural biocides	–100%	
Soil erosion	–80 to 90%	

1 Primary energy consumption per unit value added (GDP).
2 Consumption of non-renewable primary materials per unit value added.
* Assuming annual growth rates 2.5% in gross domestic product. It must, however, be stressed that continuing economic growth makes it impossible to achieve the long-term environmental targets.

and consumption of materials as well as the present use of land for settlement purposes must be reduced by a factor of 4-10 (table 1).

In practice, the ongoing German local Agenda 21 processes have tended more to shy away from any such concrete and binding confrontation with the findings of the national sustainability studies, agreement on concrete environmental quality targets, and the time frame they imply. Municipalities are for the most part concerned with more pragmatic, less demanding and more easily communicable environmental goals that can be reached with the limited means at their disposal.

One of the few cities where this agenda has nevertheless taken hold is Berlin. In 1998 the Berlin municipal parliament appointed a multiparty fact-finding commission called "Sustainable Berlin." By the end of 1999 the commission had presented its over 500-page-long report, including a number of comprehensive appendices. The report was an important step and contained an initial compilation of environmental quality targets based for the most part on current Berlin decisions, recommendations, and time frames for a sustainable development of the city of Berlin. This led, between 1998 and 2000, to the preparation of the so-called "Berlin Study"[3] (table 2).[4]

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Table 2
Goals for a sustainable Berlin, Berlin Study 2001

Environmental goals for Berlin		
	approx.. 2010	approx.. 2050
Resource use		
non-renewable material	-25 %	- 80 - 90 %
household drinking water consumption	< 100 l per day and resident	
fossil fuels	-25 %	-80 - 90 %
renewable	portion of 12 %	Portion of 80 %
nuclear	portion of 0 %	
total	-30 %	-50 %
land use	s. action field cooperative region	
green areas in the city interior	+450 hectares near housing, +700 hectares settlement near	
nature/landscape protection	3 %/20 % of the city area	
material delivery/emissions		
carbon dioxide	-25 %	-80 %
nitrogen oxides	-80 %	
volatile hydrocarbons	-80 %	
benzene	< 2.5 µg/m3	
diesel soot	< 1.5 µg/m3	
dust (PM 10)	< 20 µg/m3 (-70 %)	
phosphate/water quality	EU water quality	Waters class II
Remainder waste	-50 %	
number of noise-concerned of residents	100.000 (-50 %)	0 (-100 %)
Market share of environmental construction products (erosion, nutrient entry, biocides)	Portion of 100 %	

Notes and sources: Base year usually 1990 (if indicated).
Not renewable material (raw materials with overburden): BUND/Misereor 1996: 80
Drinking water: Resolution of the Lower House from 15 October 1992, Drs 12/2054 (goal year 2000). Drinking water promotion altogether is determined as a reduction goal for regionally sustainable use (cf. 4.3.3.1).
Energy: BUND/Misereor 1996: 80. diagram ebd. 69. Renewable energies 2010: European Union commission 1997a: 1 FF.
Green areas: near housing: 6 m2 for each resident in 500 km distance with mind. 0.5 hectars; settlement near: 7 m2 for each Einw. in 1000 m distance with mind. 10 hectars, SenStadtUm 1994a: 127, 132.
Nature and/or landscape protection: SenStadtUm 1994a.
Carbon dioxide: 2010: Reduction for each resident in connection with federation and European Union measures 50 a %ige reduction is aimed at. SenStadtUm 1994b. For 2025 with nationalpolitical measures a reduction is aimed at 50 %; for SenBauWohnVerkehr 1998: Plant 1, S.2. 2050: Enquetekommission of the federal daily; UBA 1997; BUND/Misereor 1996: 80
Nitrogen oxides: SenBauWohnVerkehr 1998: Plant 1, S.2 (ozone forerunner materials). For 2050 also Enquetekommission of the Bundest.
Volatile hydrocarbons: SenBauWohnVerkehr 1998: Plant 1, S.2 (ozone forerunner materials); Board of experts for environmental questions; BUND/Misereor 1996: 80
Benzene and Diesel soot: SenBauWohnVerkehr 1998: Plant 1, S.2
Dust: Quality of the environment air guideline.
Phosphate/water quality: Water quality class II after Trophie yardstick. SenStadtUmTech 1999a.
Remainder waste: SenStadtUm 1995: 18. appropriate reduction of the total waste arising.
Noise: 2010: Residents concerned from the long term health-endangering noise > 65 db(A). Sen BauWohn traffic 1998: S. 22,
Agriculture: for the reason s. 4.3.3.3. BUND/Misereor 1998: 80
For sulfur dioxide (SO2) no goal was formulated, because of Berlin today already its output related to its population portion under the emission goal for Germany, suggested by the European Union commission, (KOM 99/123:51, 90)

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The fact is that if the statistics are taken seriously and viewed in the context of the results of and requirements set out in the national sustainability study, they have virtually paradigmatic consequences for municipal policy and city planning. Confronted with both this truth and the binding commitment to action and programs expressed in the published figures and data, mayors, city councils, municipal parliaments, and planning department heads are, for understandable reasons, still hesitant to act. The same is even true of many environmental and NGO representatives in the ongoing Agenda 21 processes.

When things get really concrete, when we are forced to step out of the abstract and noncommittal security of national target frameworks and commission recommendations and instead demand feasible and verifiable action programs to achieve, in our own sphere of responsibility, goals that are widely seen as utopian and unrealistic, then even environmental actors themselves sometimes balk at getting down to work on this evidently highly unpopular task; the reason for this is the incalculable risk of drifting off into political isolation and no longer being taken seriously. One other reason is that national and local environmental policy at the lower level of "feasibility" is sometimes wholly successful, a fact that the author of the present paper is entirely willing to admit.

This goal dilemma has unfavorable effects on the Local Agenda 21 process in particular. In it, the process has tended to lose its orientation and actual task definition, to be hobbled, losing a measure of its strength and meaning. Many of those involved are now already more or less frustrated by the course that the Agenda 21 process has taken and fear that it may be relegated to obscurity and reduced to an excuse for not coming up with any genuine local environmental initiatives.

Even the municipal planning research and demonstration programs promoted with large sums of federal money have tended to assign a more marginal role to the goal and time frames for sustainable development. Endowed with generous promotion funding and included in the "City 2030" competition sponsored by the federal research ministry since 2001, which calls on municipalities and research institutes to draw up comprehensive visions for the 21st century, the competition, while clearly referring to the issue of sustainability, has largely failed to generate the intensive debate on national sustainability objectives that was originally envisioned. The results achieved by the federal building and housing ministry's urban development program for eastern German cities (since 2001) or the *Länder* Initiative on the development and testing of a new type of urban "quarter management" (since 1998) have led to similarly disappointing results.

In summary, it can be said that there is a striking contradiction between the required and defined environmental goals set by the national sustainability studies and the ongoing municipal development programs. This is in no way meant to disparage the municipal environmental and sustainability policies practiced by many towns, with their at times considerable successes. They have often and rightfully gained considerable national and international recognition in recent years, and in many respects they have an important pioneering function.

But if the matter at hand is to go beyond model projects and achieve the goals of a sustainable Germany as well as sustainable cities and municipalities by the middle of the 21st century, what is called for are strategies and concepts that extend far beyond the approaches advanced thus far. In this case urban environmental policy would have to take leave of the niche position to which it has more or less been relegated in connection with the so-called sustainability triangle (with its economic, social, and ecological corner points) and assume the role of a leading policy segment.

Is sustainable urbanization feasible in the first place?

How justified is the resistance to the task of taking on national sustainability goals in a more consistent manner at the local level – at least as a strategic orientation for the 21st century?

It is true that the basic political conditions for such a comprehensive social reorientation do not appear favorable at present. For example, at the national and local level the fiscal situation offers municipalities little leeway for a more comprehensive sustainable reorientation. Even though, for example, the first stage of Germany's eco-tax that has been implemented thus far, the new law on energy saving, the "100,000 Roofs Program" for the promotion of photovoltaic technology, or the basic idea of the German law on a circulatory management system, are important steps in the right direction, they do not go nearly far enough toward setting in motion a broad-based reorientation of policy. While concrete proposals aimed at reshaping the framework conditions for a really effective reorientation have been advanced, at present they are not capable of obtaining a majority. They will not be the subject of any further discussion here.

In the context of the present paper the more interesting question is how and/or according to what guidelines should cities and urban structures be transformed in such a way as to meet the requirements of sustainable development as set out in the target values in tables 1 and 2. Is the perspective of such transformation at all attractive for the people affected? Does it, in another words, have a chance of finding popular acceptance?

Now to the guidelines

As we have pointed out, since the 1970s and 1980s, guidelines, strategies, and concepts have been developed for a sustainable transformation of our present urban and settlement structures. I will now sum up the most important guidelines (see also figures 2 and 3):

- All in all, the sustainability goals called for can be achieved only by a paradigm shift away from the principle of a linear dependency on external resources.
- What is called for is a reorientation of urban and settlement development to the principle of a high level of cycle-oriented self-supply.
- The task at hand is to create the basic conditions needed for economic and supply structures that would make possible an optimal and highly efficient market-based use of local and regional resource potentials.
- An extensive reduction of dependence on external resources must be the aim in particular of the basic provision of resources in the fields of energy, food, building, housing, and water.
- In (re-)orienting local and regional recycling systems, attention should be given to higher levels of efficiency and reduction resource depeletion in the overall urban system and its subsystems.
- In keeping with the targets set, and bearing in mind specific local/regional conditions, it would be essential to effect a gradual move away from nonrenewable resources and fossil fuels to renewable sources of energy and raw materials.
- Measures aimed at transforming urban systems should always be guided by the "five basic rules of sustainable development" (see figure 1) as well as to a systematic increase of local and regional system stability.
- Man plays the key role here – and it is to people that the process of urban technological and structural change must be geared; effective ecological contexts should be rendered

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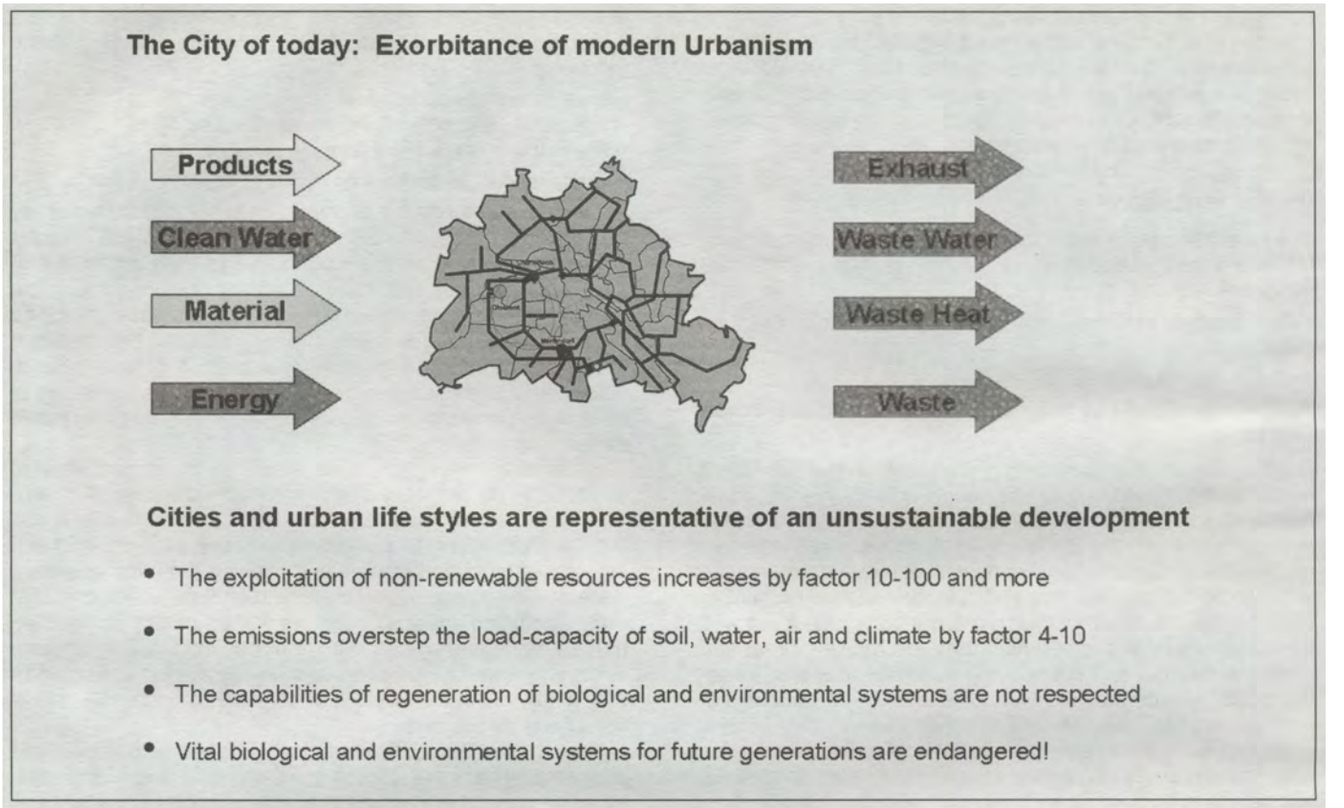

Fig. 2: The given situation: Exorbitance phase of modern urbanism.

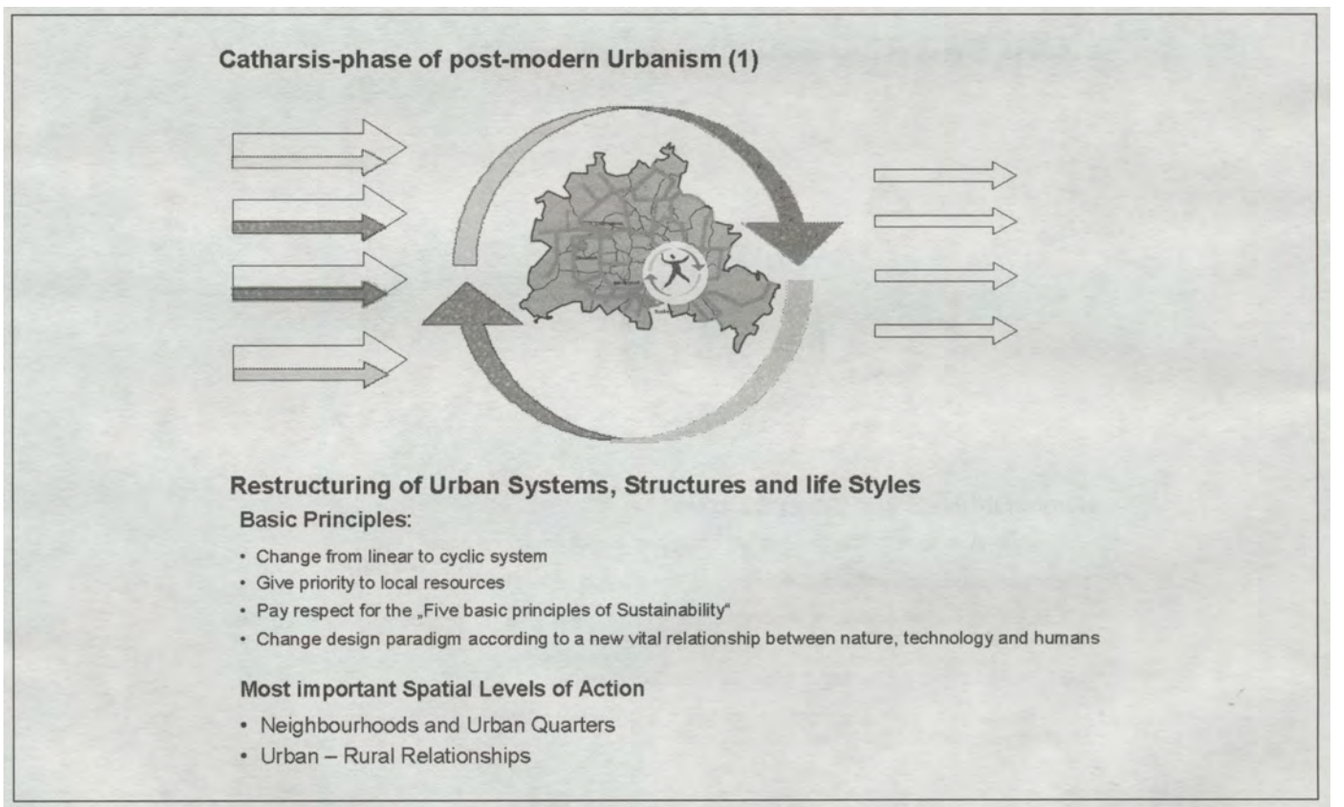

Fig. 3: Catharsis phase of (post-)modern urbanism.

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transparent and given a shape attractive to people.
• As regards the time factor, what is called for is a gradual transformation of urban technological and structural elements aimed at adapting them to the economic and technical renewal cycles of buildings, technical equipment, urban infrastructures, and other elements of urban systems.

Implementation

The most important levels of action involved in the implementation of a transformation of our current urban and settlement structures are:

• the microlevel of the neighborhood and the quarter, or urban district;
• the city and its surrounding areas.

• The microlevel of the neighborhood and the urban quarter

Neighborhoods and quarters play a key role to the extent that here, "on the ground," i.e. where people actually live and work, built and unbuilt urban structures must gradually be reshaped in accordance with the guidelines of sustainable development (fig. 4). But this has not only to do with external structures but with people themselves, those who, in their various or multiple roles, will be the actors of this transformation process, as well as with the institutions in which they are active. What this means is tenants and houseowners, administrations, trade, the crafts, service providers, schools and others educational and training facilities, as well as other intermediary actors. They, too, will have to alter their behavioral patterns and actor roles in the process of a sustainable transformation of material and nonmaterial building and neighborhood structures.

I will now address the question of the technical feasibility of a sustainable transformation of neighborhoods and quarters based on the present state of our knowledge, focusing on the following:

– local resources and cycles
– integration and networking of individual systems
– the key role played by people

• *Local resources and cycles*

In the field of **energy**, for example, we know that the feasibility and the time frames of the sustainability goals set out in tables 1 and 2 are by no means as utopian as they might at first appear. This goes both for the necessary saving rates, like reduction goals for pollutant and climate-gas emissions, and for conversion to renewable energy sources. But they can only be implemented together with people on the ground, where energy is used and consumed, as well as by means of changes in investment and use behaviors geared to these goals.

Some of the keywords associated with the current state of the art are: decentralized energy systems, systematic high-efficiency thermal insulation measures, climate-oriented architecture and building technology, and above all a targeted and systematic utilization of local solar power, the most important decentral energy source. Depending on local conditions, biomass (including sewage), wind, as well as natural or geothermal energy can also be included in decentral and integrated energy systems. Hydrogen technology is also expected to play a key role in the process of decentralization and localization of energy systems.

On the other hand, however, there are still also unresolved problems. There are, for example, still no efficient and cost-effective storage techniques available. Another important element here is an energy management geared to user needs

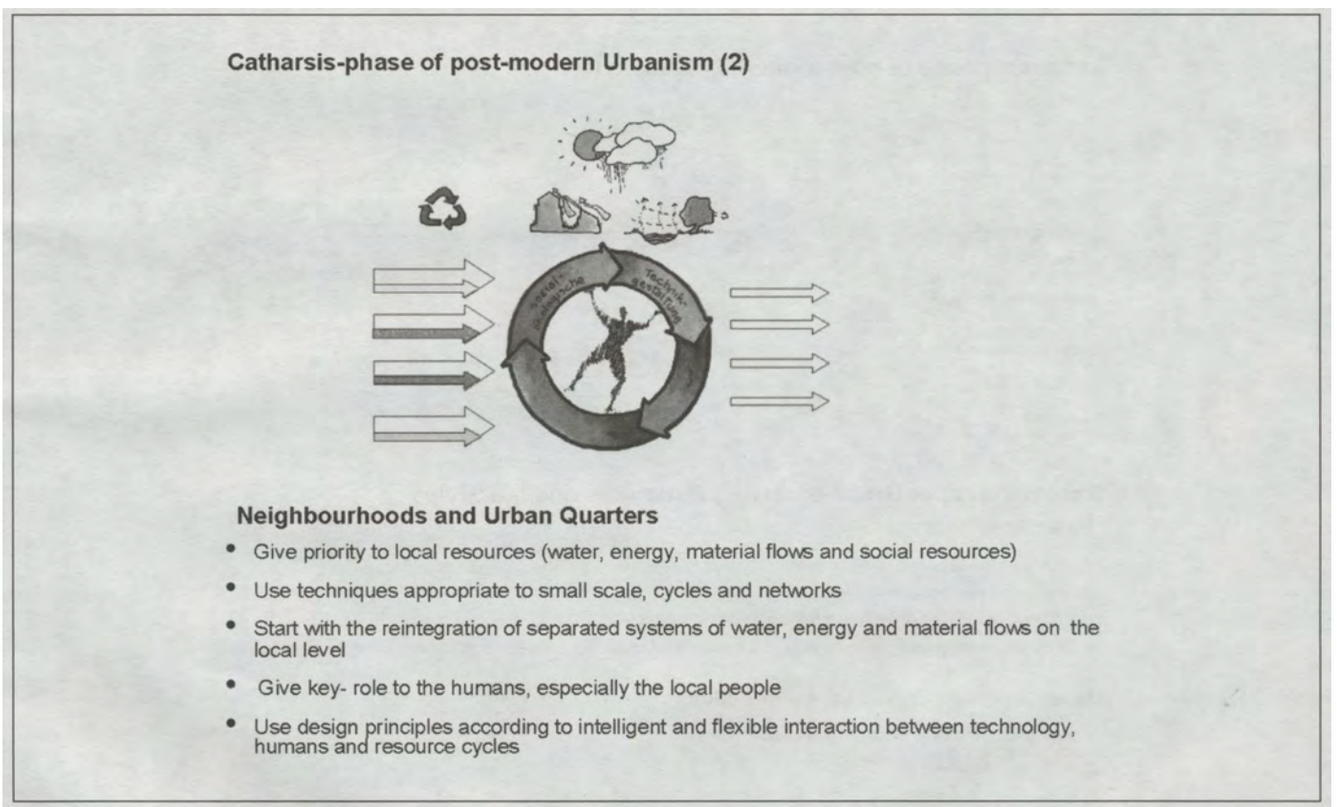

Fig. 4: The action level of the neighborhood and the urban quarter.

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and local conditions. Many of the other components of a sustainable quarter-related energy management, cited here merely as examples, are already state of the art or in use in model projects, and offer substantial potentials to achieve technical, economic, and ecological efficiency gains. As a long-term scenario, even a reversal of the present situation should not be ruled out, because urban quarters or villages can be converted, on a sustainable basis, from energy-consuming to energy-exporting units, and even today, looking at the building level, there are already some plus-energy houses in operation.

A similar situation exists in the field of **water/waste water** – in global terms, even today the most important problem facing many cities. Here too, modern science and technology are in the process of developing completely new solutions for integrated, decentral circuit systems for urban contexts; some of these systems have already reached the stage of market maturity or are at least being tested in model projects. They indicate that it is possible to substantially reduce both present water consumption and dependence on external resources. This is made possible by consistently using modern water conservation techniques and taking advantage of unused, locally available water like rain, surface water and bank filtration. Further focal points include decentral cleaning and re-use of lightly polluted gray water for less demanding uses, but also the use of new decentral biological purification techniques and suitable monitoring procedures. Above all, however, the concern must be to use not only technical approaches for solving water problems but also to ensure that water is once again experienced as an "element of life." Here too, there are already many examples showing that the given sustainability goals can be met.

As regards **materials flows,** present levels of materials waste and material consumption can be substantially reduced by systematically introducing cyclic and multiple-use concepts, by lengthening the use and life cycles of products, by introducing suitable recycling and re-use concepts, and by making use of available leasing and contracting concepts for present materials waste and material consumption, more decentral materials and product management, including conversion to regenerative, above all biogenic, natural resources for industry, investment, and consumer goods.

There are various possibilities to revitalize vital microlevel **climate- and nature-protection functions** with the help of soil, water, flora and fauna systems that have been adapted to the urban context. This would make it possible to substantially (re-)strengthen ecological system productivity and ecological stability in urban quarters. Urban terrains such as fallow land, conversion areas, industrial, railroad, military areas as well as other municipal reconversion areas, but also rooftops and building façades, transportation and infrastructure areas would be available for the purpose.

• *Integration and networking of individual systems*

In the end, however, the main concern is not to use individual systems to reduce dependence on external resources, to rediscover locally available resources, and to step up conversion to renewable natural resources with the respective individual systems; the concern must be to come up with new innovations that make it possible to network and integrate such systems, in this way cashing in on potentials for systemic synergy effects. We know, for example, that it is precisely diverse and microlevel system networking that accounts for the high levels of productivity and system stability shown by natural ecosystems – a fact which applies as well for the anthropogenic urban and settlement systems of the pre-industrial age that were referred to above.

One example of how this post-industrial level could look, and one that has been realized in model projects, is the recycling of local bioproduction of biowastes, waste water, and sewage in new, local nutrient cycles to produce algae and fungi or for aquacultures or the production of local biomass and biogas to cover local energy needs – in connection with composting aimed at quarter-level soil improvement measures.

• *People play the key role*

The key role in this transformation of urban neighborhoods and quarters to achieve post-industrial sustainability is played by the people who work and live there. It is they who have to accept and operate the new, local-level, decentral technology and cyclic systems referred to above. Unless people decide in favor of reversing their lifestyles and their approaches to their natural environment and opt to break with consumption patterns that release them from responsibility for their immediate environs, it will be difficult to introduce such systems, or they will prove ineffective and not lead to the desired sustainable effects.

A further concern will continue to be to develop, at a new technological, social, and organizational level, appropriate new structures of cooperation, co-production and operational structures between different local actors. The task here is to develop management structures between residents, enterprises, new local service providers, urban administration, and intermediary actors suitable for an efficient operation of the new decentral structures and technical systems. But the chief concern is a new interplay between man, nature, and technology. That is what is meant by the call for a new eco-cultural communication on the ground – and without it, the path leading to a new, sustainable, post-industrial era of civilization will be and remain obstructed.

● **The city and its surrounding areas**

The ecological revitalization of the relations between the city and its surrounding areas and endogenous regional development (fig. 5) have a similar key role for sustainable development. The concern here, too, is to come up with a change of perspective from the presently dominant dependence on external resources to a reassessment of land in its potential as natural and culture land with a view to raising self-supply ratios and regional ecological system stability.

The aim must be to reshape the complementary ecologically, economically, and socially relevant functions that obtain between dense urban-use areas – including, for instance, the above-described urban neighborhoods and quarters or settlements in suburban or interurban areas – and nonurban agricultural and forestry areas, near-city leisure areas, river meadows, and wetlands, as well as other undeveloped areas or extensively used infrastructure areas in the surrounding areas of cities and in interurban areas.

Until now industrially defined regional and urban planning has paid little attention to these areas as regards the principles of sustainable development. This was a direct consequence of technological and economic development, which, as described above, is based on dependence on external resources and has until now, almost at will, been able to externalize negative ecological consequences.

It is time for a complete re-evaluation of these areas and their uses, if the paradigm shift to a sustainable definition of these complementary urban areas is to be achieved. A few keywords here:

• enlargement of ecological agriculture in areas close to cities, including processing of products into high-quality food that can be marketed directly at the local or regional level;
• designation of urban-area wetlands with a view to using nutrients contained in urban wastewater to generate biogenic energy or to produce biogenic raw materials;

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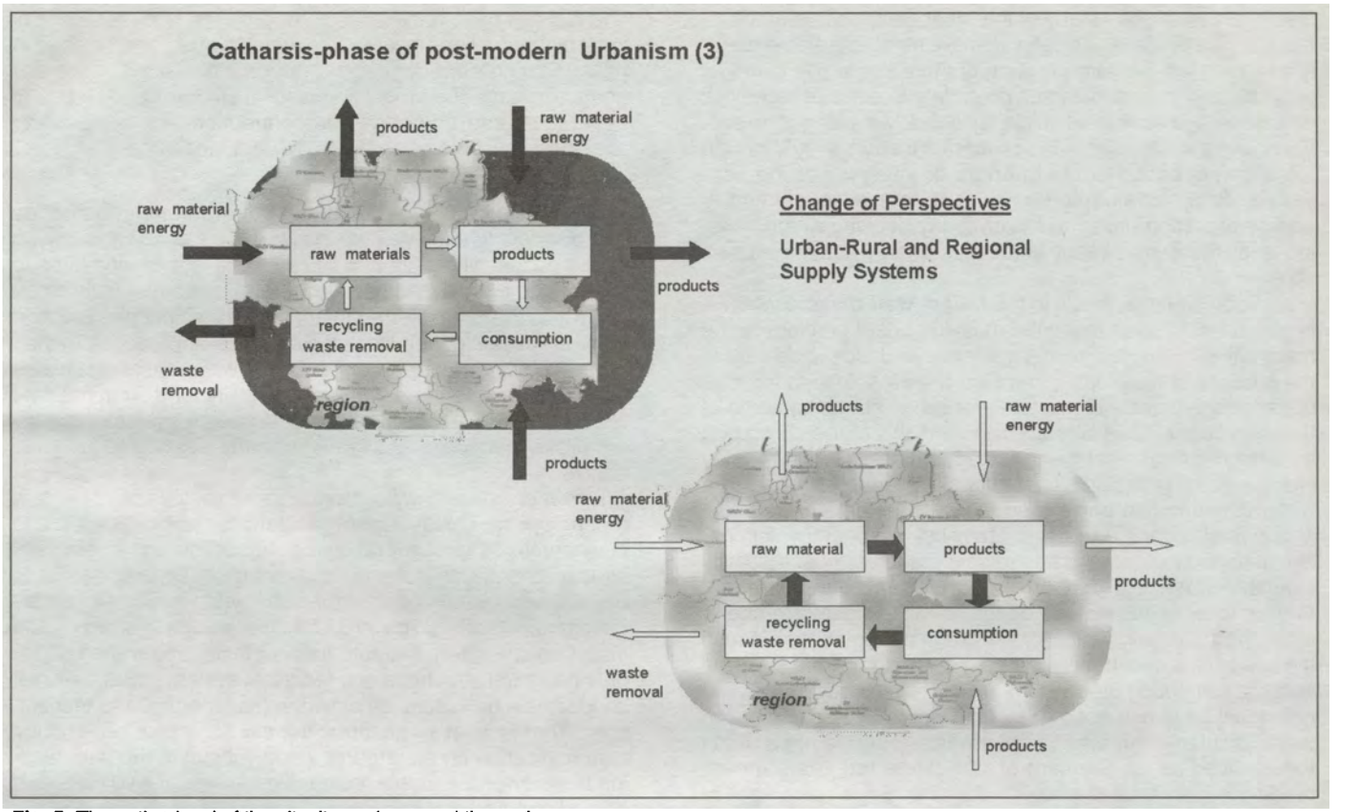

Fig. 5: The action level of the city, its environs and the region.

• agricultural and forestry-based production of renewable resources for the energy sector as well as for industrial production. Another important issue is the
• enlargement of urban-area for purposes of regionally accessible recreational, leisure, and health functions.

All in all, the concern here is to systematically develop regional product lines and foster clustering along service and value chains in all areas bound up with the provision of basic goods and services.

The more self-supply in all areas concerned with the basic goods and services as well as with ecological system stability is successfully strengthened at the local level, the greater the potential for a meaningful exchange of goods and services at a higher level of the value chain and the potential for an interpersonal communication that does not threaten the ecological foundations on which our civilization and its development is based.

An intermediate résumé: It should be noted here that there now exists a broad consensus on the absolute need for an ecological turning point to ensure the sustainability of our society. It is also widely accepted that this turning point will be primarily local, i.e. that it will be implemented in and by people where they live and work, where a new local and regional recycling-based economy will have to develop at a new technological and social level – in an increasingly urbanized world society, in settlement structures increasingly defined by urban lifestyles and marked by growingly differentiated manifestations.

There is also a large measure of consensus, at least in principle, on the goals which must be met on the way to a sustainable future based on the process of an ecological transformation of our cities and settlement structures.

In the meantime, we have a large stock of well-founded knowledge on how such a post-industrial, recycling-based economy could look, as well as on the means that could be used to reach this goal. The most important base information needed to begin the process of change is already partly available or is in the phase of testing and development. Many concepts and techniques have at least proven their worth in model projects. The obstacles in the way of their further dissemination are for the most part known and are generally regarded as manageable.

What we currently lack, or have yet to develop adequately, is a broad social consensus and the will to embark on a sustainable future, the faith in the feasibility of the project, and the will to overcome the obstacles to it in a more targeted and conscious manner. I would like to deal with this aspect in the last part of this paper. It has to do with the cultural dimension – and this means that a future of this kind can not only be approached by purely rational means but should also be imbued with positive symbols, with consensus- and motivation-building examples that inspire a yearning to get there.

New eco-cultural understanding on the ground

The idea that we should reduce our energy and material consumption, pollutant emissions and land use in our personal living environment by a factor of up to 4-10 is simply inconceivable for many people, seemingly unrealistic and unattainable, more apt to tum people off than to win them for the objective of sustainability. On the whole, our society has in recent years proven to be markedly sluggish and resistant to reform.

We have not yet fully succeeded in linking the undoubted need for an ecological paradigm shift to positive, attractive,

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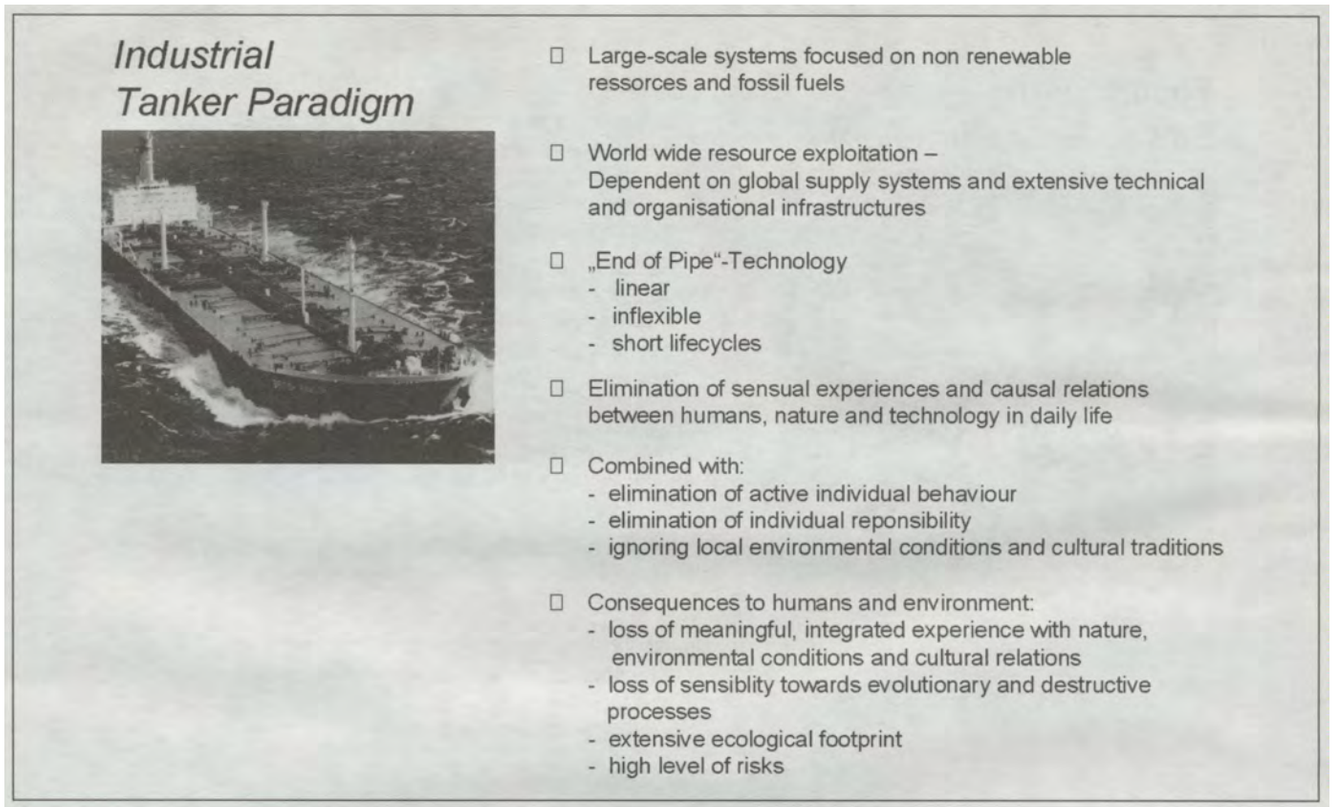

Fig. 6: The industrial tanker paradigm.

exciting, and desirable notions and images – i.e. in generating the proper attitudes, curiosity, desires, fantasies, and interests. Instead, a majority of people continue to see environmental issues as antimodern and backward-looking, restrictive and holier-than-thou, as narrow and control-related, as something that requires us to disavow beloved consumption patterns, to do without the achievement of our consumer society. Also, as has been suggested by the experience of the eco-tax, few people are prepared to shoulder additional costs.

How can we manage to ensure that the task of achieving this ecological shift in society, city and settlement structures will come to be seen as one of the most exciting challenges of the 21st century, as a quantum leap of our civilization, one that opens up new qualities, perspectives, possibilities, and chances, and one that is worth working for?

Given past experience, pure rationality alone will not be sufficient. We have to start out at a deeper level, where the majority of people, according to the results of almost all recent polls, have arrived – on an emotional, subconscious level – but are still waiting to be picked up. This also has to do with communicating the concept of a new post-industrial "existential community of man and nature" (Florenskij) as a worthwhile sustainable future at the level of attractive symbols and examples. The latter must stimulate pleasure, be easy to communicate, and above all awaken longing. Antoine de Saint Exupéry expressed something along these lines, in his famous sentence:

> If you want to build a ship, don't drum people together to procure wood, prepare tools, assign jobs, and divide work, but rather awake in them a longing for the wide, endless sea.

It goes without saying that the tools, the material, the technical know-how and the required capital are also tremendously important. Nor is it this that we are presently lacking. What *is* lacking is consensus-building longing that motivates people to set out, to get down to work on the problem.

The quote from St. Exupéry inspired me when I was busy with the task of working over the issue of sustainability for my spatial planning students with an eye to ensuring that they do not perceive it as just another annoying compulsory subject, one whose practical value seems rather secondary to most students compared with other subjects. I was challenged by the question of how to successfully instill exactly that longing in my students, the spatial planners of tomorrow.

An important piece of help came from the nature philosopher K.-M. Meyer Abich (1997), who created the metaphor of the transition from an industrial tanker technology to a post-industrial sailing boat technology.[5] I took up the subject, further developed it for our discussions, and observed that this metaphor is able to motivate, stimulate and promote students' fantasies and longings.

The image of the tanker symbolizes, in an unusually impressive way, the characteristic features of our past industrial system. In this form the system is not sustainable and, if we look more closely, not particularly attractive, either, revealing itself instead to be more ponderous and awkward than intelligent. Albert Einstein once characterized this kind of (tanker) technology very aptly in his words: "... what we call technology today is the application of raw force, nature works with form ..."

Einstein, a visionary of his age, recognized the unsustainable and hence transitory character of this kind of technology. The central characteristics of this "tanker paradigm," which aptly describes today's technological, social, and settlement structures, are discussed and summed up in figure 6.

The characteristics of the post-industrial "sailboat paradigm" are completely different (fig. 7). The ultramodern sailing boat, equipped with the most advanced technology, cogently sym-

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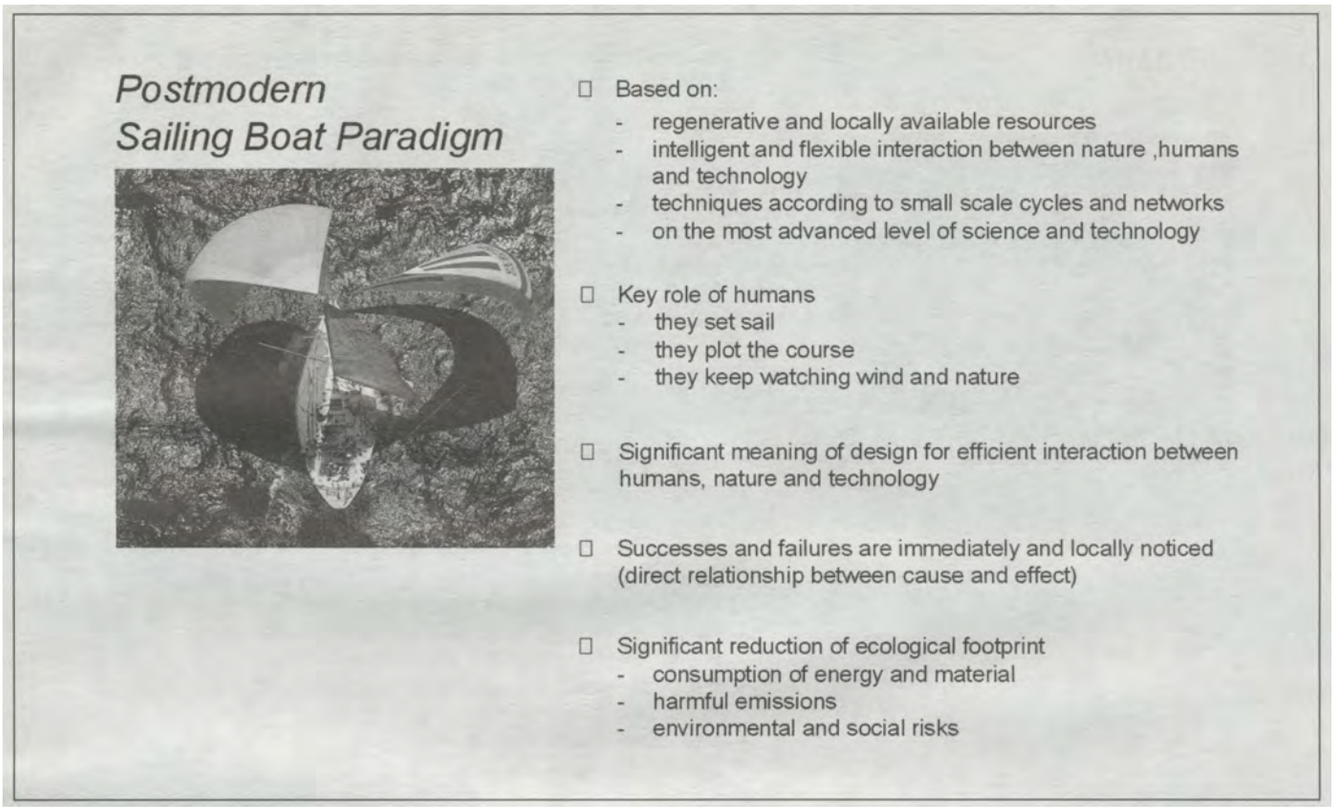

Fig. 7: The post-modern sailing boat paradigm.

bolizes the move to a new post-industrial and sustainable era of civilization. It calls for a far more differentiated management of technological and social resources. The aim it involves is high efficiencies, minimization of resource depletion, extensive reduction of dependence on external resources, and an optimal use of local solar and wind energy. What is needed here is a constant adjustment to continuously changing natural and environmental conditions. The modern sailing boat is characterized by its intricate, flexible, network- and synergy-oriented system structures, which are based on the most advanced state of scientific knowledge.

In contrast to the tanker paradigm, man again has the key position in this new configuration: man who sets the sail, determines the course, observes nature, learning again to deal honestly with it – by experiencing day by day how reliant he is on it; man who again learns to respect nature's splendor, beauty, endless secrets, but also its dangers and unpredictability – using it and trying his strength with it.

Nor is there much space for passengers here. Everyone is in some way part of the crew, contributes his ideas, lends a hand wherever needed, observes nature, develops ideas and assumes responsibility. On a sailing ship it is the crew, people using technology and nature, that play the actually crucial role.

The concern here is no longer yesterday's technology, defined as the "use of brute force," but rather the development of ultramodern technology for optimizing the interplay between man, nature, technology and their design. What *is* emerging here is not only a technological paradigm shift but a far more comprehensive cultural or ecocultural shift of paradigm. To that extent, the design dimension is the third core characteristic of this post-modern and sustainable paradigm that we have called a sailing boat paradigm.

A paradigm shift of this kind is one in the truest sense of the word, a paradigmatic break with the industrial-society consumption model, with a cultural phase that aimed at breaking away from the dependencies, the cycles and laws of nature. What is now emerging at a new level of civilization is a totally new configuration of man, nature, and technology – and in my opinion, this is the only chance available to build a sustainable post-industrial society.

Notes

1. See also Hahn and Simonis (1992).
2. Abschlussbericht der Enquete-Kommission "Schutz des Menschen und der Umwelt – Ziele und Rahmenbedingungen einer nachhaltig zukunftsverträglichen Entwicklung," eingesetzt durch Beschluss des Bundestages vom 1. Juni 1995, Drucksache 13/1533, veröffentlicht als Drucksache 13/11200 am 26.06.1998.
3. BerlinStudie, Zukunftsstrategien fur Berlin, im Auftrage der EU und des Regierenden Bürgermeisters, Endbericht, Feb. 2000.
4. *Ibid*, p. 336.

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Development of Kachchh, after the devastating earthquake in Gujarat

Akhtar Chauhan

Professor Chauhan, an architect and planner, is Director, Rizvi College of Architecture, Mumbai, India. He is also a member of the World Society for Ekistics (WSE), and currently Past Vice-President. The text that follows is a slightly edited version of a paper made available in the author's absence to participants of the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Introduction

Since Independence, India has adopted the path of modernization and industrialization. As a result of this progressive approach, we have been successful in various branches of science and technology. The country has emerged as a force to reckon with in the field of information technology and has created a strong and dependable industrial infrastructure. On one hand, we have successfully developed metropolitan centers such as Mumbai, Kolkata, Chennai and New Delhi. On the other, we are saddled with problems of backward regions, illiteracy and poverty. Millions of our citizens have not benefitted from the progress made by the country.

In following the path of rapid economic growth, we have created imbalances in terms of development. We ignored our own rich heritage of arts, crafts and economy. As a result, after 50 years of planned development, we still have large tracts of territory which are backward. The imbalances in development have led to continuous migration of people from the rural hinterland to metropolises and industrial agglomerations. Villages, small and medium-sized towns and cities in the hinterland have suffered as a result of lopsided development. People from backward regions have migrated to adjoining areas and the faraway metropolises such as Mumbai, Kolkata and Bangalore. It would be foolish to follow this unsustainable path of development in the 21st century.

An opportunity for moving towards the adoption of a more appropriate approach to development is offered by the case of Kachchh – one of the stagnating regions in Gujarat – in view of the need for its redevelopment after the recent earthquake in the area.

The whole world was shocked at the heavy death toll and unprecedented devastation in the villages and towns of Kachchh and other adjoining areas of Saurashtra and Gujarat. Relief materials and aid has poured into Gujarat from all over the country and the world. The confusion that prevailed in the early days of rescue and relief was largely due to lack of discipline and organization among ourselves. However, with time, the armed forces, community leaders and workers, non-governmental organizations, police, government officers and staff have been able to achieve a sense of order.

There is no doubt that the many shortcomings in implementation have to be identified and corrected without any further delay. Instead of blaming each other, we need to unite in the rehabilitation endeavor. What we require is an appropriate plan and program of rehabilitation and sustainable socio-economic redevelopment of villages and towns, and of Kachchh as a whole.

Choice of development path

First of all we have to decide on the path of development we wish to pursue. For this we should consult people and understand their needs, priorities and aspirations.

After visiting Kachchh during the last couple of months, I am convinced that the people of Kachchh are against the strategy of total relocation. They opine that their villages and towns should be rebuilt on the same location. They advise that relocation should be resorted to only where it is most necessary and it should be limited to that extent. They comment that it would be foolhardy to pursue mindless relocation of villages and towns. The program of clearing debris should have been taken up immediately after the rescue efforts were completed. We have lost two crucial months in discussing the issue of relocation. We should now take up the planning and redevelopment of villages and towns without any loss of time.

In Maharashtra, the earthquake of 30 September, 1993 destroyed 55 villages. These villages were relocated 2 to 3 km away from their existing *gaothan* as the government did not mobilize the equipment required for clearing the debris. Studies have shown that relocating villages was a major mistake, and the world has come to know of it. Therefore, instead of repeating the mistake, Gujarat should consider the long-term interests and have a perspective for the future before finalizing the rehabilitation policy and programs.

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Rehabilitation of villages

Kachchh with its distinctive landscape and culture is a very special place. It has its own unique social and cultural identity. While planning for rehabilitation, planners, architects and engineers will have to consider the rich cultural and architectural heritage of Kachchh. Each village should be studied and surveyed in depth before evolving a plan and program for rehabilitation.

While planning for rehabilitation, it is of primary importance to have the active involvement of people, and their views and suggestions should be considered seriously. Rather than aping the urban model of rows of houses along roads and launching an offensive of mass construction, it is advisable to pursue the path of sustainable development. What we need is a sensitive and sensible program of rehabilitation. Each neighborhood *(vas)* and each home *(ghar)* like each village *(gam)* has its own character and image, which needs to be considered while designing earthquake-resistant new housing in rural and urban areas.

Basic services like water supply, drainage and sewage should be properly laid out. Water should be recycled to the extent possible, as water is a scarce resource. Adequate provision should be made for education, health care and social facilities in each village. The public offices, non-governmental organizations, bazaar, godown, etc. have been suitably located to create activity centers. There should be proper sports facilities.

Understanding urban issues

The world-famous Greek town planner, Constantinos A. Doxiadis, who was engaged in a long-term study of urban issues and trends, had said that urbanization is inevitable; therefore, it must be studied, researched and planned. He founded Ekistics, the science of human settlements including, naturally, urban planning and design. He had observed that we are not clear on what we mean by urbanization: to some it is nothing more that the constructed area of our cities; to others it implies management and administration within a stipulated boundary. He understood urbanization as a process and a system of human settlements. We often make the mistake of planning for urban areas within municipal limits. Urbanization covers a much wider area than what we consider as urban area.

Today, Bhuj, Anjar, Gandhidham, Bhachau and Rapar are seen as separate urban areas. But the process of urbanization in the 21st century is very different from that of the 20th century. These towns and cities have many linkages and various degrees of interdependency, which are all going to affect their pattern of development. It will also have an impact on the surrounding areas and villages. Therefore, we need to study these linkages and ensure that there is no adverse effect on their development. Rather than considering towns and cities as separate urban entities, we should conceive of them as a chain of human settlements. This will open up new creative possibilities.

Developing a new metropole railway line

Only recently Bhuj, Anjar, Gandhidham and Bhachau are linked by a broad gauge railway line. In fact, this line was to be inaugurated on 26 January, 2001 when the killer quake hit Kachchh and other parts of Gujarat. This railway line could be used to start a local inter-city service, which could become the backbone of the urban corridor. This will facilitate the development of a linear metropolis in Kachchh, like that of Mumbai, Kolkata and Chennai. It could also act as a new metropole railway line for the regional development of Kachchh. An affordable mass transportation system could open up several employment and development possibilities for the citizens of these cities and towns. Therefore, special attention should be paid to other villages and towns along the emerging urban corridor. The unique lifestyle and culture of Kachchh should be reflected in our plans and programs. At the same time, the spirit of the 21st century should be expressed in the form of appropriate, sustainable and innovative development.

Our cities and villages had a whole range of religious, social and cultural institutions. These have to be given due attention in the designing and planning of homes, neighborhoods and communities, which was sorely lacking in most of the urban development plans in the 20th century. In the current post-modern and post-industrial scenario what we need is a sustainable development strategy that is based on our culture, society and environment, which uses appropriate and affordable technologies and yet promotes innovation and social transformation, and most importantly ensures safety and security against earthquakes and cyclones.

Comprehensive regional development

During 1980-1982, the Government of Gujarat had an ambitious plan for making an industrial paradise in the state. As part of the industrial development and promotion strategy, a set of growth centers was identified in Kachchh. Bhuj, Anjar and Gandhidham were listed as grade "C" growth centers. Mandvi, Mundra and Bhachau were also added to this list. These centers were given special incentives and concessions for their development. As a result during the last two decades these towns prospered and new industries were developed in and around them.

We should consider the long-term program of regional development of Kachchh, while planning for the rehabilitation of villages and towns. A detailed study of resources, existing social and economic situation and infrastructure in the region should be carried out. While special sectoral programs like a drought-prone area program and arid and semi-arid area development programs have been implemented in the past, a comprehensive regional development strategy is yet to be conceived for Gujarat. As a result, Kachchh has remained a backward area. It is no wonder that the people of Kachchh are thoroughly dissatisfied with the current measures and are protesting.

While planning for the rehabilitation of old villages and towns, there should be provision for some newly planned human settlements too. This may be necessitated, as the old town centers, such as Bhuj, were too crowded and dense. New suburban or satellite townships may be required to be developed. The density in the town center will have to be reduced and the suburban density may have to be increased. This will require a new set of development control rules and building regulations. This new code should incorporate earthquake- and cyclone-resistant construction and technology. A special department should be created to ensure that this is strictly observed in implementation and construction. Programs of creating mass awareness about the issues of area, urban and rural sustainable development, and earthquake-resistant construction should be launched.

When Kandla port was modernized and linked with a broad gauge railway line and national highway, it provided Kachchh with immense opportunities for its development. However, these opportunities have not been fully utilized for regional development. The small and medium-sized ports of Kachchh can be further developed and integrated into the development process. Exports and imports can be promoted more intensively by development of integrated export promotion zones around these ports and cities. This is the most opportune time for declaring Kandla a free port, which has been demanded by

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the local and state chamber of commerce for a long time. It is very crucial that these decisions have to be taken before the local industries and business firms decide to migrate to other greener pastures. Now is the right time for taking bold steps for the redevelopment of Kachchh.

The challenge of the comprehensive regional development of Kachchh could be successfully tackled by undertaking integrated urban, rural and area development plans. A comprehensive development plan must give due importance to human, social and environmental issues. Care should be taken to ensure that they do not degenerate into mere packages of physical infrastructure and mass construction, like many of the 20th century town planning schemes and infrastructure development plans. This would necessitate the establishment of a nodal regional and urban development board with adequate resources and powers. It must pursue the path of sustainable development, incorporating balanced rural, urban and area development. It must ensure all-round development of each and every section and community.

Conclusion

The prerequisites for the success of a sustainable development approach are:

- enlightened professional advice;
- determined administration;
- good governance; and,
- active and wholehearted citizen participation.

There is no doubt that if we follow the path of sustainable development, then Gujarat will emerge as a truly prosperous state. It is known the world over for its successful people and is famous as a beautiful place; now it will be known for its progress and achievements in the fields of planning and designing of human settlements.

Nature has provided us with a challenge and an opportunity to transform this earthquake-affected state into a new Gujarat of our dreams, whose seeds were sown during the Nav Nirman movement of 1974! Let us unite and join hands in this constructive and creative mission!

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Symposion: Defining Success of the City in the 21st Century

Part 3: Anthropos

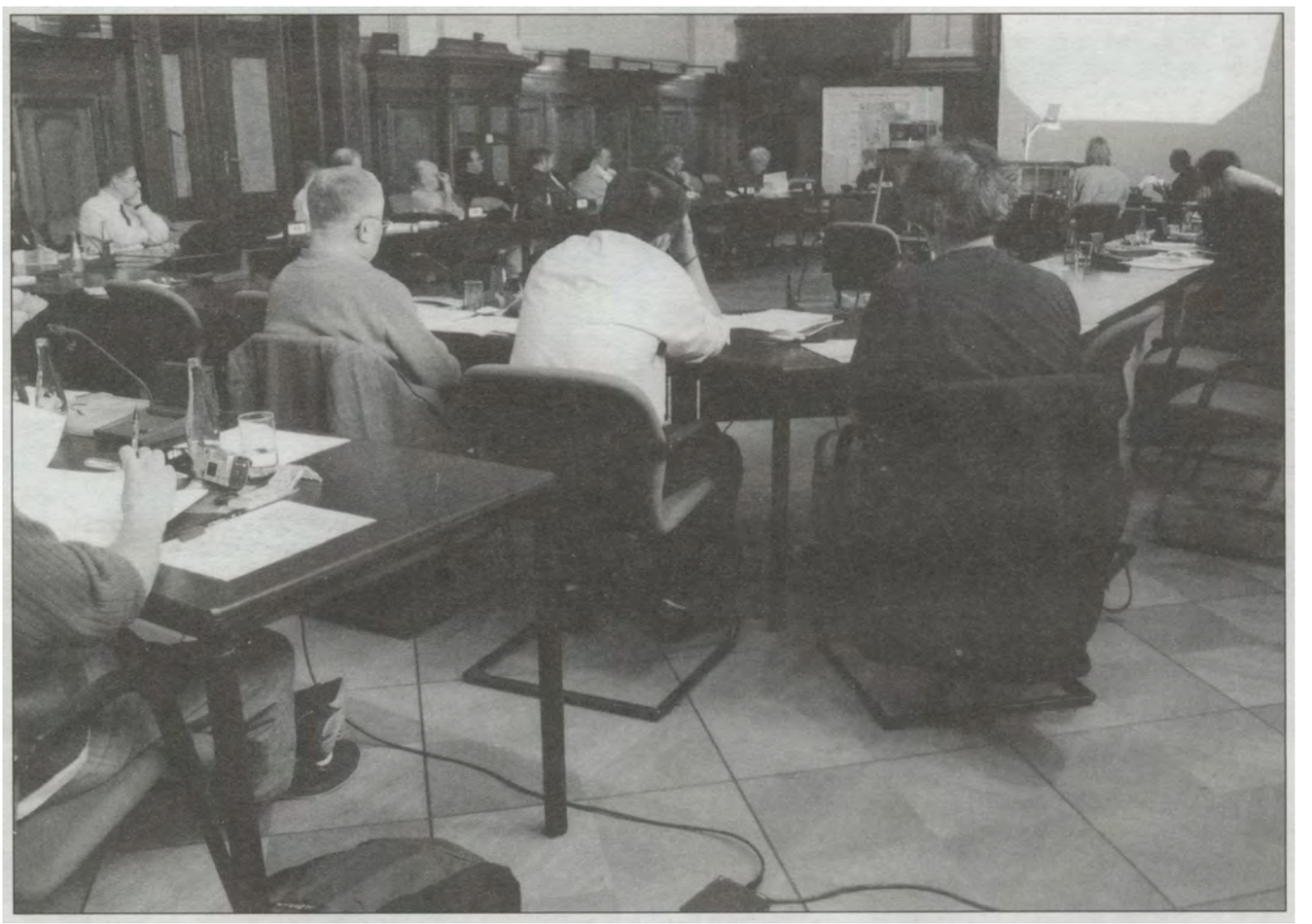
Chairperson : **Laila El Hamamsy***

Presentations : **Charles Collins,* William Michelson, Bjørn Røe, Panayis Psomopoulos**

Contributions : **Akhtar Chauhan**

Discussion* : **Mao Qizhi, Aimee Redknap, John Reid, Barry Rae**

***No written record exists of any statement made during the sessions.**



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Success for whom? The place of people in 21st century cities

William Michelson

The author is S.D. Clark Professor of Sociology, and Associate Dean, Social Sciences, Faculty of Arts and Science, University of Toronto, Canada. Dr Michelson is also a member of the World Society for Ekistics (WSE). The paper that follows was presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Introduction

Defining the success of cities in any century, let alone one as young as the present century, is a complex matter. We have come to learn that simplistic criteria and a reliance on common sense bring about urban settings that fail major segments of the human population. Design fads, economic assumptions, politics-driven decisions, and private-sector prerogatives all embody arguable logic, and they are convincing in the eyes of their beholders. Yet, each such set of objectives for urban development is but an encapsulated subset of the complex reality and diverse interests that cities embody inevitably.

The Ekistic Grid developed by Constantine Doxiadis was intended as a scheme for use in classifying research and knowledge. Its vertical columns represented increasing sizes of human groupings pertinent to human settlement, while the horizontal rows represented the elements of built environment which come to play with human groupings. Together, these dimensions form a complex matrix containing a multitude of interlocking considerations about human settlements. Developing human settlements on the logic of only one box would be clearly shortsighted. The legacy of Doxiadis and Ekistics for successful urban development is the search for dynamic processes that properly reflect the complex interaction of the many parts necessarily comprising the whole. Some people, myself included, refer to this complex, interdisciplinary, applied, interactive approach to human contexts as Social Ecology. But whatever you call it, the matter of how one defines and accomplishes successful urban development involves more than simple, encapsulated mantras.

Toward social ecology

The Ekistic Grid, like the Ekistics movement more generally, came in response to a growing appreciation a half century ago that human considerations were of low priority in many if not most cities. The industrial revolution brought about cities in which success was evidenced by smoke. Cities of business were (and often continue to be) guided by the economic principles of "highest and best use of land," whereby the most legitimating criterion for land-use allocation is the extent of profit to be made on a given site. Housing was viewed as an economic commodity, rather than a basic human need; it was only from that starting point that practitioners could justify a highly unproductive and unrealistic "trickle-down" theory, rather than concentrating on the growing, overt housing needs of the poor and working classes as human beings.

- The Ekistics movement was reinforced by a variety of emerging perspectives and theories, still many years ago. The Swedish geographer, Torsten Hägerstrand, presented a major address to the Regional Science Association in 1969 called "What about people in regional science?" (HÄGERSTRAND, 1970). This paper provided new and fruitful conceptual tools, reflecting people's use of time and space, to understand how the location and organization of urban infrastructure provides constraints in how people can lead their daily lives. It enabled an additional mode of planning thought – a desirable complement to conventional modes.

- In Britain, at the very same time, a sociologist, R.E. Pahl (1970) published a book called *Whose City?* including an essay by the same name. Pahl's contribution was to state clearly how little planners' objectives reflected the diversity of the urban population. Development plans made winners and losers in the population in nonrandom fashion relating to class and ethnicity. Pahl drew heavily from similar work and conclusions from Herbert Gans' work (1968) in the United States, on central city and suburban residents.

- Considerable attention was accorded the place of people in cities from the late 1960s and 1970s. Architecture and planning curricula incorporated user needs and other human concerns more fully, and academic subjects such as Environmental Psychology, Person-Environment Relations, and Social Ecology took shape. New professional associations such as the Environmental Design Research Association were formed, and new journals and books reflected new approaches to the development of built environments.

- Yet, by the last decade of the 20th century – and despite all the expansion in academic thinking and research, it was not clear that developmental forces had created a place for the sensitive consideration of people in their processes. Logan and Molotch (1987) wrote a prize-winning book in which they developed the concept of the *urban growth machine.* They noted the similarity of developmental planning in American cities, emphasizing in most cases the creation of new entertainment complexes, recreational facilities, and convention centers and hotels for affluent visitors, rather than, for example, a wide range of facilities and services for the resident population. They attribute an advocacy of such directions, regard-

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less of the nature, history, and problems of particular cities, to a typical coalition of persuasive interest groups for which upscale leisure facilities are profitable. This includes banks, credit unions, pension funds, the hospitality sector, construction unions, developers, and city politicians (concerned with the economic base). Such coalitions typically sidestep existing problems in their hope that upscaling will work, though existing problems potentially stymie the new plans. The regularity and reasons for this kind of developmental initiative lead to the use of the term, urban growth *machine*.

- More recent work within sociology has termed such a trend as the Disneyfication of American cities and as the creation of a so-called fantasy city (ZUKIN, 1991; GOTTDIENER, 2001; HANNIGAN, 1998).

- Similarly, a new fad in suburban development, dubbed the new urbanism (DUANY, 2000), is similarly myopic. This very well known phenomenon involves the creation of new suburban towns, at sites well removed from the increasing cross-section of the population living in conventional suburbs, with architecture reminiscent of prior ages imagined to be graceful and socially pleasant, and containing an affluent population supporting mutually beneficial institutions. This kind of new urbanism is overtly antithetical to the needs of most contemporary urbanites, due to its specificity, cost, and separatism.

Recent contributions

Nevertheless, despite the reincarnation of limited thinking in new forms – and the lack of widespread adoption of the people-oriented developments of the 1960s and 1970s – there have been important contributions within the social sciences in recent years that are available to anyone seeking a broad basis for developing successful cities in the 2lst century. Let me describe some of these.

Public vs. Private

Both Glen Yago (1984) and David Popenoe (1985) have described the nature and consequences of city infrastructure and transportation planning that favor personal rather than collective facilities. An obvious example is the priority given in some cities to roads and highways for widespread automobile usage in contrast to public transportation. But the distinction between public and private extends to issues of concentration and deconcentration for housing, to mixed versus segregated land uses, and to the balance between universal, public recreation and culture as against commercialization. Popenoe uses the terms "private pleasure" and "public plight" to denote recent trends, which he feels work to the considerable disadvantage of low income groups. If public policy fosters enjoyment based on the ability to pay, those who can't pay, can't enjoy.

The responsibilities of the public sector are an issue, more generally. Municipalities exist because they provide a series of services for the geographic areas of cities that no one else characteristically chooses to do at that scale. The private sector logically performs tasks that turn a profit. Public safety, public health, child care, licensing, elementary education, libraries, commuter transportation, and many more activities cannot hope to maintain high standards and yet make money for investors. Municipalities have increasingly stepped in as needs became apparent. Recent political currents have focused on the reduction of public spending, while either privatizing functions or running them *like* a business. The events of September 11 reinforce the old-fashioned assumptions that public services are of crucial importance for urban populations, not least for those unable to purchase vital services for themselves.

Service-dependent districts

Deinstitutionalization is a trend of the past 20 years, in which big, public institutions such as mental hospitals and prisons have been shut down, to be replaced by smaller units closer to the life of communities. The positive theory behind deinstitutionalization is that residents of these institutions are more likely to integrate into normal society if allowed to be closer to it sooner. Confinement in a totally controlled, entirely separate world is contrary to goals of subsequent good, productive citizenship. The enthusiasm of governments to adopt deinstitutionalization is that they could save money by doing so and then not providing extensive services to assist former residents in the community. Local communities, however, have not been uniformly eager to host special housing for former mental health patients or prisoners in their midst. And the kinds of "outpatient" services required for these people are not uniformly distributed throughout cities. Therefore, the de facto deinstitutionalization policies within many cities have fostered the flooding of service-dependent populations into specific areas in cities, with a destabilizing influence on the original population. Local areas become stigmatized during such processes, making the stability of these areas even more difficult (DEAR and WOLCH, 1987). It is not difficult to understand how the upscaling of some areas can be related to the destabilization of others.

Environmental justice

Furthermore, areas with disadvantaged groups unable to exercise political control have been targeted for the siting of locally-unwanted land uses (lulus). Much American research has indicated that disagreeable and toxic waste sites have been disproportionately located near minority group concentrations by conscious decisions in both the private and public sectors. This has provoked a movment referred to as environmental justice (cf. COLE and FOSTER, 2001; ROBERTS and TOFFOLON-WEISS, 2001).

Place matters

Quite apart from the conscious locational decision making implicit in environmental injustice, a renaissance of research on the importance in people's lives of the local areas in which they live has occurred. Some of this has been specifically environmental – living in the shadow of contamination and risk more generally. Such exposure has been shown related to a series of personal impacts of a social-psychological nature, such as perceived loss of control and stress (EDELSTEIN, 1988). In other situations, overt health risks are paramount (FITZPATRICK and LaGORY, 2000). Other work has focused more on people's isolation in local areas in social concentrations with other primarily disadvantaged people and with less than satisfactory institutions and support structures, be they schools, hospitals, or other organizations (cf. DREIER, MOLLENKOPF, and SWANSTROM, 2001). These studies take the view that, even at a time when some segments of the population are liberated by electronic means of communication and information flow, others remain heavily dependent for their life chances and well-being on their immediate surroundings. If developmental policies address only the top end of the market, they are tacitly fostering distress at other levels.

Concluding remarks

I do not want to leave the impression that sociologists and other social scientists are sovereign or complete in their undertakings and understandings. Nor is there any lack of merit in

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the approaches taken by other participants in the urban scene. While I may not value highly every approach in Economics, there is no denying that economic value is a highly powerful force in development. Nonetheless, the success of cities in the 21st century requires attention on how alternative developmental considerations impact on the diverse segments of their resident populations. The interests of only some segments cause dysfunctional outcomes for the entire city when they disadvantage other segments. Societies suffer too much polarization as it is. The scale of cities offers more potential control in the interests of its citizens than does any other level of government, and citizens feel that this is the case (MICHELSON, 1997). Municipalities exist for the common good. If managed accordingly throughout this century, we might hope for more success on behalf of a wider range of people.

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The good, the bad and the evil Athens: Quality of life in cities

Bjørn Røe

The author is Professor, Department of Town and Regional Planning, Faculty of Architecture, Planning and Fine Arts, Norwegian University of Science and Technology (NTNU), Trondheim. He is a member of the World Society for Ekistics (WSE). *The text that follows is an edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001, and is mainly based on Paper 2000:1 by the author published by the Department of Town and Regional Planning, Norwegian University of Science and Technology, Trondheim,[1] which was made available to the participants at the same Symposion.*

Foreword

My comments in this paper are based on some of my studies of Athens and contain some elements I deal with in a book project on Athens which has been resting for a few years due to other tasks coming in between.

The study tries to reveal some qualitative elements in the metropolis of Athens at the turn of the millennium, Good ones as well as Bad and Evil ones. I will shortly mention some of those. Athens as a city will not easily be given status as a success story, nor as an example to be followed by other cities. But maybe it still has some lessons of importance?

Introduction

Large cities and metropolises in our time are incomprehensible for most people as they are vast in extension, complex, conceived as chaotic and difficult to apprehend as "one thing." The mechanisms of the city are not transparent. What guides city development as well as the decision-making processes is not at all clear. The hows and whys are so many, resulting in only fragmented knowledge and apprehension. People living in a metropolis might learn to know the immediate neighborhood, a few routes and some of the most frequented places, but the city as such is to a little extent perceived, used or appreciated. The visitor or tourist will seek other paths to perceive and enjoy the city than the inhabitant, but will also lack the overall understanding of the metropolis, and thus not get full qualitative return.

My hypothesis is that most Athenians as well as the majority of visitors and tourists coming to Athens are in the described situation. The tourist or traveller normally has the Acropolis, other antiquities and the old Plaka district as their primary goal. The rest of the city is perceived as chaotic, confused, ugly and disturbing, due to the traffic, the noise, the pollution and the temporariness of many structures. Why not try to help the inhabitants or the visitors to get more out of their stay, be it short or long, by giving them some clues to read the environment? My intention is to achieve this through giving information, and partial explanations into certain qualitative aspects, but also to raise questions, as not all explanations are singular or clear. As I am an architect/planner I find it fruitful to start the search for qualities in the material conditions and the physio-chemical environment we can perceive but also the invisible but essential elements for our well-being, like the air we breathe.

Everything has a history, and to each facet of a city experienced there will be stories which, when told or revealed, will give us new insight. If we learn to see and learn to ask, the city and its people will come closer to us and a dialogue can start. We will discover many small or large organizations, dedicated individuals or groups who are struggling through their work and endeavors to make the city a better place to live in. We may also become aware of the influence of politics and bureaucracy for better or worse. And we will discover the counterproductive, negative elements that utilize the city as an arena for their speculative activities. The result can very often be read in the city environment.

Athens, more than the Acropolis – A short historic outline

Athens, the capital of Greece, is today a metropolis of more than four million inhabitants which is roughly 40 percent of the population of Greece. The nucleus of the city with the Acropolis in its center lies in a basin between mountains (Hymettus, Pendeli, Parnes and Aigaleo). The Athens Basin at times suffers from a combination of air pollution, adverse climatic conditions and inversion creating an unbearable smog, *to nefos* – the cloud. But the city today extends beyond the mountains. It is fair to include most of the county of Attica as the Athens Metropolitan area. Large parts of the metropolis face the sea, the main port being Piraeus, as in ancient times.

Athens, the cradle of democracy, has traces of habitation back to 4000 BC. Its glorious peak was between 500 and 300 BC, when democracy was introduced and established as the new political system. During this period the temples we can still admire today were built on the Acropolis. Although the city dwindled after this time, it remained a cultural center of the Roman Empire up until the 3rd century AD. The real end of the Roman epoch in Athens was in AD 529 when the schools of Aristotle and Plato were closed down by the Emperor Justinian. The glorious city had lost its power and greatness under Byzantium. From AD 1204 to 1456 Athens was more or less continuously under Latin dominance. Ottoman control

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and dominance lasted from the latter date till 1833.

Athens was an unimportant, sleepy town of 8 to 10 thousand inhabitants at the time of the Greek uprising and Revolution. Modern Athens was built from scratch after 1830-1831 which was when the Turks had to sell their properties to Greeks and foreigners. This was also the start of land speculation which has become an intricate part of the city development in the last two centuries and one of the important explanatory factors in it. In 1833 the Turks were forced to leave the Acropolis and in 1834 Athens was proclaimed the Capital of Greece.

The new city center got a spacious city plan with a neo-classic layout. This had to be changed after one year because of pressure from landowners who wanted a higher return on their land. Leo von Klenze was the author of the new adjusted plan, which set the pattern for development during the first decades. Later on extensions in a gridiron pattern were added in a piecemeal and partly coincidental manner.

By the turn of the century Greater Athens had a population of 200,000 inhabitants. The first automobile appeared in 1896. The beginning of the 20th century was a period of optimism and a new spirit. Many plan proposals saw the light, but none became reality.

The year 1922, when the Asia Minor catastrophe occurred, was a crucial one for the Greek capital. An increase in population of 76 percent (350,000) in the period 1920-1928, combined with continuous political unrest, was quite unmanageable. These years mark a shift from two distinct cities – Athens and Piraeus – into an emerging metropolis. Refugee settlements and other built-up areas spread out in the Athens Basin. "Building before planning" or uncontrolled settling outside the city plan area became the way for the less affluent to solve their housing problem, mostly by building illegally on land they had purchased legally. This kind of unauthorized development – *afthereta* – reached a peak between 1950 and 1970. Later on illegal ways of appropriating land, or unauthorized building, was taken over by the middle class and the rich. This shift is characterized as "From spontaneity to speculation" (LEONTIDOU, 1990).

Within the areas covered by a city plan, however, the system of *antiparochi* – an exchange arrangement between plot owners and builders – first applied in 1929 (MARMARAS, 1997), combined with an increase in plot ratios, made it possible to build blocks of flats in large numbers quite quickly. *Antiparochi* is when the landowner of each plot turned the property over to a building enterprise; the contractors built the block of flats, usually financing it by selling beforehand; and they gave part of it, one or more apartments, to the landowners according to the value of their land.

The city has struggled to get a master plan to guide development. The first one passed by Parliament in 1985 was named "Structural Plan and Program for the Environmental Protection of the Greater Athens Area." This was based on Law 1515/85 specifically for the Athens metropolis. So far the Plan seems to have some effect as a guideline for development, but strong sectors or sudden shifts in political priorities can easily change the pattern or parts of it. However, several projects appear to be in contradiction to the environmental agenda of the structure plan. This can partly be explained by "unofficial planning" or para-planning (PHILIPPIDES, 1998). Philippides maintains that this unofficial planning influences the form of the city to a larger extent than official State activity, and this kind of planning acts as a middleman between the State and society. The State needs such an intermediary "because only then can social strife be atoned or powerful interest groups be served within a distributive political system" (PHILIPPIDES, 1998).

At the turn of the millennium the population of the Athens metropolis is somewhere above 4 million. In addition there are several hundred thousand economic migrants and other refugees and tens of thousands not registered as inhabitants, Greeks and foreigners alike. There are 1.5 million registered working population and less than 1.3 million jobs in the formal sector in the metropolitan area. The Gross Domestic Product of the metropolis is stipulated to be close to 10 trillion Drachmas. The metropolitan area includes 117 municipalities of varying size – nine of them have less than 2,000 inhabitants and five have more than 100,000 inhabitants, of which the Municipality of Athens is the largest, with more than 900,000 according to some estimates (MAM, 1997/1998).

The built-up area of 500 sq.km consists of 65,000 building blocks, containing almost 2 million housing units and apartments of which 74 percent are owner-occupied in a fine-grained plot structure. The city consumes 700,000-1,000,000 cu.m of water daily and, on average, 750,000 cu.m of liquid waste is discharged daily.

Athens has more than one million private cars, 200,000 motorcycles and 16,000 taxis. The total number of person-trips per day is about 7 million of which about 30 percent is by public transport, 40 percent by private car and 10 percent by taxi. The extension of the Metro has been going on for several years and will be partly ready before the 2004 Olympic Games. The latter is one of the big projects for which the city has high expectations as pivotal for economic development. Another project is the new Athens airport, "Eleftherios Venizelos" in Spata, east of the Hymettus mountain, programmed to be in operation by autumn 2000.

The Good, the Bad and the Evil Athens

After this short historic outline, one may have some idea as to what kind of city Athens is. But one really does not know how it feels to be there. By focusing on qualitative aspects of the city and city life, I intend to convey some of my knowledge and my own reactions, explaining, to start with, that:

- Good is the city which offers opportunities or arenas for urban activity and life, serving its citizens and users;
- Bad I consider the phenomena that make life or movement in the city embarrassing, dangerous or peculiar in a negative way; the bad city or parts of it represent problems about which it should be possible to do something;
- Evil is the city or parts of it when quality of life is undermined so that irreversible distorted city development is created.

We are facing structural problems and it seems to be above the city council's or its leaders' ability to change the direction of development at least in the short run.

The Good Athens

What is a good city? Jane Jacobs (1961) considered street life and life on the sidewalk the essential quality of a city – wherever it functioned well. She put forward several factors which had to be added in order to achieve this, with very little empirical research to support her experiences, but still quite convincing. Other authors are attracted by certain architectural objects or public spaces of a certain character, their history and the atmosphere they create (RASMUSSEN, 1967 and 1994). Others will deal with the city as an economic force, the complexity of processes, of management and growth (HALL, 1966).

In my attempt here I consider mainly the city an arena as it is experienced and used. Some basics are essential: we need clean, good drinking water and air we can breathe in without health dangers; we need to feel safe in our homes and on the streets; the city will create economic opportunities; the city

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may give us an opportunity to develop jobs or obtain services, to move freely and utilize all kinds of means of transport including our legs; of course the city as a meeting place is essential, a melting pot of ideas, services and commerce, cultural expression and just human communication. Each city is unique and should develop its uniqueness. So what is particular about Athens? Below are some of my proposals.

• **Dry lands, but excellent water for millions:** In spite of the dry climate of Attica, Athens manages to serve its more than 4 million inhabitants and industries with potable water of high quality – maybe among the best in the large metropolises of Europe. In order to achieve this, there has been a long and hard struggle. Today, the main water sources are Lake Mornos, 192 km from Athens in the mountains west of Delphi, before that Lake Yliki closer to Athens (since 1958) and before that Lake Marathon (1929) close to Athens. In ancient times, the most ingenious solution to the water supply system was created by the Emperor Hadrian and his successor Antoninus Pius who made an aqueduct running from the foothills of Mount Parnes at a depth of 30 to 40 meters below the ground, carved in semi-hard slate. This aqueduct lasted for 1,200 years!

Today the situation is quite good. Still, many consecutive years of drought may reveal that the system is not perfect. However, extensions to the supply system are under construction. EYDAP, the water and sewer organization, promise to deliver water to every household. This will have to be combined with the development of resource-friendly attitudes among people as well as the introduction of recirculation principles in the city's way of water housekeeping if Athens is to have a secure future.

• **The landscaping and the pedestrian roads to the Acropolis and the Philopappos Hill:** The Acropolis from the Classical period has been the main attraction for visitors from all over the world. It is a wonder that Athens has managed to keep some of the hillside and the nearby Philopappos Hill and the Hill of the Nymphs as landscape not encroached upon by buildings. Coming closer to or ascending the Acropolis, one will discover the timeless art of landscape planning which connects the Sacred Hill to its surroundings, where ancient and modern Athens blend in harmony. The master behind the landscaping and the pedestrian access roads to the Acropolis and Philopappos was the late architect and artist Dimitris Pikionis (1887-1968) assisted by a few students and several stonelayers and builders in the 1950s. The landscape has some of the ancient aura, since Pikionis decided that only native plants which were documented to have grown in the region for thousands of years should be planted. The main piece of art is the road system, mainly pedestrian roads and walkways paved in various patterns created on the spot, some seat arrangements and other elements, an addition to the old church of St. Demetrios Loumbardiaris and a small pavilion for refreshments. The blend of materials, marble, other stones and bricks, neo-classic building elements as well as concrete, the careful setting in the landscape, and the varied patterns all make this a rich aesthetic experience. Pikionis was searching for "the Greek Soul." Now, what is needed is repair, maintenance and care, a challenge for the capital of Greece.

• **The Greek kiosk, *to periptero,*** is an important part of street life in Athens as well as in other towns and cities in Greece. It was institutionalized around 1910. War victims or people handicapped during military service were given permission to run kiosks on the pavements as a form of "social security" supplementing a low income. Many of these people were not able to run the business so they were allowed to rent it to someone else. Most kiosks are open 20 hours a day. One can find all kinds of items, although cigarettes and newspapers normally are the core (figs. 1 and 2). This smallest working place, which covers 1.50 x 1.30 meters (exterior), can have a high yield per square meter! In busy parts of the city a kiosk may well give a good income to three families! In addition to its usefulness as an all-day shop, the kiosk keeper will answer questions and keep clients informed. The open kiosk helps to keep the street or the square safe, since there is always a pair of eyes overlooking the area. The kiosk-keeper's eye on the street is a security factor even if he/she is not a policeman or employed as such. This is usually a person who knows the area and its people, so he may quickly react if some crime or other delinquent activity happens. In Athens it seems like the dense distribution of kiosks, combined with an extensive outdoor street life, makes people feel safe without much policing in the

Fig. 1: Athens – The old type kiosk at Eufranoros Street, Plastiras Square, Pangrati. (*Photo*: B. Røe, 1999).

Fig. 2: Typical position of a traditional kiosk in Athens. (*Photo*: B. Røe, 1985).

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streets. It is pleasant, humane and resource-saving. But most of us would not envy the workplace of the kiosk-keeper although his income might be good! The planning authorities have the obligation to regulate the space on the sidewalk properly so pedestrian movement will not be disrupted, whereas the kiosk gets a proper working environment. In the municipality of Athens there are more than 1,450 kiosks (*periptera)* and in all of Attica there are at least 6,500.

- **The popular street market, *i laïki agora,*** is one positive phenomenon in Athens which has developed without the interference of urban planning. The special characteristic of the popular street market in Athens is that it is "mobile" in that one street in each part of the city is closed off to traffic and becomes a lively market one day a week, from 6 o'clock in the morning until 2 to 3 o'clock in the afternoon. The following day the market moves to another part of the city. Everybody in the district or neighborhood knows which days the nearest market is functioning. This possibility to create a proper environment for outdoor sales and shopping in otherwise busy streets filled with vehicles gives another air to the neighborhood. *I laïki agora* has fresh produce, mainly fruit and vegetables at reasonable prices. Rich and poor, housewives, maids and retired people alike, all go to the market to fill up their bags or trolleys for a week. It is also a lively environment for those who want to stroll, to watch and hear the vendors catching the attention of the customers. These street markets have existed in an organized manner since the 1930s (figs. 3, 4, 5, 6 and 7).

There are two groups of vendors, the producers who sell their own produce and the professional merchants[2] who sell produce they have bought at the central wholesale market early the same morning. There are clear rules for becoming a member and for the way each market is organized. In one day there may be 23 to 30 street markets at different locations in Athens, more than 200 throughout the week in the whole of Attica. Within the Athens Basin there are about 6,700 producers and 2,200 professional merchants selling. As one will understand, this is an important part of the service economy of the metropolis as it secures fresh produce for the population at low prices and it gives the producers maximum turnover as there is no intermediary. It further secures the sale of the produce for the producers and minimal transport as the majority of the producers have their farms only a few hours' travel away.

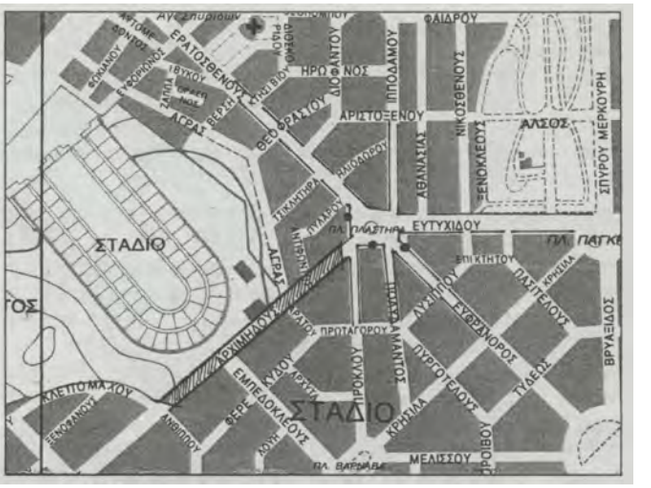

Fig. 4: Athens – The Friday popular market in the Stadium area in Pangrati (hatched) and the position of the three kiosks on the sidewalks in Plastiras Square (dots).

The popular market was obviously created because of a need for the producers to partly ensure that their produce reaches their customers as quickly as possible, at the lowest possible cost. In this way they control the process of the produce. The benefit beside economics is this direct feedback from the customers as a quality control. It also makes good sense for the community at large. The produce travels the shortest possible distance, making energy spending minimal. Agriculture close to the city may be retained and further developed. The city becomes almost self-sufficient with this kind of produce, but in order to manage this in the future, one will have

Fig. 3: A typical popular market in Athens – Fines of Drs 50,000 a day are devastatingly high for producers. (*Source: Magazino – o Paragogos,* April 1999).

Fig. 5: Around 6,700 places at popular markets in Athens and Piraeus have been given to producers. (*Source: Magazino – o Paragogos,* April 1999).

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Fig. 6: Athens – The "Laïki" (popular market) every Friday when Archimidou Street behind the old Stadium in the Pangrati area is closed off to vehicular traffic. (*Photo*: B. Røe, 1999).

Fig. 7: Popular market in Piraeus. (*Photo*: B. Røe, 1985).

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to avoid unfair competition from external products brought over a long distance by large-scale producers and distributors who violate restrictions on energy spending.[3] For the consumers or the inhabitants the advantage is that they get fresh produce directly from the producers whom they may ask about the quality of the produce, or they can choose one of the many other producers at another stall in the same street if they prefer. Customers also look forward to the event once a week when they can fill up their refrigerators and their tables.

To me this is an outstanding example of benefits through real competition. To make the system function even better, society will have to supply clear direction and quality control as to the ecological soundness of the produce. In recent years the size of tomatoes, water melons, peppers, potatoes and several other products indicates that the use of fertilizers and even hormones may be quite extensive, which is contrary to the healthy policy the sustainable city should aim for. The planning authorities should just ensure that the present system functions, participating in the selection of suitable streets and facilitating the conversion of the streets selected for the *Laïki* every week. The Greek popular street markets suit the Ecological Efficiency model well (HALL and PFEIFFER, 2000).

The remarkable thing about the two elements described above – the kiosk and the open market – is that the planning authorities do not create these functions, nor do they plan or control them. Some kind of authority, though, has established the markets and the kiosks as phenomena, and established laws regulating them. New organizations have developed, and creative persons improve the organizations which work in cooperation with some national bodies as well as the municipalities.

Rethinking city qualities, we may find several similar and different ones which improve city performance in an ecological context as well as improving the perceived city life for the citizens. Urban, regional and city management, and policy development and planning could learn from these Greek examples.

Some further aspects of Athens that might also need careful assessment and be used in the search for future models for city development are the following elements:

- The balance between the formal and the informal, where Athens has a lot of the characteristics of the city of the less developed countries at the same time as it is a modern metropolis. How could such mechanisms be used wilfully and skilfully to solve challenges with which neither the bureaucracy nor the formalized private sector can cope?
- Athens, like Thessaloniki, has an interesting structure of industries with a very decentralized pattern of production units down to family enterprises and small-scale operations, which come into the city and create a mixed land-use pattern in the central areas as well as in predominantly housing areas (LEONTIDOU, 1997; VAIOU, 1997).
- The 1933 Charter of Athens which was a result of the CIAM[4] conference in Athens (and on board a ship from and to Marseilles) and later published by Le Corbusier was never followed in Athens, even if Modernism/Functionalism had its proponents in the city. So Athens continued to lay out the regular street patterns and the dense city blocks that were dismissed by the Modern Movement. Most European cities followed the modernistic layouts, pulled down parts of existing buildings and built free-standing blocks of flats, in flowing space, separated functions and gave high priority to the easy flow of cars. Athens achieved the development of a living city with plenty of activities on the streets, but also traffic and parking problems. The more "modern" cities got more air and green space around their housing areas, but segregation, monotony and a lot of traffic to and from places of work. Maybe it is time for some comparative research on these matters?

We have picked out a few success stories from Athens, where I believe this city has achieved something that many large cities should strive for, something which enriches the quality of the city for its citizens and at the same time reduces the demand for travel (*i laïki agora)* and energy use (RØE, 2000).

The Bad Athens

What is conceived as unpleasant, embarrassing, ugly or peculiar in a negative way for many or for certain groups is what is bad about a city. Most people will try to sort out qualitative elements from the city setting, which may be real problems, inconveniences or just a matter of getting used to. In my search for characteristics that I consider bad, I have chosen phenomena which may be changed if there is political will or if the community sees it as a problem and wants to do something about it.

- **Air pollution** is conceived through the respiratory system and allergic reactions but also in the eroding ancient marbles as well as in many other invisibles. Some years ago the following could be read in a scientific article: "The air of Athens is among the most polluted of the European cities. Inversion temperatures frequently occur over the city because of its exceptional geophysical surroundings and the special climatic conditions with many sunny days a year ... Exhaust gases are at high levels in all central streets and in combination with the inversion temperatures and calm days the photochemical cloud – *to nefos* – is present for 10-20 percent of the year" (KATSOULIS and TSANGARIS, 1994). The last statement was based on measurements in 1988 and the previous years.

Obviously some improvements have occurred lately. Now the measurements show high pollution levels on less than 2 percent of the days in the year, and the European Environmental Agency reports that the air pollution of Athens is not the worst.

The three basic sources of air pollution in Athens are:

- transportation (the automobile-CO-lead-CH-NO and smoke);
- industry (SO_2-CH-NO-particulates and smoke); and,
- central heating during winter (SO_2-smoke).

In all of them fuel plays the major role in producing pollutants (PELEKASI and SKOURTOS, 1991). The kind, quantity and quality of fuels determine the type and intensity of air pollution. There is a general decreasing or stabilizing trend of air pollution in Attica attributed to several anti-pollution measures that have been taken:

- new technology in cars;
- enforcement of car emission certification;
- improved quality of fuels; as well as
- the anti-pollution action plan ATTICA SOS.

Still, at times there are high levels of NO_2 and smoke in certain areas. The ozone levels are too high in several of the measurement stations mainly in the northern suburbs (EARTH, 1998). The increasing numbers of cars and motorcycles are worrying. To conclude: the fact that in the last ten years of the 20th century the pollution level for each of the pollutants has improved significantly, may permit some optimism. However, the problem of the sum total is such that there is every reason to keep on being alert and continuously taking measures to improve conditions.

- **Lack of open public space** is claimed by many planners to be one of the most serious problems in Athens (RØE, 1998). This is a partial truth. In the central areas of Athens there is an abundance of green and open spaces and in some of the more affluent neighborhoods there are plenty of green areas, public or private, as well as open space for common use. However,

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large tracts of the city – like Kypseli/Patission, Pangrati, Piraïki, and several other areas – have a perceived and real high density. Lack of open space and vegetation, plot ratios above 4.0 combined with the most heavily polluted parts of the city like in Patissia are unacceptable. These neighborhoods are urban, have mixed land use and plenty of activity, with up to 1,200 persons per hectare. But the environmental quality is low when the lack of open space is combined with absence of space for parking, so cars encroach on sidewalks and any open space. High built-up density is generally the result of plans produced by the authorities, on the basis of existing regulations – the so-called GOK (General Building Regulation) according to a planning law of 1923, a Decree of 1929 and later amendments. The quality of the plan is finally the responsibility of the Ministry of the Environment, Planning and Public Works. In such cases one is allowed to ask: why such a high density, and why the lack of common public space?

- High density is generally explained as a result of pressure from landowners towards the authorities in order to get maximum gain from their land.
- The lack of public space is usually explained as the result of a poor public economy so the municipality could not afford to buy or expropriate land needed for public purposes, which has to be done within six months from the date of the approval of the plan.

Simultaneously there was poor legal support for public interests in development prior to 1975, when Greece got a revised Constitution which gave power and responsibility to the State to plan, protect and develop the physical and cultural environment.

A recent study (MAM, 1999) shows great discrepancies in the distribution of common (public) spaces in some selected municipalities, ranging from 0.8 sq.m per person (Kallithea) to 76.5 sq.m/person in Papagou. Looking at the population densities combined with available housing space, aggregate data for the densest municipalities of Athens, Daphni, Hymettus, Kaisariani, Vyronas and Zographou are 627 persons/hectare, 18 sq.m house/person, 2.6 plot ratio, whereas the more wealthy northeastern suburbs have correspondingly 105 persons/ hectare, 50 sq.m house/person, 1.2 plot ratio.

The high densities and lack of open public space create several kinds of discomfort ranging from climatic to crowding. Children cannot leave the house without supervision, there is no recreation space in the proximity, many schools do not have proper or sufficient space, no school yard for play and so on. When, in addition, most sidewalks are occupied by cars, the city becomes unfriendly – to say the least.

- Other aspects of the Bad Athens include problems related to liquid wastes, sewerage, flood control, garbage, disturbing mixed land uses and details without care, combined with lack of aesthetic considerations.

The Evil Athens

There are structural phenomena – some of which are deeply rooted in history, culture, politics, bureaucracy – which undermine the quality of life in Athens and create irreversibly distorted city development, and which seem to be beyond anyone's ability to change, at least in the short run.

Two Greek colleagues have given some explanations with regard to the "culture" supporting the devastating actions:

- "Under such circumstances town planning is but one more governmental function which is undermined through the network of family, extended kinship and political ties, and generally exploited for personal and political gains" (WASSENHOVEN, 1984).
- "The fundamental difference between legitimate and illegitimate is the cornerstone of the formation of built-up space in Greece ... a more satisfactory hypothesis is that there exists an informal parasitic agent, acting side-by-side with official planning procedures, emanating from the State. This agent is unofficial planning which could also be called para-planning" (PHILIPPIDES, 1998).

Let us see some examples.

- **Forest fires – Land for city expansion?** Greek forests are being burnt at an alarming rate. Most people, as well as mass media, claim that the majority of fires are arson – that is for land speculation mostly in coastal areas. The reason is the following: forests are protected areas, i.e. areas where general development and building activity is not permitted. However, there are specifications for exemptions. Arsonists set fire in order to gain easier access to land for building purposes, even if the law forbids building on "previous" forest land. The arsonists are rarely caught. If one cannot stop this way of city development, it is a qualitative trap. It seems to be a fundamental problem beyond resolution. The impacts are serious, as green "lungs" are scarce. They are needed in order to improve the climate, to sustain ecological balance and to reduce torrents and flooding during heavy rainfalls. The authorities have not found a solution to the problem. Laws regarding the issue go as far back as 1836. The main act now is Law no. 998/1979. Sometimes even leading political figures or some organizations are blamed for being involved in arson. However, nothing seems to stop citizens or other bodies from appropriating land or speculating for profit for land which should be left to nature or the community.
- ***Afthereta* – Unauthorized building and development** is another way of circumventing the laws. The traditional way of doing this was when people who could not afford to rent an apartment, or buy one within the city area (where the city plan existed), bought a parcel of land outside the plan area which was much cheaper but it was not permitted to build upon it unless the land parcel or plot was at least 4,000 sq.m. Their second step was to build on this small property, which was bought as agricultural land, usually not more than 100-250 sq.m. The bulk of this kind of *afthereta* took place from the 1930s to the 1970s, reaching a peak in the 1960s. This system of building before planning was a way for the lower income groups to get a house as there was no public policy to solve their problem. What I call Evil is not this kind of unauthorized building – which after all was the best possible solution given the circumstances. Evil is the kind of *afthereta* which is still quite widespread, synonymous with **speculation** used by all income groups, including the highest income, to get access to land in the periphery at a cheaper price. This may be illegal building of second homes or vacation houses (sometimes converted into regular houses), fancy villas, hotels, casinos, offices or industrial plants. All this may be combined with the appropriation of forest land or land near the coastline. Concerned citizens' groups try to organize against such development which is destructive towards nature and culture. Their aim is to influence public opinion and policies. But they seem to be fighting a hopeless war since so much of the establishment on all levels takes part in the game.
- **Parking and the pedestrian** is another combination that makes life complicated and for many people full of suffering. In large parts of the denser Athens, ruthless parking is obstructing a civilized life for people who walk. I consider this one of the strongest examples of lack of civic spirit and contamination of public space. The problem is due to the lack of a planning policy for parking, but it is also due to a rapid increase in vehicle ownership – four persons/car and 20 persons/motorcycle.

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Most of all is the parking behavior which is deeply rooted in a *laissez faire* mentality and attitude. It is easy to blame the authorities for not making parking space available. On the other hand, people have not been willing to pay what parking space really costs, and they want to reap the benefits without spending by using public space which was not intended for this purpose, be it road or sidewalk. One may encounter cars parked in the most hopeless places, at bus stops, in pedestrian streets, on sidewalks and at intersections of roads so that pedestrians have no way of getting from one side of the street to the other. A recent study (MAM, 1998) confirmed that 22,000 cars were illegally parked between 9 a.m. and 1 p.m. in the central areas of Athens on a working day. The police have given up. Rarely does anyone have to pay a fine.

The pedestrian in Athens is hunted game! For a young and vigorous person it is possible, but not pleasant to be a pedestrian, but for many people it is hell.

- **Other evils** in this metropolis include problems in parts of the traffic and circulation system, the bureaucracy, corruption and many others that lead to what we may call city stress. Some of this is "culturally embedded" and some can be explained as attitudes. To improve the quality of life in a metropolis like Athens one needs politicians who are willing to carry out "unpopular" decisions and to put the common good before their own "pocket." That might be the start of general changes in attitude all over. In that case it should be possible to steer this marvellous, but difficult metropolis towards a better and possibly sustainable future.

Conclusions

As I have lived in Athens at intervals altogether for almost eight years between 1963 and 1999, I have some experience as a short-term resident and have observed several changes in the city for better or worse. During my stays I have also had the opportunity to do research related to certain aspects of the city, its planning and development. I was lucky enough to be able to read, write and speak Greek which has proved a prerequisite for such work.

For the present study I have utilized mainly literature and historic sources but also quick field surveys, observations and interviews with people representing organizations, special interest groups, municipal or State sectors, etc.

My intention is to depart from a kind of "professional" language that is inaccessible to those who move around in large cities and try to communicate with them and help them conceive, understand and appreciate the great city in all its complexity. By "categorizing" and using my own evaluation as a basis for the three aspects of Good, Bad and Evil, I expect to arouse interest and hopefully some reactions from readers who disagree. Raising expectations or stirring people's emotions, but at the same time giving information about the problem city, I hope to get more alert and informed citizens and visitors. Reading a city, reading signs is an art. My intention is to go beyond reading the symbols to inform and raise questions about the factual reality and what makes quality of life in a metropolis at the turn of the millennium.

Notes

1. This paper was accepted for the conference "Quality of Life in Cities" which was arranged in Singapore by the National University of Singapore, 8-10 March, 2000.
2. The professional merchants are selected according to a social profile, allowing 30 percent of the applicants to be unemployed, 20 percent from families with many children, 10 percent people who have a passed a program for treatment of problems related to alcohol or drugs, and 3 percent political refugees.
3. Today, several products are composed of components from all over the world, which makes transport a main ingredient. As most transport of goods is by lorries or trailers on non-renewable energy (diesel and so on), the effect on global climate is worsening. Weizsäcker et al. (1997) demonstrate that one packet of fruit yoghurt produced in Germany may travel several thousand kilometers before ending up at the consumer in the same country. Cheap transport of raw material and products, centralized production and high cost of manpower are some of the reasons. But this is not sustainable!
4. CIAM (Congrès Internationaux d'Architecture Moderne) was established in 1928 by Le Corbusier, Sigfried Gideon and others. CIAM according to the Athens Charter of 1933 made clear the role of the modern movement in relation to the city and the housing problem.

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Disabled people in disabling settlements

Panayis Psomopoulos

The author is an architect/town and regional planner with nearly fifty years of architectural and planning practice of which twenty years were with C.A. Doxiadis and/or Doxiadis Associates, of which he was a Vice-President until 1987. Parallel to the above he has held various posts within the non-profit Athens Technological Organization: he was Vice-President and Director of International Programs at the Athens Center of Ekistics (ACE) including the series of annual Delos Symposia and the Athens Ekistics Months. He was subsequently Director of the Graduate School of Ekistics while contributing to the research projects, and has been President of ACE since 1975. He took on the post of Acting Editor of Ekistics in 1977 and has been Editor since 1983. He is a Founding Member and has been Secretary-General/Treasurer of the World Society for Ekistics (WSE) since 1965.

The text that follows is a revised and expanded version of a presentation by the author at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Introduction

For almost fifty years I have been in charge of organizing events – like the present one in Berlin, and I rarely take advantage of the opportunities offered to all other participants to impose my presence with a specific contribution. Quite frequently, though, I have assumed the role of chairing a meeting or participated on panels and other forms of discussion. In such cases rumor has it that "nobody can stop me!"

This time I am making an exception in order to draw your attention to a theme that is very dear to me and has kept my personal interest unabated for over four decades. The theme is people and particularly people with disabilities in human settlements. On this theme, I never miss any opportunity to intervene with any means available, including, of course, presentations of papers at local, national and international conferences. And I repeat myself, speaking always on disabled people – and disabling settlements.

While I am genuinely interested in the needs of the disabled, I am also interested in improving the living environment of the able-bodied. Understanding the needs of the disabled and recognizing their special problems can show the way to a radical and efficient solution of many universal problems of human settlements.

The disabled population

Information relating to the number of the disabled tends to be confusing and misleading. Reasonably accurate statistics usually exist for people with certain physical disabilities connected with the limbs of the body which help man's movement, the internal organs, the senses, the vocal system and chronic skin diseases. Less accurate figures also exist for disabilities connected with certifiable mental disabilities: mental retardation, schizophrenia, etc. However, a third category – that of the socially disabled – is not reported at all, although it is an important sector of the urban community.

Further, another forgotten category includes a large number of people who though actually sound in mind and body suffer from the same limitations as the technically disabled. Since young children and old people belong to this category, everyone has experience of operating as a disabled person. In addition, all those who are temporarily disabled by ill health, which can include pregnant women and indeed anyone suffering from any kind of mental stress or physical discomfort whether induced by such trivial things as a cold in the head, overwork or a sprained ankle, should be included in the total.

Official statistics indicate that the number of the physically disabled ranges from 15 to 25 percent of the total population, but it would not be an exaggeration to say that at any given moment 50 percent of the total population in the world suffer from some form of disability as regards their performance within human settlements.

Since all categories of human disability (physical, mental, social, actual or "enforced") must have a bearing on human settlements, a systematic approach is needed to select the relevant connections. While all cases of disability are of equal importance from the humanitarian point of view and probably from the medical point of view, not all of them are equally relevant to human settlements, to come to our beloved ekistics jargon.

The disabling settlement

Judging from all our experiences we can safely say that human settlements at all scales and in all parts of the world (and increasingly as we go from poor to rich countries) offer a prohibitive environment to their inhabitants, and that even the able-bodied man is unable to cope with their scale, speed, complexity, and irrationality. Such fundamental human performances as walking, hearing, seeing, sleeping, working, are being hampered – not to mention the physical, emotional, and intellectual development of the individual.

There is every reason to believe that people disabled at birth, or who have been inflicted with a disability at some stage

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in their life, feel their handicap very acutely when dealing with the requirements of everyday life. It is a bitter thought that by imposing the additional need to overcome the obstacles of an inhuman environment their lives are made even more difficult and sometimes it is impossible for them to operate at all. This thought is particularly ironic when we consider that implementation of the knowledge already developed by medicine and technology could allow such disabled persons to live normal and healthy lives among their fellow men.

It is for this latter reason that children must be counted among the disabled people in today's urban settlements. The physical structure of the city itself and the way it functions robs them of freedom, initiative, independence and security in a safe environment as well as exposure to all facets of life in the settlements – the very prerequisites for proper development.

Old people meet analogous problems in their built-up environment. They may, in fact, be responsible for creating some of the prevailing conditions in the settlements – while children are not. But, not only because of the decrease of their physical abilities, but also because of the increase in the speed, scale, and complexity of the city, they find themselves completely unable to cope with their surroundings.

The disabled in settlements

To outline the actual problems, all possible connections between the five elements of settlements (nature, man, society, shells, networks), people of all ages and types of disability, and the social, economic, political, administrative, technological and cultural points of view should be analyzed. Such research will require a major effort, but the important thing is to get the process started as it can be approached in incremental steps. I will begin this effort by outlining some aspects of the problems of the disabled related to the basic dimensions of human performance in space.

Each human settlement has a structure which reflects and facilitates the performance of the various functions within the settlement. People tend to cluster around central facilities according to more or less clear-cut patterns of interdependent communities of various scales. One of the most characteristic scales of community existing in any city is defined by the movements of the inhabitants to satisfy their daily needs. The overlapping kinetic fields of their daily movements can be taken to define the scale of the neighborhood.

Most of the technically disabled do not live in special institutions but are dispersed among the rest of the population. The others live in various kinds of institutions such as mental homes, old people's homes, sanatoriums, etc., or – in the case of the socially disabled – tend to be concentrated in special areas of the city such as slums and special housing projects.

In considering the locations of the institutions in which disabled persons live, it can be concluded that:

- The location of these structures was picked without thought either for the convenience of the disabled or of those associated with them.
- The buildings are excessively forbidding, thus increasing the isolation of the disabled from the outside world.

I will not discuss the nature, size, formation or equipment of specialized centers for the disabled in any detail. Excellent examples exist in the four or five most wealthy countries, but most of the existing institutions – there and elsewhere – leave much to be desired. This is not so much due to apathy and neglect as to the speed of progress in building design and technical equipment, constantly increasing costs and limitations of experience.

Although there are no truly reliable statistics, those that I have examined show a striking gap between the recorded figures of handicapped people who are in need of hospitalization or constant treatment in clinics, etc., and the numbers of available facilities for them. These shortages occur even in the most advanced countries and facilities are totally lacking in most of the developing countries.

On the other hand, there is a steady increase in the number of projects specially designed for the handicapped. Apart from institutions themselves, this includes playgrounds, swimming pools, schools, workshops, etc. This development is still in its infancy and most projects are very specialized, so that there is little as yet that can be said to be ready for universal pplication.

The incorporation of handicapped people in community organizations – whether a kindergarten or a swimming pool – is preferable to a uni-purpose institution. This is not to say that specially designed equipment and facilities do not serve a useful function, but that most disabled people would greatly prefer to participate in the general public places if it was made physically possible for them to do so, and if social prejudices could be overcome.

Special housing projects for the elderly and/or the disabled have been built in a few cities. These are an interesting development even though they still have the defects of segregation. Although this is not so severe as living within an institution, it seems that the majority of the inhabitants resent being cooped up with neighbors all suffering from similar disabilities.

If we assume, as I think we can, that disabled people would like to function as normal individuals, a study of the movement of the ordinary inhabitants to and from their local central facilities could yield helpful results. From it one could estimate the distances disabled people would have to cover, the effort they would have to make, the route they would have to take. Consequently, one could set priorities for new projects and define the equipment needed for adapting existing facilities to more convenient use by the disabled.

There are many other problems such as the difficulties of finding suitable work, social and cultural prejudices, the high costs of equipment and medication, which make life for handicapped people far more frustrating and less rewarding than for their unhandicapped neighbors. This remains true even in the most advanced and liberal societies.

But before going further into my argument and attempting a formulation of some realistic proposals about what one could do to improve conditions in the future, let us be more concrete and illustrate our argument with an example.

Athens – An inaccessible city for the disabled

I would consider it a privilege to draw your attention to a special effort by people with disability to study and describe prevailing conditions in terms of accessibility to central urban facilities in **Central Athens.**

I am borrowing information from two reports published by the Spastics Society, Athens, on two special surveys on the subject in 1984 and ten years later in 1994.

Two surveys in 1984 and in 1994

In 1984, a team from the Spastics Society began to investigate the conditions of accessibility in the central services of the city. The team was comprised of ten people, six of whom were motor-handicapped. There were three volunteers and one social worker. Vital advisory assistance was offered by an architect, town and regional planner, a founding member of the Society.

The areas investigated were those which every citizen inevitably comes into contact with when living in a city:

- Circulation of pedestrians and public transport
- Buildings of public administration

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- Hospitals
- Universities and colleges
- Cultural centers
- Recreational centers

The team collected the data by personally visiting and testing each site and service. The report contains extended tabulations of data collected which we do not reproduce here for lack of space. An overall description was made for the sections where classification into tables was not possible.

A second survey identical with the above was organized by the Spastics Society ten years later in 1994. In the following we summarize only selected parts of the report.

Criteria and method of evaluation

● **The aspects examined** in detail and the reasons behind this choice were the following:

- Stairs: Stairs are an insurmountable barrier for a person in a wheelchair. Sharp inclines, worn conditions, as well as the depth and height of steps, cause problems to the elderly and to any person who walks with difficulty.
- Ramps: If a building has stairs, a ramp is indispensable for anybody in a wheelchair or for those unable to climb stairs.
- Handrails: A handrail is indispensable for persons walking with difficulty.
- Elevators: The access of a person with disability to the interior of a many-storeyed building is possible only if there are elevators. International specifications provide an entrance door of 90 cm. Actually, most elevators have an entrance of only 70 cm. A further problem is the size of the elevator itself, as well as the double doors, which (where they exist) reduce the capacity and create difficulties for people in wheelchairs.

● **The grading of building accessibility** in five categories were based on the following:

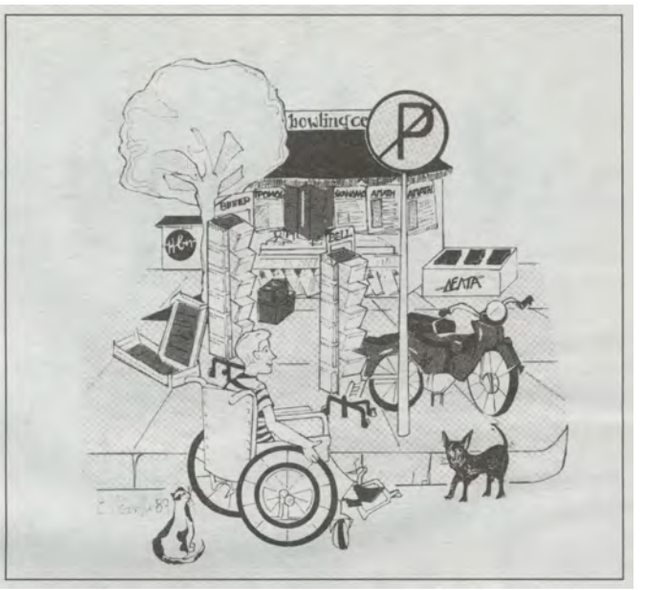
Very good	: no stairs, normal size elevator, ramp, handrail
Good	: not more than 4 steps, normal size elevator
Medium	: steps from 5 to 8, normal size elevator
Bad	: existing steps from 9 to 14, small elevator
Very bad	: over 15 steps, no elevator or small elevator in many-storeyed buildings.

Circulation of pedestrians and public transport

● **Pedestrians** use the "so-called" pavement. The main problem encountered by people walking with difficulty, on crutches or in a wheelchair, is the faulty construction of the pavements, i.e.:

- Pavements often differ in width at one point or another, steps protrude at the entrances of houses, kiosks with their merchandise on display or stacked on the pavement, greengrocers' crates and even trees, can become traps for any person walking with difficulty. Often there is no room at all for the passage of a wheelchair.
- Traps on the surface of pavements, caused by holes, cracks and protrusions, the dissimilar material used in their construction and the high step-down from pavements with steep inclinations, render the movement of a handicapped person very hard indeed.
- Cars and motorbikes illegally parked on the pavements totally obstruct passage and render yet harder the already problematic circulation of people with disabilities.
- At crossings handicapped persons, especially those in wheelchairs, face another major problem: with no inclined level at the juncture of the pavement and the road, the wheelchair has to turn around and descend backwards, which necessitates outside assistance.

Other obstacles which seriously impede circulation of people



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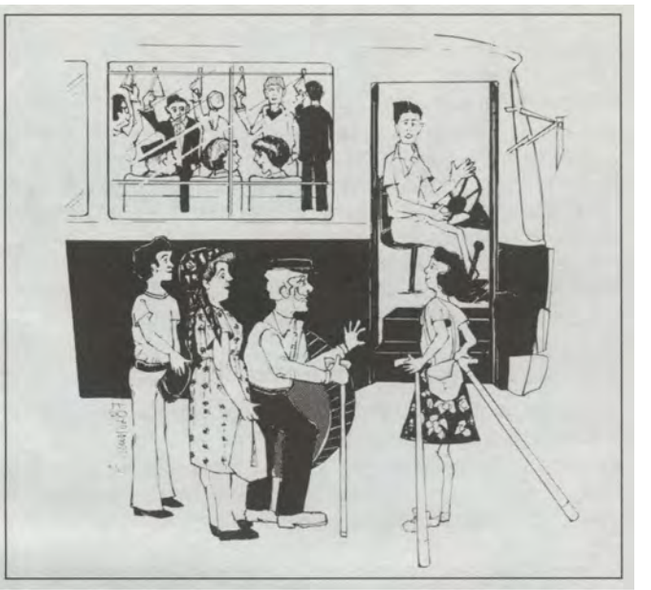

with disabilities are:

- empty spaces between pavement and road (probably for drainage);
- sharp slopes where wheelchairs risk going off course or moving with dangerous acceleration;
- inadequate or insufficient road lighting;
- cramped pedestrian traffic islands;
- underground passageways;
- short duration of green traffic lights at pedestrian crossings.

In 1994, conditions remain unchanged.

- **Public transport:** Persons with motor difficulties are excluded from the public means of transport, not because they do not wish to use them, but because the means of transport themselves raise insurmountable barriers.

Buses and trolley-buses: High and narrow steps make the entrance and descent from buses and trolleys extremely problematic. The first step is usually very high from the road surface and the next ones, though lower than the first, are still very narrow. This makes the use of buses and trolley-buses very difficult for people on crutches and makes them dependent on outside help.

Standing inside the vehicle until a seat is available also constitutes a major problem. Support handles are too high and of no use whatsoever for people with problems of balance or of shorter stature. Low horizontal handbars would solve the problem for everyone.

Very serious problems are also caused by erratic driving, sudden acceleration and the often inconsiderate behavior of many bus drivers. A special recommendation during their training course would do no harm.

When the time comes for the passenger to descend, he discovers, after searching around for the "stop" button, that he cannot reach it because it is too high!

These observations are repeated in the 1994 report.

The subway: The subway is one of the most convenient means of transport. But for the motor-handicapped person the underground station is usually an unattainable experience.

Of the 21 underground stations with 40 entrances and exits, surveyed in 1994:

2 entrances and exits have Very Good access
2 entrances and exits have Good access
5 entrances and exits have Medium access
5 entrances and exits have Bad access
26 entrances and exits have Very Bad access

Furthermore,

– of the total 40 entrances/exits to the underground stations not one of them has a ramp
– 31 station entrances/exits have handrails, but
– only 4 are accessible to the motor-handicapped.

Other data resulting from the on–the-spot survey are:

- in most stations, transit from entrance to exit is over an elevated bridge or through an underground crossing; this means that passengers must ascend or descend over 30 steps;
- the height of the ticket booth is such that a person in a wheelchair cannot reach it;
- the installation of the new ticket-punching machines is another disappointment, since the width of the passageways is prohibitive for the disabled;
- in many stations there is a gap between platform and train, which is also a source of danger for entrance and descent;
- the new carriages – recently acquired – have worsened rather than improved accessibility to the subway, for four reasons ranging from the increased height from platform to carriage, the gap between platform and train, to the interior design of the carriage.

In 1994 the situation remained unchanged.

Means of long distance travel: It is unnecessary to mention long distance buses, ships and trains, since everyone is aware that these are inaccessible to a person with disability without an escort. The attitude of the staff toward passengers with disability differs from one company to another, and conditions depend on their personal susceptibility and conscientiousness.

Buildings of public administration

This sector includes the Ministries. The motor-handicapped have to visit a Ministry as often as any other citizen.

The concentration of services in the center of the city, the lack of parking facilities, pedestrian problems, the non-existence of building specifications, chiefly in the numerous old buildings, cause serious problems of access to the motor-handicapped.

Of the 20 Ministries surveyed in 1984:

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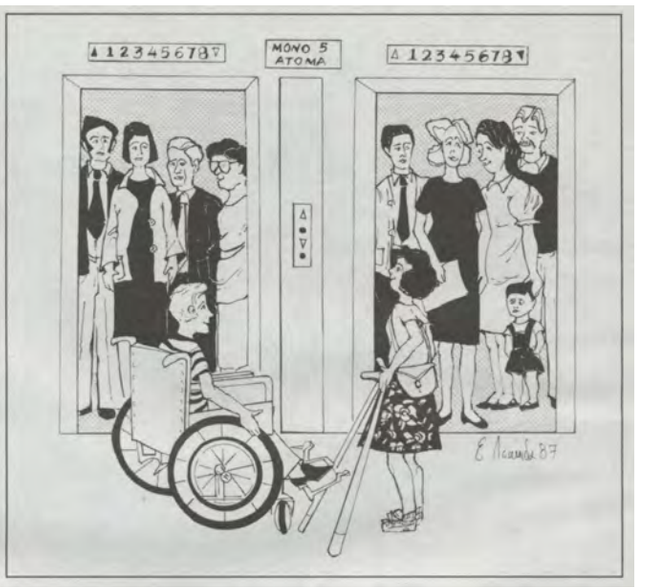

- 7 have Very Good accessibility;
- 5 have Good accessibility;
- 2 have Medium accessibility;
- 3 have Bad accessibility;
- 3 have Very Bad accessibility.

The 1994 survey showed an improvement. Of the 20 Ministries

- 10 have Very Good accessibility;
- 3 have Good accessibility;
- 5 have Medium accessibility;
- 2 have Bad accessibility;
- None have Very Bad accessibility.

However, both surveys reveal that of the total of 20 Ministries:

- 3 have ramps
- 3 have handrails
- 18 have normal-sized elevators while 2 have medium-sized ones,

and confirm that revolving doors remain an insurmountable barrier to the motor-handicapped person.

Hospitals

Of the 34 hospitals surveyed in 1984

- 13 have Very Good accessibility;
- 9 have Good accessibility;
- 3 have Medium accessibility;
- 1 has Bad accessibility;
- 8 have Very Bad accessibility.

Further, from the total of 34 hospitals:

- 6 have ramps
- 2 have handrails
- 2 have no elevator

In 1994 the situation remained unchanged.

Education buildings

Of the 12 universities and colleges surveyed in 1984:

- None have Very Good accessibility
- None have Good accessibility
- 1 has Medium accessibility
- 4 have Bad accessibility
- 7 have Very Bad accessibility

Further, of the total 12 universities and colleges:

- None have a ramp
- 3 have handrails
- 8 have no elevator

In 1994 the situation remained unchanged.

Cultural centers

Of the 12 museums surveyed in 1984:

- 2 have Very Good accessibility;
- 1 has Good accessibility;
- 1 has Medium accessibility;
- 3 have Bad accessibility; and,
- 5 have Very Bad accessibility;

Furthermore, of the total 12 museums:

- No museum has a ramp;
- 2 museums only have handrails; and,
- 2 museums only have elevators.

In 1994 the situation remained unchanged.

Entertainment: Theaters and cinemas

Toilets with no adaptations for the disabled are a major prohibitive factor to the visit of entertainment halls.

Of the 38 theaters surveyed in 1984:

- 7 have Very Good accessibility;
- 5 have Good accessibility;
- 2 have Medium accessibility;
- 6 have Bad accessibility; and,
- 18 have Very Bad accessibility.

Of the total 38 theaters:

- Not one has a ramp;
- 15 have a handrail; and,
- 5 have an elevator.

In 1994 the situation remained unchanged.

Of the 31 cinemas surveyed in 1984:

- 6 have Very Good accessibility;
- 7 have Good accessibility;
- 8 have Medium accessibility;
- 1 has Bad accessibility; and,

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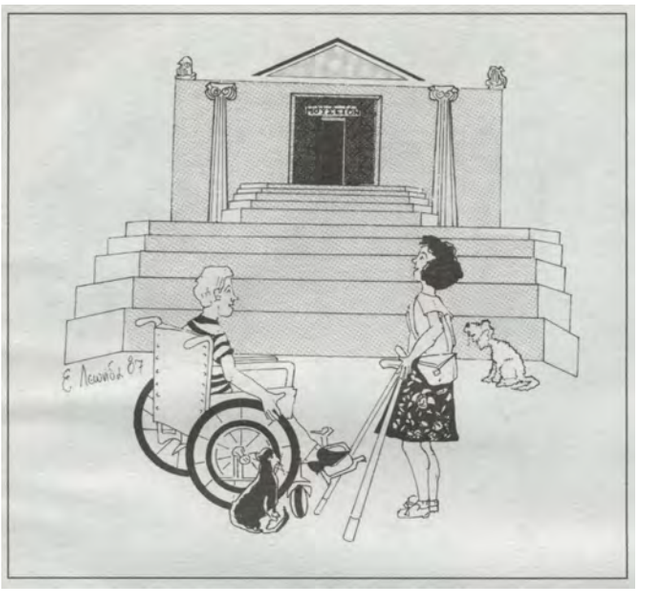

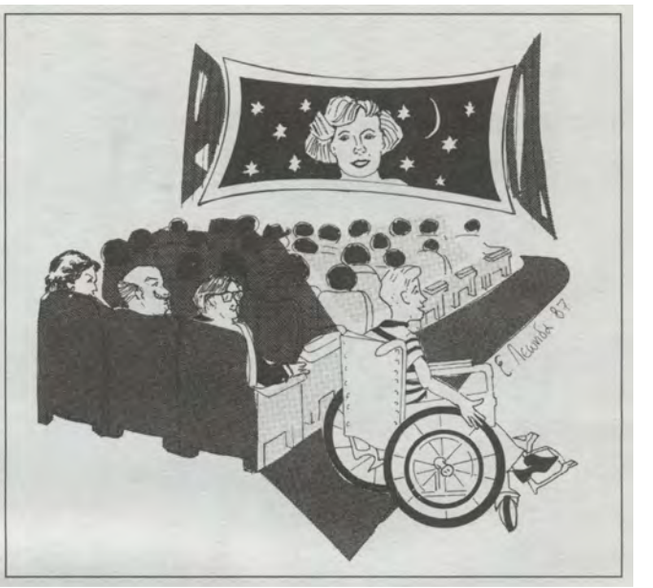

• 9 have Very Bad accessibility.

Furthermore of the total 31 cinemas:

• None has a ramp;
• 3 have handrails.

In 1994 the situation remained unchanged.

Surveys of this kind carried out by people with disabilities themselves and the fact that conditions have not improved within a decade, leave no doubt that the situation is stagnating, in spite of the fact that substantial steps forward have been made by Central Government agencies, local authorities and a large number of NGOs.

More recent data are not available. Maybe between now and the year 2004, when Athens hosts the Olympic Games, things may improve. At least the "Special Olympics" which will follow the general ones will force authorities to make the necessary installations accessible.

But whatever the case with Central Athens, the problems remain in the broader capital area and the thousands of other settlements in Greek territory.

Things to put right

Although the problems of settlements are due to an imbalanced relationship of all the elements, exacerbated by their unexpected and rapid growth, there are other more immediate causes pertinent to rehabilitating human settlements both for the fit and the unfit.

One major cause of disabling settlements is that they are built for a non-existent population. Buildings, roads and open spaces cater for a fictitious model of the human being – exclusively for a man (not a woman) in the prime of life, and at the peak of his physical fitness. Statistically speaking, only a small minority of the population fall into this category, even among the fit. There is no thought for the handicapped.

This approach is not peculiar to the physical structure of the settlement. Industry and public services do the same. Consider the inconvenience regularly suffered even by the non-average adult – such as very short or very tall people – who have to commute in private cars that are too low or in buses and trains that have very high steps.

Further, decisions are taken and plans are almost always made for a static human condition and not for a dynamic and evolving one. The majority of the houses, whether built by private initiative or the public sector, are designed for young couples with two children. Provision is seldom made for adjustment. Yet the needs of a family change with time.

Man's attitude towards technological progress and the machine is a phenomenon directly related to the problems of settlements. Man tends to consider that whatever is technologically feasible is also socially desirable. This is wrong. Moreover, he readily accepts the limitations inherent in the machine, and he fashions his environment to accommodate such limitations. Think of the car that we can call a disabled machine because, although built for movement, it cannot go up and down stairs. However, the whole city is now conditioned by this disabled machine as city streets are, by definition, nothing but ramps.

If disabled people are able to benefit from urban technological facilities, it is almost certainly by accident. We have only to consider the ramps instituted in any luxurious hotel that were not installed for the benefit of disabled clients but for the luggage trolleys. Only in a few central buildings (concert halls, etc.) do we find certain specific facilities designed for handicapped people.

Technology is supposed to release humans from their constant physical effort and to multiply human capacity. In some areas it does this quite successfully. But it has not always had such good results in settlements. Machines tend to change human settlements into mechanical settlements. Man pays dearly in comfort, well-being, time and development for what the machine has offered to him. Disabled people tend to pay more and gain less, especially as almost all machines are designed for use by adults in full possession of the physical, mental and psychical abilities attributed to the normal adult. Time, effort and human energy are scarcely even considered as direct costs, resulting in a false understanding of costs.

What of the future

In recent years the seriousness of the accumulated problems of human settlements (urban and rural) has aroused public interest on all levels. Efforts are being made to gain a clearer knowledge of the function of settlements, and of ways to improve the quality of life.

The same applies to the problem of the disabled. There is

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an increasing awareness of the acuteness of the problem on all levels, from the local community to the earth as a whole. Individual solutions have been developed related to local conditions and requirements, and many of these could well be adapted to the needs of the world at large. The interdisciplinary nature of the various conferences on this subject has emphasized the need to expand our knowledge of the problems, to introduce legislation, to create centers for implementation, and to establish the proper machinery for the feedback process from whatever experiments take place. But little has yet been accomplished, even in the advanced countries. On a world scale one could almost say nothing has been done.

Although medicine, architecture, and human engineering each offer a plethora of information on the basic principles of life and the needs of people, the pertinent data are neither adequate nor interrelated.

In spite of this limited communication, and the fact that the field of design in cities and the field of rehabilitation of the disabled have worked in almost complete isolation, both have laid out and implemented principles which are completely identical. This is all the more significant as each field has a decisive difference of approach. Those involved in rehabilitation focus their attention on the individual man, his abilities and disabilities, and the necessity for his full participation in life. Those involved with design have abstract ideals and concern themselves with averages.

Proper planning is planning for the fullest development of people of all ages in a way that encompasses the dynamic evolution and the peculiarities of the life of each individual, offering the maximum number of opportunities with the minimum effort in a safe and stimulating environment. Such a program would meet almost all the needs of the many varieties of disabled people. This principle goes hand in hand with present social attitudes towards disabled persons. With the support of medicine and technology, the so-called disabled have now developed the ability and the need for full participation in community life, which is both feasible and desirable. Thus, when planning for disabled people of all kinds, one should be guided by the same principles which appear to guide the behavior of all human beings in settlements. To quote C.A. Doxiadis (1972):

- Man tries to maximize his potential contacts: he tries to connect.
- Man also tries to minimize his effort measured in terms of energy, time and cost. In his attempt to maximize his contacts, Man tries to bring everything close to him but he selects the course requiring his minimum effort.
- Man always tries to optimize his protective space at every moment and in every locality, whether he is alone or part of a group.
- Man tries to optimize relationship with the other elements of his system of life, which consist of Nature, Society, Shells (buildings and houses of all sorts) and Networks (from roads to telecommunications).
- Man tries to establish an optimum synthesis of the previous four principles and this depends on time and space, actual conditions, and Man's ability to create such a synthesis.

The idea of segregating the disabled in settlements of any scale should be rejected outright. This stance should be rigorously defended, even if economic conditions, land availability, administrative insufficiency, and the seriousness of the case, appear to make segregation the only possibility. The only exceptions may be some extreme clinical cases.

As large numbers of disabled people will continue to live dispersed all over the settlement, planning for the disabled should be considered throughout its whole area. We continue to stress that proper planning is the only logical guide to planning for the disabled. If the guiding principles and their implementation are correct, a large number of problems of the disabled are automatically solved with the existing means. Thus, although present conditions may leave much to be desired, future settlements present a hopeful challenge if we develop the proper perspectives, accept the proper standards and define and allocate the necessary means for their implementation.

Immediate action

Finally, here are some thoughts for action concerning structures and settlements of various scales:

The room is the most intimate part of man's shell. On the average, people spend more than 70 percent of their time in the house, and a substantial part of this in their private room. In the room personal taste – special design of furniture, material, and other auxiliary commodities – makes for a cosy atmosphere. In it we can provide many means for coping with basic disability.

The house is a place in which a number of people have to live together. Thus it is necessary to accommodate different patterns of ability and disability (old people, children, adults) and this results in a dilemma. To what extent must individual comfort be sacrificed for the sake of group satisfaction? It is nec-

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essary to consider basic dimensions for the satisfaction of different kinetic fields. A flexibility of space arrangement is strongly recommended. Margins in fixed installations for future adjustments of the spaces are also desirable. The prevailing standards, especially in low-income houses, need to be reviewed. High-income dwellings, where private initiative is the dominating factor, may be the key as to how certain facilities can usefully be provided.

Multi-storey dwellings should have provision for basic facilities on each floor with easy access from the street to the main floor.

Neighborhoods: All houses and apartment buildings should be located within neighborhoods where pedestrian circulation prevails and where the circulation of vehicles is restricted. These neighborhoods should include services for most everyday requirements, plus the special facilities needed by the disabled. All dwellings should be within a 10-minute walking distance of such services. From the point of view of social structure, no neighborhood should consist of a single income group or a single minority group, nor should it contain an exceptionally high ratio of disabled persons. Ideally personal choice should provide the criterion of the distribution of the inhabitants.

Communities: Neighborhoods should be grouped hierarchically into communities of a higher order, and accessibility should be guaranteed to the activities which seem to be the characteristic focuses of scale of communities, until we reach the central community of the major settlement. The hierarchy of communities is a concept which derives from patterns developed over centuries by human beings in settlements. This pattern is based on economy – of human resources and energy as well as in the financial sense of the word.

All public and private buildings which are constantly used by people living in the settlement or in neighboring communities should be required to incorporate up-to-date technological means for facilitating their use by people with various kinds of disability.

One major aspect of planning for the cities of the future is the separation of pedestrians from the machine in all central areas. Circulation is almost invariably on two different levels: vehicles on one level (preferably below the surface of the earth) and pedestrians on another, the two linked by stairways, ramps, and elevators. In existing settlements the existing patterns involve vested interests that often resist sudden and drastic changes. Also serious technological reasons (capacity of existing networks, pattern of roads, width of streets, etc.) may not allow for the easy adoption of new standards. However, efforts are being made in many cities. Commercial centers in a number of existing cities have been turned over to the pedestrians and access by ramps to all public buildings has been imposed by law in major cities in several advanced countries.

Conclusion

The quality of life in today's urban settlements is poor both for the able and the disabled. The settlements themselves are obstructive and are responsible for forcing even the able-bodied to behave as disabled persons. The technically disabled suffer even more because they have to cope with their particular limitations in addition to those induced by their environment.

Thus human settlements, in which almost all of our time is spent throughout our life, must be built for the comfort and safety of all their members, giving equal rights and equal choices to all.

If present trends and present attitudes continue to prevail, the future is threatening, with a constant decay in the quality of life for everyone.

The only solution is for the public authorities to insist on the implementation of valid and humane standards and principles in the development of all human settlements. This may mean lowering of some technological standards (such as permitted road speeds in cities) to meet the needs of the less able members of society. But this will result in raising the standards of the quality of life for the whole of society.

A general change of attitude in all aspects of society, social, economic, political, technological and cultural, is needed. It means that humanity must develop the ability to face reality and accept that we must create a human environment in which Man will be Master.

Finally, able-bodied and disabled are terms of relative significance and importance. The majority of the members of a society, anywhere in the world, are always disabled in one way or another. Our tasks are to push for public acceptance of the fact that human nature and human life is closely associated with disability and to accept that all members of society have equal rights to life. Individual peculiarities – physical or other - - can make people interesting, useful members of society, provided they are helped to find their proper role.

Could not we, in the World Society for Ekistics, contribute to this task?

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Symposion: Defining Success of the City in the 21st Century

Part 4: Society

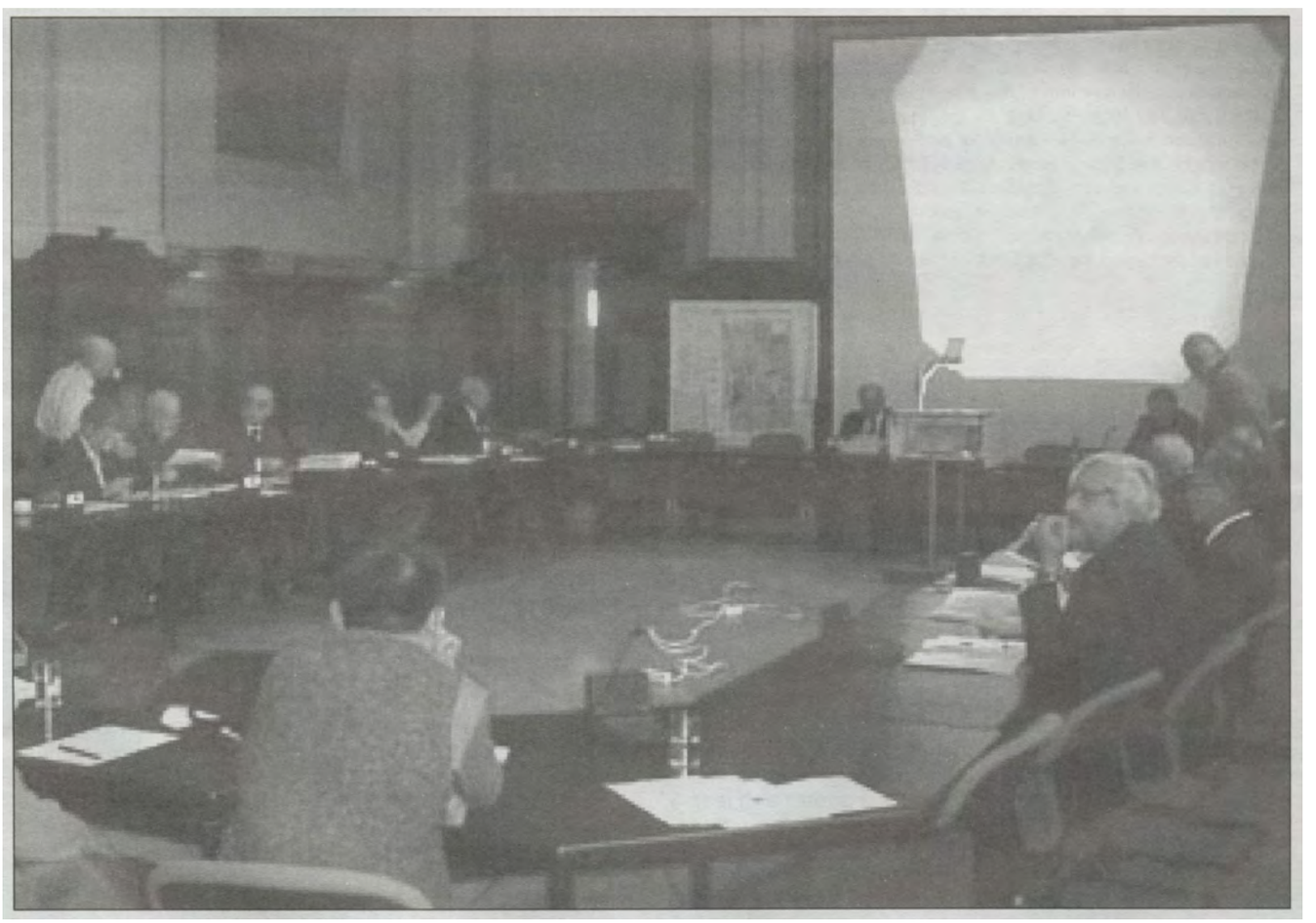
Chairman : **Ekhart Hahn***

Presentations : **Laila El Hamamsy, György Enyedi, Peter Herrle,* Petros Petsimeris, Amos Rapoport**

Contributions : **Burkart and Leslie Holzner**

Discussion* : **Charles Collins, Ross Holland, Krisztina Keresztély, Demosthenes Agrafiotis, Serge Antoine**

***No written record exists of any statement made during the sessions.**



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Planning and development of rural and semi-urban settlements

Laila Shukry El-Hamamsy

The author, a cultural anthropologist, Professor Emeritus, Social Research Center, American University in Cairo, and a member of UNESCO's International Bioethics Committee and Egypt's National Bioethics Committee, after completing her Ph.D studies at Cornell University, has been for 25 years Professor and Director of the Social Research Center, American University in Cairo, while also acting as Senior Fellow, Population Center, Harvard University; Senior Visiting Associate, Population Program, California Institute of Technology; Research Project Director, United Nations Research Institute for Social Development, Geneva. Parallel to the above, she has been consultant for, and member of numerous international evaluation missions and expert committees of the UN Economic and Social Department, the UN Population Division, UNFPA, UNESCO, UNICEF, WHO and FAO. She has also been Secretary General of the Organization for the Promotion of Social Sciences in the Middle East; member of the Smithsonian Center for the Study of Man and of the Board of the International Union for Ethnological and Anthropological Sciences; member of the World Society for Ekistics (WSE), of which she was Vice-President for four years. The various distinctions awarded to Dr El-Hamamsy for her overall scientific achievements include the Distinguished Alumni Award of the American University in Cairo and the President Award of the American Anthropological Association. The text that follows is a slightly edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Introduction

For a city to develop as a successful human settlement, it has to be viewed and planned within the wider national context. This approach is especially important in developing countries where only the capital, and perhaps one more city, have the services and facilities that ensure a decent quality of life for their citizens.

The problems of over-population, environmental degradation and strained infrastructure, facilities, and basic services, which many cities in poorer countries face, may not be the result of ineffective city planning only but may also be related to the poor state of the hinterland's rural and semi-urban settlements. The planning and amelioration of such settlements should be included as a priority in any country's national development strategy. The attainment of this goal would not only provide a better quality of life for the poorer and less powerful members of society who usually inhabit non-urban areas, but would also enhance the main cities' ability to cope with their problems and to improve the living conditions of their own citizens.

Urban attractions

Every capital city in the world is likely to attract migrants from other parts of the nation because of its greater social and economic development potentials. When the capital city is the main seat of political power and the center of the nation's economic, social and cultural development, as is the case in many developing countries, it inevitably becomes the main destination of out-migrants from the less developed rural and semi-urban regions. When the latter's economic growth and employment possibilities are limited and their housing, communication, social, commercial and entertainment services inadequate, it is understandable why the capital city may become overpopulated. If it suffers from population explosion, the problem may not be the result of the inhabitants' birth rates only; it may also be one of the consequences of the great influx of migrants from the underdeveloped hinterland. If these migrants happen to belong, as they often do, to the poorer and less educated strata, they will not only increase the size of the city's existing population; they may also undermine, through their negative response, any national population control efforts that aim at lowering birth rates through family planning.

Such underprivileged immigrants either end up in slums that are already over-populated or they create their own squatter settlements and shanty towns that add to a metropolis' physical planning, environmental and socio-economic problems. They also tend to ruralize the metropolis by importing into it some of their poor habits and patterns of behavior that may not be suitable to a proper city life – such as using the street as a garbage dump; turning the street into a children's playground; or keeping children, especially girls, out of school or encouraging child labor.

A case in Egypt

In my country, Egypt, the southern region (Upper Egypt) was, for many years, the major area of out-migration because of its lower socio-economic development and its lack of higher educational services. As part of its decentralization policy that aims at developing all regions of the country, Egypt instituted within that southern region the social services it lacked, including higher educational institutions and universities, along with public and private sector economic development projects. As a result of such developments, a smaller number from among the poorer and less educated classes and fewer well-educated professionals and technicians may feel the urge to leave their region and move to Cairo as many others did in the past.

I would like to give an example from personal experience

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as to the importance of the proper planning of small towns and rural areas so that they may keep their citizens within their fold, particularly those who are essential to their development.

I was born and I spent the early years of my life in a small semi-urban town in Lower (Northern) Egypt. Because it had many highly educated people, including my father, who encouraged its proper planning, it was one of the most comfortable and attractive small towns in the country. It was situated in a lovely setting along the Nile; and it had very good housing, basic educational institutions, proper health services, the necessary commercial services, and entertainment facilities that included a lovely sports club and a movie house. I have not forgotten the American cowboy and Charlie Chaplin films nor the ice-cream and sweets that I used to enjoy as a child within my birthplace. I also still remember the visits to our town that were undertaken by high level political leaders, and by famous Egyptian entertainers, such as Om Kolthoum and Mohamed Abdel Wahab who are considered the greatest singers that the Middle East and North Africa have known. As our town had no higher educational institutions, my family, which was interested in offering its children the best education possible, had to send its four children to boarding schools in Cairo. After a number of years, my father, who was a physician-surgeon, decided to leave the region and continue his medical career in Cairo in order to be close to his children. He had to abandon his two very successful private clinics, one of which was in our town and the other in a nearby town across the Nile where he was, also, the director of its municipality hospital. When my father left for Cairo, it was the poorer people in the region who suffered from the loss of such a high level medical professional. While the surgical operations that he used to perform at the municipality hospital were offered free to the public, he also used to give free health care to needy clients in his own private clinics.

This example from personal experience is meant to show that if semi-urban and surrounding rural areas, because of their adequate facilities and services, keep their educated and professional citizens living within them, they have a good chance of developing into attractive human settlements and thus avoid becoming major out-migration zones. That is the reason why Egypt has decentralized its governmental administration so that all the governorates, and not only Cairo and Alexandria, employ all levels of civil servants, including that of under-secretary, who act as regional representatives of the various government ministries. Egypt had, for years, universities only in Cairo. During the second half of the last century, it decided to establish, along with other basic services, higher educational institutions in the other governorates so as to encourage their young residents to go to college as well as avoid receiving in the Capital all the ambitious young persons who wish to attend university. In the past, such education seekers not only pursued their university education in Cairo but usually remained in it after receiving their degrees in order to find jobs that match their educational level and to continue to enjoy city life. Even though nothing can stop all persons from migrating to other areas within or outside the country, there is no doubt that the development of the cities and smaller towns within the various Egyptian governorates does help lower the tide of out-migration and encourages the needed citizens – the professionals, the artisans, the entertainers, the traders, the industrialists, etc. – to remain and serve the semi-urban and rural regions of the country.

Conclusion

Let me insist that what is important for the success of the city in the 21st century is the urbanization of the rural settlements and not the ruralization of the urban ones.

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Social sustainability of large cities

György Enyedi

The author is a member and former Vice President of the Hungarian Academy of Sciences and a member of Academia Europaea (London) as well as of the World Society for Ekistics (WSE). He is a leader of the UNESCO/MOST Project on Socially Sustainable Cities. The text that follows is a slightly edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Interpretation of the term "sustainability"

Since the Brundtland report entitled *Our Common Future* was published in 1987, the concept of sustainability has spread all over the world and a vast amount of international literature has been written on its interpretation and feasibility (ENYEDI, 1994). According to this report, sustainable development is "to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

Let us disregard for the moment that it is very difficult to assess the needs of future generations and that the conflict arising between the protection of the biosphere and the continuous demand for growth in the market economies does not seem to be resolvable. Let us also ponder over the developments witnessed in the past one and a half decades which have increasingly drawn attention to the *social* conflicts regarding the environmental sustainability of nature.

Sustainability of the environment is not just a technical question; without generous social conditions it cannot be realized. As there has been a new period of significant growth of urban centers in the world since the second half of the 1980s, the intertwining of social and environmental conflicts takes place primarily in large cities.

In the developing world, for example, the environmental considerations cannot be made acceptable if they are not coupled with an efficient program of easing primarily urban poverty. A minimum requirement in these places is to improve urban infrastructure, education and health care services, but this cannot be done without giving equal rights to the poor and other disadvantaged social groups, or without recognizing their organizations. No environmental policy can be efficient without a social policy.

In the large cities of the developed world the situation is similar, despite the fact that these cities differ greatly from the former ones in many respects. The dynamic metropolises that control the world economy and accumulate ever increasing wealth are at the same time the sites of the marginalization and social exclusion of significant masses, and it is precisely these latter groups of society that suffer environmental risks to the greatest extent.

Environmental sustainability is inconceivable without social sustainability. Social sustainability could be defined as such a kind of progress that entails the harmonic development of local society, shapes such a surrounding that ensures that the various social groups, also those of different cultural origin, can live peacefully together; enhances their integration; and finally, improves the living conditions of all groups of citizens. Social sustainability is reflected in the easing of inequalities and social cleavages. The responsibility of a city government does not only lie in achieving a good position in the global economic competition, but also in successfully treating the disadvantageous social consequences. A city where poverty is on the rise, and where the environment and human security are deteriorating, can expect both capital and the successful strata of society to flee from there.

Six areas of urban policies

Seen from the aspect of social sustainability, we can distinguish six areas of urban policy, which are at the same time the main spheres of activity of urban self-governments. This aspect is based on the consideration that local affairs are important. In other words, the social sustainability of cities does not only depend on national sectoral policies, but also on urban policies responding to local problems, sometimes in such sectors that are not significant on a national level.

These six areas of urban policy are as follows (POLESE and STREN, 2000):

- urban governance;
- social and cultural policy;
- social infrastructure and public services;
- urban land use and housing issues;
- urban transport, urban accessibility; and,
- employment and the enhancing of economic growth.

Urban governance

Urban governance has come into the center of attention in the last one and a half decades. It covers the relations among the organizations of the governments (local governments, national government agencies) and those of local civil society (various social groups), the harmonization of their activities, and the distribution of labor among them. Whereas earlier urban policy and planning used to be the privilege of political decision makers and professional urban planners, today it is generally ac-

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knowledged that the solution of urban social problems requires the participation of social groups and their organizations. The introduction of the concept of and frequent study of urban governance can be traced back to the worldwide spread of the administrative decentralization of centralized states and the multi-party, democratic character of local governments (e.g. in the former socialist countries as well as in Asian and Latin American former military regimes). At the same time, the local social movements and organizations have become stronger, also because they have got support from experts. By carrying out decentralization, i.e. by transferring part of the decision-making power from the central government to the regional or local ones, the developed countries set a good example of modernization, e.g. the EU to the applicant post-socialist countries. The environmental movements have played a significant role in organizing grass-root society, as their activity was directed to local problems and thus they were able to mobilize people with different political affiliations for common action. Good urban governance shapes co-operation between the local government and grass-root society according to the characteristics of the given problems.

Social and cultural policy

The quality of governance depends on the quality of its two co-operating elements, i.e.

- the formal institutions of the government; and,
- the self-organizing units of society.

It was Putnam (1993) who introduced the term "social capital." He interpreted social capital as something based on the characteristics of social organizations, like trust, keeping to the rules, strength of internal relations, as these help in acting in a co-ordinated way and in making society function efficiently. Putnam believes that the success of regional and local decentralization depends on the quality of social capital. We can experience how the lack of practice and other deficiencies in co-operation can hamper the functioning, based on the reconciliation of interests, of Hungarian regions or of agglomerations of large cities – thus assisting the centralizing efforts.

Urban policy might help in reinforcing social capital. This can be promoted by organizing and/or maintaining or supporting – or providing urban space for – events and institutions which make it possible for the different strata of society to meet, to get acquainted with each other and to have discussions. The cultural policies of cities can further social cohesion and the pride of local patriots. At the same time, cultural economy is a prime competitive factor in the international competition of cities for knowledge-based economy.

Social infrastructure and public services

Social infrastructure (kindergartens, schools, hospitals, community houses) and municipal services (public utilities, mass transport, telecommunication) are of vital importance for the success of cities. First, these are essential economic factors: e.g. high-level infrastructure attracts capital, whereas poor public services increase the costs of the enterprises working there, thus weakening their international competitiveness. I have myself experienced it in Lagos, for example, that because of the unreliability of the electric system, the industrial plants all used their own generating stations, which has significantly increased both their investments and their running costs. The second problem is that municipal services can be accessed by certain social strata only with difficulty, if at all. In the large cities of the developing countries, for instance, the poorest people and the immigrants live outside the modern city. In the areas they live, public utility services are minimal, health service and educational institutions are lacking, and as there is no mass transport there, they cannot reach the existing ones. The tax income of cities is usually not sufficient for larger scale infrastructure development, and the widespread practice of privatization – also supported by international financial organizations – leading to rising prices deteriorates the situation. As a result, the number of families unable to pay for the public utility services has been increasing even in affluent countries. Poverty is frequently coupled with ethnic isolation – we also experience this in Hungary with the Gypsy population – hence the integration of urban society is not a social issue only.

Urban land use and housing issues

Controlling urban land use and housing policy are crucial issues of city management all over the world. It is the functioning of the real estate and housing markets that makes it possible for families to choose their residence according to their needs, thereby becoming members of the city community. Proper control of the use of urban space contributes to the environmental sustainability of cities.

In today's capitalism deregulation is an overwhelming tendency and, as a consequence, government interventions are being less frequently applied. This happens despite the fact that social inequalities are strong and poverty has appeared in a new, extreme form, namely that of social exclusion. Its spatial appearance is housing segregation: at one end the upper classes in their separated and guarded gated settlements, at the other crowds of homeless people (who are excluded from the housing market). Although urban policy cannot eliminate these phenomena, depending on its knowledge, political attitude and means (competence), it can improve (or worsen) this. Housing policy and construction regulations – sometimes consciously, sometimes only as an unwelcome consequence – can significantly influence social segregation or integration. Construction regulations, e.g. prescribing the minimum size of a plot or a house, or the public utility requirements, automatically exclude from certain areas of the city the poor working people who could undertake to build simple, cheap houses. Exactly this is what happened at the turn of the 19th and 20th centuries in Budapest when workers' houses had to be built in the neighboring villages (most of them to the east–southeast of the capital). The construction of low rent housing estates – albeit directed by an intention to help – segregates the poor, by so to say "collecting" them in one place. Segregation was successfully eased only in a few consistent welfare states (e.g. Holland) where social solidarity is very strong, tax incomes of the state and the local governments are large enough to provide adequate social assistance, and where a great part of the population lives in rented flats. To help social integration, they did not build low-rent flats, instead they give a rent allowance to those who are in need of it to be able to pay the free-market rent.

In the large cities of the developing world a great part of the population – sometimes several million people – live "outside" the official housing market. They are mainly rural immigrants who leave the overpopulated rural zones but cannot find a job on the labor markets of large cities. They usually settle down in self-made huts on pieces of land the ownership of which is uncertain (mainly public areas). They cannot get access to urban public utilities (from drinking water to public transport), and they are excluded from urban society as well. They often bring about a peculiar self-organizing marginal society.

Generally, the housing policies and physical planning in large cities contribute to the increase or the upholding of social and/or ethnic inequalities. The global competition of cities encourages steps that lead to the exclusion of non-competitive social groups, albeit in the long run nothing can do more harm to competitiveness than the accumulation of social tensions.

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However, the beginning of the 21st century is characterized by restless haste and the lack of long-term thinking.

Urban transport, urban accessibility

In most cities there is a mixed system of public service transport (either owned by the state or the city, or operated privately but controlled by a city authority) and the individual use of the community infrastructure (public roads, streets, pavements, cycle tracks). In almost every large city individual transport is realized by using passenger cars. The organization of urban transport, i.e. support given to one or another mode of transportation, influences how the various groups of the population can get to their workplace or to different (cultural, educational, medical) public institutions; it also has an impact on whether women can undertake to go to work and how mobile elderly and disabled people can be. Among the specialized urban policies, transport policy might have the greatest indirect (and often not even presumed) impact on the spreading of social exclusion and discrimination.

From the point of view of sustainability, the most important question is whether mass *or* individual transport is favored. The large cities in Europe make much effort to develop mass transport, but at the same time they also try to serve the growing number of passenger cars. Outside Europe, however, mass transport is rather weak and is losing importance. Apart from a few exceptions, the large cities of North America and increasingly those of Latin America and Asia support transport by passenger cars. The logic of engineers is simple: the increasing number of cars requires the construction of urban roads and speedways. However, urban policy supports the richer strata of society by this. Namely, as a result of the reduced use of mass transport, its maintenance costs increase and this additional sum will appear in the urban (or state) budget. One can find it too much, but at the same time almost nobody thinks of the road construction and maintenance costs as a subvention given to car owners. They would most probably be surprised to hear that they were given a subvention by the simple fact that they did not have to pay for road construction and maintenance, for the additional costs of growing traffic or environmental pollution.

Cities based on passenger car transport usually spread over vast territories, and mass transport actually cannot be organized in their sparsely populated suburbs. Hence, families not having a car (whose ratio in large cities in the USA is low, but in the developing countries is very high) are practically confined to their living area. They can use the local services and make use of the local employment opportunities only. On choosing the living area, the poor have to pay attention not only to the cheapness of their flat, but also to the accessibility of their workplace. The lower classes are actually segregated from the middle and upper-middle classes in the same way as the latter are segregated from the upper classes. That is, the social groups are getting far from each other also in space in today's large cities, which might lead to the disintegration of urban society, to consist of divided elements that do not communicate with each other. Let us emphasize it again: it is a hardly recognized fact that urban transport policy might play a crucial role in lessening social exclusion and increasing the integration of urban society.

Employment and the enhancing of economic growth

The employment and income situation of urban population depends primarily on enterprise decisions, but it is influenced by urban policy as well. First, local governments also provide employment opportunities, second, by developing the infrastructure and through physical planning and tax policy, they can do much to attract services and industrial production. The location of certain activities in the city might play an important role. The strengthening or revitalization of the traditional role of the city center as a meeting place (shopping, entertaining functions) might slow down the imminent depletion of the old city centers and can provide new employment too. An urban policy which levies high taxes in the center of the city for short-run interests may have an adverse effect in the long run, as it might prompt the entrepreneurs and thus employment to move out from there. On the other hand, a lively city center is the meeting place of the various social groups, and thereby it promotes the integration of urban society. Shopping centers built on the outskirts weaken the functions of the city center; neither its planners, nor its owners or renters deal with the subsequent social impacts. This should be the responsibility of urban policy.

Conclusions

One of the conclusions of this short paper is that if we intend to make cities socially sustainable, it is not enough to deal with social policy alone. The various urban policies – from transport policy to the taxation of real estate – might all have serious consequences for local society, consequences that are rarely reckoned with.

Another conclusion is that it is not the sole task of the government – or the self-government – to achieve social sustainability. It can only be achieved in co-operation with various social groups, civil organizations and professional interest-representing groups. Urban progress – the results of which are shared but among few – can only last for a short time, as local society will disintegrate and social conflicts will become aggravated. Eventually, the consequences of urban social conflicts – from worsening public security to the physical deterioration of the "ghetto" areas of large cities – undermine the economic competitiveness of these cities.

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The role of neighborhoods in the success of cities

Amos Rapoport

The author is Distinguished Professor of Architecture, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, USA. Professor Rapoport is also a member of the World Society for Ekistics (WSE). *The text that follows is a slightly edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

Introduction

I approach the topic in terms of the field of Environment-Behavior Studies (EBS). That field is concerned with the interaction of people and physical environments and the mechanisms that are involved. The concern is with the congruence of environments with people's wants which, in turn, are related to their bio-social, psychological and cultural characteristics. I have repeatedly argued that EBS is best understood in terms of what I call "the three basic questions" (RAPOPORT, 2000a). The second of these is especially relevant here and bears on the notion of "success" of cities.

Question 2 asks: What effects do which environments have on which groups of people, under what circumstances and why? I have argued that the principal influence of the environment on people is habitat selection – they choose certain environments and reject others (RAPOPORT, 1980 and 1983a). Choice (and the ability to choose) also modifies (and, often moderates) other specific effects of environments on people. In other words, people choose settings which they evaluate as having positive environmental quality (RAPOPORT, 1995a (1990)). Successful cities then are those that are *chosen* by people who have choice.[1] In discussing successful cities we are thus concerned with how and why people evaluate cities positively or negatively.

Constancy and change

In the last few years much has been said about the "New Millennium," "New Century," "new economy" and new everything. More generally, for quite some time now, the emphasis has been on novelty, i.e. *change*. Moreover, regarding human behavior (including culture) the emphasis has been on its extreme variability and apparent malleability. At the moment, however, in a number of human sciences, there is an ongoing, and major revival of an interest in, and emphasis on constancy – although that is still rejected by much mainstream social science. (See discussion and references in RAPOPORT, 2000a, cf. LOPREATO and CRIPPEN, 1999).

One can discuss constancy regarding both *people* and *environments*.

Constancy and change – People

Regarding people (anthropos), findings from a number of sciences – sociobiology, evolutionary psychology, behavior ecology, behavior genetics, cognitive neuroscience, cognitive genetics and others – increasingly show constant aspects of human behavior. It is paradoxical that science, changing ever more rapidly, is rediscovering constancy. All this adds up to a revival of the existence of *human nature* (e.g. WILSON, 1998, 2000 and 2001; PINKER, 1997; KONNER, 2002, among many others). It would then follow that both positive (supportive) and negative (inhibiting, destructive) aspects of environment may be related to such human constants. Research is continuing, e.g. on the possible continuity of humans and other animals (including animal architecture), the evolution of and constraints on culture and related topics. Clearly, research is urgently needed on constancy and change, variability and invariance, the range of variability in various domains, the size of groups, constraints on human nature and, especially on environmental consequences.

It follows, both regarding people and environments, that in order to understand the present (and the future) one needs to know the past – what there was, how it was and how we got where we are now (MITHEN, 1996; RAPOPORT, 1990a).

If we look at some mechanisms of Environment-Behavior Relations – EBR (the third of the three basic questions of EBS) – then it can be suggested that perception is basically unchanged since human origins and constant, cognition is more variable but more constant than had been thought (e.g. the beginning of cognitive genetics) whereas evaluation and preference are more variable and changeable, although even here there are arguments for constancy (ORIANS and HEERWAGEN, 1992; KAPLAN,1992; WILSON, 1984). There may even be some constancy with regard to meaning – often con-

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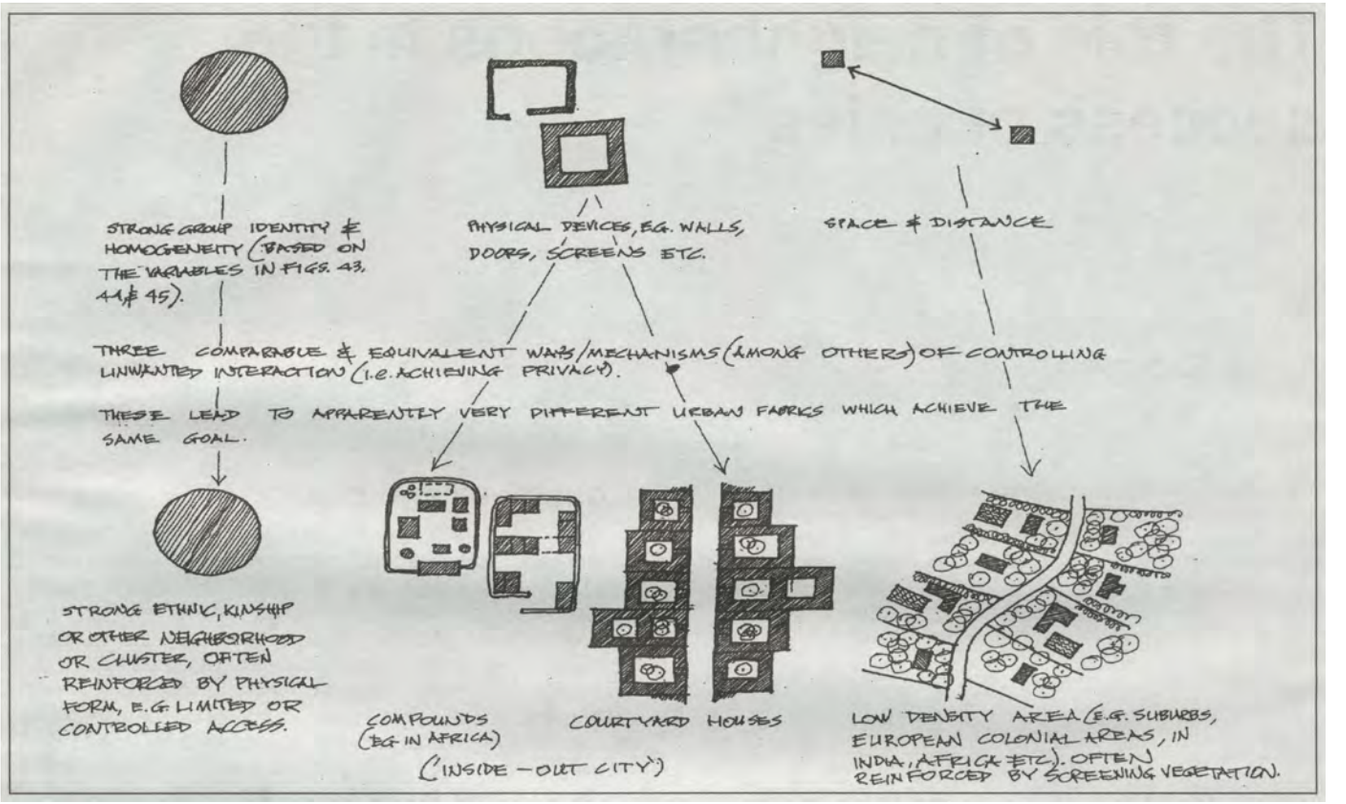

Fig. 1: Different specific expressions of a cultural universal – the need to control unwanted interaction (i.e. achieve privacy). (In press, fig. 40, based partly on Rapoport, 1977, figs. 6.1, p. 337 and 6.2, p. 339; cf. pp. 289-298).

sidered to be most variable (RAPOPORT, 1990a and 1990b; CHERULNIK and WILDERMAN, 1986).

It is also possible that there can be cross-culturally different responses to invariants and wants and even universals, such as the need for privacy (RAPOPORT, 1977, fig. 6.1, p. 337 and fig. 6.2, p. 339; cf. pp. 289-298; in press fig. 40) – see fig. 1. When groups are homogenous and the "grain" of the environment fine, these different responses can co-exist and people can choose among them. This relates to my discussion below about constancy in environments and the topic of this paper. At this point, in concluding this section, it should be pointed out that the discussion above means that, in effect, it becomes possible to dismantle, operationalize and "flesh out" the extremely broad and abstract term "anthropos" (RAPOPORT, 1998, especially figs. 4, 5 and 6, pp. 7-12; 2000a and 2000b; in press, especially figs. 43, 44 and 45) – see figures 2, 3 and 4.

Constancy and change – Environments

This also applies to the *environment* (which, of course, also needs to be dismantled (RAPOPORT, 1998; 2000a and 2000b; in press)). This follows from my argument that it is possible to learn from the past, from traditional settlements (RAPOPORT, 1987, 1995 (1986) and 2000b). I point out that past environments are an incredible resource, a laboratory, a repertoire and lexicon of solutions to recurring problems. Such environments must, of course, include pre-literate and vernacular environments and spontaneous settlements so as to provide the largest and most varied body of evidence. This is also essential since one needs to consider the whole cultural landscape – and cities are cultural landscapes *par excellence*. Those are not "designed" nor planned in the usual meaning of the word (RAPOPORT, 1992).[2]

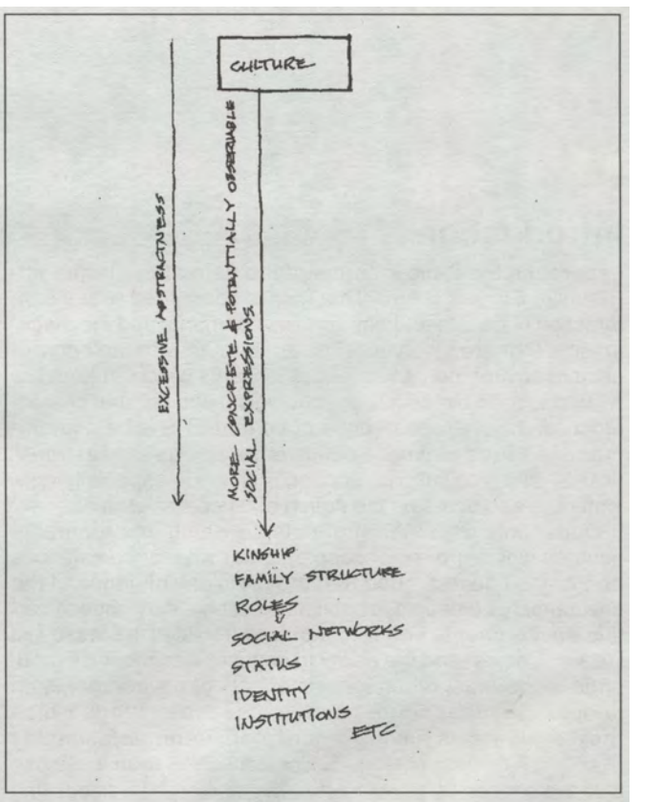

Fig. 2: Dismantling "culture" in response to the problem of excessive abstractness. (In press, fig. 43, based on Rapoport, 1998, fig. 4, p. 8).

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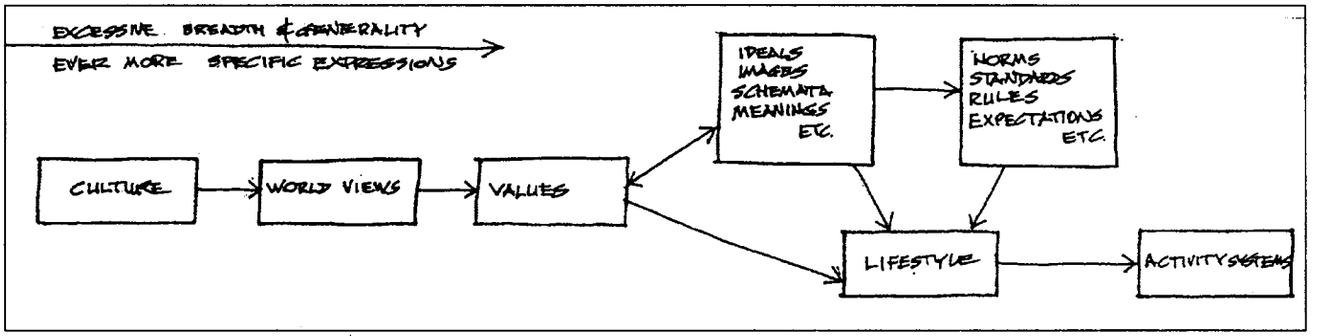

Fig. 3: Dismantling "culture" in response to the problem of excessive breadth and generality. (In press, fig. 44, based on Rapoport, 1998, fig. 5, p. 9).

If these arguments are valid, then there will be constancy and hence lessons from the past (RAPOPORT, 1983b). In any case, however, as in the case of humans, the extent, roles, interplay, relative importance in any given case of constancy and change are *empirical questions*. These, as already pointed out, urgently need research since they have been neglected.

In the case of built environments it can be suggested that *scale* may play a role in the degree of constancy. In fact, the Ekistic Grid could play a useful role in relating scale and the degree of constancy and in EBS generally.

I would suggest that, in general, smaller scale elements are more constant than large-scale elements. Although my topic is neighborhoods, it is important to emphasize that this constancy may be even more marked at even smaller scales. One example is pedestrian streets (RAPOPORT, 1990a). Another is some traditional houses which, except for certain services, are still more than acceptable (RAPOPORT, 1969). During the conference a newspaper story dealing with Pompeii indirectly supported this; photographs of villas showed dwellings that could have been contemporary (BARTETZKO, 2001).

In connection with cities, Hans Blumenfeld (1953) argued that "Metropolis" was the first new urban form in 2000 years, implying that smaller settlements are more constant. During the 1950s and 1960s Jean Gottmann proposed another new urban form – Megalopolis. In fact, Ekistics is commonly associated with an emphasis on change – not just Metropolis and Megalopolis, but Doxiadis' concept of *Ecumenopolis*.

Also, in 1963/64, Melvin Webber published two influential

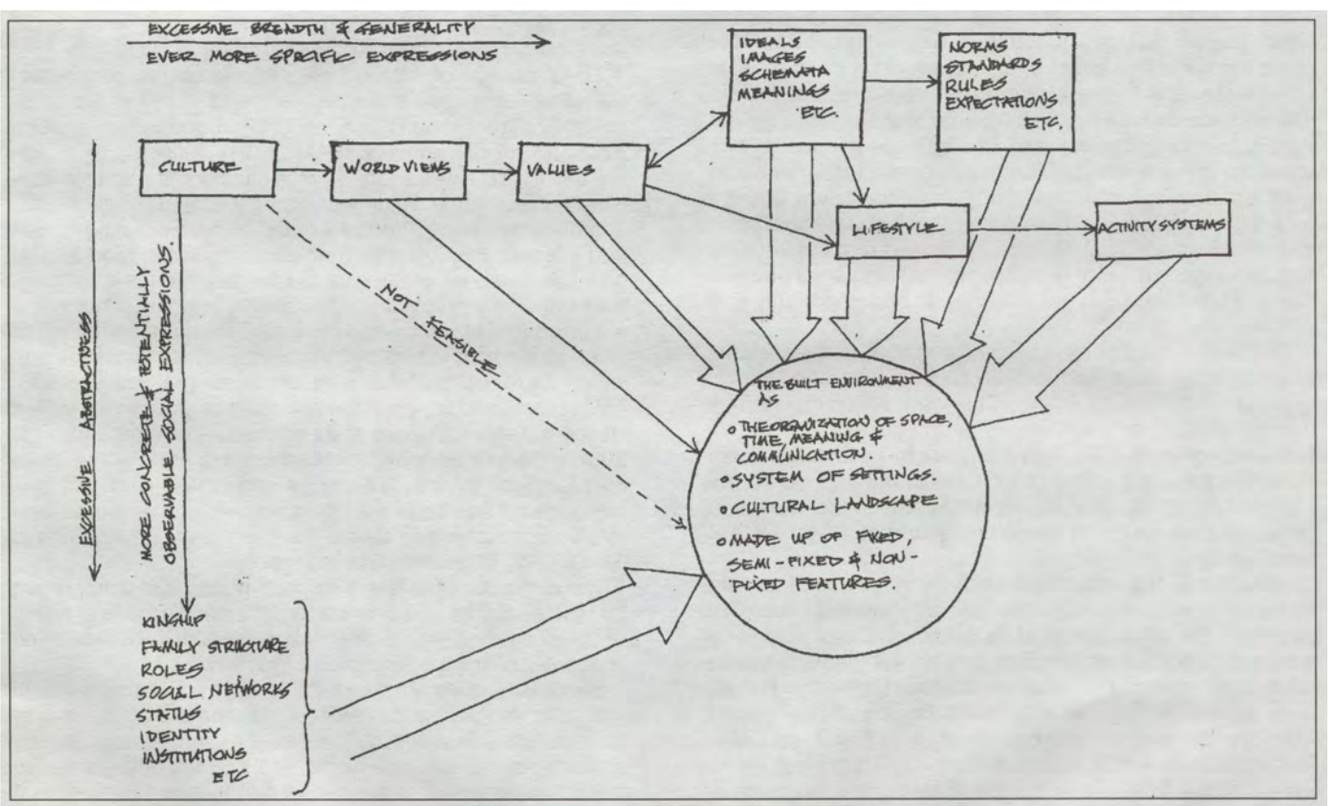

Fig. 4: Combined diagram of the two dismantlings of "culture," relating its expressions to the built environment (e.g. housing). The width of the arrows corresponds approximately to the feasibility and ease of relating the various elements. (In press, fig. 45, Rapoport, 2000b, fig. 4, p. 149; Rapoport, 2000a, fig. 2, p. 129).

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papers on the increasing irrelevance of locality and neighborhood (WEBBER,1963 and 1964). I made the point at the time that it was people like Webber, in places like Berkeley, California (where he was based), who were most active in defending *their* neighborhood against freeways, protecting trees, etc. Similar arguments, both for and against the importance of locality, are now heard about the world wide web, the Internet, etc. Again, research is needed, and the new field of social network analysis, which treats all types of networks as one, could help discover *which* networks will change and which will not (McMAHON et al., 2001).

Not as well known as the work discussed above is another study done by the Athens Center of Ekistics. This bears on this question of scale/constancy relationships in the urban environment. I refer to the HUCO-Human Community studies that were published in 1980 but available earlier (ATHENS CENTER OF EKISTICS, 1980).[3] This study made a very important point which, however, was neither picked up nor developed. I interpret it as saying that at smaller scales, *specifically the neighborhood*, there was *much more constancy* than at larger scales. I used this insight in my work (e.g. RAPOPORT, 1978; 1983b and 1997). I argued that people experientially do not live in Megalopolis or Metropolis, or even in cities – they live in *neighborhoods*, as will be discussed below.

Neighborhoods

It should be emphasized that "neighborhood" does not necessarily involve *neighboring*, as is often suggested. In fact, however, there often is in some, and there needs to be a range of neighborhoods of different sorts. Some will be local and intensive, others extensive; some homogeneous, others heterogeneous (RAPOPORT, 1977 and 1997). The city as a whole, however, is always and is increasingly heterogeneous – it is a collection of smaller units (RAPOPORT, 1981) among which people can choose, and we have already seen that choice is the major effect of environment on people. Also, neighborhoods that are chosen often have "bottom-up" shared decision making, hence better management, maintenance, control and safety, and also increase the possibility of developing local environmental systems as new technologies are developed.[4] These consequences follow from the fact that "neighborhood" is not just a physical unit, but a socio-spatial schema. By sharing rules, non-verbal communication, the organization of time, space, meaning and communication generally, such neighborhoods become highly supportive.

The idea of neighborhood as socio-spatial schema leading to a subjective (cognitive) definition of neighborhood was an important finding (LEE, 1968). This work which clarified the nature of neighborhoods was rather neglected, except by a few researchers in EBS. Not only does this subjective definition vary among groups (which are small and numerous (RAPOPORT, 2000b and in press)), it is based on area *not* population (as it was in the modernist neighborhood unit) – it is also rather small.

There have, of course, been changes in the nature and significance of neighborhood. For example, for most people it is no longer the setting for all of life (although it probably never was) and there are major cross-cultural variations in this regard. Neighborhood is, however, still very important. Not only do people not say that they live in BosWash (the original Megalopolis, and the first one studied) or the Great Lakes Megalopolis (in which I supposedly live). They often do not even say that they live in Boston, New York or Washington (except, possibly, while traveling). Rather, they live in Brookline or Newton Massachusetts; Chelsea or the Upper East Side of New York (which is only Manhattan to most people in the first place), Dupont or Adams Morgan in Washington DC.

Given the nature of neighborhood as described above one could argue that, as cities get larger, merge into Megalopolises, become urban regions with "Edge Cities," and so on, neighborhoods may well become *more important* (RAPOPORT, 1977 and 1997). They may become the environmental analogue of the social science concept of intermediate institutions/intermediate structures which also become more important as the scale of societies grows. On this view, they become the figure against the blurred ground of larger urban systems. They become a secure "base" from which one ventures out and to which one returns. This one knows, there one feels familiar and comfortable. One identifies with the size of the neighborhood found by Lee and subsequent work, and even micro-neighborhood (as discussed below in the case of Milwaukee).[5] Recent evidence supports these arguments (see RAPOPORT, 1997 and references therein). I begin that paper with Webber (1963 and 1964) and also conclude with Webber (1996) where he admits that he was wrong. Arguments in their strong form about effects of the internet/web are also likely to be wrong due to the role of human nature (discussed earlier). As already suggested, some social networks will change (to different degrees), others not; constancy *and* change both play a role.

The growing importance of neighborhoods is due not only for the reasons already given. Their importance also increases because cities are becoming much more heterogeneous, diverse and multicultural. This is due to immigration patterns and the multiplicity of lifestyle groups (RAPOPORT, 2000b and in press). Given this, some (although not all) members of such groups are seeking some measure of homogeneity (also subjectively defined) both in developing and developed countries. This is for reasons of supportiveness; maintaining appropriate institutions and identity; for cultural survival and syncretism (RAPOPORT, 1983c, examples in RAPOPORT, 1977, 1997, 2000b, and in press).

The presence of different neighborhoods has perceptual benefits – cities are more complex and richer at the large scale if neighborhoods vary and, if homogeneous, acquire clear and specific ambience (RAPOPORT, 2000b, fig. 21, p. 149; in press, fig. 42) – see figure 5. This can be important for tourism and recreation which increasingly is an important function of cities. The "different worlds" of such neighborhoods add interest, through their ambience, festivals, food and so on. The presence of such varied neighborhoods also maximizes choice by providing alternatives, and this should be a major goal of planning and design. This means thinking of cities as a whole in terms of open-ended frameworks within which there are "cells" of different scale (neighborhoods). This reflects and supports the fine grain of groups with varied lifestyles, values, images and social arrangements which require different environments which are supportive, help maintain identity, etc. This open-endedness is also important because so little of any city is planned and designed, and relationships among elements even less (see footnote 2; RAPOPORT, 1995c (1990/91), 1999-2000).

The existence of different neighborhoods is also important for "sustainability" and bears directly on the success of cities, which are related. An important aspect of both is the well-being of people, in which environments play a role.

Successful cities are those that satisfy people's bio-social and psychological wants and needs, and are supportive of their culture (lifestyles, values, images and ideals, activity systems, social arrangements, etc.). Such cities are also more "sustainable"[6] in the sense that they are likely to last longer, do not become obsolete as quickly, needing to be rebuilt. This is especially the case because these attributes are mainly (although not entirely) relative to neighborhoods. As

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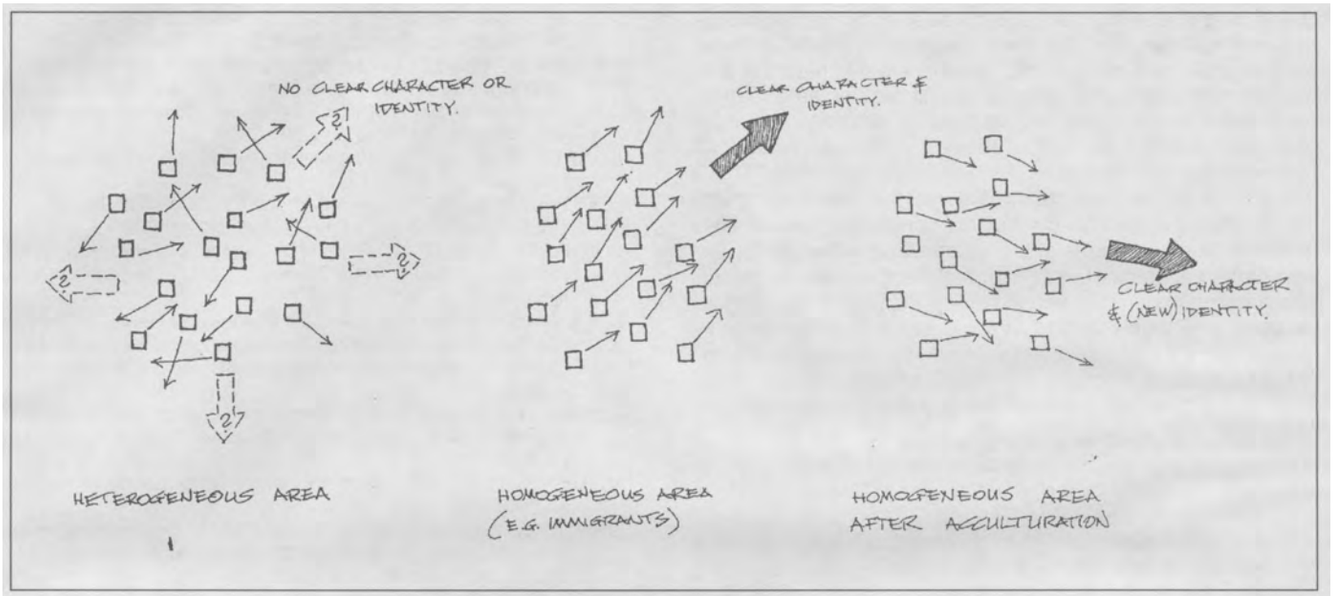

Fig. 5: Personalization in heterogeneous and homogeneous areas. (In press, fig. 42, based partly on Rapoport, 1990b, fig. 21, p. 138).

already suggested, successful cities are those in which people with choice choose to live, and that choice is most frequently of a neighborhood.

It is also the case that environments with which one identifies tend to be preserved. Moreover, the HUCO Study (ATHENS CENTER OF EKISTICS, 1980) shows the energy and other ecological implications of certain neighborhood patterns from which one can learn (RAPOPORT, 1987 and 1995b (1986)). In deriving such lessons, and judging their feasibility, a knowledge of human nature is also necessary; that also offers an important basis for evaluating environment. It is important to note that residence, services and business in most urban regions take place mainly in suburbs. Note that the definition of "suburb" is not self-evident, and there are at least four definitions – based on location, physical form, social and demographic characteristics or political boundaries (RAPOPORT, 1980). It is also the case that suburbs are becoming varied, are not uniform and are developing, subdividing, differentiating in many and complex ways. In effect suburbs also are becoming collections of varied neighborhoods (BLAKE and ARREOLA, 1996). These then acquire different and suitable services (LUKA, 2001) as they become what have been called "edge cities," with neighborhoods, some of which may be traditional whereas others show completely new characteristics (BAUMGARTNER, 1988).

An interesting example (among others) of the growing relevance and importance of neighborhoods is shown by recent developments in Milwaukee. These I have discussed and illustrated in Rapoport (1997). In brief, the Department of City Development has divided the city into 189 named neighborhoods. These names, and logos, are on numerous signs in those areas, attached to lightposts and the like. I suggested, on the basis of the work on the subjective cognitive definition of neighborhood discussed earlier, that these were too large. I predicted that these would subdivide and this is now happening more and more with these smaller areas displaying signs with their own names and logos. After this paper was finished, the day I left for Berlin, there was a newspaper item in the Milwaukee newspaper which fits and supports my argument. This points out that the most important need in Milwaukee in the 21st century is the safety and quality of neighborhoods and that "people want to feel safe and proud, and have a sense of ownership in their neighborhood" (PABST, 2001).

Conclusion

There will of course be changes, but these changes will be different in different neighborhoods. Moreover, both constancy and change need to be considered and research is needed because the balance between these two is an empirical question. Constancy *and* change, variability *and* invariance both regarding humans and environments need to be considered in planning and environmental design, i.e. in future new areas of cities. One important reason that needs reemphasis is the need for greater choice among a greater variety of intermediate (neighborhood) scale environments to match the increased number of different groups that co-exist in urban areas. Note that I am not advocating neighborhoods as such, but urging that the potential role of neighborhoods, and of constancy in general, be considered. Whatever the specifics, and whether I am right or wrong about those, and whatever the form and structure of cities and urban regions, the role of neighborhoods must be considered. Without such considerations cities cannot succeed. This, then, requires a *major* research effort regarding neighborhoods. Research is needed on the size, cultural characteristics and variability of groups, the sizes of neighborhoods, ways of helping clear cognitive definition of such areas, the services needed and so on.

In such research, it may be useful to consider the possible linkages and mutual relationships between EBS and Ekistics with a view to eventual integration and synthesis. For one thing, in Ekistics there are aspects not considered. To give just one example, the importance of latent functions, especially meaning, is not considered (RAPOPORT, 1990b). A first step might be to reconsider the Ekistic Grid. That was developed some time ago, so that EBS and new related research in other disciplines (RAPOPORT, 2000a) are missing. Such research, however, could help clarify, "flesh out" and operationalize the often too broad, vague and general terms in the Grid (e.g. "man," "society," "nature," etc.). These do not allow

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the setting of explicit, clear objectives and, hence, the evaluation of whether they have been achieved. Without those one cannot judge the success (or otherwise) of planning and design intervention, the purpose of which is to create "better" environments. The only way of dealing with such concepts that are too broad, general or abstract, is through what I call *dismantling*, which makes them more operational. This I have done for "culture," environment," "vernacular," "traditional environments" and other concepts. This would also help with the categories of the Ekistic Grid. Thereafter, the use of the full range of work in the relevant disciplines (which are growing in number) would help fill in many of the details. At the same time the Grid offers potentially major help in structuring EBS and related research which lacks structure. Ekistics and EBS can thus help one another.

All this implies that research needs to be at three levels:

- first, basic research and theory building;
- second, what is commonly termed "applied research," but is increasingly called "translational research," translation from theory to application; and,
- finally, under such conditions practice itself can become a valuable form of research, if explicit, justified objectives are set and rigorous evaluation carried out.

Only then will we know whether our efforts have led to "successful cities."

Notes

1. Note that blocked choice is a major problem, and exacerbates negative effects of the environment on people.
2. Although this is not the topic here, it should be pointed out that this implies a need for open-endedness, the design of *frameworks*, within which cultural landscapes (including spontaneous settlements and their equivalents) can develop.
3. This whole issue of *Ekistics* was devoted to neighborhoods (as, of course, have many since).
4. This has implications for sustainability as does the fact that most of the built environment is already in place. This makes it a major resource and it will survive. The more of it survives, the more resources are conserved. It is thus important to strengthen, preserve and revitalize neighborhoods.
5. A criticism of this position and that on homogeneity is that it amounts to segregation or ghettoization. However, this is only the case if it is imposed rather than chosen. Second, counterintuitively, people interact more if they have a "safe," secure home base, and may then be more tolerant of group differences, i.e. may be *less* prejudiced. Clearly it is also a matter of scale, so that neighborhoods need to be small. There must also be provision for interaction. This occurs best in what I call "neutral places," which also vary with culture (RAPOPORT, 1977 and 1997). Here, once again, research is urgently needed.
6. There are however problems with "urban sustainability" as a concept (RAPOPORT, 1994).

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The transparency syndrome in global change: A sociological concept paper

Burkart and Leslie Holzner

Burkart Holzner is Distinguished Service Professor of International Studies, Professor of Sociology and of Public and International Affairs at the University of Pittsburgh. For two decades he was the Director of the University Center for International Studies at the University of Pittsburgh. He wrote about knowledge systems in society, and about the roles of knowledge use in modernity. His recent work is on international studies and global change. Currently he works with Leslie Holzner on a long-term project to explain the causes and consequences of the rise of transparency in global change. Dr Holzner is a member of the World Society for Ekistics (WSE). Leslie Holzner is a sociologist who has worked for the past several years with her husband on the issue of transparency and other global phenomena. She spent 30 years at the University of Pittsburgh where she was Assistant Director of the Learning Research and Development Center. Her research and development activity has centered on planned change, and restructuring organizations, with an emphasis on educational institutions. The text that follows is a slightly edited and revised version of a paper prepared for the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.

Introduction: the focus on transparency

This paper presents a sociological framework for the analysis of a contemporary phenomenon of particular importance in global as well as local change. It is the rapid spread of "transparency," i.e. of expectations for centers of power to disclose information about themselves and their actions to citizens, clients, or customers, in fact to publics at large. In many cultures such disclosure is radically new and contested. It can trigger changes of institutional practices and relationships. Transparency is a global phenomenon of the information technology era: it is nearly worldwide in scope and, increasingly, serves as a legitimating strategy for transnational and global centers of power. It is also a local phenomenon – it affects local politics, business practices, or environmental risks. Under certain conditions, it is likely to bring about cultural and political change of great magnitude.

The approach taken in this paper is deliberately wide in scope and cuts across the major dimensions of global change in order to create a coherent framework for a comprehensive knowledge synthesis on the transparency phenomenon. While there is already an important and growing research literature on transparency, this conceptual framework defines the multiple domains of the field and suggests hypotheses in urgent need of further work. Our own ongoing and continuing study of transparency has at its core a program of expert interviews conducted in the European Union, China, Japan, and the United States.

While transparency has a history going back to the Protestant reformation movements and the democratic revolutions of the 18th century, its current ascendancy is much broader in scope than its earlier manifestations and its spread is faster by far. Many more publications about transparency have appeared in the last decade than in all previous decades.[1] The global financial crises of the recent past have focused the attention of international organizations like the International Monetary Fund and the World Bank on the need for good governance and political as well as financial transparency.[2] The efforts to curb bribery and international crime, especially the strategies to fight money laundering have further increased the current interest in disclosure as public policy.[3] The European Union is currently making a comprehensive effort to improve European governance. Transparency is a key, pervasive element in this strategy.[4]

Transparency is a counter-value to secrecy, although these competing values often have to co-exist. It limits concealment. It is also necessarily inclusive in social scope, while secrecy is exclusive. Classical sociology has considered secrecy and loyalty as a necessary element in the construction of social actors capable of pursuing calculated strategies both in cooperation and conflict. The seminal statement on this theme is Georg Simmel's work on "Knowledge, Truth, and Falsehood in Human Relations."[5] It begins with the simple statement "Obviously, all relations which people have to one another are based on their knowing something about one another. The merchant knows that his correspondent wants to buy at the lowest possible price, and to sell at the highest possible price. The teacher knows that he can tax the student with a certain kind and amount of learning ... Without such knowledge, evidently, these and many other kinds of interaction could not take place at all."[6] On that beginning Simmel builds his subtle and complex argument on the necessity of discretion and secrecy for social life. He examines how the patterns of "knowledge, truth and falsehood" in social interactions (i.e. information norms in action) shape the very core of social structures and of solidarities. Indeed, he sees the conceptions

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of personal rights and of property as embedded in these patterns. We follow Simmel in the conviction that changes in norms for information disclosure among actors, especially among power centers and between them and their publics, are likely to have significant consequences. The transparency phenomenon is in need of sociological attention.

Conceptions of globalization

Before we turn to the specific focus on transparency, however, we need to place the analysis into the context of our current understanding of global change. There is a very large literature with a bewilderingly colorful array of perspectives on "globalization." The term is used in a great variety of ways, often simply referring to only the economic dimension of global interdependence, and frequently charged with strong feelings about its positive or negative consequences. By contrast, the concept "globalization" as we use it, refers to the expansion of the human population and activity across the planet. It is a process that has deep historical roots over thousands of years. This history has recently been the subject of several scholarly works. Jared Diamond's *Guns, Germs and Steel*, Robert P. Clark's *Global Life Systems: Population, Food and Disease in the Process of Globalization* and Robert Wright's *Nonzero: The Logic of Human Destiny* together present a new perspective on the history of globalization.[7] It was an initially slow process of migration, extending human activity from region to region and ultimately across the globe. A significant acceleration began about five hundred years ago with European explorations and expansionism. Globalization has since moved through several stages and epochs.[8] Transition eras between historical epochs have been especially turbulent. This was certainly true of the Industrial Revolution and the epoch of modernity. The end of the 20th and the beginning of the 21st centuries saw the arrival of a new constellation: the Global Era. Martin Albrow has discussed the nature of this epochal shift well in his book *The Global Age: State and Society Beyond Modernity.*[9]

However, the most thorough, balanced, and empirically grounded assessment of the state of knowledge about the current phase of globalization is the cooperative work of four scholars, David Held, Anthony McGrew, David Goldblatt, and Jonathan Perraton in their book *Global Transformations.*[10] They are careful to distance themselves from the "hyperglobalist" thesis that traditional nation states become impossible in the global era, as well as from the "millennium" thesis that current economic globalization is nothing historically new. Instead they build on the "transformationalist" thesis. It is the "conviction that, at the dawn of a new millennium, globalization is a central driving force behind the rapid social, political and economic changes that are reshaping modern societies and world order ... Transformational accounts emphasize globalization as a long-term historical process which is inscribed with contradictions and which is significantly shaped by conjunctural factors."[11] They create and use a carefully defined analytical framework for their comparative study of globalization. It emphasizes an understanding that global change consists of a set of multiple processes and emerging structures that intersect in complex and not predetermined ways. The focus of this concept paper is on one of the complex processes not explicitly addressed by Held, McGrew, Goldblatt and Perraton: Transparency.

In the conclusion of their work, Held et al. arrive at several normative challenges for "civilizing and democratizing globalization" with which we strongly agree. The study of transparency can contribute to the factual basis for such thinking about the need to "civilize" the tumult of global change.[12] There is now a growing awareness of the fact that the planet Earth is the unique and only habitat of all humanity. This fact in itself has important ethical implications, although there is much debate about just exactly what this means.[13]

Domains of globalization and transparency

There are several different currents in globalization with a direct effect on the transparency phenomenon. It is useful to identify them here.[14] They range from political, military, economic and technological to environmental and finally to historical globalization. We begin with **political globalization**, i.e. the extension of politics beyond national and even regional boundaries to deal with global issues that often are simultaneously matters of significant local concerns. Nation states have, almost without exception, become enmeshed with transnational and often global networks that are essential for their state functions. We can thus speak of the internationalization of normal state functions such as even the collection of taxes or the protection of public health and the environment. They now require the establishment of well-regulated cooperative networks among states. There are many other state functions, such as the protection of property rights that are being internationalized. The global fight against international crime is a further example of requiring the internationalization of a state function that goes far beyond the occasional ad hoc cooperation of police forces.

Many local issues are closely connected to global concerns and global actors. Scholars have invented a number of artificial terms for the resulting phenomena: Roland Robertson spoke of "glocalization" and James N. Rosenau created the term "fragmegration" for the paradox that certain issues require global integration as well as political fragmentation at the same time.[15] We are not especially fond of such terms, even though they point to important new phenomena. The fact is that globalization is now in a phase in which a domain of global politics has appeared as a reality not only for states and their governments, but for communities, many corporations, civic organizations and for individuals. This means that the demands for publicly accessible information (and the supply!) are rising

A major part of transnational political globalization concerns the **legitimacy of transnational and supranational authorities.** Most people probably believe that the European Union is the only political entity that has legally defined supranational powers over its member states. It is true that it has these powers, and it is also true that today there is a vigorous debate in the European Union about the nature of a future European Constitution. It is an interesting fact that, while there are certainly important disagreements as to the content of such a constitution, there is now a European consensus that a Constitution is needed. However, there are other global institutions with specialized and limited powers that wield de facto supranational authority. In many cases they were established as a result of or support by American foreign policy initiatives. For example, the World Trade Organization (WTO) was established in 1994 as a permanent institution with real powers to oversee trade agreements, enforce rules, and settle disputes. The World Bank was not designed as a supranational, but an international authority, but, in fact, it certainly wields such power over developing countries that seek to borrow from it. Transparency is what these agencies asked of others for some time. Recently, as a result of criticism, it has emerged as a favored strategy of such institutions and authorities to build their legitimacy. International organizations have learned much about the needs for disclosure among each other, with states, and civil society. As a consequence transparency is an essential, if contested ingredient in this domain.

There is a fact of **military globalization**, i.e. the emergence of a global set of competing and conflicting, but interconnected structures in military affairs. It involves, among other things,

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the global arms industry, the trade in weapons, and massive efforts at surveillance and intelligence gathering. Military globalization has affected transparency as well as secrecy in at times paradoxical ways. While secrecy is inevitably a hallmark of this domain, it has also spawned efforts at transparency, for example in the context of disarmament treaties that require international or mutual surveillance. Certainly, military interests have played a major role in the advance of information and surveillance technology. Both the Internet and the emerging satellite information technologies had military origins, and continue to be of great military as well of civilian significance.

An unfortunate development related to military globalization is the **globalization of terror.** Terrorism itself is not a new phenomenon in world history. However, the spread of military technology, the use of dangerous, but routine devices such as airplanes, cars and trucks for terror attacks, the technical empowerment of dangerous individuals to wreak havoc, have created a new and dangerous global threat. The "War against Terrorism" today inevitably blurs the lines between inter-state warfare and global surveillance and transnational police actions. Grievances of injured identity, of religious aspirations for hurting unbelievers, irredentist claims for disputed lands, resentments against oppression fuel terrorist energies in, unfortunately, many parts of the world.

Economic globalization includes trade, global finance, and corporate networks. It has undoubtedly caused some of the most visible structural changes in global relations through the opening of markets, the rise of global corporations, the relocation of entire industries, and the major efforts to create global frameworks for regulations of markets, financial transactions, and property rights and so on. This domain is a major driver of the transparency phenomenon. Economic transparency appears as a necessary basis for transactions across great geographic and cultural distances and for the regulation of the global financial system. As a consequence many international institutions such as the Organization for Economic Cooperation and Development, the WTO, the World Bank and many others have pursued (limited) transparency strategies – especially in recent years in response to financial crises and legitimacy challenges.

The **globalization of information technology** is a striking phenomenon of pervasive impact on localities, organizations, individuals, and on virtually all kinds of professional activities and industrial work. The development of information technology is certainly one of the most important drivers of globalization as such. It is also responsible for the technical basis making information accessible and for reducing the costs of communications worldwide dramatically. The development of satellite-based surveillance and mapping technologies can bring about an entirely new set of challenges to what activities can be kept secret not only from government surveillance efforts, but from private inquiries as well. Attention to **environmental globalization** has grown as concerns with environmental risks have increasingly reached global dimensions. It is a highly charged political issue especially concerning the distribution of the burdens of costs among the world's nations.

Finally there are dimensions of **global dynamics affecting cultures and cultural identities**. We will discuss these in the context of historical transparency, i.e. the struggles about dealing with painful historical truths, such as war crimes, racial suppression, and genocide. These transnational and in some cases global debates on historical truth claims impinge on cultural identities and the moral stigma or the pride of nations. International critique of not only past deeds, but of national memories occurs today in a global public arena. Voluntary disclosure of past national crimes, and the adoption of factual, if painful historical accounts are the most demanding level of transparency in global change.

The role of great powers in globalization

Globalization is sometimes discussed as if it were a universal, directional process occurring by its own, anonymous dynamics. In fact, the policies of the great powers had – both in success and failure – much to do with the events of recent globalization.

- The Cold War ended with **the collapse of the Soviet Union** in the context of already rapidly unfolding globalization. As David Lockwood has shown in his book *The Destruction of the Soviet Union: A Study in Globalization*[16] the Soviet strategy of a strong, secretive, authoritarian state committed to central planning was no match for the challenges of global change.

- By contrast, **the United States** pursued an **ambivalent strategy.** Global economic integration, the original efforts toward European integration that resulted in the European Union, the creation of the World Bank and many other international institutions, and the spread of pressures for transparency have been supported by policies of the United States. The fight against international crime, the "War on Drugs," the legal prohibition of corporate bribery all are efforts that received the support of U.S. foreign policy.

In fact, globalization, including its transparency aspect, has been strongly influenced by American policies, strategic interests, military actions, technologies, and cultural influences. Nevertheless, there remains a strong commitment to national sovereignty in American politics and a tendency to act unilaterally rather than in concert with international alliances. This has surfaced in American opposition to the creation of the International Criminal Court, the ban on land mines, and in unilateral American decisions on many issues. There continues to be a great deal of ambivalence in America toward global integration and governance. Repeatedly American priority for its own national interest and sovereignty is expressed in its foreign policy. As a consequence of this ambivalence, in many parts of the world the transparency efforts of international organizations are believed to have been inspired by American imperialism.

Part of this American ambivalence derives from its history as a continental country that avoided (where possible) "foreign entanglements." Part of it may be the legacy of the Cold War. It undoubtedly strengthened the emphasis on the role of the military, on unilateral action in international affairs, and on a deep concern with the maintenance of sovereignty. This latter trait is most clearly represented by the role of the Congress (especially the Senate) in U.S. foreign policy. Fear of loss of unlimited sovereignty is deeply engrained in the Senate. At the same time, U.S. interests aim to extend democracy, the rule of law and of human rights. Further, the United States is the home of many highly active and successful organizations committed to the extension of democracy, the rule of law worldwide, the creation of global civil society and global governance. It is and remains a leader of globalization, including transparency, in spite of its ambivalence. In fact, we will encounter the concept "ambivalence" in several other domains related to the transparency phenomenon.

- **The emergence of the European Union** as an economic, political and cultural force in the world scene is a historically very recent phenomenon. The spectacular success of the integration of Europe in the second half of the 20th century, after the disasters of two World Wars in the first half, may become a source for new departures in transnational and supranational governance in other world regions. The EU is certainly a magnet of considerable power in the context of a larger Europe, with growing interests in global affairs. The value shift in the EU toward cultural diversity, transparency and cosmopolitanism, even though it remains limited by hesitation and ambivalence, is certainly a remarkable historical

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development with major significance for the transparency phenomenon.

Transparency: The right to know and the duty to disclose

We now turn to the idea of "transparency" itself. It is part of the ideal of the open society and democracy. It is also one component of value systems that contain legitimate countervalues. The demand for information freedom, epitomized by the current movement toward comprehensive transparency, has a long and troubled history, often advanced by scandals. Today it bursts upon a world in global transformations, the information era and contested culture conflicts between secrecy and openness, but tilting toward information freedom. It is an era of the global spread of rights: human rights, women's rights, consumer rights, civil rights and the corresponding duties. All this occurs in the context of worldwide communication. We first turn to a brief sketch of the history of transparency, followed by a discussion of what transparency is today.

A brief glimpse of the history of transparency

The source of the values of transparency in world history may well be the Protestant reformations and their rebellions against the corruption of the Church hierarchy. Protestantism certainly was, in part, an anti-corruption drive – taking the theological center stage of its era. It also altered the ideas of the relationship between the individual and God in the direction of individual, direct responsibility. However that may have been, the modern ideas of transparency, and of the syndrome of values surrounding it, are a product of the enlightenment and of the democratic revolutions of the 18th century.

John Markoff has pointed out how the demand to make state archives publicly accessible arose in the course of the French Revolution.[17] The American constitution included the provision for a national census the results of which would be publicly available. It also required the President to report on the "State of the Union" to Congress. Clearly, the framers of the constitution were aware of the need for credible public information. At the time, the idea of public accessibility of census results or of state (or princely) archives was a radical innovation. Census results in most feudal regimes were treated as state secrets.

The Bill of Rights, enacted in 1791, is a truly remarkable document embodying the values of an open society, providing protection of citizens under law from arbitrariness by government or the judiciary. Maybe the most important part of the Bill of Rights is the First Amendment, requiring Congress not to make any law respecting the establishment of religion or limiting the freedom of speech.[18] Today the freedom of the press has become a global value and concern, often in bitter conflicts with arbitrary or totalitarian regimes. The World Press Freedom Committee has been at work for more than two decades as a global watchdog for the media, fighting for a free press everywhere.[19]

The institutionalization of requirements for government accountability appears to have progressed most rapidly in the Scandinavian countries. Sweden has a history of access to government information going back to the 18th century. It was the first to create the office of the ombudsman in the year 1809. This institution clearly is an instrument of transparency. After Sweden took the lead, it was adopted in other Scandinavian countries and then, after the 1960s, in many other countries. New Zealand acted in 1962, Britain in 1967, Israel in 1971, Portugal in 1976, the Netherlands in 1981 and Spain in 1981. Several states in the United States have established this office.[20] By 1998 the office of ombudsman had been created in 90 countries around the world, most of them late in the 20th century.[21] Today there are 111 countries with the office of the ombudsman.[22] There is an active International Ombudsman Institute with global reach at the University of Alberta in Edmonton, Canada providing coordination and assistance to this rising, new global profession.

Another domain of transparency is the purposeful creation of knowledge about public affairs by government-sponsored investigations. In a notable essay on "Social Knowledge and Public Policy" Robert K. Merton examined the role of commissions charged with inquiring into social conditions and problems. He began with the Royal Commissions of Inquiry in Britain and quoted Karl Marx's tribute to them: "The social statistics of Germany and the rest of Continental Western Europe are, by comparison with those of England, wretchedly compiled. But they raise the veil just enough to let us catch a glimpse of the Medusa behind it. We should be appalled at the state of things at home, if, as in England, our governments and parliaments appointed periodically commissions of inquiry into economic conditions; if these commissions were armed with the same plenary powers to get at the truth; if it was possible to find for this purpose men as competent, as free from partisanship and respect of persons as are the English factory inspectors, her medical reporters on public health, her commissioners of inquiry into the exploitation of women and children, into housing and food." (Quoted from Karl Marx, *Capital*).[23]

The concern with access to public information has increased in intensity in recent years. In 1966 the United States created the Freedom of Information Act, sponsored by Congressman John Emerson Moss of California. This law has played a major role in assuring openness in the American Government. The anti-corruption organization Transparency International was founded in the 1990s [24] and rapidly became an effective part of global civil society as a single-issue non-governmental organization.[25] It now has activities in over 100 countries worldwide.[26] Transparency International created the Corruption Perceptions Index, rating the perceived level of corruption in 90 countries. Obviously, "TI," as they call themselves, is a very young, but also very effective organization.

In fact, most of the major innovations in transparency norms occurred very recently. Transparency is a relatively new force, but one with a distinguished history linking it to the Reformation, the Enlightenment, the Democratic Revolutions, and thus to the evolution of the ideas of freedom, of human rights and most recently the idea of the right to know. It does have very distinctive cultural origins.

What is the transparency phenomenon today?

How is transparency defined? It has appeared in many distinct domains of social life and scholars often treated it as if it were limited to, say the domain of finance, or anti-bribery efforts, or the disclosure terms of arms control treaties. A much more comprehensive view of transparency has recently emerged in political science. Ann Florini defined it in this way: "Just what is transparency? Put simply, transparency is the opposite of secrecy. Secrecy means deliberately hiding your actions; transparency means deliberately revealing them. This element of volition makes the growing acceptance of transparency much more than a resigned surrender to the technologically facilitated intrusiveness of the Information Age. Transparency is a choice, encouraged by changing attitudes about what constitutes appropriate behavior ... Transparency and secrecy are not either/or conditions. As ideals, they represent two ends of a continuum. What we are seeing now is a rapidly evolving shift of consensus among observers and actors worldwide about where states and corporations should

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be on that continuum."[27] This definition is significant in its emphasis on volition and on the cultural change involved in shifting standards of behavior.

Finel and Lord give us a broad definition for political transparency: "In our view, transparency in the political realm is a condition in which information about governmental preferences, intentions, and capabilities is made available either to the public or other outsiders. It is a condition of openness that is enhanced by any mechanism that leads to public disclosure of information, such as a free press, open government hearings, the Internet, and reporting requirements in international regimes."[28] The emphasis on institutional mechanisms for openness appropriately broadens the concept further and embeds it in a systemic context.

James N. Rosenau adds an important dimension. As early as 1990 he saw a "nascent norm" in the increasing importance of scientific proof in knowledge claims.[29] More recently, Rosenau wrote: "... the provision of evidence and proof goes to the heart of the transparency issue. The more effectively it can be provided, the greater will be the transparency of diplomatic claims and, thus, the greater will be the power of knowledge as a source of statecraft."[30]

Transparency and the sociology of knowledge

Transparency, of course, is not just about distributing any kind of information. It is information about action by centers of power, provided by such centers. Interested members of publics may, and indeed often do, contest the truth claims attached to such information. In fact, since transparency information matters in relation to action, there are strong incentives for affected parties to practice skepticism. Questions may well be asked about the relevance, accuracy, and indeed veracity of the truth claims made. One senior official of the European Union said to us in an interview: "The impression of transparency is that it is a straight ray of light. But: it can be simulated by a thousand mirrors ..." There are complex issues at stake. The sociology of knowledge becomes important here.[31]

A sociological definition of transparency needs to include the fact that the information communicated (disclosed) by centers of power presents a claim of credibility, of truthfulness. It further needs to acknowledge the complex, systemic processes involved in the interpretations and assessments that publics will affix to this information. There is a supply and demand side in this process: the supplied statements (disclosed data and statements of fact) may or may not meet the demand of various publics. The "truth claims" made about the disclosures may or may not convince critics and their criteria for judgment vary widely.

For example, the belief in a conspiracy to assassinate President Kennedy continues to survive in some circles in spite of the published government account to the contrary. Government assurance of the safety of fluoridation of drinking water is still distrusted by some. The science of global climate change was discounted by the Bush administration in its plan for an energy policy, creating skepticism in wide circles of the American public. In this case the issue was presented to the National Academy of Science for what we can call an "information audit," with some change in policy following that action.

In brief, transparency is about knowledge and at least potential proof. However, what publics (or parts of publics) accept as knowledge in a political context is not necessarily always what science would define as such. Even scientifically unfounded skepticism in judging information that may be resting on "revealed faith" or other firmly held but objectively erroneous convictions, is subjectively experienced as a quest for knowledge. We can now say: Transparency is a system of interaction between supply and demand for the disclosure of credible information from centers of power to interested actors and publics. What is accepted as credible depends on culturally established epistemic criteria for judging truth claims. There are some indications that scientific proof is actually rising in the rank order of these epistemic criteria.

Credible information is taken by most people to constitute knowledge, i.e. information that is trustworthy enough to take risky action on the basis of it. We repeat: people will scrutinize "truth claims" or claims for credibility in terms of their own frames of reference which may diverge greatly from the rationality and empiricism of scientific inquiry. This is one element in the idea of informational ambivalence surrounding transparency.

There is a need to investigate what the social and cultural conditions are that depress or improve the quality of transparency information disclosed and the quality of the public assessment of it. Some guidelines for such an effort can be created by drawing on the existing sociology of knowledge applications, and especially on the work of Donald T. Campbell. He tried to lay the groundwork "for a sociology of scientific validity," i.e. for the sociological study of the question: What are the social arrangements in the internal system of science that are likely to improve the validity of scientific research? Validity was Campbell's major concern. He agreed that scientific knowledge was, as a matter of course, a social construction. But social knowledge constructions may in fact be valid. Certainly they are not necessarily invalid for being the product of a social process. In Campbell's view the internal social system of science is a very special system. Its norms differ from the general human tendency to join with people who share one's own beliefs. This tendency reinforces the shared convictions of a community of believers and stifles dissent and critique. By sharp contrast, the internal social system of science is different. It is governed by norms of shared but competitive, disputatious, and skeptical inquiry. Its incentive structure actually rewards competition in inquiry, rather than conformity. The focused, disciplined quarrel of "truth seekers" occurs within the boundary of a scientific community that persists in the pursuit of focused inquiries. It is important that there be competition, but also that there be a sustained, shared focus among the "quarreling inquirers." [32]

Campbell's interest went beyond the sociology of scientific validity in his concept of the "experimenting society." It was for him a special version of the idea of a learning society, capable of improvement.[33] As we address the important issues of the quality of transparency for assessment and public debate, we also need to ask questions that go far beyond the sociology of science. Here we need to raise the question: what are the social arrangements in the publics at large that determine the quality of transparency information and of its assessments by various interested parties, i.e. the quality of public discourse?

This, indeed, is an agenda that builds on Rosenau's important observation about the rising role of evidence and proof as being at the heart of transparency. It also means that the quality, and that is the validity, reliability and relevance of the information can be assessed. It seems reasonable to state the hypothesis that in a society committed to freedom of speech, competitive critique in contentious assessment of disclosed information may improve the quality of that information (knowledge), and may improve the quality of the public assessment of it. By contrast, monopolistic control over the flow of information will have the opposite effect.

Examining the core of the transparency phenomenon from the perspective of the sociology of knowledge has led us to the beginning of a comprehensive and systemic framework, viewing the interaction of information supply and demand as a pro-

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cess involving contests about relevance and credibility. It draws our attention to the arenas of such contests, typically in the political realm. Another important aspect needs to be integrated into this picture: the roles of multiple actors and especially that of mediating structures in knowledge flows.[34] Expert panels, commissions of inquiry, interest groups and their lobbies, non-governmental organizations in civil society play significant roles in assessing information quality and relevance and can act as "translators." Further, they can act in the role of providing skeptical surveillance of the actions of centers of power. There are at times occasions for formal information "audits," as in the previously mentioned case of the appeal by the President of the United States to the National Academy of Science to provide an assessment of the state of scientific knowledge about global warming and climate change.[35]

Undoubtedly, the single most important factor in these matters is a free and competitive press and other media. A landmark in this domain in America's history with transparency was the famous case of the Pentagon Papers. Anthony Lewis devoted a column to the event for the occasion of the 30th anniversary of the day, June 13, 1971, on which *The New York Times* decided to publish the secret official history of the Vietnam War. He wrote: "Despite all the gains for democracy in the world, in many countries anyone who wants to publish truths unwelcome to the government risks suppression and criminal punishment. If Henry Kissinger and Richard Nixon had had their way, that would be so in the United States, too." He described the "extraordinary legal struggle" to suppress the publication. It ended with the decision of the Supreme Court that the First Amendment and other legal doctrines protected the right to publish even secret documents. Lewis concluded his column with this statement: "Every generation has to relearn the lesson of the Pentagon Paper case. William B. Macomber, deputy under secretary of state at the time, testified for the government, saying that diplomatic disclosures might have 'irreparably damaged the chance of free government to endure.' But years later he said: 'Even though ... nothing is more important to me than the security of the United States, the First Amendment is, in another way, the security of the United States. You can't save something and take the heart out of it.' "[36]

What drives transparency?

Pressures for transparency can be observed in many domains of society in which the bases of trust are changing. "Trust at a distance" and especially across cultures often requires mechanisms other than personal acquaintance and the ties of personal or group loyalties. These factors play a strong role in the politics of "accountability" of governments to their constituents. Election campaigns have been fought on these issues. They are also important in government-to-government relations and in the relationships of international organizations with governments (and each other).[37]

Markets cannot function without at least some level of transparency. A pension fund manager, say, in Denmark, should want to know a great deal about the accounting practices and the disclosure rules under which firms in Hong Kong are operating if he is considering doing business there. It seems a reasonable hypothesis that the demand for transparency will increase the greater the cultural distance ("otherness") of the partners in financial transactions. This generates demands for standards or norms. For example, international organizations like the World Bank or the World Trade Organization encourage certain standards of transparency in financial matters. In this domain the pressures for transparency have begun to function through a worldwide network.

Consumer protection is a field of growing importance for transparency and legislation requiring it. Labeling products to inform consumers of their actual content has become a nearly universal (even though frequently resisted) expectation. Environmental and other risks are another fertile field for transparency pressures.

The sociology of the professions has established a considerable body of knowledge about the nature of power relations in professional practice. The transparency syndrome is clearly visible in such phenomena as "informed consent" in medical practice and especially in research on human subjects.[38] There are efforts in all professions, involving the problem of creating client understanding for professional responsibilities, practices, and their limitations. The professions of accounting, management consulting, and law are all debating their rules to establish new bases of trust by means of transparency measures. Professional codes of ethics often emphasize the need for the disclosure of information. One may think of the changes in the medical profession toward transparency from the rule of concealing bad news from patients (as, for example, in previous times by keeping a diagnosis of cancer from the patient).

These trends are amplified by the political and legal burdens that can arise from disputes about risks and the liabilities for actual disasters. Recent events in the European Union about the responsibilities of governments, farmers and their organizations, veterinarians, scientists and still others for the spread of "mad cow disease" provide one set of examples. The calamitous experience of biotechnology firms with genetically modified plants, creating a deep crisis in public trust especially in Europe, is another. In both these instances the actors involved emphasize in retrospect the need for transparency that might have averted the breakdown of trust.[39]

Transparency in public matters involves a quasi-market of demand-supply interactions in knowledge about these affairs. We use the term "quasi-market" because there is no standard currency for these demand-supply interactions, the analogy for which would be a generally shared frame of reference with uniform epistemic criteria. Nevertheless, there are multiple incentives to participate in this quasi-market both for demand and supply of information. For example, transparency demands may be made:

- by publics (including media) and by other actors for accountability of governments and for providing opportunities for critique;
- by governments that international organizations and other governments be understandable to them and that decisions be made including their concerns;
- by consumers that risks associated with products be clearly and truthfully stated;
- by investors that the financial statements they receive are clear, reliably truthful and complete;
- by employees to understand and trust the leadership of their organization;
- by consumers, media for transparency of corporate behavior with regard to environment, product quality and risk, labor relations and other matters of standards of behavior.

On the supply side of transparency information, there are also incentives, for example:

- for governments to provide information themselves before it is distributed by hostile sources in contexts a government cannot control;
- for international organizations to pre-empt criticism and establish legitimacy;
- for business corporations to cultivate goodwill, enhance their reputation of responsibility and to forestall costly liability litigation;
- for investors to avoid mistakes and contests and litigation about their interactions;

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- for leadership to increase their organization's flexibility, efficiency and possibly visibility.

However, there are also disincentives for the supply side of transparency. For example:
- the need for secrecy to protect national or corporate interests;
- the fear that transparency may lead to misunderstandings because of the complexity of the information;
- worry about the timing for the release of information that might cause, for example, a market panic;
- concerns about scientific uncertainty or ambiguity in the interpretation of data;
- the political preference for protecting privileged positions in society;
- vested interests in corruption and/or organized crime.

Some of these reservations about supplying transparency information may be legitimate in the view of governments and other centers of power and even their publics. Others are obviously suspect from the point of view of open, democratic societies. In open societies the quasi-market in transparency information operates in the "court of public opinion," subject to multiple sources of critique and of efforts to convince. However, it does require normative regulation by a constitutionally based legal framework. It must guarantee the freedom of speech, and define the rights for access to government and other information sources of public relevance. It must include legal sanctions for the protection of human rights.

There are several requirements for such a quasi-market to function in open societies. They include:
- effective functioning of the rule of law;
- the existence of competitive politics;
- a free, competitive press and other news media;
- the availability of competence, for example in "information audits" by such bodies as academies of science, commissions of inquiry, epistemic communities such as professions or technical and scientific expert networks, of which at least some are of international reach;
- awareness of debates and opinions in international arenas;
- a reasonably high level of education in the public.

Nevertheless, centers of power and especially governments retain great advantages. They can shift the focus of public debates, exercising normal government functions of agenda setting. They can use various techniques to protect their information, such as releasing a flood of irrelevant information, claiming the need for secrecy and many more.

In closed or even semi-closed states there cannot be such a quasi-market in transparency information at all. What is found there is something akin to a quasi black market of information in the form of rumors circumventing official propaganda. This, of course, is also a cause of the vulnerability of such states in the global information era.

Technological transparency and the shrinking realm of social opacity

A very different set of factors increasing the scope of transparency derives from technological innovations that make information available and accessible that previously did not exist or could be hidden. For example, satellite surveillance and mapping technologies create knowledge about activities on the surface of the Earth that now has become widely available even to private persons. These technologies and other surveillance devices were originally developed for military purposes, but their uses have expanded enormously. They produce changes of wide ranging consequences. Information gathering about the activities of governments, organizations, or even individuals has become vastly easier, threatening both secrecy and privacy.[40] One consequence is that surveillance is no longer available just to governments.

In the normal functioning of advanced industrial states many transactions of daily routine are recorded. This is true of purchases and sales, of credit records, medical records, of academic attainments, driving violations, criminal records and many other things. There is a concern with the role of privacy in these matters, but the simple fact is that much more detailed information about all sorts of activity does exist today than even in the recent past.

What is known most likely can be communicated and broadcast, maybe even worldwide. The Internet is, of course, the primary factor in this development. The spread of computer networks and the ease of communication they bring about transform the general information environment drastically. Television and the worldwide reach of news broadcasting by CNN, the BBC and a few other networks bring knowledge of economic and political conditions to audiences just about anywhere. This is one of the main factors in the decrease of isolation from the external world in even remote communities. Simple isolation used to be a powerful force in maintaining power structures and loyalty ties in many cultures. It is no longer nearly as effective as it once was.

The growth of transparency norms also is likely to expand the domains about which information exists. That is, it shrinks the domain of social opacity. Transparency, of course, requires substantial infrastructures and information systems that gear into the routine transactions I mentioned above. They store such information as land values, ownership, and transfers of property, income data and tax records, health data, information on water quality and multiple other domains of potential public concern. Where these infrastructures do not exist – and that is the case in many developing countries – the realm of potential transparency is bounded by the realm of social opacity.

This is not a trivial matter since maintaining social opacity may be in the substantial material interests of privileged classes. Note that opacity is different from secrecy: the latter conceals existing information. The former refers to the effective absence of certain information (data) about social reality. For example, in societies that do not have registers for land ownership (real estate), this is a domain of social opacity. So is the domain for environmental information where such data are simply not collected. Social opacity is one of the practical limits of transparency.

There is one other such limit of transparency. It is not similar to social opacity at all. It is scientific and technological complexity and its interface with public policy and public understanding. Many science-based technological ventures have encountered grave difficulties with the challenge to build trust in the public. Nuclear energy is one example. Bioengineering may be another. Overconfidence in the manageability of all risks involved in these technologies by their protagonists led them into several public relations disasters. Science in itself can generate trust in knowledge, but it is not necessarily on a firm footing in all the risk factors involved. Building trust does require that understandings be created that address the interests and fears of stakeholders and the general public. The achievement of effective transparency in such highly technical controversies itself requires social scientific attention. Transparency norms in this domain are in formation, but this process has only just begun.[41]

The transparency syndrome

The transparency syndrome is a constellation of values. They are: transparency, secrecy, privacy, accountability, fiduciary responsibility, the rights of persons both natural and juridical, and property. These are inter-linked and often conflicting val-

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ues. We name this complex the "transparency syndrome" rather than, say, the "secrecy syndrome" because in today's cultural changes transparency is clearly in the ascendancy while secrecy, though it dominates vast institutions, is on the defensive. The boundaries among these values and their articulation and their configuration are at least partially transformed by the social and cultural changes that accompany the institutionalization of widespread transparency norms within a country and among countries. The value syndrome can be described in terms of the boundaries between, say, transparency and secrecy, by the sharpness of the articulation of these boundaries in public norms or laws, and by the relative prominence of the different value elements in the configuration of the syndrome. The structure and dynamics of the transparency syndrome can be analyzed with the help of three concepts: the notion of values and counter-values in dialectic interdependence, the idea of informational ambivalence and the concept of organized infrastructures for these values.

The transparency syndrome thus consists of inter-linked and often conflicting values. Their delineation and relations to each other, the drawing of boundaries among them are matters of disputes, conflicts, legislative debates, and judicial action. The concept of informational ambivalence refers to the tension people and communities experience, as they have to attempt the reconciliation of these values with each other in their actions about information, its flow or limitation or denial. It is a concept derived from Robert K. Merton's seminal idea of "sociological ambivalence."[42] He defined the core of this concept in this way: "In its most extended sense, sociological ambivalence refers to incompatible normative expectations incorporated in a single role of a single social status ..."[43] In an analogy, we see informational ambivalence as arising from tensions among the values and norms of the transparency syndrome.

Where value-related information is in demand, and where transparent interactions become institutionalized, social structures and norms of some kind will develop, sustaining these interactions. These are the infrastructure of the transparency syndrome. The congeries of these structures, their norms and their cultures, and the interests and incentives of the people working in them or affected by them constitute an important part of the dynamics of the syndrome. For example, when the government of Greece established the office of the Greek Ombudsman and defined its legal obligations, rights, privileges, staff and budget it did create a new force in the transparency syndrome of Greece. Similarly, when the European Union's preparation for the Euro Currency compelled the European Central Bank, the European Commission, and the central banks of the member states to introduce new transparency standards for banking systems, there occurred changes in the transparency syndrome of most member states.

The cluster of values in the transparency syndrome needs discussion and some explication. The most obvious countervalue to transparency is secrecy. Secrecy requires social boundaries and an ethic of loyalty. Its social structural embodiment is the secret society, or in governments, the "secret service" and the "intelligence establishment." Secrecy is likely to require hierarchies. Governments throughout history and continuing today love secrecy and the walls to information flows it requires. There are reasons for that: for example, complex negotiations typically have at least a secret "phase" to them. Negotiating parties often live in separate cultural domains with differences in interests and they may consider each other with suspicion. Bridging the gaps between the domains requires the skill of transcending these cultural boundaries. Making a message understandable to one side of a dispute may cause another party, receiving the same statement, to give it an unintended hostile meaning. Strategic secrecy can be a crucial element in power relations. Secrecy is also risky.

As Daniel Patrick Moynihan has shown, it can protect agencies from public knowledge of their government and, in corporate errors, cause public distrust and create a climate for the formation of paranoid conspiracy ideologies. According to Moynihan, government secrecy during the Cold War in America caused great harm to the United States. Nevertheless, some valued role for secrecy remains – as Moynihan himself maintains. It is, therefore, certain that recurrent efforts will be made to limit, subvert, or distort transparency information.[44] Even in very open societies like the United States, secrecy remains a major institutional factor in life.

While secrecy, though valued and defended in some regards, is not considered an unambiguous virtue in most modern democracies, privacy is widely considered a right and indeed, a virtue. Information about private lives, about medical and personal financial records or about personal correspondence is deemed worthy of special protection. The expansion of information and surveillance technology transforms the challenges to privacy into formidable technical, political, economic and legal tasks. Privacy concerns have certainly entered the political arena almost everywhere.[45]

Privacy is so valuable because it creates a reserved space that is separate from the public domain. It rises in importance for individuals as the differentiation and specialization of social domains increase in modernity. Georg Simmel referred to it as "discretion." Erwin Scheuch puts it this way: "Differentiation leads to the specification of life spheres, and privacy as a new norm allows us to function in such an area largely regardless of what we are in other areas. We are used to a life where work and the private residences are separated, where we are able to function differently with bureaucratic organizations and a leisure group of our choice. Managing the differences between the various spheres becomes a necessary social skill. Totalitarianism is the attempt to negate this kind of differentiation by enforcing the same ultimate meaning across all life spheres."[46]

Accountability, like privacy, is widely regarded a virtue and a necessity. It involves conditional secrecy, as in the case of fiduciary responsibilities of a trustee or in the protection of property and privacy. The trustee is accountable for the responsibilities to protect the person (or legal entity) for which he or she acts. This does entail the responsibility to protect the information about and the property rights of that person. Intellectual property (as in the case of patents, for example) and business plans are examples of such rights. In fact, privacy rights and transparency of a system may well go hand in hand as these respective values are balanced with each other.

Accountability thus is a concept closely linked to transparency. It is the responsibility of actors to justify their actions, their motives, and their consequences. The idea of accountability includes the notions of "holding responsible," including in some cases being "liable" in the sense of providing remedies for damages caused. An edifice of legal concepts here has created highly differentiated institutions and norms for governments, corporate entities (legal persons), and individuals.

All of the values mentioned this far have contentious boundaries and complex relationships to each other. There are major debates in most countries as to what information should be transparently available. There are intense conflicts about what should be "classified secrets." How the boundaries of privacy should be drawn and how they should be protected is a matter of legislative debates and many professional codes of conduct. Questions as to what information may be treated as "confidential," and by whom, have been the subject matter of many court cases. How the accountability of, for example, trustees should be defined and enforced is not a simple mat-

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ter, either. In fact, in the era of rapid expansion of information technology, these debates create new norms for information policy and thereby affect cultural change.

The contentiousness of these issues derives from the fact that new norms benefit some and place a burden on others. Nevertheless, there are some common denominators in the contentious growth of these aspects of information culture: distinctions that were at one time non-existent or at best implicit now become explicit and codified. Social relationships, therefore, become more rule-bound and specific. There is a need in this process to establish criteria for trust at a distance – among strangers. The international bank manager in one country needs to understand the information norms of another culture to make decisions with confidence. Therefore, institutionalization of transparency triggers a cultural change toward more explicit standards of conduct, but it also creates formal bases for trust "at a distance" among strangers.

All of these notions of values that co-define the flow of knowledge among actors affect, and often in very direct ways, the norms for social interactions, especially between the relatively powerful and those of less power. In turn the scope and boundaries of these values are shaped by what a culture considers the rights and obligations of persons. We now need to consider the very fundamental matter of the fabric of laws and cultural conventions that define the relationships between state and individuals, individuals and the public in a particular society. The inquiry into these institutions enables us to understand the structure and strength of "civil society," in a country as well as the scope of "free markets," the domain of "free speech," and the degree to which the state can claim the right to regulate the beliefs of its citizens.

At the core of these standards defining rights of persons are matters of law. Fundamental is the complex of law defining the rights of persons, both natural (individual) and juristic (such as corporate entities) in a country. This complex includes the concept of property (in the sense of ownership) since it is one major limitation to the power of the state. The institution of private property obviously underlies the concept of the "private sector," the domain of market activities. It is a legal concept that has received widely divergent definitions in different legal systems. Everywhere the notion of private property has its limits, as, for example, in the American concept of "eminent domain." However, where the institution of private property does not exist or is assailed as detrimental to the public welfare, as in the former Soviet Union, relations between individuals and the state are fundamentally different from what they are in democratic, market-based societies.

Ronald A. Brand has clarified this point in an essay comparing the role of property law in the relationship between the state and the individual.[47] He distinguishes between the "private function of property and the social function of property." On this basis he constructs "a private rights model and a social rights model of property law." The former predominates in Western market-oriented societies; the latter was the norm, for example, in the welfare states of the former Soviet domain of influence. Actually, Brand focuses here on "entitlements" to benefits provided by the state rather than the common concept of "ownership" of things. He points out that the transition from the social rights (or entitlement) model of property law to the private rights model involves a fundamental change in the relationship between persons and the state. In the social rights model all property is owned by the state, but the individual "owns" rights for work, income, housing, health care, education and so on. However, such social entitlements in fact do not define a zone of personal autonomy, but rather constitute bonds of dependency – especially in closed, authoritarian societies. The argument can be made that the private rights model is more conducive to transparency than the social rights model. It does draw the boundary of privacy as well as of control around the property-owning person.

It is true there are communities in which neither of these ideas makes sense. In many tribal cultures there is neither a formal institution of property nor the idea of state-provided "entitlements." These are the pre-modern, under-developed societies without the legal concepts of property and certainly without the infrastructure for state support of property (through registers of title to real estate, or automobiles, certificates of sales and so on and on). In the sense of the transparency syndrome, there is a vast domain of social opacity in such countries. The comparison illuminates how enormous the state infrastructure has to be to create the feasibility of a functioning society based on the concept of private property and transparency.

In the diversity of cultures in the global age conflicts over the legal nature and ethical underpinning of property rights are intensifying. Often demands for transparency are wielded as weapons in the struggle. Pharmaceutical companies that register patents and ownership of the medicinal use of tropical plants that have for a long time been used in tribal cultures, now experience sophisticated resistance. They are charged with seizing tribal property. There are innumerable other examples of conflicts over the definition and legitimacy of asserted property rights across cultural boundaries and their extension into novel domains.

However, the institutions defining the rights of persons are broader than those defining property rights. They include also such conceptions as the right of persons to negotiate contracts, as for example in labor-management relations or in commercial transactions. They include further rights to free inquiry, free speech, and freedom of assembly. In other words, these values are about the constitutional framework that makes open societies and the formation of civil society possible.

Transparency syndromes in global diversity

It can be argued that our analysis of the linkage between open societies, transparency, and the rights of persons (including property) is slanted. Transparency is clearly based on values historically articulated predominantly in Western civilization. There is no denying that this is a historical fact. However, in global change there are incentives in all cultures to look for and to adapt "best practices" regardless of wherever they have originated. The origin of these values in the West does not mean that they remain a Western monopoly.

The incentives and disincentives to move in the direction of transparency examined in this paper do occur in all societies exposed to global change. Only in a few remaining closed societies like the Afghanistan of the Taliban or the North Korean dictatorship do we see the all-out rejection of transparency, at great social cost. In most countries transparency is in the ascendancy, albeit at different rates (in some cases very slowly) and with different controversies.

Different legal systems and traditions do matter. There are differences in social systems and cultures that yield different patterns in the configuration of values. Fundamental convictions about the rights of persons and their social responsibilities are embodied in the constitutions of countries. Their conceptions of property rights and responsibilities differ. In many cultures there are strong forces of resistance to transparency, based on the appeal of the "loyalty ethic" that forms such a powerful basis of trust. Where transparency norms are new, contentious debates do occur and there will be different delineations of the boundaries among the components of the transparency syndrome. Each country will give its own transparency syndrome a special, unique configuration. Just how

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these processes shape social and cultural change in different societies and in their relations to each other is one of the most important topics for the study of globalization.

Historical transparency

The specific manifestations of the transparency syndrome are connected to each other, if only loosely. Market transparency does have political significance, but not necessarily as a pervasive political issue. Disputes over "informed consent" may be a legal matter for individuals and the professionals they rely on, but only on occasions does the matter become a focus of society-wide, public efforts for change in the direction of transparency. Nevertheless, these specialized transparency norms do connect with each other and with the broader values of individual rights and liberties. They find their way into public policy debates, partisan conflicts and at times legislation. The issue of trust and especially perceived breaches of trust bring these connections into heightened public awareness. Value changes are changes in perspectives and, therefore, they may, indeed, create strong perceptions of wrongdoing in traditional practices that were previously thought of as a matter of routine. It seems that historically, "scandals" have played a significant role in promoting and enlarging the transparency syndrome in modern society and, especially, in global change. Scandals typically break out in a period of value shifts, when practices that at one time "were quite all right" become ethically intolerable and unleash determined efforts at inquiry, correction and punishment. Thus, scandals become useful research sites for understanding the dynamics of the transparency syndrome.

Historical transparency, however, involves a great deal more. Recent studies of the construction of "collective memory" in defeated nations[48] examine the dynamics that shaped the way in which Germany and Japan view their history in the period of World War II. The way in which a national society examines its own history and learns to go beyond its myths about its past can involve very different degrees of transparency or resistance to it. These processes involve painful debates. For example, international critique of (and sometimes cooperation in examining) national history textbooks is an important aspect of these struggles. These debates do impinge on constructions of collective identity that are in one way or another at work in all collectivities. Today they occur in the arena of inter-cultural, global debate and at times result in wide international consensus about emotionally charged historical facts.

Historical transparency was the subject of South Africa's Truth Commission – a path-breaking innovation in managing the transition from a criminal regime to democracy. Such transparency and accountability is the focus of the legal and political debate around the fate of General Pinochet in Chile. The theme reverberates in many places in the world. It is the case that the value of historical transparency has spread. This fact in itself has had a major impact on politics and cultures, and on the profession of history.

Historical denials and espousals of myths are enemies of transparency. The time in which history was often written for the glorification of one nation has now ended (but not everywhere). The history profession is inevitably becoming a global profession. That means that national histories will be reviewed, criticized and improved in global debate. Factual corrections are being made. There is such a thing as truth and falsehood in history.

There is, we are convinced, a deep and complex connection between the degree to which a collectivity (national, regional, cultural or religious) resists or espouses historical transparency and its general openness in other regards. The link between historical transparency and the openness of a society and its government needs to be examined.

Conclusions

This concept paper has offered an exploration of the interplay of the value of transparency with a syndrome of allied and counter-values. It has defined the "transparency syndrome" and "informational ambivalence" as a complex of interconnected processes of cultural change within societies induced by the several pressures of global change. These different sources of pressure – such as technical requirements for financial transactions, value changes toward democracy and civil liberties, technological inventions that reveal hitherto inaccessible information and others – nevertheless converge. They combine to create powerful incentives for far reaching changes in the culture of information in centers of power and their publics.

The analysis has shown the dialectic nature and complexity of these changes. Overall, they point in the direction of increasing openness of information and knowledge flow in the emerging global networks of societies. However, transparency requires an institutional structure that may be very limited in many societies. Serious effects for cultural continuity and change, with the possibility of cultural conflicts within (and among) societies are a consequence. The culture of secrecy and the ethic of loyalty have their strong adherents in many places. In the ensuing struggle the "transparency syndromes" of different societies emerge in recognizable but diverse patterns resulting from divergent strategies for change as well as for resistance to change. The rise of the international debate about historical transparency is an indication of the depth of cultural change involved in transparency. This sociological concept paper has focused attention on these emerging global information norms and their deep impact on cultures.

Endnotes

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Population deconcentration in Italy, Spain and Greece: A first comparison

Petros Petsimeris

Dr Petsimeris studied architecture at the Technical University of Turin, town planning at the Technical University of Milan, and Urban Social Geography at the University of Caen where he received his PhD in 1987 and his Habilitation à Diriger des Recherches in 1992. He worked as an architect and planner at the Collettivo di Architettura with Professor Biagio Garzena. He has been Visiting Professor at the Universities of Pisa, Trento, Udine, Turin, Naples (Istituto Universitario Orientale) and has lectured at the Institut d'Etudes Politiques de Paris (1992-1996) and at the Universities of Rome (La Sapienza), Barcelona, Florence, Milan, Bologna and Joensuu. Since 1994 he has been Professor at the University of Caen and a member of the Centre de Recherche sur les Espaces et les Sociétés (CRESO) of the CNRS. He has published extensively on urbanization, settlement systems, housing and residential segregation in international journals, and edited two books in Italian on urban networks and the social division of urban space in Europe. The journal Urban Studies *offered him the Urban Studies Research Fellowship at the University of Glasgow for 1997 and 2003. In this context he is now carrying out research on urban diffusion in Southern Europe. Dr Petsimeris is a member of the World Society for Ekistics (WSE). The text that follows is a slightly edited and revised version of a paper presented at the WSE Symposion "Defining Success of the City in the 21st Century," Berlin, 24-28 October, 2001.*

> In Olinda, if you go out with a magnifying glass and hunt carefully, you may find somewhere a point no bigger than the head of a pin which, if you look at it slightly enlarged, reveals within itself the roofs, the antennae, the skylights, the gardens, the pools, the streamers across the streets, the kiosks in the squares, the horse-racing track. That point does not remain there: a year later you will find it the size of half a lemon, then as large as a mushroom, then a soup plate. And then it becomes a full-size city, enclosed within the earlier city: a new city that forces its way ahead in the early city and presses it toward the outside.
>
> Olinda is certainly not the only city that grows in concentric rings, like tree trunks which each year add one more ring. But in other cities there remains, in the centre, the old narrow girdle of the walls from which the withered spires rise, the towers, the tiled roofs, the domes, while the new quarters sprawl around them like a loosened belt.
>
> Italo Calvino, *Invisible Cities*

Introduction

According to U.N. estimates, at the end of the 20th century half of the world's population was to be found in urban areas. Hidden behind this broad level data are complex national and regional situations. In effect, the process of urban concentration does not affect all countries in the same way. Indeed in certain developed countries with free market economies, the processes of urban deconcentration of population and economic activities are under way. These processes are the inverse of the tendency towards urban concentration.

The international division of labor, processes of increasing spatial differentiation of work and residential locations, processes of de-urbanization and de-industrialization, and the wide expansion of the service sector have established a new spatial order. This has as a consequence a new spatial organization of the European urban structure. As has already been documented, in the last three decades counterurbanization has become a dominant force shaping the settlement patterns in a number of countries on both sides of the Atlantic (BERRY, 1976; ILLERIS, 1979; FIELDING, 1982 and 1989; VINING, 1982; CERESA et al., 1984). This process is characterized by decreasing urban size, falling population densities, and decreasing heterogeneity of urban forms and activity distribution within urban regions.

The processes of counterurbanization have mainly affected the "mature" urban systems of North America and Western Europe (VAN DEN BERG et al., 1981; CHAMPION, 1989). In a certain number of studies of urbanization in southern Europe the process was oversimplified (CHESHIRE, 1995) or the urban structure was automatically classified at the earliest stage of urban maturity (KUNZMANN and WEGENER, 1991). Muscarà (1978) and Leontidou (1990) made important contributions to the study of structuration and metropolitan deconcentration in Southern Europe at the international scale. There are a number of studies that took into account the complexity of southern European urbanization but they limited their investigations to the national level without extending the comparisons to the neighboring urban systems (BOTTAI and COSTA, 1981; DEMATTEIS and PETSIMERIS, 1989; DEMATTEIS, 1992; CORI, 1984; PETSIMERIS, 1986; SCARAMELLINI, 1991; MARTINOTTI, 1993; TSOULOUVIS, 1998) or they analyzed the phenomenon of deconcentration at the scale of a macro-region (MAINARDI, 1968; CORO et al., 1987; LEONE, 1988). Other contributions were focused at the metropolitan level: Gambi (1973) for the main Italian cities, Dalmasso (1978) for Milan, Seronde-Babonaux (1983) for Rome, Petsimeris (1998) for the cities of the Italian industrial triangle (Turin, Milan and Genoa), Castells (1981) for Madrid, and Leontidou (1990) and Tsoulouvis (1998) for the main Greek cities.

Our main hypothesis is that southern European urban systems are highly heterogeneous, and the processes of urban diffusion are for this reason very different in the various regions.

The aim of this study is to carry out a first comparative anal-

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Fig. 1: Spain, Italy and Greece in Southern Europe.

ysis of the urbanization processes in Italy, Spain and Greece. It is relevant to try to answer the following questions (fig. 1):

- Are the processes of counterurbanization affecting the three countries?
- What is the temporality and the spatiality of the urbanization processes?

Definitions of urbanization and counterurbanization

The models for the analysis of deconcentration of population and counterurbanization or de-urbanization have their origins in the methodological work of Louis Wirth (1938) and Hope Tisdale (1942). Both these works attempted to make more operational the complex and rather obscure Weberian definition of the city.

- According to **Max Weber**: "The many definitions of the city have only one element in common: namely that the city consists simply of a collection of one or more separate dwellings but is a relatively closed settlement. Customarily, though not exclusively, in cities the houses are built closely to each other, often, today, wall to wall. This massing of the elements interpenetrates the everyday concept of the 'city' which is thought of quantitatively as a large locality. In itself this is not imprecise for the city often represents a local and dense settlement of dwellings forming a colony so extensive that personal acquaintance of inhabitants is lacking" (WEBER, 1958).
- **Louis Wirth** instead of defining the city gave a definition of "urbanism as a way of life" which is more powerful and more comprehensive: "there are a number of sociological propositions concerning the relationship between (a) number of population, (b) density of settlement, (c) heterogeneity of inhabitants and group life, which can be formulated on the basis of observation and research (...). Increasing the number of inhabitants in a settlement beyond a certain limit will affect the relationship between them and the character of the city (...). On the basis of three variables – number, density of settlement and heterogeneity – of the urban population, it appears possi-

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ble to explain the characteristics of urban life and to account for the differences between cities of various sizes and types" (WIRTH , 1938).

● **Hope Tisdale**'s view is simpler because she retains the population as the basic variable for the study of the processes of urbanization. This process represents a sort of common denominator of the evolution of human history: "Urbanization is a process of population concentration. It proceeds in two ways: the multiplication of the points of concentration and the increase in size of individual concentrations. It may occasionally or in some areas stop or actually recede, but the tendency is inherent in society for it to proceed until it is inhibited by adverse conditions (...). Urbanization is a process of becoming. It implies a movement, not necessarily direct or steady or continuous from a state of non-urbanism toward a state of complete urbanism, or rather from a state of less concentration toward a state of more concentration" (TISDALE, 1942).

Despite the criticisms that one can make to her definition it is important to underline a number of significant innovations. She is among the first to use the term urbanization and to define it as a process. She makes the distinction between city and urbanization. In her conception there are implicitly two scales of analysis: the macro-level (urbanization as proliferation of the number of cities) and the micro-level (urbanization as extension of a city in space and time).

After these definitions a number of other definitions have been produced in order to describe the change of the urbanization processes during the 1970s in the developed countries. The most important are those of Berry (1976), Fielding (1982) and van den Berg et al. (1982). All these definitions use the same variables as Wirth and Tisdale and invert the original terms from urbanization to counterurbanization and from urbanization to de-urbanization:

● According to **Berry** (1976), "The process of counterurbanization therefore has as its essence decreasing size, decreasing density and decreasing heterogeneity. To mimic Tisdale: counterurbanization is a process of population deconcentration; it implies a movement from a state of more concentration to a state of less concentration."

● **Fielding** (1982) gives a more operational definition of counterurbanization. According to this author, counterurbanization is the inverse negative correlation between the size and the net migration of the settlements of one region or of one nation. In other words the larger the city, the larger the urban decline due to negative net migration.

Both the above-mentioned definitions of counterurbanization concern the urban system of a nation or a region.

● At the metropolitan level, **van den Berg** et al. (1982) proposed the city cycle model in order to analyze the evolution of a single functional urban region in time. The urban area is called the Functional Urban Region (FUR) and is composed of a core (city center) and a periphery (ring) defined according to a threshold of commuting between the core and the ring. According to this model there are four main stages in the life of a city: urbanization, suburbanization, de-urbanization and re-urbanization.

• **Urbanization** is characterized by a rapid expansion of urban zones. This is the phase of industrial urbanization. During this phase the main population concentration processes take place in the core. The origin of this population is the hinterland, the rest of the region or other regions.

• **Sub-urbanization** is characterized by a strong process of deconcentration of both population and economic activities from the center towards the hinterland that puts into effect a process of urban diffusion; in parallel we can witness an increase in interactions between the urban zones in terms of mobility, migrations and innovations.

• **De-urbanization** is characterized by a decrease in population and employment, which affects the whole agglomeration (FUR). During this phase, the little centers of peri-urban space register an increase in economic activities and population.

• **Re-urbanization** is characterized by the regeneration of the center. In this phase, we witness a return to growth in the core, due to rehabilitation or renewal of the historic centers.

On the bases of the above definitions we will measure the processes of deconcentration in Italy, Spain and Greece.

The area and the data

For the study of urbanization and counterurbanization processes according to Tisdale's and Fielding's definitions we used the official census data for Spain, Italy and Greece at the level of

– the basic administrative units for Italy and Spain (i.e. *Comuni* and *Municipios*), and

– the main cities (*demoi*) for Greece.

The data for the 2001 census are not yet available for Greece and Italy. For this reason the analyses of the Greek urban agglomerations are made between 1951 and 1991. For Italy we used census data until 1991 and data from the Public Records Office (*Anagrafe*) concerning the resident population on 31 December, 1999.

For the analysis of the city life cycle we considered the main agglomerations in the three countries.

• For Italy we analyzed the five main metropolitan areas (Rome, Milan, Turin, Genoa and Naples).

• For Spain we analyzed the Spanish urban agglomerations according to the local definitions for planning purposes from data produced by Oriol Nello (2000). These agglomerations are Madrid, Barcelona, Bilbao, Malaga, Seville and Valencia.

• The data for Greece concern the main urban agglomerations (*poleodomika sygkrotimata*) of Athens, Thessaloniki, Patras and Heracleion.

The settlement structures

● During the period 1951-1999 **Italy** passed from a population of 47.5 million to 56.7 million inhabitants. In 1951 there were 24 cities with more than 100,000 inhabitants, 15 of which were located in the North, 3 in the Center and 6 in the South. During the same period the settlements with a population superior to 100,000 represented 20 percent of the total Italian population. In 1991 the number of cities doubled (46) and represented 26 percent of the Italian population. In terms of distribution 50 percent of the cities were located in the North 17 percent in the Center and 33 percent in the South. But the changes also concern the other segments of the urban hierarchy and the suburban and peri-urban areas of the country. These changes were not isolated, continuous or forecastable in an easy and linear historical process. During the second half of the 20th century Italy experienced significant growth and became one of the most important industrialized nations.

● During the period 1951-2001 **Spain** passed from 30.8 million to 39.6 million inhabitants, and the seven most important metropolitan areas from 7.5 million to 13.3 million (NELLO, 2000). The population of Spain was 18.6 million in 1900, 28.1 million in 1950 and 39.4 million in 1991. During this period the number of large cities (the cities with more than 500,000 inhabitants) grew from 2 in 1900 to 3 in 1950 and 6 in 1991, and their share in the national population was 5.8 percent, 12.1 percent and 18.8 percent respectively. The cities with a population between 100,000 and 200,000 inhabitants grew from 4 to 21 to 50, and their share from 3.2 percent to 11.9 percent to 24.12 percent. The share of all the Spanish cities superior to 10,000

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inhabitants was 32.2 percent in 1900, 52 percent in 1951 and 75 percent in 1991.

• In **Greece** in 1951 only three cities had a population superior to 100,000 (Athens, Piraeus and Thessaloniki). Two of these three cities belong to the Athenian urban agglomeration. In 1971 two more cities passed the threshold of 100,000: Peristeri that belongs to the urban agglomeration of Athens and a regional city (Patras). Finally, in 1991 there were nine cities with a population superior to 100,000 inhabitants if we include the Volos conurbation. Four cities belong to the agglomeration of Athens (Athens, Piraeus, Peristeri and Kallithea) and four are regional cities (Patras, Heracleion, Volos and Larissa). The Greek urban system is characterized by a primacy structure (JEFFERSON, 1939). The urban agglomeration of Athens amounts to 3.1 million inhabitants while the second agglomeration, Thessaloniki, amounts to 750,000 inhabitants. The third agglomeration of the country, Patras, even if it doubled its population between 1951 and 1991 amounts to 153,000 inhabitants. This means that the settlement system of Greece is hugely lacking in cities with a population between 200,000 and 1 million.

As we can see in the three countries there are important processes of urbanization in terms of the multiplication of the number of cities and in terms of the growth of the population of the existing cities. We can also see an important relationship between level of development and maturity of the urbanization processes.

Urban dynamics by city-size

Let us examine the correlation between city size and growth limiting ourselves to the cases of Italy and Spain. For Greece data were only available for the urban agglomerations, so we are not able in this paper to produce diagrams for Greece similar to those for Italy and Spain.

For Italy we will examine this correlation at the national level and at the level of South Italy, a macro-region whose processes of urbanization were "dependent" and whose urban structure was less mature than that of Italy's industrial triangle. For Spain we will study the correlations at the "national" level and for the region of Catalonia, an area characterized by mature urbanization and industrialization (figs. 2, 3, 4 and 5).

• Figure 2 indicates the relationship between size of settlement and population growth for **Italy** between 1951 and 1999. During the 1950s, the six groups of settlements with a population inferior to 25,000 inhabitants recorded a decline. The group of cities that recorded the highest population growth were the cities between 250,000 and 500,000 (23.9 percent). The same group also recorded the highest growth in the 1960s (20.5 percent). During the first two decades only the settlements inferior to 5,000 lost population, while all of the other groups of settlements increased their population. The groups of 5,000-10,000 grew by 6.5 percent and the other groups between 10,000 and 250,000 recorded increases that varied between 13 percent and 16 percent. In the 1980s the decline of the cities superior to 500,000 became more dramatic (-10.8 percent). We also observed the decline of the group 50,000-100,000 (-2.1 percent) and the decline of the most dynamic group of the previous decades (250,000-500,000) which lost -3.8 percent, while the cities between 100,000-250,000 were in stagnation (+0.3 percent). During this period the settlements inferior to 2,000 continued to lose population. Finally, during the 1990s the biggest settlements continued their decline, the medium large cities were declining or stagnating and only the settlements between 1,000-50,000 recorded an increase.

If this is the general situation in Italy the different macro-regions present a less uniform image. Figure 3 shows the relationship between population growth and settlement size in South Italy. From this figure one can see that during the 1950s there was a positive correlation between population growth and settlement size. The cities were growing proportionally according to their size. The settlements with a population inferior to 5,000 were in decline throughout the analyzed period, with a tendency to reduce the intensity of their decline during the last two decades. During the 1960s the decline also concerned the next size (5,000-10,000). This is the period of massive exodus of population originating from the southern regions that migrated mainly to the industrial cities of the North of Italy. Even if the growth of the largest cities of the South slowed down during the 1960s the decline appeared in the 1980s which is at least one decade after the North Italian metropolises. The decline in the South affected the cities between 100,000 and 500,000 inhabitants (-5 percent) and the cities with more than 500,000 (-7.7 percent). The next decade the decline persisted but it was less intense. The two groups of cities recorded losses of -2.6 percent and -4.5 percent respectively.

• In **Spain,** as we can see in figure 4, there was also a tendency of metropolitan concentration from the 1950s to the 1970s. The large cities experienced a phase of decline in the 1980s while the medium-sized cities grew and the smaller settlements continued their decline. The growth of the cities with a population between 25,000 and 500,000 was continuous over the first three decades and slowed down after the 1980s. In the 1990s we can see that we are far from the correlation of the 1970s: the large cities continued in their decline but this tendency slowed down. Similar trends were found for the small settlements, and the medium cities recorded a weak increase. This clean break is also due to the high concentration of Spanish industry in terms of job location. Until 1975, 22 percent of the manufacturing employment was concentrated in Barcelona, 12.5 percent in Madrid, 7 percent in Valencia and 5 percent in Viscaya (MENDEZ and CARAVANCA, 1997) and there was a positive correlation between manufacturing job concentration and the attraction of migration flows from the industrial poles. During the 1980s there was a crisis in the manufacturing sector and a sunbelt phenomenon affected the regions of the South. Madrid declined in terms of net migration but also in terms of interprovincial migration (CABRE et al., 1985; GARCIA COLL and STILLWELL, 2000).

In figure 5 we can see the correlations between city size and growth for the region of Catalonia. This region represents one of the most dynamic regions in terms of industrialization and urbanization, and played a similar role to that of the industrial cities of Northern Italy within the Spanish settlement system. In fact, the curves representing Catalonia's urban growth by city size are more mature in comparison with the ones we observed at the "national level." During the last half century (1950-2001) Barcelona increased by 17.6 percent rising from 1.3 million to 1.5 million inhabitants. However, this growth was neither continuous nor evenly distributed over the five decades. During the first two decades there was an increase of 37 percent that mainly occurred during the 1950s (21.7 percent) and the 1960s (12 percent) and a stagnation during the 1970s (0.6 percent). After this period the municipality of Barcelona entered a phase of demographic decline losing 111,000 inhabitants in the 1980s and another 138,000 in the 1990s. At the regional level the population grew from 3 million to 5.9 million between 1951 and 1981, and to 6.4 million in 2001. This means that there was a redistribution of the population within the region: the decline of Barcelona was in part compensated for by the processes of suburbanization towards the second and the third rings of the metropolitan area. However, it is evident that the powerful attraction that the Catalan capital

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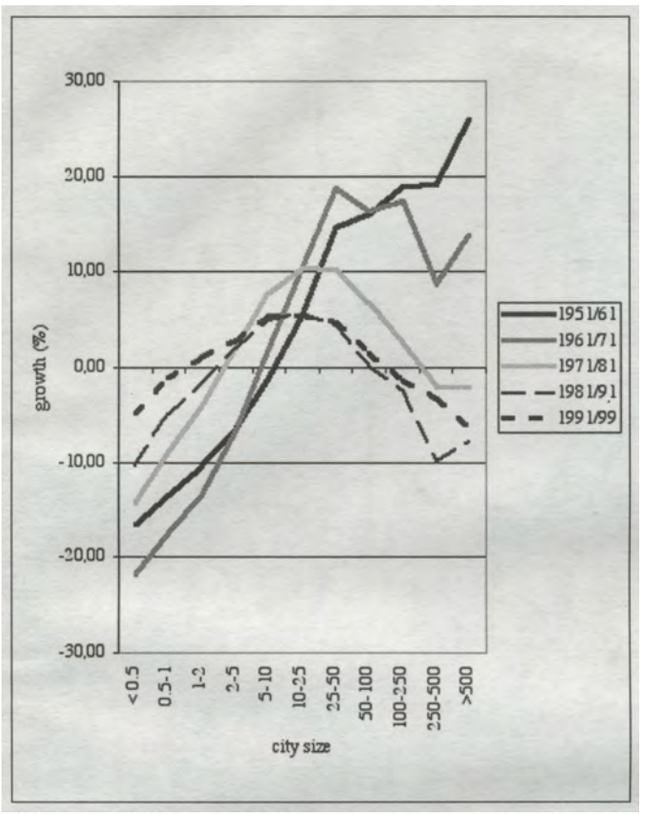

Fig. 2: Correlation between growth and city size in Italy, 1951-1999.

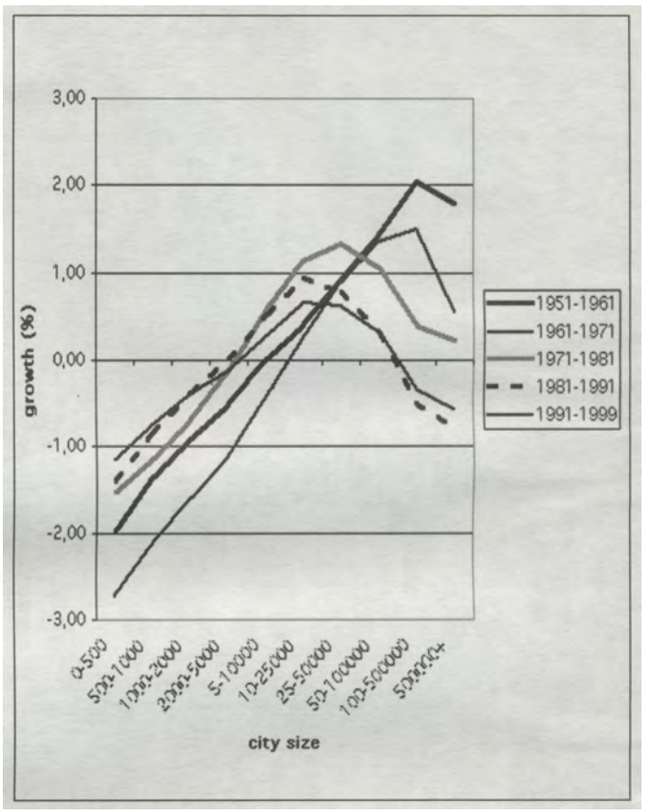

Fig. 3: Correlation between growth and city size in Southern Italy, 1951-1999.

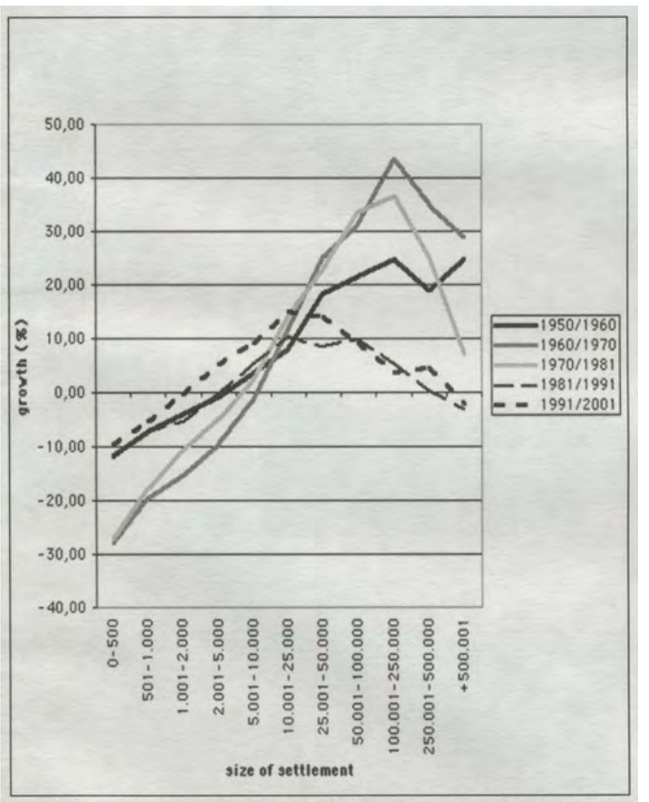

Fig. 4: Population change by size of settlement in Spain, 1951-2001.

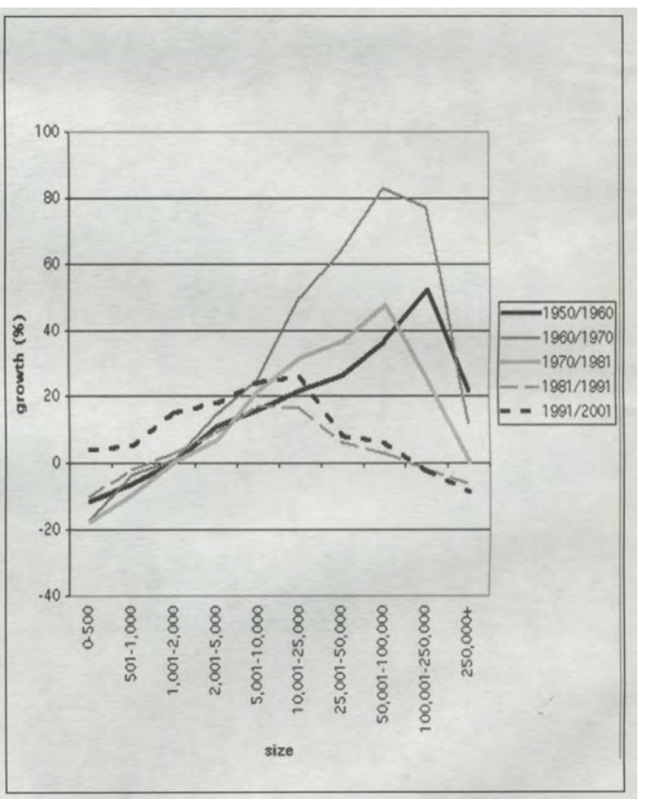

Fig. 5: Population change by size of settlement in the region of Catalonia, Spain, 1950-2001.

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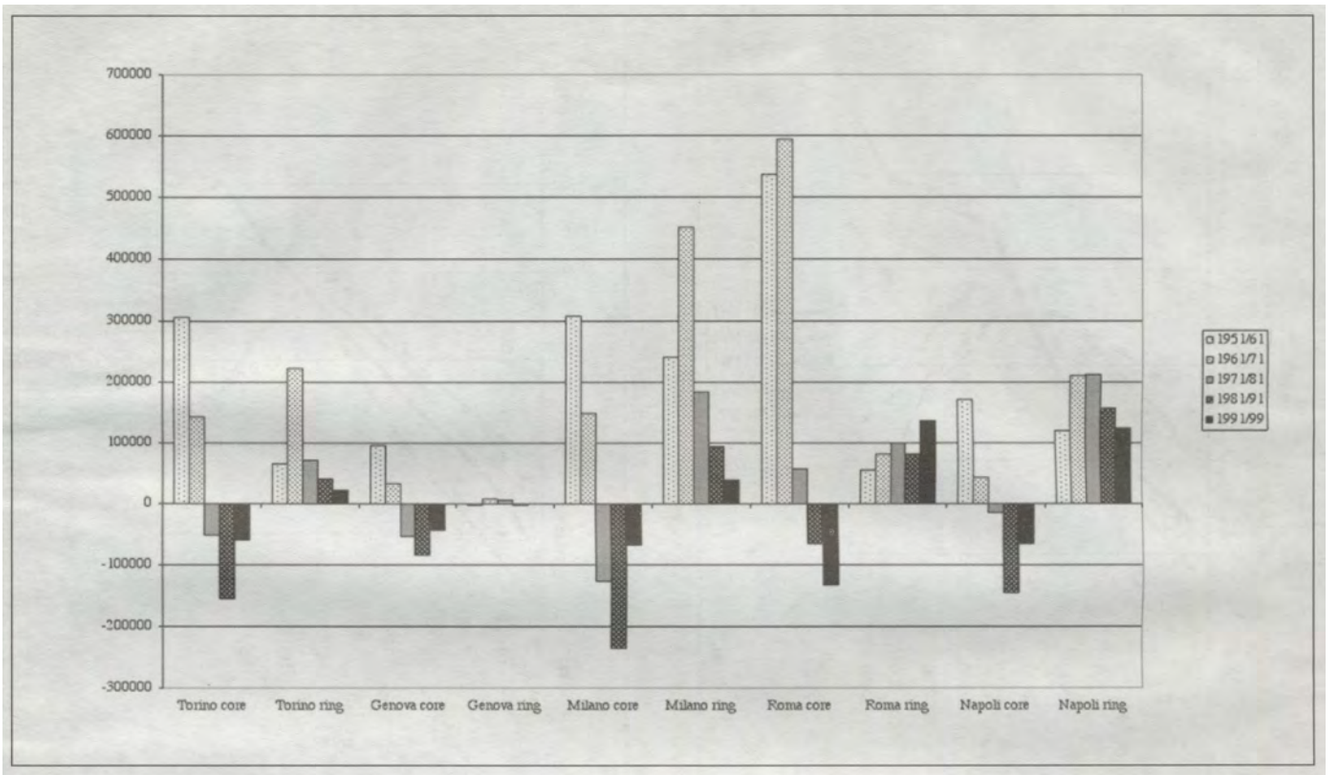

Fig. 6: Population change in the main metropolitan areas of Italy, 1951-1999.

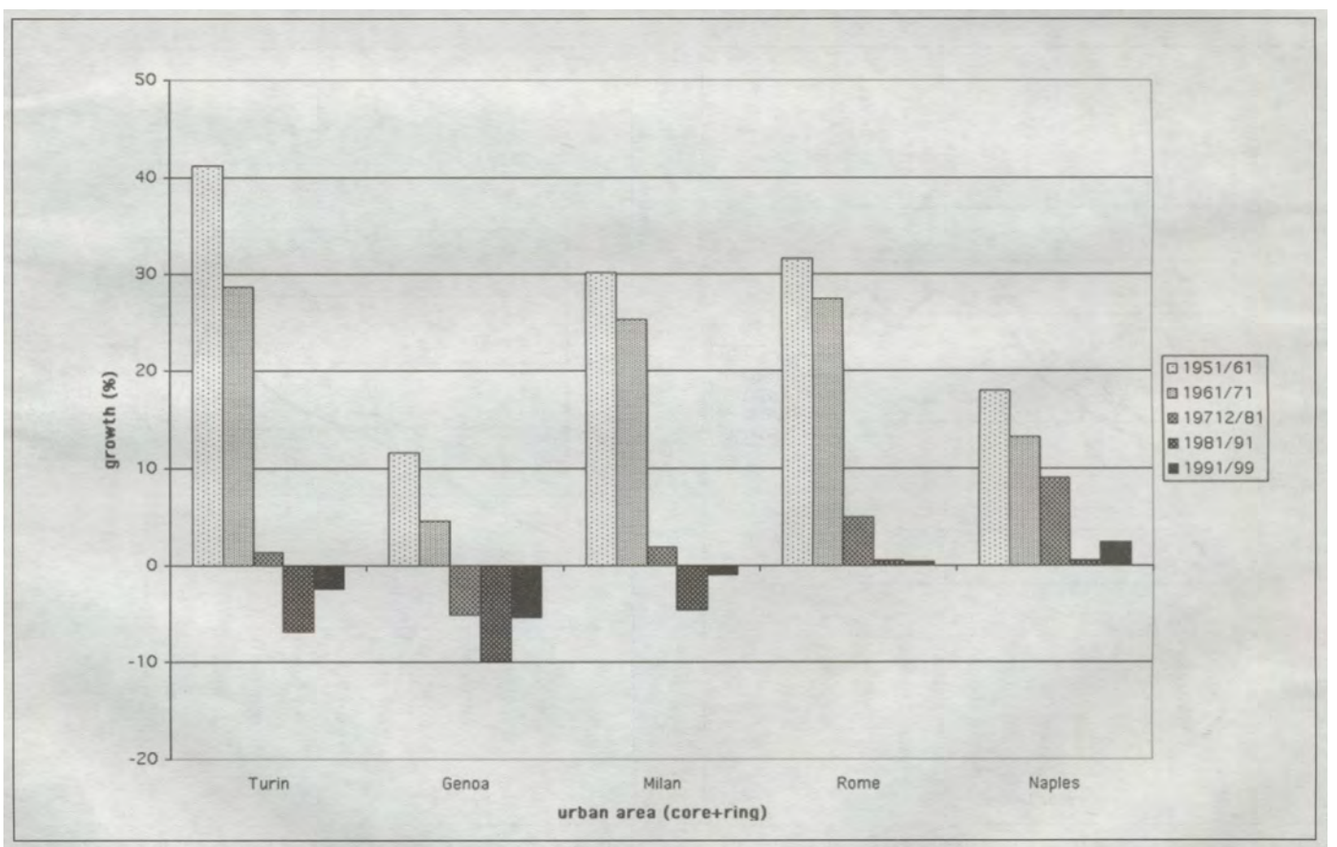

Fig. 7: Population change in the main urban areas of Italy, 1951-1999.

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was exerting over the whole national space during the period 1950-1970 has passed. According to Garcia-Coll's studies the processes of urban decline also affected a number of second and third level cities that form the conurbation of Barcelona, i.e. Hospitalet de Llobregat, Santa Colona de Gramanet, Badalona and Lorella (GARCIA COLL and SANCHEZ AGUILERA, 1997; GARCIA-COLL, 1998).

Barcelona entered the decline phase in the 1970s. There was a very important increase in the population of the cities of medium and large size until the 1970s. Afterwards the growth filtered down to the smaller cities. The most important thing is that during the 1990s all the medium settlement sizes and even the smallest ones (less than 500 inhabitants) were growing. This was not the case for the rest of Spain where the group of cities with less than 2,000 inhabitants recorded a decline throughout the second half of the 20th century. We can say with a small margin of error that Catalonia shows signs of becoming an urbanized region. What it is very important to underline is that among all the regions examined the process of turn-round can only be seen in Catalonia.

The main metropolitan areas

Lack of statistics (Spain) or changing definitions of metropolitan areas (Italy) or physical elementary definitions of urban agglomerations (Greece) make it impossible to undertake national and international comparisons concerning metropolitan growth. We have at our disposal data for functional urban regions (local labor markets) for Italy, data on urban agglomerations for Greece and data for Spanish urban areas. These data are more useful for showing the intra-national level of metropolitan growth and the core-ring dynamics rather than for making international comparisons. For the international comparisons it is more significant to see the evolution of the core of the urban agglomerations.

• **Italy:** For the analysis of the metropolitan areas we took into consideration the five main metropolitan areas as delimited by Sforzi for ISTAT (1997). According to this study the national territory (8,000 *comuni*) is subdivided into 784 Labor Market Areas (*Sistemi Locali del Lavoro*). Each area has a core and a ring which are interdependent in terms of residential and job location. According to this delimitation Rome is composed of 65 sub-areas, Milan 99, Turin 43, Naples 42 and Genoa 36. These aggregations change from census to census according to the intensity of the flows, and the interdependence between the core and the suburban areas. In order to be able to make diachronic comparisons, we used the 1991 delimitations calculated on the data for 1951, 1961, 1971, 1991 and 1999 as elaborated by Mela and Buran (2001). Before starting to describe the dynamics of the main metropolitan areas of Italy it is important to underline that Rome represents a unique phenomenon in terms of the structuration of its metropolitan space. In fact, in its administrative limits (the core) Rome also contains what we call the ring in the other metropolitan areas. This means that the core is very heterogeneous in terms of land use and urban form and because of this anomaly the ring of Rome is less important in terms of size and concentration if we compare it with the other Italian cities.

Between 1951 and 1971 the cores showed strong growth, while from 1971 onwards they have all lost population. During the first period, also known as the period of Fordist growth, the cores of Turin and Milan increased by 450,000 inhabitants each, Genoa by 130,000, Rome by 1.1 million and Naples by 215,000. In the second period, the populations increased by 212,000 in Turin, 300,000 in Milan, 120,000 in Genoa, 200,000 in Rome and 200,000 in Naples. In other words, the five cities increased their population by 2.4 million inhabitants during the period 1951-1971, and lost one million inhabitants over the next 20 years. This is equivalent to a net increase of 1.4 million inhabitants during half a century. Even if an increase of this order shared between five large cities for a period of half a century could seem normal, it is an important quantitative and qualitative change which has brought about a dramatic transformation of the urban landscape: in its social, economic, cultural and political components; in terms of the mass production of housing; in terms of the uniformization of the urban landscape (*periferie*); and in terms of property speculation. By contrast, the rings showed a continuous pattern of growth. During the period 1951-1999, the ring of Turin increased by 400,000 inhabitants, Milan by 970,000, Rome by 320,000, Naples by 700,000 and Genoa by only 10,000. While there was a decline in the core, the rings were still growing. However, after 1981, the rings were not growing sufficiently to compensate for the losses of the cores. In fact, the decline for the five metropolitan cores was of 684,000 inhabitants and the growth of the rings 374,000. This means that the metropolitan areas of Italy are in the phase of de-urbanization: the difference between the total growth of the ring and the total decline of the core is -310,000 inhabitants.

As we can see from figures 6 and 7 the population changes during the last century affected in very different ways the North, Central and Southern metropolises, and their cores and rings. Genoa entered the phase of de-urbanization during the period 1971-1981, and Milan and Turin followed in the next decade. Rome and Naples were in the stage of mature suburbanization (decline of the core, and growth of the ring that compensates for the losses of the core), which slowed down considerably after the 1980s. We can also note that the decline of the Northern metropolitan areas slowed down in the 1990s. These patterns show an important differentiation between the Northern and the Central and Southern agglomerations but they do not allow us to forecast a process of re-urbanization in quantitative terms according to the prediction of the city life cycle model.

Table 1
Population change in the main metropolitan areas of Spain, 1960-1996

Metropolitan area	Core		Ring	
	1960-1975	1975-1996	1960-1975	1975-1996
Madrid	47.1	-11.1	605.8	98.7
Barcelona	14.74	-13.9	126.8	19.9
Bilbao	46.6	-16.9	75.5	10.0
Malaga	37.8	34.6	8.0	151.9
Seville	33.6	18.3	11.2	58.4
Valencia	41.1	5.5	82.8	24.7

(*Source*: Elaboration after Nello, 2000).

• **Spain:** From table 1, which represents the population changes in six metropolitan areas in Spain during the periods 1960-1975 and 1975-1996, one can observe that the dynamics of these areas are far from being uniform. In fact, we can see that positive population change in the core areas of Madrid, Barcelona and Bilbao during the first period turned negative during the second. We can also see the very important growth of the rings during the two periods and especially those of Madrid and Barcelona during the period 1960-1975. In Malaga, Seville and Valencia, the core areas underwent population growth in both periods. The ring areas of Madrid and Barcelona underwent strong population growth between 1960 and 1975 followed by a slowing in the second period. In contrast, the rings of Malaga and Seville grew more strongly in the second rather than the first period.

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The most mature urban area is Barcelona with similar patterns to those of the Italian industrial triangle. In fact, this area is in the process of deurbanization. Madrid and Bilbao are in the phase of mature suburbanization while Malaga, Seville and Valencia are in a phase of growth of the core and ring, with the latter recording more intensive growth. There is a kind of sun-belt effect that concerns the main Spanish urban agglomeration to which we should add important phenomena of urban sprawl that not only concern the second and the third metropolitan belts but also the littoral areas that seem to be between mature suburbanization and de-urbanization like Barcelona.

- **Greece:** The study of the process of population deconcentration (suburbanization) in the two largest metropolitan areas of Greece, as shown in table 2, helps to describe the spread of the population towards the outer urban rings. The table suggests that in Attica (Greater Athens Prefecture) suburbanization has been in progress at least since the 1970s, while this is a more recent phenomenon in Thessaloniki.

Table 2
Population deconcentration in the Prefectures of Attica and Thessaloniki, 1961-1991

Area	Year	Urban core	Outer ring	Rest of Prefecture	Total Prefecture
Prefecture of Attica	1951	35.7	52.4	11.3	100
	1961	30.5	59.9	10.1	100
	1971	31.0	59.8	9.2	100
	1981	26.4	63.8	9.8	100
	1991	21.2	66.7	12.1	100
Prefecture of Thessaloniki	1951	47.2	18.5	34.3	100
	1961	46.1	23.8	30.1	100
	1971	48.7	29.8	21.5	100
	1981	46.6	34.4	18.0	100
	1991	38.7	37.0	24.3	100

(*Source*: Petsimeris and Tsoulouvis ,1997).

As we can see in figure 8 representing the main urban areas in Greece, there is an important gap between Athens and Thessaloniki and the rest of the Greek cities. We can also notice the lack of intermediate cities of medium and large size (i.e. 200,000 to 500,000 inhabitants) as well as the contrasted evolution of the cores and the rings of five urban agglomerations. The results indicate that until 1971 in the capital of

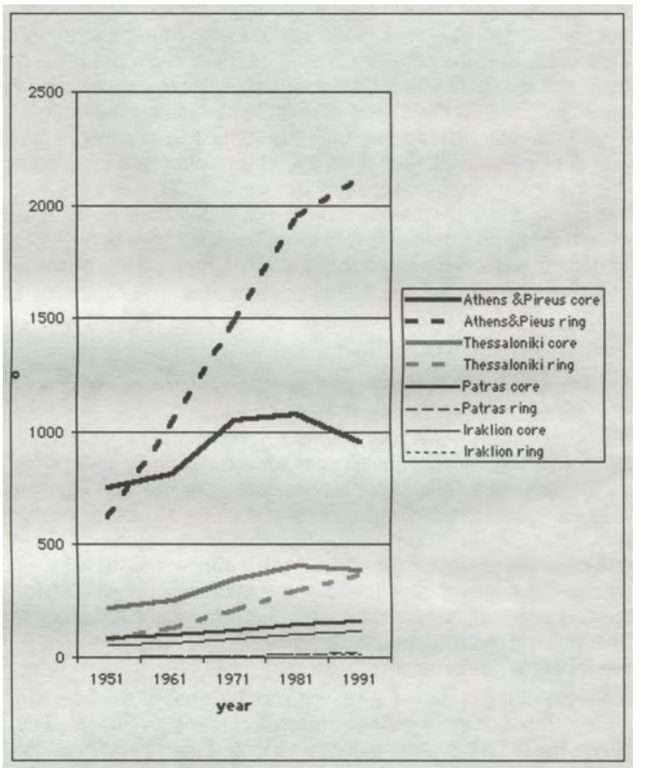

Fig. 8: Population change in the urban areas of Greece, 1951-1991.

In Athens the ring has experienced high growth and the densities are very high (TSOULOUVIS, 1998). The results indicate that until 1971 in the capital of Greece there was a strong process of population concentration. However, since 1971 a weak process of deconcentration has appeared: the center began losing population and the outer rings recorded strong population increases. In Thessaloniki the suburbanization trend is weaker, while in the other Greek cities the process of population concentration in the cores still continues.

During the period 1981-1991 the metropolitan areas of Athens and Thessaloniki have entered the process of suburbanization and the estimations of the 2001 census show that suburbanization has become even stronger in a context of core depopulation.

The study of the process of population deconcentration (suburbanization) in the two largest metropolitan areas of Greece, as shown in table 2, helps to describe the spread of the population towards the outer urban rings. During the four decades there was a decrease in the central cities' share of their prefectures' populations: Athens from 35.7 percent in 1951 only represents 21.2 percent in 1991, while Thessaloniki falls from 47.2 percent in 1951 to 38.7 percent in 1991. During the same period the rings' share grew continuously. As for the rest of the prefecture areas: after a shrinking process they recorded an increase in terms of share (in Attica in 1981 and in Thessaloniki in 1991).

Greece there was a strong process of population concentration. However, since 1971 a weak process of deconcentration appeared: the center began losing population and the outer rings recorded strong population increases. In Thessaloniki the suburbanization trend is weak, while in the other Greek cities the process of population concentration in their cores still continues, and even if they are officially called urban agglomerations, the suburban areas are not comparable with the ones of the higher ranks of the Italian and Spanish settlement systems.

In the processes described above there are not simple quantitative changes of population distribution in space but they have important consequences in both quantitative and qualitative terms on the urban landscape and in its functional and social articulation. Independently of the historical differences of the regions and of the cities in terms of development there are some amazing similarities in terms of process and temporality:

"From 1950, and particularly after 1960, a rapid outward movement of the population took place. This resulted in the linear expansion of urban development along the major circulation axes and a closing up of existing built-up areas. The north of Athens, along the foothills of Mt Penteli, and Mt Parnes, and in the regions between Paiania and Koropi to the northeast of Mt Hymettos, new, primarily residential, areas

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sprang up. At the same time, almost all the coastal sections in the study area witnessed extensive construction of second homes and tourist facilities. Astronomic land prices and the absence of effective housing programs caused a large section of the population to move to cheaper land in areas not covered by any town planning regulations. This uncontrolled development has led to several severe abuses of the land. Uses have been irrationally distributed and areas created with many incompatible uses. Also residential settlements have expanded into areas which should have been reserved for other purposes. These practices were greatly facilitated by legislation which permitted the parcellation of large tracts of land into small plots, plus the lack of any zoning or other effective controls over land speculation and building designs" (PSOMOPOULOS, 1977).

For Lila Leontidou the process of capitalist urbanization in the Mediterranean city at the end of the 20th century is extremely complex: "In Greece, (...) popular suburbia was combined with independence from the capitalist market. The expansion of capitalism took the form, not of rationalization and concentration of capital, but that of the domination of a rather competitive and speculative market over the previous widespread informal housing sector. The Greek housing and land market were traditionally dual, composed of a dominant capitalist/ speculative and a subordinate owner-built/informal sector; landownership was fragmented; and the role of planning was minimal. Capitalism then expanded and came to control housing production, and the dual market was increasingly unified through the suppression of the informal sector" (LEONTIDOU, 1990).

Insolera, describing the urban sprawl in Rome on the basis of aerial photographs, wrote: "We are at the beginning of the period 1960-1980, during which Rome took the size and the shape of a discontinuous megalopolis, and during which *abusivismo* (illegal urban development) moves from being an episodic to a general praxis of urban development (...). The Roman countryside characterized by an undulating landscape is completely affected by the production of houses sometimes made up of individual, small scale housing (*villini* and *palazzine*), other times from continuous and intensive built-up forms (sprawls). What is striking is the clearest division of urbanization into two types: one where the street shape predominates and the other where no design is distinguishable' (INSOLERA, 1980).

If we change the toponyms, the processes, described by the three authors for Athens and Rome, may describe a general model of development of the Southern European metropolis in terms of urban sprawl.

Conclusion

There has been an increase in urbanization processes in the three countries of Southern Europe – Italy , Spain and Greece – that we have examined in the sense that Hope Tisdale gives to the process of urbanization, i.e. the multiplication of the number of cities and the extension of the existing cities. At the same time there are important processes of population deconcentration at all scales: national, regional and metropolitan. Furthermore, the massive inter-regional and inter-urban migration from the poorer internal areas to the capital cities and/or the most industrialized regions ceased to be as important as in the 1950s and 1960s. These processes had as a consequence urban concentration in the main urban areas, the formation of conurbations and metropolitan areas, and processes of urban sprawl and littoralization.

The foregoing analysis shows that there is a complex relationship between city-size and growth. We have passed from a strong positive correlation in the 1950s to a weak one after the 1970s. Big cities have lost population, while medium-sized cities increased, but this increase is also due to the processes of suburbanization and to the overspill of medium and small towns. The small settlements with a population inferior to 2,000 have also declined – except in the case of Catalonia.

There has also been a decrease in the pace of growth. In the 1950s the range was between -20 percent to +40 percent, in the 1990s this rate reduced considerably: -7 percent to -6 percent for Italy and -6 percent to +8 percent for Spain. In addition, there was an inversion of the big cities that from increase passed to decline, a continuity for the small areas, and an increase in growth for the medium-sized cities.

It is important to underline that these processes are not only quantitative but that the situations of increase and decrease of population mark profoundly the structure of the metropolitan areas and of the territory in general.

The processes of suburbanization are not linear: there are some suburbs in decline while others are increasing. There is a continuity between the inner city dynamics and the outer city ones. There is also a process of urban sprawl that is increasingly important and does not only affect Italy but also other countries. Those who flew over Greece or Italy in the mid-1970s and have retained a mental map of the urban development at this time are well positioned, if they fly again now, to appreciate the dramatic changes as a result of the processes of urban sprawl and littoralization.

It can be said that behind this apparent convergence of urban systems at the international scale, there are significant differences. The main difference concerns the urban structures of the national settlement systems that are more articulated in Spain and Italy than in Greece.

- **Italy** and **Spain** have a "geographical capital" in terms of the number of their large and medium-large cities which have existed through the medieval and the Renaissance periods and they also have levels of high decentralization and regional autonomy. For these countries, it is easier to propose and to implement regional and urban policies for planning at the national and the local level.
- What is very evident in **Greece** is the lack of the medium and the medium-large cities. In Greece only Athens and Thessaloniki are proper urban agglomerations.

The analysis of the process of concentration shows that:

- In **Italy** the process of counterurbanization has touched most of the industrial regions of the North, and in turn has affected certain regions of the Center and the South. In the South the processes of population concentration persist. As concerns the metropolitan areas, we observe an opposition between the urban industrial concentrations of the North, and the other urban areas of the Center and the South.
- In contemporary **Spain** we can observe a mature suburbanization process in the largest metropolitan areas, Madrid and Barcelona, and in Bilbao, while the metropolitan areas of Malaga, Seville, Valencia and Zaragoza are under a process of early suburbanization.
- In **Greece** the main metropolitan areas of Athens and Thessaloniki experienced a similar process as Madrid and Barcelona (mature suburbanization) while the medium urban agglomerations are in the stage of concentration of population in both the core and the hinterland.

But we must not forget the complexity of the three countries that also derives from the fact that during the last half of the 20th century they were transformed from areas of out-migration into areas of in-migration attracting population from the less developed countries and from the former socialist countries (OLIVERA and ABELLAN, 1997). This means that there are important quantitative and qualitative changes and the data available are very poor in order to take into account the struc-

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turation of the interurban and the intra-urban scales.

The processes of urban concentration occurred as a natural process during the 1950s and the19 60s with devastating effects in terms of land uses and territorial structuration. The processes of deconcentration occur in a similar "natural way" but with more control in terms of planning legislation. The question is how to avoid producing more problems in terms of congestion, land use and zoning in a situation of deconcentration and how to avoid the production of natural linear cities along the main transportation axes and the littoral axis.

We think that it is very important to have more data for the analysis of urbanization processes in Europe, and in Southern Europe in particular. We also think that it is very important to multiply the empirical research in this area and to see what are the existing and the possible interconnections and complementarities between the settlement systems of Southern Europe.

The forthcoming publication of the results of the censuses of Italy, Spain and Greece will provide the opportunity to examine the further development of the trends we identified in this paper.

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Ekistic grid index

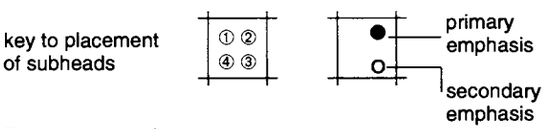
The articles in this issue are coded by the scale of settlements and an aspect of an element indicated in the ekistic grid.

The content of each article is classified within an ekistic grid as follows:

- The scale of the settlement(s) with which the article deals is selected from among the 15 ekistic units:

No.	Name	Population
1	Anthropos	1
2	Room	2
3	House	5
4	House group	40
5	Small neighborhood	250
6	Neighborhood	1,500
7	Small polis	10,000
8	Polis	75,000
9	Small metropolis	500,000
10	Metropolis	4 million
11	Small megalopolis	25 million
12	Megalopolis	150 million
13	Small eperopolis	1,000 million
14	Eperopolis	7,500 million
15	Ecumenopolis	50,000 million

- The subjects dealt with in each article are selected from among the subheads of the five ekistic elements. The position of a dot in any square of the grid indicates which of the four subheads is being referred to. If the article arrives at a synthesis of these elements, either in a physical plan or in ekistic theory, the dot is at the top or bottom of the square.



The subheads of the elements are:

NATURE
1. Environmental Analysis
2. Resources Utilization
3. Land Use, Landscape
4. Recreation Areas

ANTHROPOS
1. Physiological Needs
2. Safety and Security
3. Affection, Belonging, Esteem
4. Self-actualization, Knowledge and Aesthetics

SOCIETY
1. Public Administration, Participation and Law
2. Social Relations, Population Trends, Cultural Patterns
3. Urban Systems and Urban Change
4. Economics

SHELLS
1. Housing
2. Service Facilities
3. Shops, Offices, Factories
4. Cultural and Educational Units

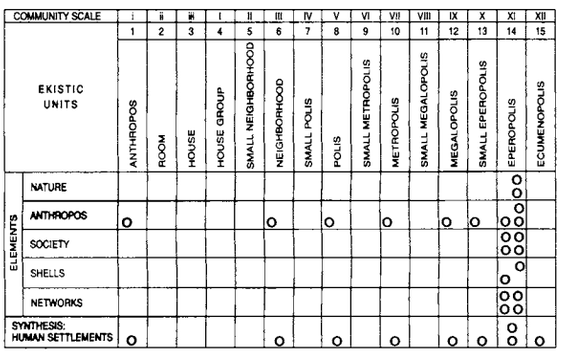
NETWORKS
1. Public Utility Systems
2. Transportation Systems
3. Personal and Mass Communication Systems
4. Computer and Information Technology

SYNTHESIS
1. Physical Planning
2. Ekistic Theory

Each article is described by keywords, which are also used in the *Ekistic Index,* and by abbreviations referring to their illustrative content.

Keyword letter code

D = Diagrams
I = Illustrations
M = Maps
R = References
S = Statistics, Tables, Graphs
X = Simulation, Mathematical Models, etc.



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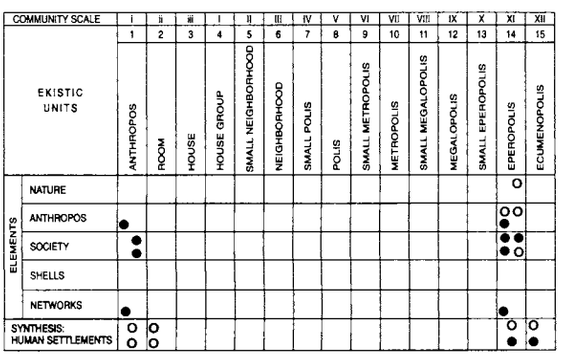
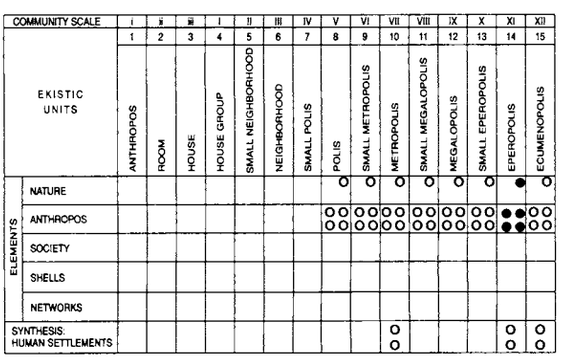
General; Present



Knowledge and interdisciplinarity as socio-cultural p. 10
Knowledge, Interdisciplinarity, Ekistics, Science-Technology
World; Past, present, future *R,S*



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Sustainability, Urban Essentials, Ekistics, Politics
World; Past, present, future

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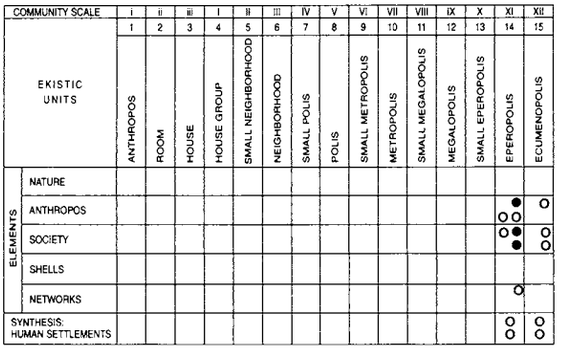

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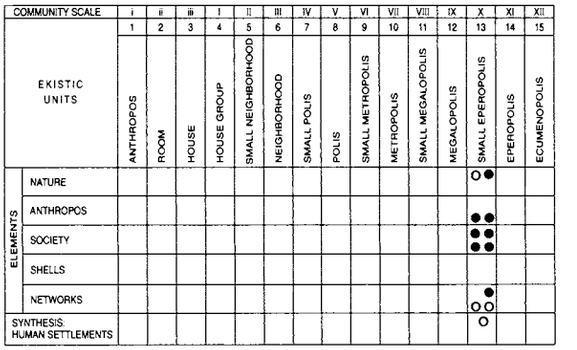
World; from 20th to 21st century and beyond *D,M,R,S*



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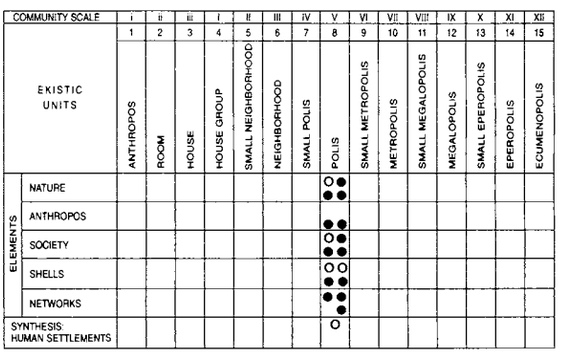

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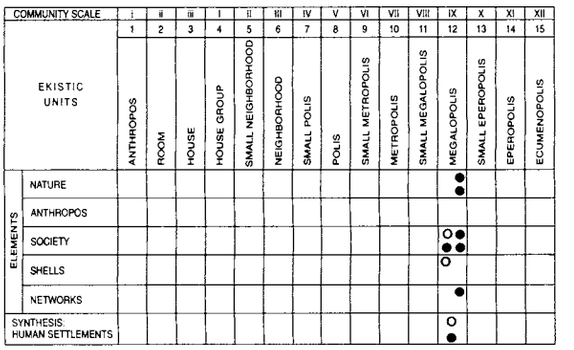
Venice; Past, present, future *M,R*



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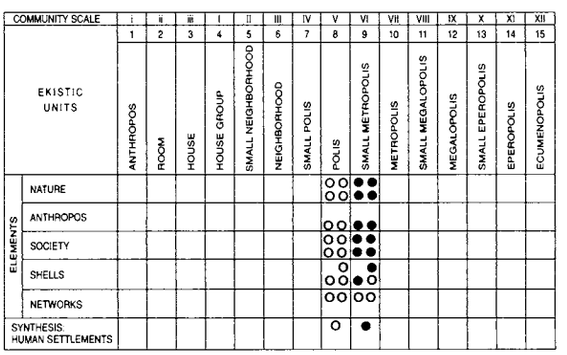

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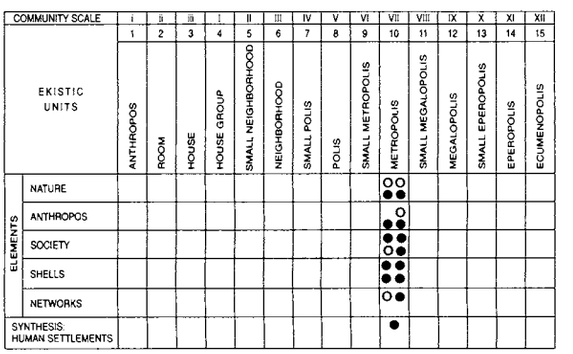

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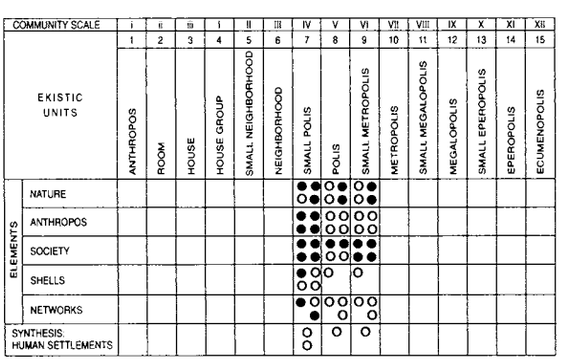

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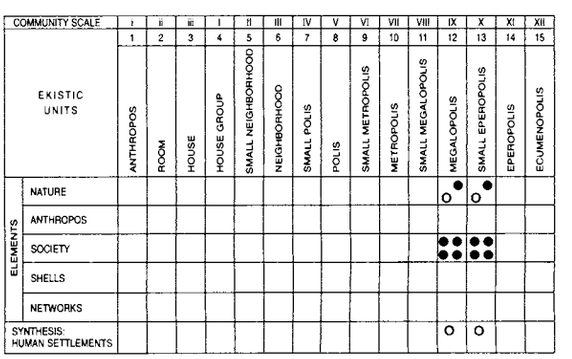
Abéché, Sahel; 1850 to present and future *I*



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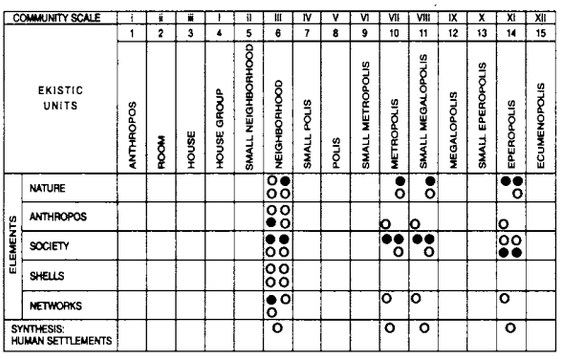

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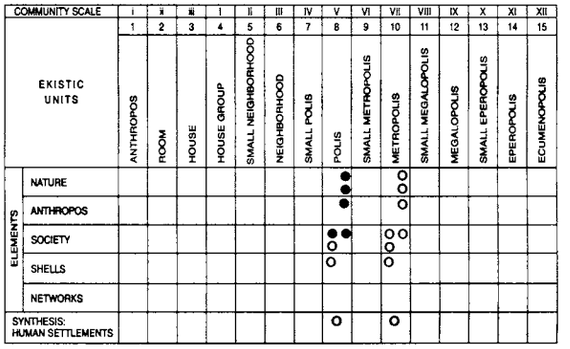

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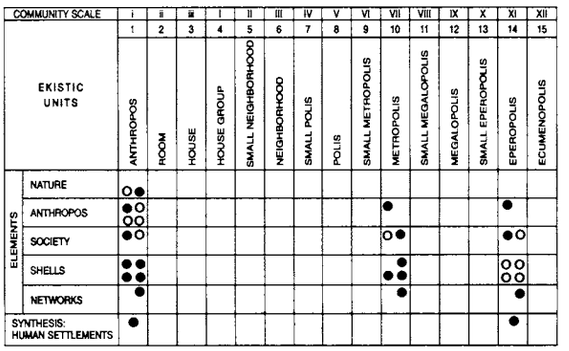

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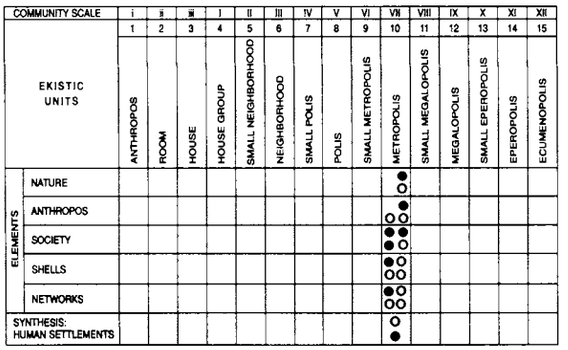

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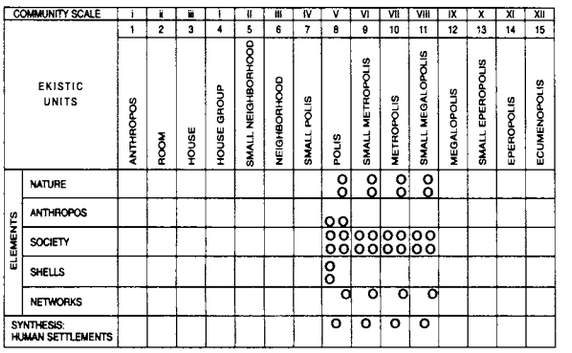

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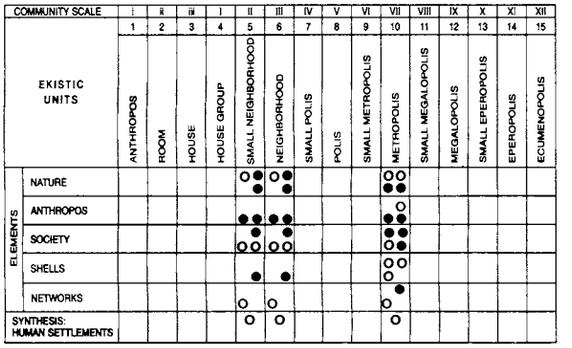

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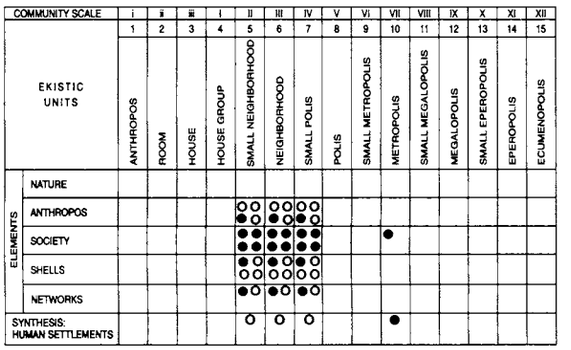

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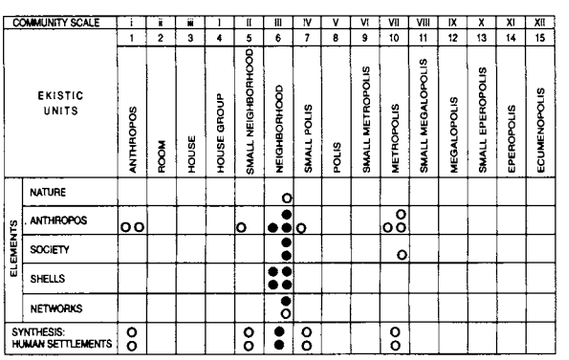

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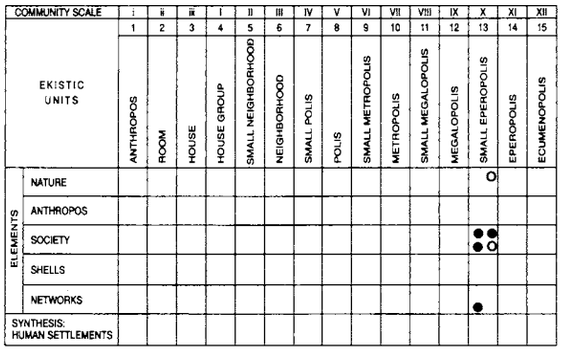

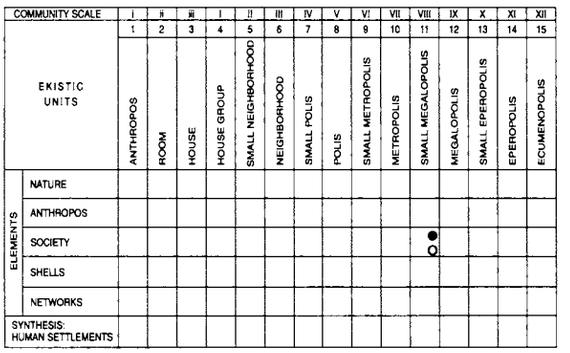

To the Reader

As is stated in the tables of contents (pages 2 and 3), the material used from the 2001 Meetings of the World Society for Ekistics, Berlin, 24-28 October, is classified as follows:

I. Executive Council Meeting

II. The C.A. Doxiadis Lecture

III. Symposion: Defining Success of the City in the 21st Century

- **Part 1: Introduction**
- **Part 2: Nature**
- **Part 3: Anthropos**
- **Part 4: Society**
- **Part 5: Shells**
- **Part 6: Networks**
- **Part 7: Education and Research**
- **Part 8: Synthesis**
- **Part 9: Conclusions**

IV. General Assembly

The present issue ends with Part 4 of the Symposion.

The remaining material is contained in the following triple issue of Ekistics, vol. 69, no. 415/416/417, July/August-September/October-November/December 2002.

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2. *Ecumenopolis, the Inevitable City of the Future* (with John G. Papaioannou) (in English, 1974, 469 pp., 151 illus.) $50.00
3. *Building Entopia* (in English, 1975, 331 pp., 293 illus.) $40.00
4. *Action for Human Settlements* (in English, 1976, 207 pp., 77 illus.) $30.00

Note

ACE : Athens Center of Ekistics
COF : "City of the Future" Research Project
COG : "Capital of Greece" Research Project
HUCO : "Human Community" Research Project

* out of print

These publications, though in very limited supply, can be obtained from the Athens Center of Ekistics, 24 Strat. Syndesmou Street, 106 73 Athens, Greece. Price in US$ includes mailing cost (surface mail).

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EKISTICS (modern Greek: ΟΙΚΙΣΤΙΚΗ) is derived from the ancient Greek adjective *οἰκιστικός,* more particularly from the neuter plural *οἰκιστικά* (as "physics" is derived from *φυσικά,* Aristotle). The ancient Greek adjective *οἰκιστικός* meant: "concerning the foundation of a house, a habitation, a city or a colony; contributing to the settling." It was derived from the noun *οἰκιστής,* meaning "the person who installs settlers in a place." This may be regarded as deriving indirectly from another ancient Greek noun, *οἴκισις,* meaning "building," "housing," "habitation," and especially "establishment of a colony, a settlement or a town" (already in Plato), or "filling it with new settlers": "settling," "being settled." All these words grew from the verb *οἰκίζω,* "to settle," and were ultimately derived from the noun *οἶκος,* "house," "home" or "habitat."

The *Shorter Oxford English Dictionary* contains a reference to an *oecist, oekist* or *oikist,* defining him as: "the founder of an ancient Greek ... colony." The English equivalent of *οἰκιστική* is *ekistics* (a noun). In addition, the adjectives *ekistic* and *ekistical*, the adverb *ekistically,* and the noun *ekistician* are now also in current use. The French equivalent is *ékistique*, the German *ökistik,* the Italian *echistica* (all feminine).

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