

***Cultural, social and economic
issues of sustainable
development***

***The case of local development
policies in Brazil***

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A GLOBAL SYSTEM: COMPLEXITY AND CONTINGENCY

- * The **network connexion** of the world society has produced a global system.
- * **Interrelations and interdependencies** between different places in the world have created a high level of **complexity** in this global system.
- * This planetary connectivity is based on transportation and communication technologies which produces a new logic characterized by acceleration.
- * This new logic implies **changes** in the production process, in social communication and in the way of thinking.
- * In this way, **world has become a world of possibilities (contingency law)**. Those possibilities become threats or great opportunities for each territories.
- * All depends on the way people **organize their own complexity** to face such challenges.

THINKING COMPLEXITY

- * It is necessary to create a new state of mind in order to understand this complexity situation, with the laws and principles which rule the world dynamics.
- * Complexity cannot be understood through a positivist or an analytic approach.
- * **The global system** is more than the addition of its parts, because it is produced by synergic interactions.
- * Complexity is expressed by specific and regular states of the system. System properties do not belong to any singular interactive element, but to the interaction between all elements itself.
- * When considering each territory as a global and contingent system sub-system, we need to understand also laws and principles which rule complex facts dynamics, as people live them effectively in those territories (i.e. the interactions between natural elements, socially built environment and most of all society).

TOWARDS A SUSTAINABLE DEVELOPMENT

- * Development is created through the expression of local systems properties as a synergic process (produced by the interactions, the internal connexions), ready to be adapted to the surroundings modifications where it takes place.
- * The aim of development is to go from the actual local situation, as given by the territory, towards another situation, where the options are increased.
- * To achieve system sustainability, development cannot be conceived as the addition of separate actions or projects. It is necessary to understand the principles which rule each highly complex territory, in order to evaluate the intrinsic relevance of each action or project in each territory.
- * In that way, sustainable development projects should not be confined to the availability of technical instruments able to create economic growth and material goods, they represent a **multidimensional qualitative proposition, able to increase fundamental human needs (material and spiritual) satisfaction options.**

IN SEARCH OF A DYNAMIC BALANCE IN THE GLOBAL SYSTEM

- * Each territory dynamic balance, as a **sub-system**, is the outcome of **internal** and **external** forces. Territory has to be integrated in the system environment; and its aim has to be precisely defined.
- * The possibility of sustainable development and of interdependence between the micro-scale (the territory) and the global system can increase the level of complexity from the top to the bottom.
- * At the same time, **local development can spread through the system by capillarity.**
- * This situation contributes to a better dynamic balance inside the global system.

LOCAL DEVELOPMENT TOWARDS SUSTAINABILITY

IMMATERIAL PHENOMENA

- * Local development properties appear as phenomena emerging from long term interactions.
- * They constitute essentially cultural, social and political phenomena, so immaterial phenomena.
- * They appear as new values and norms, new projects collectively adopted, alliance agreements, shared experiences and knowledge, governance, etc.
- * Emerging properties depend on local system level of complexity.

TOWARDS A BETTER EQUITY IN SOCIO-ECONOMIC SYSTEM

- * The main issue of development is to promote a better equity in the socio-economic system.
- * To achieve sustainable development, social organization ability and association ability are necessary. They represent the **social capital**.
- * The knowledge (academic or empiric), the know-how, the healthcare constitute **the human capital**.

THE SOCIAL DIMENSION IN LATIN AMERICA AND BRAZIL

- * Economic recession during '80s and slow growth during the '90s made it difficult to include native Americans in Latin American development process.
- * Till 1950, near 70% of Brazilians lived in the countryside, in 1997, 80% live in urban cities. This population is mostly young, 40% are illiterate persons, and they lack any qualifications or skills to be able to participate to the activities of industrial economy. They are excluded from the economic growth.
- * This crowd of excluded people is appealed by a modern conception of society, but participates only symbolically to it. Those people only suffer from material deprivation and frustrated aspirations. They become more and more vulnerable.
- * Social inequalities in Brazil are among the highest in the world. On 170 millions inhabitants, 30 millions lived below the poverty line.

SOCIAL REFORMS

- * In Brazil, **the '90s are years of social reform.**
- * Brazilians enter in the new millenium with smaller families, more children at school, and many ol- aged people. In ten years, the proportion of children from 7 to 14 who do not attend school has been decreased from 16% to 4%.
- * **Education institution** have been deeply reformed, they received **significant amount of money to measure and evaluate** research and education performance and students results.
- * **Women participation to social and political life has been improved.** They can choose to have or not to have children, and they benefit from better job opportunities.
- * Most of the time, women jobs are more precarious, and **gender discrimination still exists**, average women wages are lower than men wages. But things are changing. Women begin to reach positions where they have the power to decide and manage.
- * The private sector invests more and more money in **research and development**, The government part drops from 73% in 1990 to 64% in 1997. Many industrial sectors have been modernized through the implementation of new technologies.
- * But an important social inequality remains.

IBERIA MATRIX IN LATIN AMERICA AND BRAZIL

- * The **values**, the **cognitive system**, the **representation**, have a significant impact on the development outcome. Culture stimulates local actors and enhances **creative answers** and **cooperation actions** to balance social organism disturbances.
- * Latin American populations are not linked in homogenous societies, and stabilized by a long historic process as European populations are. They have in common the Iberia matrix, as a result of economic, demographic and cultural expansion of the European universe since the XVIth century.
- * **Iberia heritage** is easy to observe through language, gesture, habits, arts, etc. But each country has its specificities.
- * Latin America own culture emerged only during the XIXth century, because of the **colonial desegregation**.
- * At the end of XIXth century and all along the XXth century, they received seeds of modernity from Europe.
- * XXIst century begins with this heritage: very different societies, characterized by a high proportion of excluded people.

SUPPORT MINORITIES

- * When a minimal balance between human psychological needs and actual life conditions is obtained, it becomes possible to restore values, ideals, and creation potentials in traditional cultures dynamics.
- * It is very important to promote cultural minority groups when opening places for local communities expression.
- * **Creativity** is the path towards **innovation** and enhances dynamism towards **appropriate and balanced local answers**.

TOWARDS EQUAL RIGHTS

- * A **fair** society which allows an harmonious human development supposes a **social agreement** on the principles of **freedom** and **equal rights**.
- * In that perspective, social participation process must be enhanced to promote discussion and consensus. Joint actions promote a **new relationship between the State and the society**.
- * In this process, each social group is promoted and human rights are protected.
- * **The political consensus, the social agreement, the cooperation culture, the ability to create collectively development projects are the origin of the political and public power.**

BUILDING A NEW RELATION BETWEEN THE STATE AND THE SOCIETY

- * From a system theory or a holistic perspective, if we consider paradigms changes, development is **endogenous and local**.
- * It begins with effective actual local initiatives, and uses synergy as its most important motor for internal transformation.
- * Proposals emerging from local systems offer **better opportunities** to allow each community to choose its own destiny, according to its potentialities and aspirations.
- * At the same time, they prevent the danger of breaking the internal dynamic balance between the various dimensions of society and nature. This environment should remain **in harmony with the larger context** in which it is included.
- * Main barriers to development in Latin America are: strong hierarchy in social life, authoritarianism, patronizing, ethnic conflicts, which are the roots of the persistence of inequality.
- * The path towards democracy is hindered by the difficult life of excluded population. Misery deprives people of self esteem and human beings dignity. The lack of options produces the feeling that freedom is denied to them.

TO DEVELOP RELEVANT TECHNOLOGIES IN THE LOCAL CONTEXTS

- * Only societies who support synergies are able to create situations which allow mutual trust, cooperation, solidarity, mutual recognition. They are able to develop a community spirit and to integrate within the nature the complex relations they have established locally.
- * This global context, to which each local community is connected, has to promote sustainable development in order to preserve the opportunities of future generations.
- * In that way, **Brazilian engineers** have to create, adapt and incorporate new technologies according to the needs and demands of each local community.
- * They have to restore the balance of many ecosystems threatened by aggressive modernization technologies which prevailed during the second part of XXth century.
- * The national context, the Latin American culture and at the same time, the global context should never be missed in a sustainable perspective.

SCIENCE AND TECHNOLOGY IN BRAZIL

- * Universities and research centers are isolated from the social reality. Private sector support to research and development remains low. Research depends almost exclusively from the State.
- * In 2000, the National Council for Science and Technology in partnership with other institutions has launched a new system of information on researchers : the LATTES portal.
- * This electronic portal presents 280.000 curricula which are classified and available for every researcher.
- * This example has been followed by CYLAC in 2001 and by Mexico and Columbia. This initiative between helps creating networks among researchers and private or public institutions.
- * To bring social and economic development, science needs to be disseminated in the Brazilian society.

TO ADAPT TECHNOLOGIES TO LOCAL NEEDS

- * Technologies have been adapted through imported experiences since the '30s. This adaptation followed the demands of the local productive forces, later after the global system demand.
- * Today, **the number of technicians and scientists increases highly**, which allows a better level of adaptation to local situations.
- * In Brazil, there are 136 universities, and c.a. 1800 PhD

SOME EXAMPLES OF TECHNOLOGIES RELEVANT FOR LOCAL NEEDS

- * Alcohol from sugar cane is used as green oil. Half of the cars in Brazil are using this kind of oil.
- * In the same way, bio-diesel from oilseeds is developing.
- * Research programs towards a “food insurance” are in progress, under the current impulse of President Lula’s program “Zero Hunger”.
- * In partnership with my university, the “manioc macaroni” is under development. This experiment promotes a “manioc chain” (connexion between all production stages). It is based on local entrepreneurs initiatives in a sustainable perspective.