Self-culture and sustainable development of a community in the Peruvian Rainforest

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Introduction

The selection of the theme "globalization and local identity" for our meeting is probably due to the tension of which we become aware when we realize the differences we are moving through these two notions, although this tension should not necessarily mean conflict.

I will try to approach the "concept" of Globalization on the way followed by *Constructivist*[1] theorists.[2] This may sound idealistic, but I do believe in searching for the cause rather than accepting or analyzing the effects, so as to clarify our values and develop our resources – in other words, noticing that our reality is formed by our perception of consciousness which somehow involves our identity as individuals or our own definitions.

In delving into these concepts, it occurred to me that Globalization could be a positive transformational phenomenon if we look at it as a harmonious unity – standardization, homogenization of various aspects of the economy, culture and also communications – continuously enriched by the multiple parts of our Local Identity, which is based on "human values at a human scale" (freely quoting Doxiadis); and is generally defined by culture (i.e. men's meaningful activities) as a manifestation of ourselves (could that be our society?).

I will try to explain my point of view sharing an anecdote with the reader or rather a recent personal experience: Yesterday, a very good friend of mine invited me to attend a conference by Win Wenders himself last night in Tokyo. This totally unexpected event proved to be – as always seems to happen – a very surreal "coincidence" hence the synchronicity with today's event. The theme was "Sense of place." Inspiring and controversial as he is, Win Wenders was trying to get the audience – mainly young cinema students – to wake up from their delusion that films "made in Hollywood" represented reality which would have had a regrettable consequence when adapting this sort of distorted philosophy to their own lives.

Trying to universalize their movies for them to become worldwide blockbusters and make profits, commercial films subdue people and places (which by no means are the heart and soul of the movie) to the stories themselves; and by doing that they turn people and places into victims (slaves, so to speak) of the circumstances instead of masters of their own destinies.

Wenders' night out provided me with a perfect analogy to summarize my beliefs about the core of this paper: at some point, by misunderstanding the veiled potential of Globalization, as I had explained before. The world's powerful leaders are acting upon it as a phenomenon which deprives us of our uniqueness in order to become universal, creating the opposite effect, inverting a natural law of the Universe.

Somehow I realized that this is perhaps our greatest challenge. Could not Globalization in its broader and practical image signify a world consensus about one tiny single matter? Valuing our essences (which are in deed unique and unrepeatable) in interaction, I mean simply recognizing that our worthiness depends not only on our functioning (which means our performance on the outside) but also on our qualities – our persona – which means our spiritual expression from the inside, recognizing that we all share "that common" (global) place from within ourselves, that particle which can be called our spiritual DNA (for as we already know we have our physical DNA that has been handed down from generation to generation, coding repeated behavior patterns into our being), and from that concept as the starting point strengthening the networks which are already shaping our world, noticing that we are immersed in consensual reality, whereby the world around us reflects societal understanding of how life has been and is to be.

According to Nobel Philosopher Henry Bergson[3] (1911), "… The Whole … is composed of unlike parts that complete each other. It performs diverse functions that involve each other. … while the tendency to individuate is everywhere present in the organized world, it is everywhere opposed by the tendency towards reproduction." As I understand it, in order for an organism to endure, to be perpetuated it needs to be bound up inseparably with the rest of its species and with the Universe, in a broader sense.

Then my mind immediately turned to Timothy Beatley.[4] His discourse, as I sensed it, was about our necessity for "… par-

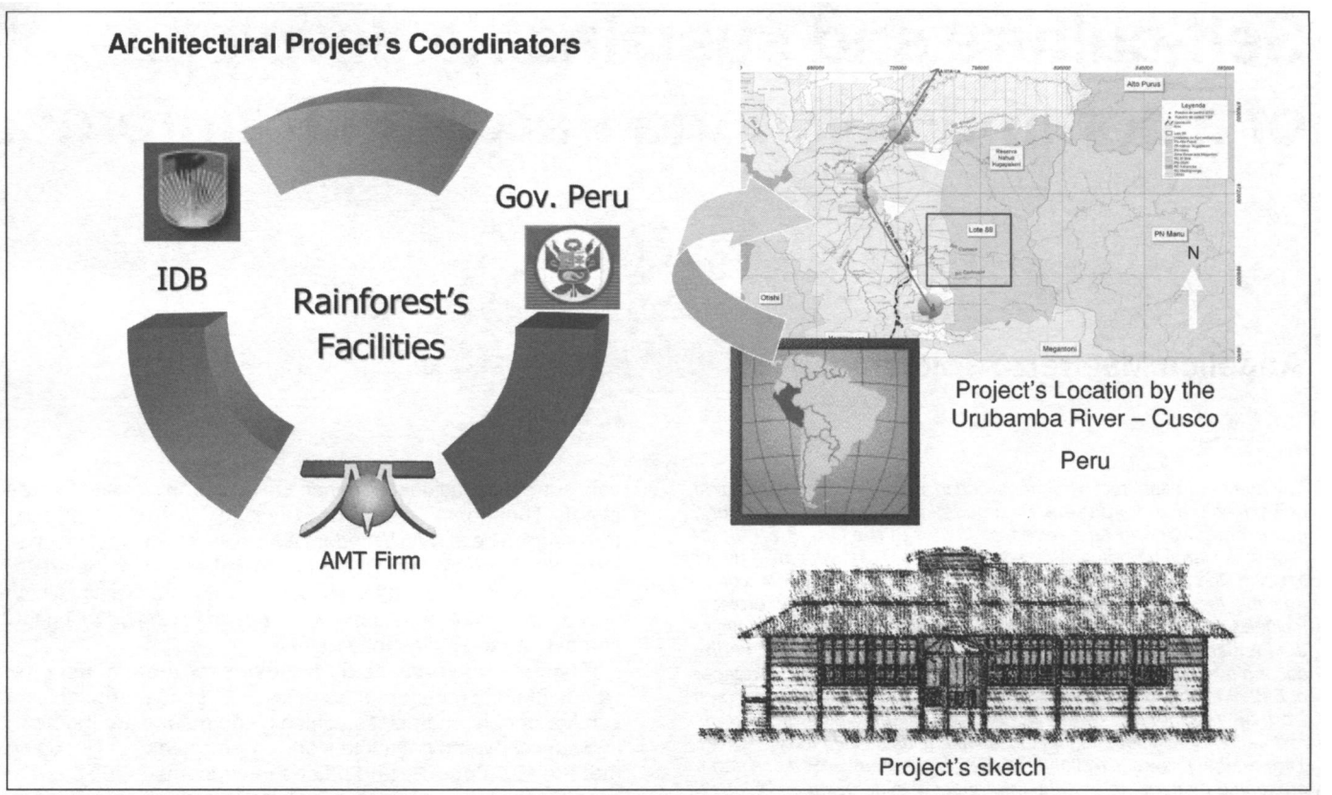

Fig. 1: Sustainable Control and Lookout Post for the Natural Reserve Areas of the Camisea Gas Project in Cusco, Peru. Bottom right: Project's façade sketch. (*Source:* All illustrations by the author, except Institutional Logos, by the Institutions themselves).

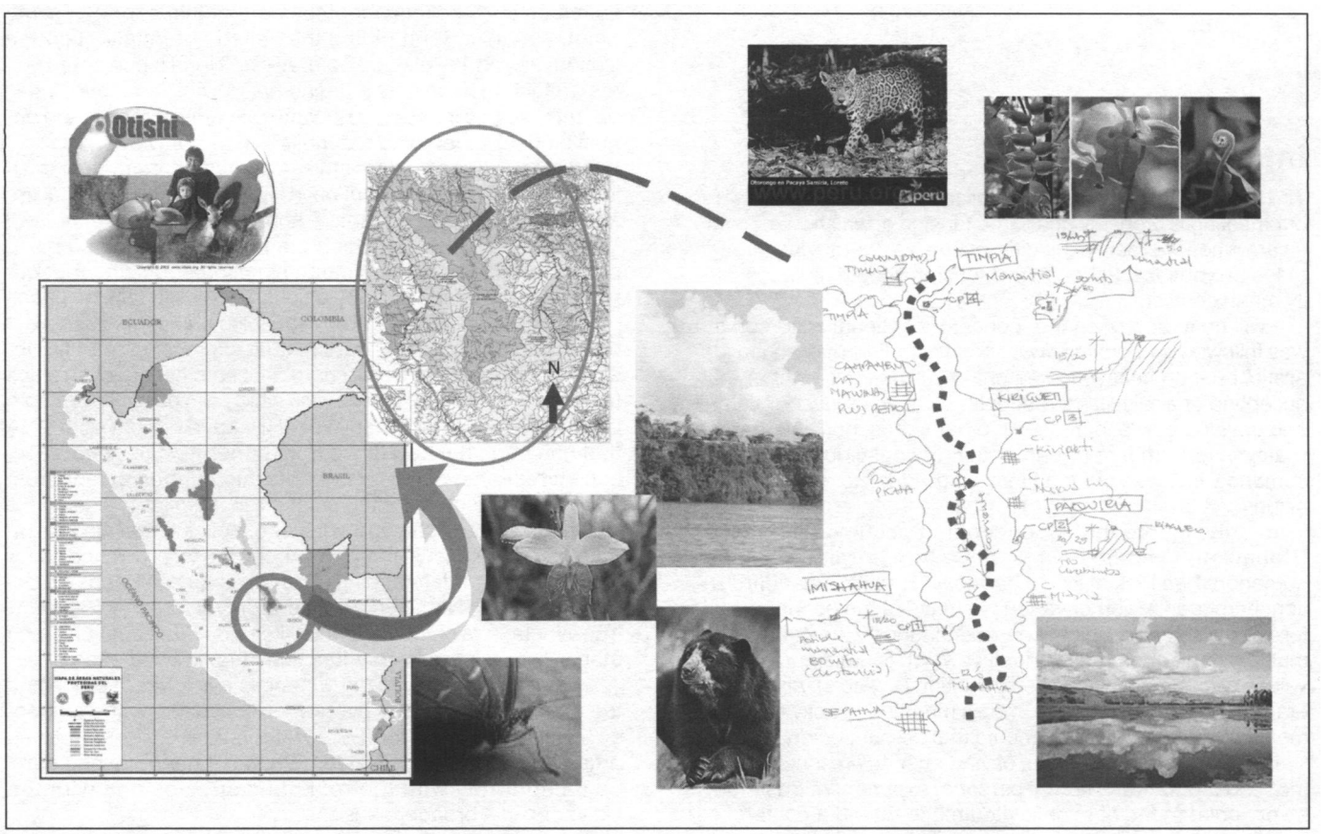

Fig. 2: Location of Machiguenga's native communities. (*Source:* All main maps by INRENA, graphics and photographs by PROFONANPE, PROMPERU, Otishi Web Page, Juan Tokeshi and the author).

ticular and unique places … that provide healthy living environments and also **nourish the soul** …"; honoring ourselves with meaningful lives, recommitting to places, which means "… taking control of our lives." In that sense: "Local communities (striving to be native to its location on Earth) have it within their power to provide a safe harbor for and actively cultivate these unique locals' voices and talents, to the enjoyment of many."

Machiguenga native community's reserve

On the thoughtful suggestion of Professor Goto, to whose studio at Waseda University I came as a research visitor, I will refer to an experience of my latest architectural project, which led me to my country's rainforest, to meet an incredible group of indigenous communities and to encounter a completely different world, a natural virgin one. This project was on designing 04 Sustainable Control and Lookout Post for The Natural Reserve Areas of the Camisea Gas Project in Cusco, for Peru's Ministry of Energy and Mines and the InterAmerican Development Bank Program.[5]

I think it would be interesting if I try to apply his **Local Community Genes Theory**[6] backward in my recount, and work within a hypothesis for that communal reserve sustainable development. In view of my starting my research only in July (this presentation was held at the end of September), I believe it to be a very superficial one; in any case I ask for your patience and Professor Goto's forgiveness for my tentative attempt.

The pretext that Camisea was designed with a specific focus on protecting the area's unique biodiversity and ensuring respect for the indigenous communities living in the surrounding areas[7] is not precisely accurate. When reading Patricia B. Caffrey's 2002 report*: An Independent Environmental and Social Assessment of the Camisea Gas Project*,[6] one notices that the Camisea Project *"… will have negative irreversible impacts on the biodiversity of this area and on indigenous groups living in isolation, regardless of the implementation of the strictest mitigation measures*".[8]

In view of the above, I thought that one should take the opportunity to do something to lessen the degree of failure in the execution of the program. I firmly believed that even the tiniest meaningful contribution could make a difference. At least this was my intention.

Ever since I was assigned the task of chief consultant to the ranger's facilities project – just a year ago in August 2004 – I wondered how much sense of local identity each of the communities might hold, as they had already been exposed to Western civilization in spite of their decision to be voluntarily isolated. How could my design have something to hang on to, just in case.

Talking with one of the native experts on communities was extremely helpful. He introduced me to their own way of life and their expectations, while the Camisea Gas Project was already altering their way of life. I had been told that there existed a millennial transmission of knowledge and culture, from generation to generation, playing an important role in the configuration of the native cultures and in the way communities are distributed and related to space and time.

As there are no settled populations inside the Machiguenga Communal Reserve and the ranger's facilities must be located by the river, I was about to meet the cultural space occupied by the ethno-linguistic communities (organized mostly in Machiguenga's native communities: Timpia, Kirigueti, Mishaua, and then there was Miaria, a different native community called Yine). All these communities settled around the Urubamba River and its tributaries near the main Reserve would essentially act as the ranger's facilities in his connection with people (figs. 1 and 2).

"Tetra-Model" – The local community gene system

Although by the time I was being introduced to the Machiguenga and Yine communities I had already heard about Professor Goto's work, I was not familiar with his Socrates' methodology at all. Thus, this is why I will try to adapt his model to this case study, for the reason that my presence there was to gather information concerning only the feasibility of the location and construction of the ranger's facilities. Optimistically, the outcome of this exploration would be successful.

Professor Goto's theory is based on his own Local Community Gene's System. In order to find the genes, he designed a Mandala[9] Model called a "Tetra Model" which, when sensibly used, provides us with perspectives in implementing regional planning. This approach is more likely to be a "DNA-centered" view, because we are considering the Local Community as a living system, and because I agree with Dr Pier Luigi Luisi that "Life cannot be ascribed to any single molecular component (not even DNA or RNA!) but only to the entire bounded metabolic network".[10] At the end I intend to present a conclusion from an ecologically sustainable perspective.

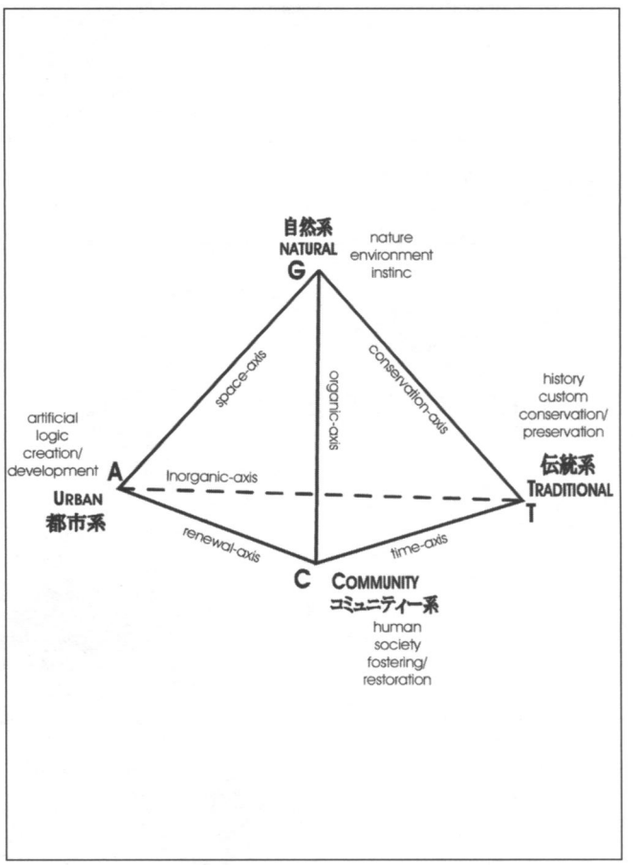

Fig. 3: "Tetra-Model": The local community gene system.

For a better understanding of this theory, let me first set up the biological process we are referring to. In Fridjof Capra's brilliant *The Hidden Connection*[11] when trying to define the nature of life he started specifying the cell as the simplest living system (in fact, the bacterial cell); but life requires metabolic processes (in other words, the patterns of relationship between the macromolecules), which reaffirm the fact that "no individual organism can exist in isolation."

Therefore, the bacteria (cell) as a whole (self-sustainable living system) should distinguish between itself and its "surroundings" for defining its "**identity**" by a membrane-bounded which contains high complex macromolecules. This is where the DNA appears, as the macromolecule in charge of the cell's self-replication as it stores the genetic information; we also have enzymes, structural proteins, and RNA.

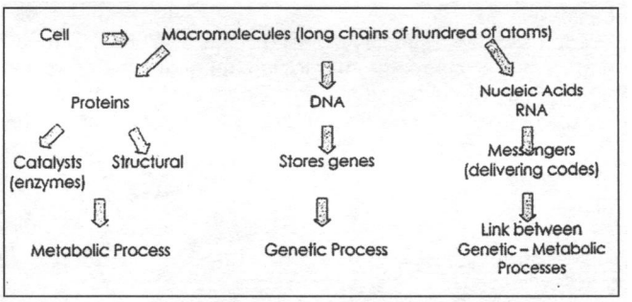

Fig. 4: The autopoietic network.

"It is needed to say that when a cell reproduces, it passes on not only its genes, but also its membranes, enzymes, organelles – in short, the whole cellular network. The new cell is not produced from naked DNA, but from an unbroken continuation of the entire autopoietic[12] network."[11]

Adapting the "Tetra-Model" to the case study

We are going to analyze the community features as a sequence on a particular side-by-side arrangement of bases along the biological DNA strand (e.g., ATTCCGGA) considering its respective developing space as the chromosome.

Natural Gene:

• ***Theme Chromosome***: Located in the Vilcabamba Range the Machiguenga Communal Reserve presents *sui generis* characteristics: various ecosystems and biological diversity.

This area is considered to be one of the 25 hot spots for natural conservation areas in the world.

– ***Environment DNA:*** The Machiguenga Communal Reserve is located in the central part on the eastern side of the Vilcabamba Mountain Range, in the district of Echarate, county of La Concepción, department of Cusco, over a surface of 218 905.63 ha.

100 percent of the territory of the National Park is located

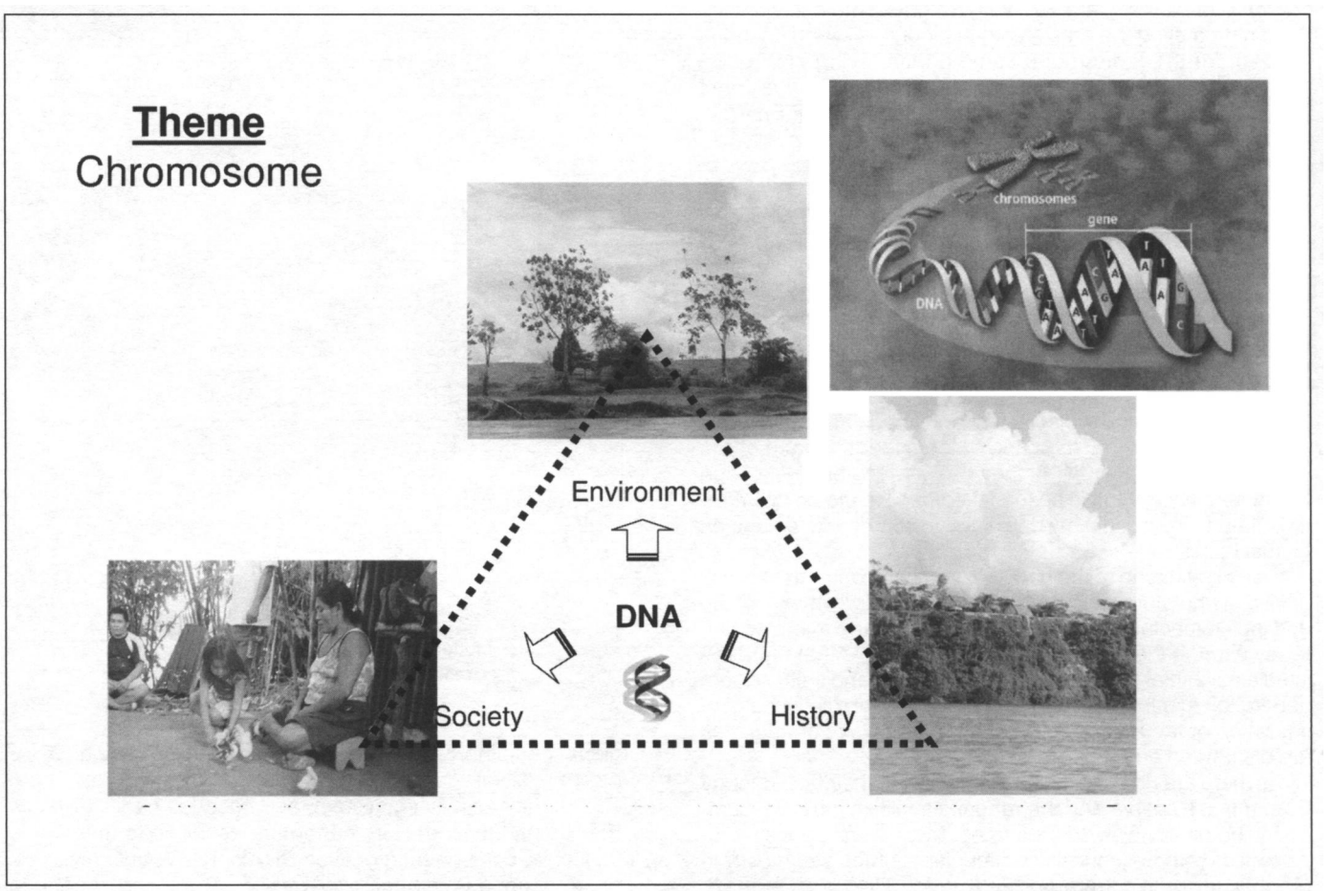

Fig. 5: Adapting the "Tetra-Model to Machiguenga's native communities: Theme chromosome. (*Source:* Graphics by the author except dna graphic, from http://academy.d20.co.edu/kadets/lundberg/dna.html and photographs by Juan Tokeshi).

on mountainous lands.

100 percent of the Park is classified for protection purposes.

99.78 percent of the Park has little or no intervention of human activity.

– ***History DNA:*** The largest of several local indigenous groups, the Machiguenga, have inhabited the area for more than 5,000 years.

The last 30 years was needed to create the Otishi National Park and the Machiguenga and Ashaninka Communal Reserves.

– ***Society DNA:*** Traditionally, the fundamental unit of the Machiguenga society is balanced by complementary functions of men and women in a self-sufficient community and non-violent society.

Traditional Gene:

• ***Evaluation Chromosome:*** Inhabited area for over 5,000 years, in a matrilocal pattern of residence.

Use of forest products within a mystic value and practice swidden agriculture.

The Master Plan contemplates the conservation of the natural resources of the location.

– ***Custom DNA:*** Matrilocal pattern of residence:

They use the forest products within a mystic value that they bestow on the forest.

The Machiguenga practice of long-fallow swidden agriculture, growing

Manioc (yuca), bananas, maize, sweet potatoes, cotton, peanuts, cultivation of coffee and cacao, and a variety of other crops in small gardens cleared out of the forest.

They supplement their diet with fish, game, fruits and other foods gathered in the extensive forests and small streams of their environment.

– ***Logic DNA:*** Magic-Religious

The Machiguenga believe the Pongo de Manrique, or Megantoni, is the most sacred site in the world – the holiest of holies. Legend has it that when a Machiguenga dies, his or her soul descends into the great rapids at Tonkini Falls for the final judgment and journey to Heaven or Hell.

– ***Instinct DNA:*** Survival

Community Gene:

• ***Plan Chromosome:*** Ecosystem based on symbiosis parts interaction.

Around 500 Machiguenga and Yine families are organized in a self-sufficient and non-violent society, whose foundation is the balance of complementary functions between genders and a profound knowledge and respect for the forest.

– ***Conservation/Restoration DNA:*** The Plan for the Machiguenga Communal Reserve considers the main objective to be the contribution to the conservation of the natural resources on the eastern slope of the Vilcabamba Mountain Range.

– ***Fostering/Restoration DNA:*** The protected areas are designed to be mutually beneficial. Otishi National Park protects the watershed that sustains local rivers, and the traditional way of life depends on a healthy forest. The presence of indigenous communities near the park can help protect it, while park officials can guard against invaders of the reserves.

Unfortunately, the Camisea Gas Project will have a negative effect on this almost perfect scheme if the environmental management processes do not abide to the conservation of the Cordillera del Vilcabamba.

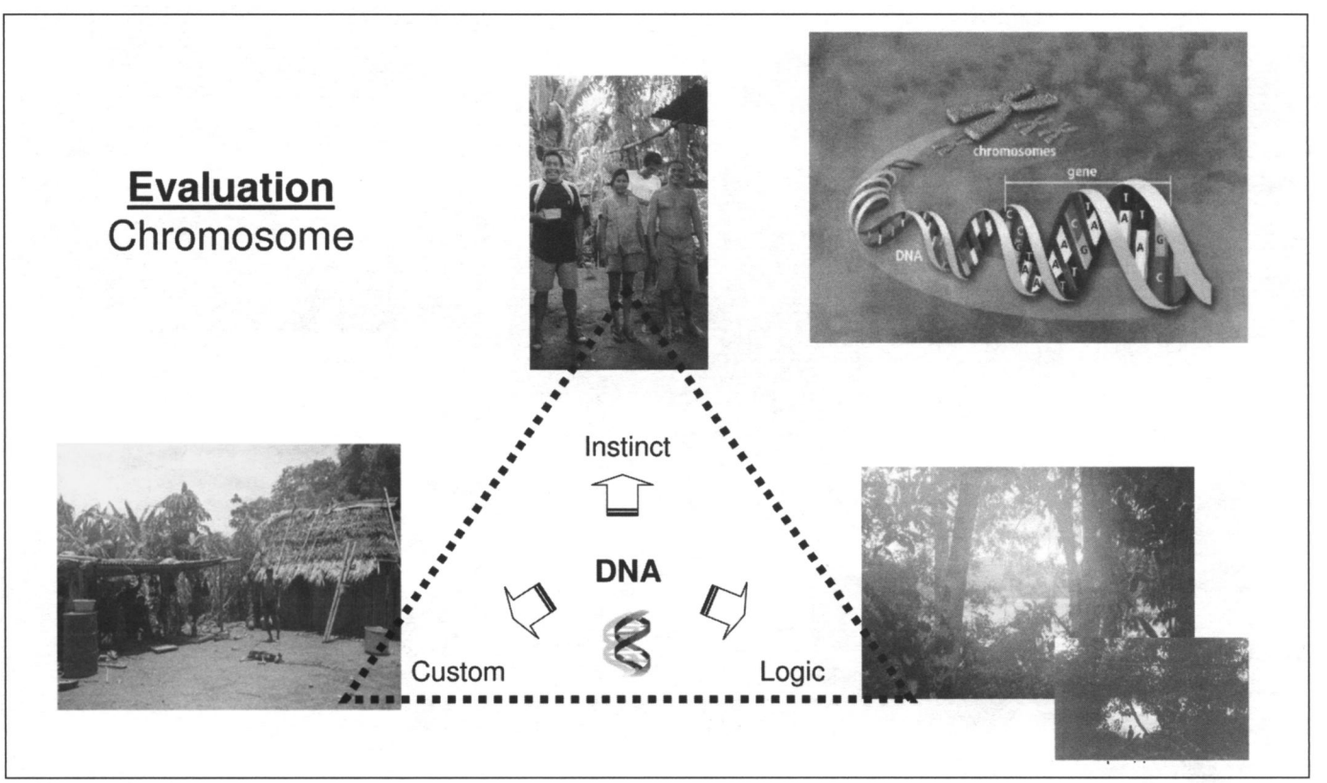

Fig. 6: Adapting the "Tetra-Model to Machiguenga's native communities: Reserve chromosome. . *(Source:* Graphics by the author except dna graphic, from http://academy.d20.co.edu/kadets/lundberg/dna.html and photographs by Juan Tokeshi).

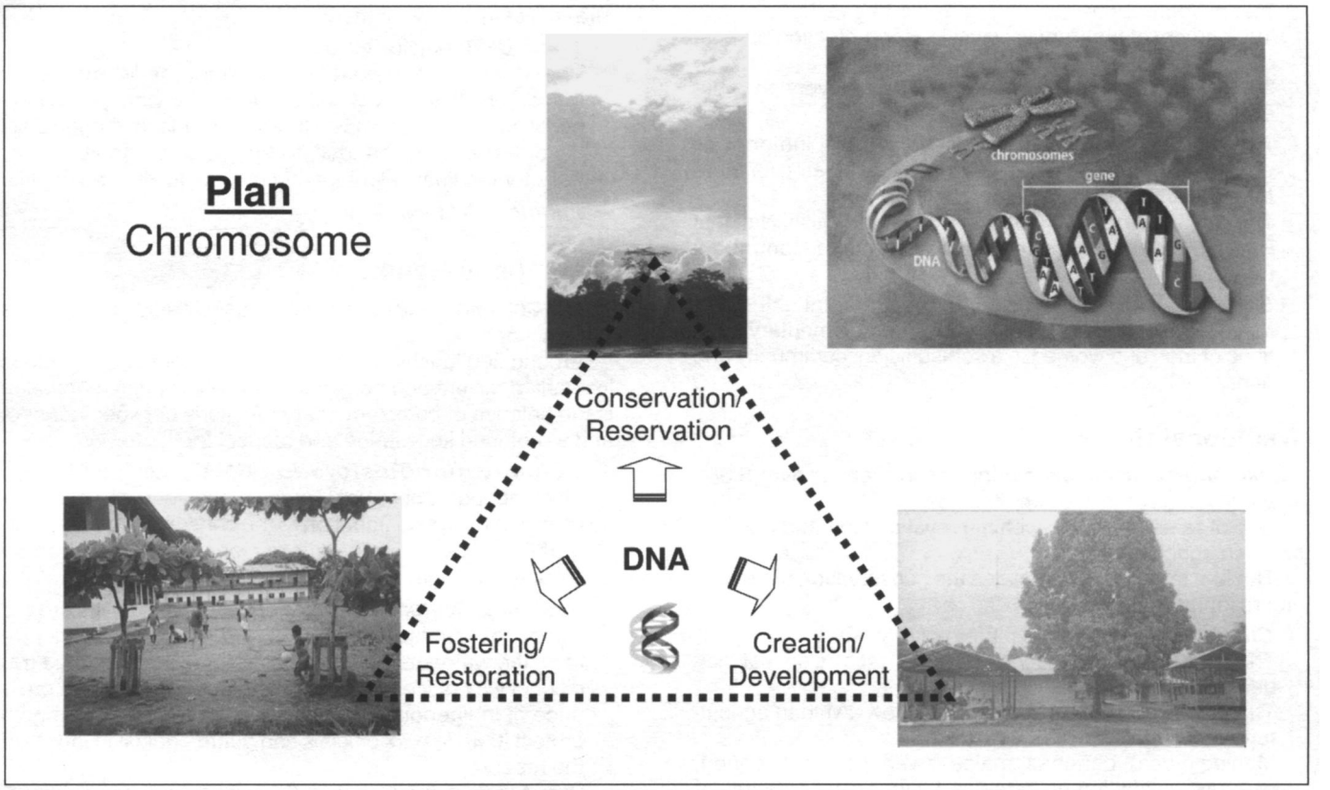

Fig. 7: Adapting the "Tetra-Model to Machiguenga's native communities: Plan chromosome. (*Source:* Graphics by the author except dna graphic, from http://academy.d20.co.edu/kadets/lundberg/dna.html and photographs by Juan Tokeshi).

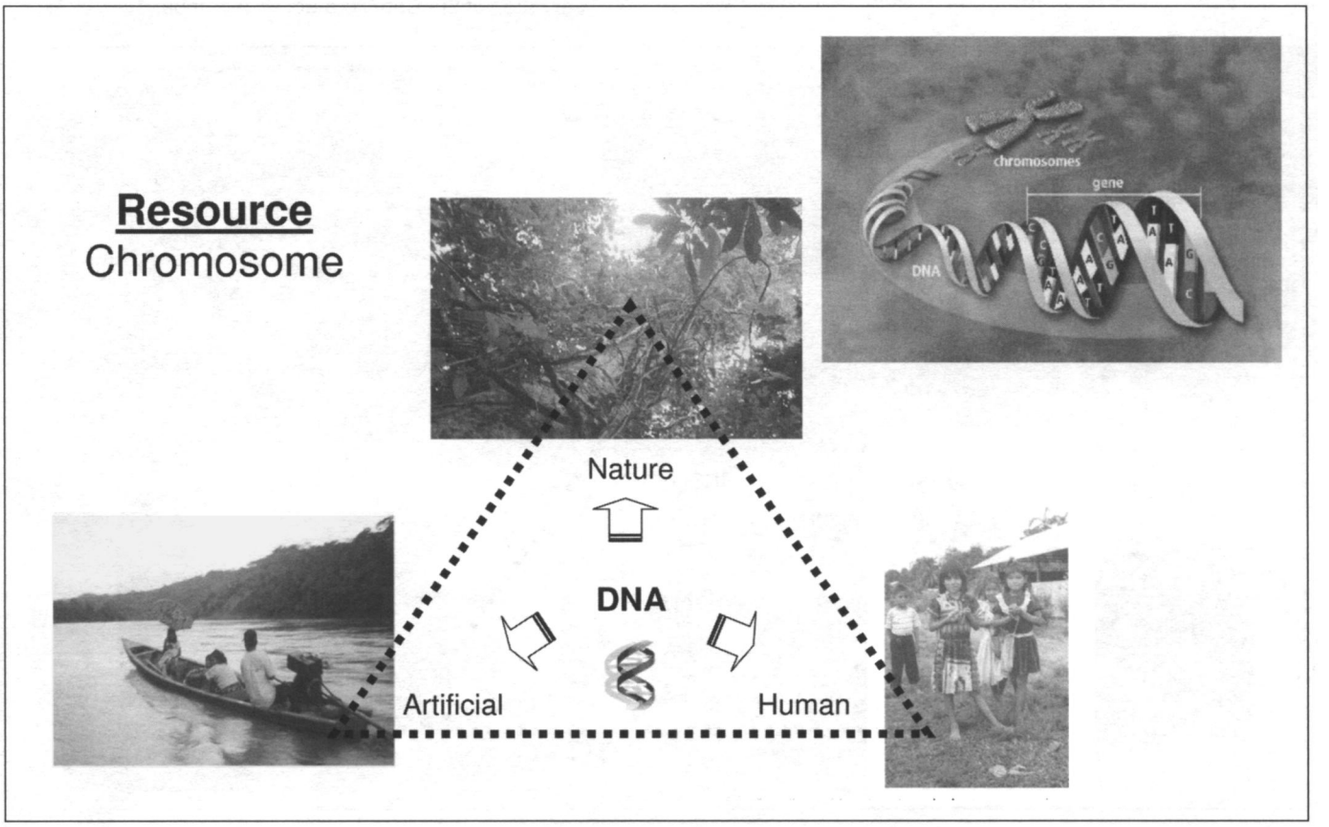

Fig. 8: Adapting the "Tetra-Model to Machiguenga's native communities: Evaluation chromosome. (*Source:* Graphics by the author except dna graphic, from http://academy.d20.co.edu/kadets/lundberg/dna.html and photographs by Juan Tokeshi).

– ***Creation/Development DNA:*** To reinforce both the search for and the establishment of new economic alternatives, formal education and more biomedical health care.

As ethno-botanist Glenn Shepard affirms,[13] the medicinal knowledge of indigenous and tribal peoples is an important source for guiding pharmacological research. The strongest measures should be taken in order to fight and prevent the "biopiracy" on behalf of these communities.

Urban Gene:

• ***Resource Chromosome:*** Use of some modern communication systems but traditional carpentry techniques are kept for house-making.

Settled around the Urubamba River and its tributaries, the Machiguenga Community has a Magic-Religious Cosmo Vision on which the Pongo de Manrique or Megatoni is the holiest site of the world.

– ***Nature DNA:*** The Machiguenga Communal Reserve is situated on the eastern flanks of the Cordillera Vilcabamba in the transition of mountain to basal-tropical forests and between the tropical and subtropical areas. This special location gives sui generis characteristics to the Reserve regarding the ecosystems and the biological diversity present within its boundaries. Given the existing pressure over the resources of the lower areas that have good accessibility, the upper and intermediate areas of the cordillera have become shelters for flora and fauna; therefore, these parts represent very important areas for the biological cycle of the species. The area embraced by the Reserve is the area of traditional use by the Machiguenga communities, who are settled on the left riverbank of the Urubamba River, to collect the flora and fauna that are used as food, medicine and for the building of housing, as well as for other uses.

– ***Artificial DNA:*** communication system (radio)
Clothes (synthetic fibers)
Transportation (nautical - *chalupas*)
Houses

– ***Human DNA:*** Machiguenga Communities
Timpia: 126 families
Kirigueti: around 180 families
Mishaua: around 160 families
Yine Community
Miaria: less than 100 Yine families.

Trying to define the Machiguenga Community's GENOME

Once one has identified and delved into the DNA to discover the very part of the genes according to the tetra model, it seems the path would lead us home.

I feel that, in our time, this is one of the rare cases of sustainable eco-systems in which man is naturally involved, in which self-identity truly merges with the natural world and becomes one.

This might be the key for defining the Machiguenga Community's Genome. It is inexorably linked to its habitat as this people and their community "*are*" the forest.

By now, another question comes to mind. Can we think of Global Capitalism as a inherited disease or is it more like a cancer that can be invasive or non-invasive?

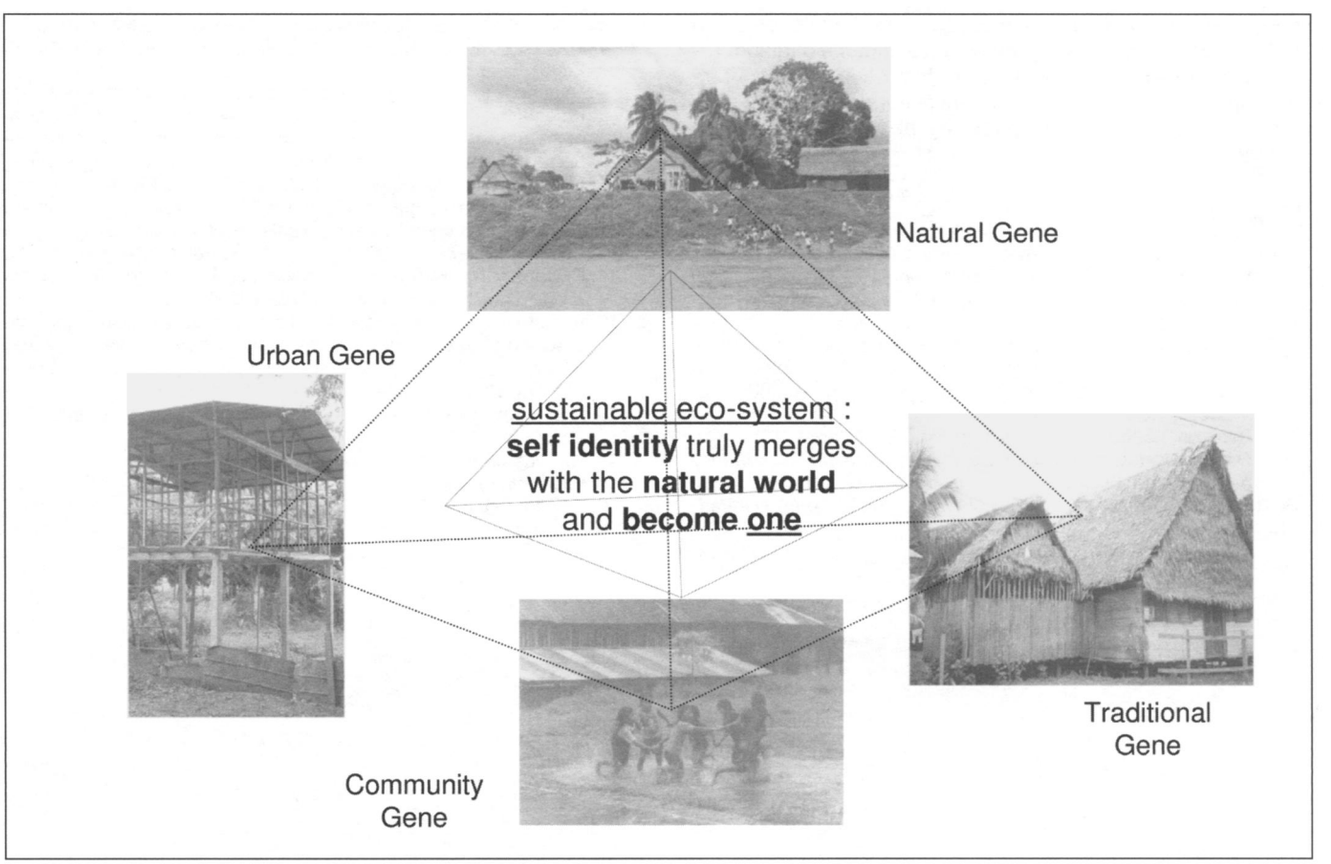

Fig. 9: Machiguenga community's genome. (*Source:* Graphics by the author and photographs by Juan Tokeshi).

What about globalization in the Machiguenga world?

We were studying the Machiguenga Local Community as a living organism. Consequently change is inevitable. At the very beginning we said that an organism which lives is a thing that endures. Therefore, time is involved; and time matters because our world is regulated by time. And, as Bergson said, "wherever anything lives, there is, open somewhere, a register in which time is being inscribed. …Life … progresses and endures in time. Life proceed by insinuation … living matter seems to have no other means of turning circumstances to good account than by adapting itself to them passively at the outset."[14]

Capra identified three major avenues of evolutionary creativity[15]: mutation (or chance error in self-replication); gene trading (freely passing hereditary traits from one to another in a global exchange network or DNA recombination) and symbiogenesis (occurring when the mergers of independent organisms actually form composites).

I sensed a turning point related to the survival of the Machiguenga as a community. Once I heard that cancer is like denial. This may be true, we are trying to become something we are not, and by doing that we are destroying our very essence. In that sense, we could tell that Globalization, as an economic phenomenon, is like a cancer which is already touching the Machiguenga's existence. As political appeal, economic interests, and bureaucracies prevail over genuinely sensitive ecological consciousness, environmental management trends to consumer models that causes reduction of biodiversity.

Here I found it interesting to quote Bergson again: "the present contains nothing more than the past, and what is found in the effect was already in the cause".[16] The challenge could be to apply and to enhance the positive aspects of globalization as technological progress and information-education access and bond them with the unique cultural values and wise and loving use of natural resources by the Machiguenga community.

Notes

1. A term coined by N. Greenwood in *World of Our Making: Rules and Rule in Social Theory and International Relations (Studies in International Relations)*, (Columbia, SC, University of South Carolina Press, 1989).
2. M. Barnett, "Social constructivism" in J. Baylis and S. Smith (eds.), *The Globalization of World Politics, an introduction to international relations* (New York, Oxford, Oxford University Press, 2005), pp. 251-269.
3. H. Bergson, *Creative Evolution* (London, MacMillan, 1911).
4. T. Beatley, *Native to Nowhere, Sustaining Home and Community in a Global Age* (Washington, DC, Island Press, 2004), pp. 2-24.
5. The Camisea natural gas project is one of the key energy infrastructure projects in Latin America. Camisea is expected to greatly contribute to the economic development of Peru. The project will also help Peru meets its energy needs and export natural gas. The program has been instrumental in establishing new protected areas: Otishi National Park, the Ashaninka and Machiguenga Communal Reserves, and the Megantoni Sanctuary. Final determination of the Megantoni Sanctuary's protected status is expected in June. The master plan for Otishi National Park was approved in February of 2005. The park director and two professional staff have been hired. The process of hiring four rangers is nearly complete, and the process for construction of ranger stations has begun in Otishi National Park and the Lower Urubamba. http://www.iadb.org/
6. H. Goto, "Urban and rural areas as defined by population density in Japan," in *Ekistics,* vol. 69, no. 415/416/417 (Aug.-Dec. 2002), pp. 331-332.
7. Even in the seemingly remote region around Otishi, the threats to biodiversity and sustainable development are real. Chief among these are the logging and petroleum industries -- and the settlers that their roads can bring. Of particular concern is the pipeline for the Camisea natural gas project. The Camisea natural gas fields contain by far the largest hydrocarbon reserves in Peru, more than enough to meet Peru's demands for 25 years. The pipeline, leading to other parts of the country and beyond, is slated to pass through the southeast part of the Machiguenga Community Reserve. Without careful planning, new access routes along the pipeline could encourage a wave of migration, causing environmental destruction and disruption of indigenous communities in this previously intact area. The Tropical Andes hotspot harbors more species -- and more endemic species -- than anywhere else on Earth. It is home to a staggering 45,000 recorded plant species, 20,000 of which live here alone. Of 1,666 bird species, 677 are endemic, more than in any other region. A remarkable 604 of 830 amphibians live only in the Andes as well, along with such mammals as the spectacled bear, the yellow-tailed woolly monkey and the Andean tapir. http://www.conservation.org/xp/frontlines/people/impact24.xml (accessed September 2nd, 2005)
8. http://www.amazonalliance.org/ Camisea_EnvSocReports/C2002_04 Caffey_IND_camisea_ESIR.pdf (accessed August 26th, 2005).
9. "A generic term for any plan, chart, or geometric pattern which represents the cosmos metaphysically or symbolically, a microcosm of the universe from the human perspective" Wikipedia contributors, "Mandala," Wikipedia, The Free Encyclopedia, http://en.wikipedia.org/wiki/Mandala (accessed March 10, 2006).
10. P.L. Luisi, "Defining the transition to life: Self-replicating bounded structures and chemical autopoiesis" in W. Stein and F.J. Varela (eds.), *Thinking about Biology* (New York, Addison-Wesley, 1993).
11. F. Capra, *The Hidden Connections, A Science for Sustainable Living* (New York, First Anchor Books Edition, 2004).
12. An autopoietic network is an autonomous and self-maintaining unity which contains component-producing processes network. Principia Cybernetica Web http://pespmc1.vub.ac.be/ASC/AUTOPOIESIS.html (accessed on April 10th, 2006)
13. http://www.pbs.org/edens/manu/index.htm (accessed August 25th, 2005).
14. H. Bergson, *op. cit.*
15. F. Capra, *op. cit.*
16. H. Bergson, *op. cit.*