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## **Towards an interaction evaluation between dimensions and objectives of sustainable development at territorial levels**

Philippe Woloszyn (ESO UMR 6590 CNRS-Université de Rennes 2) and Guillaume Faburel (BR *Aménités*, Lab'Urba, Université Paris Est Créteil Val-de-Marne).

### **Abstract**

The European Union and its member states, along with governments from around the world, have affirmed support for sustainable development, recently agreeing that the developed countries must take the lead in securing a “*shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems*” (WSSD, 2002).

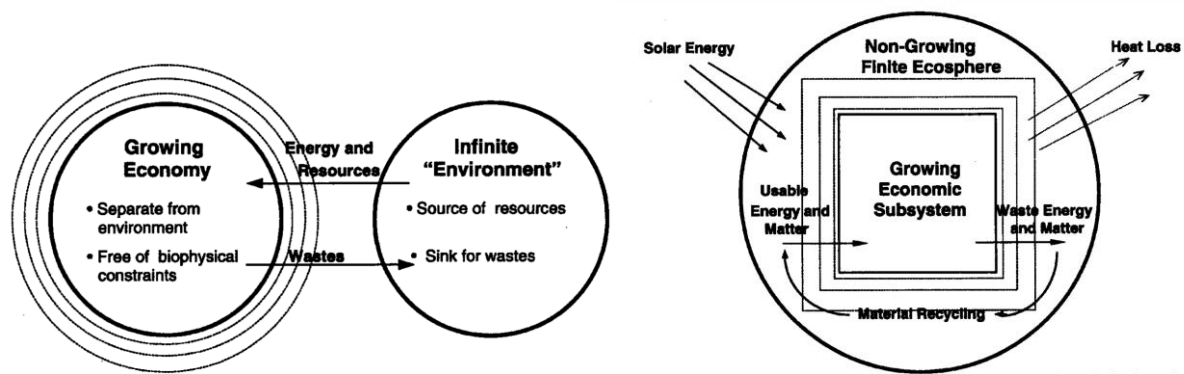
In a general sense, one could say that sustainable development is concerned with “quality of life” refereeing to the needs of people regarding available territory resources. Concerned skills are world-interaction ethical development, namely involving our relationships with the non-human natural world. So, heart of this positioning involves continuing human development within the context of a living planet, where the human quest for a better life does not take place at the expense of the world’s ecological resources.

Involving trade-offs between social-cultural, economic and ecological developments, sustainable development pursues the goal of more liveable, viable and equitable development. These theoretical proposals often suffer from a deficit of comprehension and range of its goals combinations sought (European commission 2009). These combinations can be internal, involving articulation between economic (Rees, 2003), social (Kollmuss & al., 2002) and environmental dimensions (Ahmed & al. 2004). They can also be external, involving articulation between liveable, viable and equitable qualities (Holling, 2001; Giddings & al. 2002).

These multiplicities and instabilities affect singularly the application of sustainable development by local governments and their various stakeholders. Compromises between social, economical and ecological dimensions have to be defined through, for instance, globalisation environmental dumping (Spangenberg & Bonniot, 1998), socio-environmental assessment (Blake, 1999), and eco-efficiency viability development (Martens & Rotmans, 2005). Territories and local governance, their objectives of sustainability, their policy goals, their resources, skills and - dialogical, valuation... - tools should be investigated in a multidisciplinary manner to better understand their core role in viable, liveable and equitable perspectives, so to feed territorial intelligence face to socio-ecological transition of cities.

### **From economics to environment: the “econology” pillar combination. (viable)**

The “econological” paradigmatic change, starting from neo-classical economics which states a separate organisation from environment and a total freedom from biophysical constraints, considers economy as an open, growing totally dependant subsystem of a closed, non-growing finite ecosphere system. Considering economy itself as a highly-ordered dynamic system governed by the second law of thermodynamics, its entropy is directly in- and out-putting to ecosphere energy/matter equilibrium (Rees 2003).



From expansionist (neo-classical economics) to “ecological” paradigm (Rees 2003)

From this point of view, human society remains dependent of the ecosphere for both usable energy/matter production and waste assimilation. Thus, this new “ecological” uses and practices involves a technical cost-minimisation strategy for industry and an alternative to labour-saving investment - a form of « ecological rationalisation » which will lead simultaneously to greater ecological and economic efficiency (Janicke, 1988).

Therefore, when talking about *sustainable development eco-environmental objectives convergence*, industrial societies usually refers to broadly framed « environmental political » strategies commonly found in industrial countries. Its underlying strategies are remedial (compensation and environmental restoration), preventive (technical pollution control) or predictive-anticipatory (environmentally friendly technical innovation).

Hajer (1995) considers economistic - framing environmental problems in monetary terms, portraying environmental protection as a « positive sum » game and following a utilitarian logic. At the core of sustainable development eco-environmental objectives convergence is the idea that pollution prevention pays: it is “*essentially an efficiency-oriented approach to the environment*”. In other words, economic growth and environmental problems resolution can be reconciled, as: “*sustainable development eco-environmental objectives convergence uses the language of business and conceptualises environmental pollution as a matter of inefficiency while operating within the bounds of cost-effectiveness and bureaucratic efficiency*” (Hajer 1995).

For Weale (1992), sustainable development eco-environmental objectives convergence necessary involves a new belief system that explicitly articulates and organises ideas of ecological emancipation which may remain confused and contradictory in a less self-conscious discourse. It is an ideology based around, but extending beyond, the understanding that environmental protection is a precondition of long-term economic development, thus claiming for an important role of belief systems in public policy organisation and legitimisation.

Hajer (*op. cit.*) is most effective when suggesting that eco-environmental objectives convergence is based on a fundamental belief in progress and problem-solving capacity of modern techniques and skills of social engineering.

### From economics to social: the “social capital” ecosocial combination. (equitable/social justice)

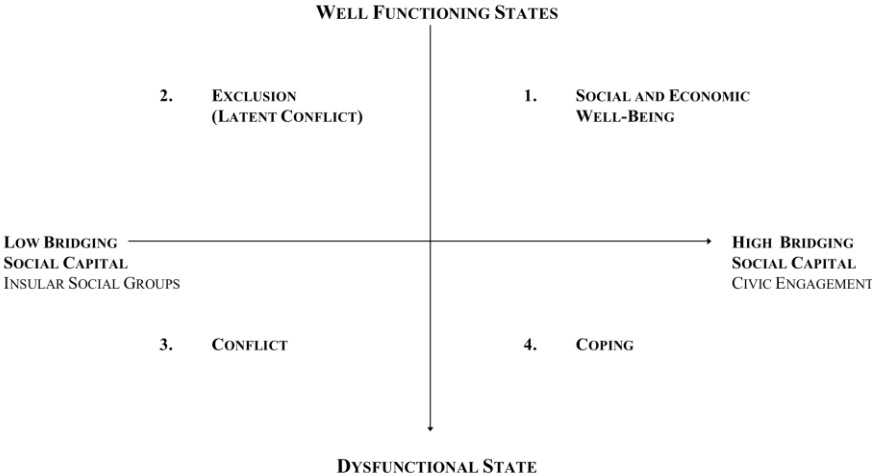
Economical trades of social aspects are related to the behaviour of the various actors

(individuals, institutions or communities). To facilitate the sustainable development, people need a sufficient impact in the social space to act. This requires taking both economic organization identity factors and environmental parameters into account. Analogy with Fukuyama’s “Circle of truth” (Fukuyama, 1995) refers to the area in an individual’s social space of the relations whom he considers as reliable landmarks of the social space within which he feels "adapted" to interact socially.

Therefore, “social capital”, first introduced by World Bank Vice President Ismail Serageldin as a quantifiable component of meso-level economic activity, is generally declined as the information, trust, and norms of reciprocity inhering in one's social networks seemingly obvious opportunities for mutually beneficial collective action are squandered (Raskin 1998). To physical and human capital, economists, sociologists and political scientists working within the field of the so-called “new economic sociology” have thus defined social capital as a tool encompassing the norms and networks facilitating collective action for mutual benefit. (Talcott & alii, 1956), (Sweedberg, 1991).

Pierre Bourdieu defines Social Capital as “*the sum of resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition*” (Bourdieu & al, 1992). In this acceptance, it remains a productive dimension of the economical system: “*Social capital is defined by its function. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence*” (Coleman, 1990). In this way, social capital manifestation includes norms and values which facilitate exchanges, reduce information and transaction cost, permits trade in the absence of contracts, encourage citizenship responsibility, and, therefore, the collective management of resources (Fukuyama, 1995).

The distinction of the various levels of nearness in the social space was approached at the same time in literature on the social capital (Woolcock, 1998), and in the field of the territorial development (Angeon and al, 2006). Developing these ideas regarding governance skills, Woolcock (1998) and most recently Narayan (1999) integrate the core ideas of bridging social capital and state functioning, arguing that different combinations result in different outcomes, whether at the community, district, regional or national level. They suggests that different interventions are needed for different combinations of governance and bridging social capital in a group, community or society:



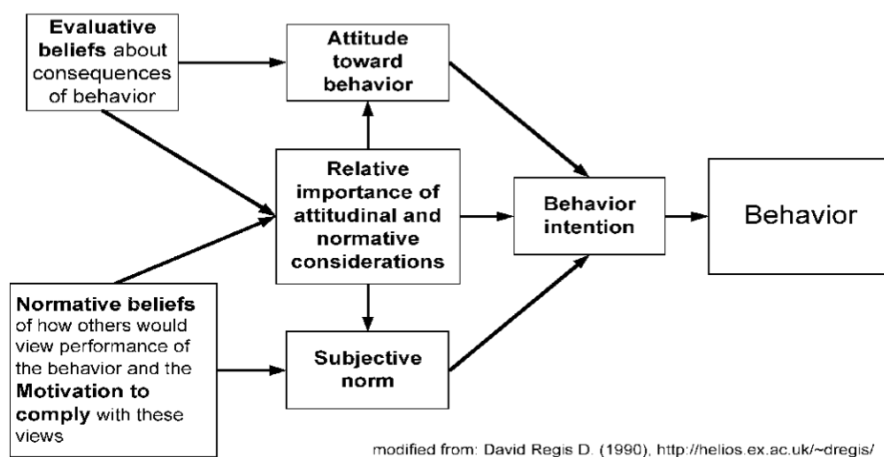
*Relationship Between Bridging Social Capital and Governance (Woolcock, 1998)*

Social capital is thus treated as a mediating variable, shaped by public and private institutions, which strategy combination has important impacts of development outcomes. Social capital can also be a powertrade for cooperative action, through policies participation or collaborative intelligence: “social capital refers to features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions” (Putnam 1993).

Instead examining how the relevant combinations of social ties and resources are assembled to meet a given economic balance, social capital theory considers less distinction between exchange that is otherwise deemed « economic » or « social ». A fruitful perspective for developing a more coherent conceptual framework for incorporating social capital into economic development theory and policy is to extend the insights to environmental challenges.

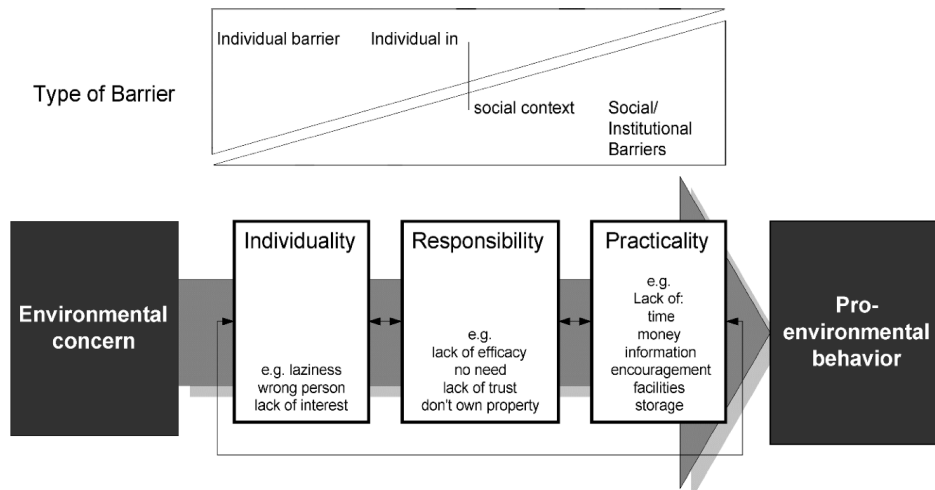
### Squaring the circle: social behaviour for environmental goals (liveable)

In 1986, Hines, Hungerford and Tomera published their *Model of Responsible Environmental Behavior* which was based on Ajzen and Fishbein’s *Theory of Reasoned Action and Theory of Planned Behavior* (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). With doing an analysis of 128 pro-environmental behavior research studies, they found variables associated with responsible pro-environmental behavior, as knowledge (of issues and action strategies), behaviour individual’s perception (locus control), individual sense of responsibility, communicated willingness, perceived feedback, behavioral incentives, ecological capacities to act and pro-environmental attitudes (Hines, Hungerford and Tomera 1986).



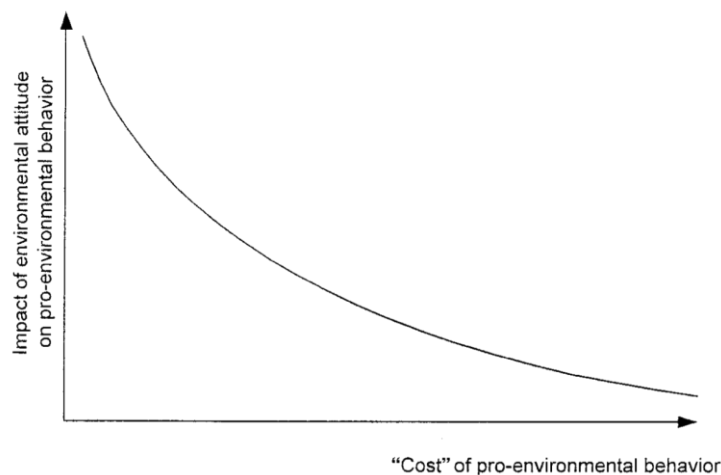
*Theory of reasoned action (Ajzen & Fishbein, 1980)*

Blake (1999) identifies three barriers to action: individuality, responsibility, and practicality. Individual barriers are barriers lying within the person, having to do with attitude and temperament, as follows:



*Barriers between environmental concern and action (Blake, 1999)*

To explain the discrepancy between environmental attitude and pro-environmental behavior, the use of a low-cost/high-cost model, thus refereeing to the “generalized cost” action theory model (Zipf 1949), Moles (1977) has shown that people choose the pro-environmental behaviors that demand the least cost (Diekmann & Preisendoerfer 1992) :



*Low-cost high-cost model of pro-environmental behavior (Diekmann & Preisendoerfer, 1992) .*

Involved generalized cost model overcomes the strictly economic sense, through generalizing it towards a broader psychological sense that includes the time and effort needed to undertake a pro-environmental behavior. As this study shows that environmental attitude and low-cost pro-environmental behavior (e. g. recycling) do correlate significantly, one can conclude that a positive environmental attitude can directly influence low-cost pro-environmental behavior.

**Sustainable development multidimensional formulation: the capital role of territory governance and policies in territorial intelligence skills and combination model**

The territorial intelligence concept traduces the way of governing the local which the analytical and prescriptive concept of territorial questions. Achieving sustainability goals

through effective economic, social and institutional reforms as a route to the sustainability transition seems actually insufficient (Raskin & al., 1996, 1998). In this way, articulation between local monitoring, strategic and cooperative action at medium scale and global governance constitutes a dialectical answer at the resolution of those tensions.

Furthermore, territorial intelligence has to reconcile the immaterial values with those of the culture of the industrial society by supporting the development of the resources of territories. The territorial intelligence acknowledges their implicit qualities and the uniqueness and makes their use attractive for the heterogeneous local societies, by promoting the traditions representing the specificities of the territory, while allowing the expression of its differences.

Those stakes (related to policies, governance and identities) and, also, instabilities in the understanding of articulation subjects, affect singularly the application of sustainable development by local governments and their various stakeholders. So, those stakes put newly territories as cornerstones of sustainability perspectives. Nevertheless, if as mentioned before, sustainability pursues the goal of more liveable, viable and equitable development, the theoretical proposals often suffer from a deficit of comprehension and range of its goals combinations sought (*supra*). According to us, the three combinations topics evoked above (“econology”, “social capital” and social behaviours) could help to better connect territorial intelligence with sustainable development perspectives.

Their exploration could feed debate in different ways. Liveable perspective involves for instance environmental justice topic, as the result of oppositional social and environmental strengths, specifically in urban settings. Here, “social capital” could help to newly question justice concepts in urban settings (for instance, in the empowerment perspective). The viable one for example deals with the whole cost of human impacts (financial, cognitive, patrimonial...), with new analysis categories for urban eco-efficiency. “Econology”, as rationale in progress in actors systems, draws perceptions of progress and of modern techniques and skills. It has to be questioned as a territorial way of viability (for instance, does technique make progress and sense, in a “frugality” world?). Lastly, the equitable objective put notably behaviours habits at the core of the debate, with, for stakeholders, ethical considerations as means. Here, as a result, social behaviours, at the basement of changes, could notably help to better understand territorial perspectives for equitable development. So, by those concept, compromises between social, economical and ecological dimensions should be defined through, for instance, at difference stakes scales: globalisation environmental dumping (Spangenberg & Bonniot, 1998), socio-environmental assessment (Blake, 1999), or eco-efficiency viability development (Martens & Rotmans, 2005).

Here, pluri-disciplinary investigation (geography, economy, sociology, political sciences, urban planning, and architecture) of territorial experiences could enable combinations explorations, in order to statue on their generality. Some gathering and ongoing current territorial subject, as wellbeing and quality of life, could permit to explore those articulations, even combinations concepts’ for urban socio-ecological transition: new types of inequities, costs and behaviours; new fields of environmental knowledge and expertise; emergent transactions between stakeholders... In addition to subjects, it seems to us that territorial intelligence could be fed by focusing on coordination processes, and mainly their tools, so on territorial governance and their new policies:

- Means for the decision-making support, such as indicators and assessment like territorial controversy objects, collaborative qualification for target combinations; to do this, aggregative spatial indicators will be developed into a dedicated information system;

- Environmental justice linked to local actions and governances, and territorial compensation (ex: tranquillity) as a plausible articulation factor of action goals and means, particularly in strong environmental burdens contexts;
- Eco-landscape and Eco-urban as new territorial prospective systems, lying on both “sustainable neighbourhoods” as combinational converging examples, and “Shrinking Cities” as case studies of sustainable development foresight.

Those tools and objects could enable the practical and pre-operational articulations updating between the main sustainable development objectives. This work should aim at proposing cognitive and operational executives for, proactively, another sustainability-turned territorial expertise, through reviewing the growth paradigm behind the established views of development. The contribution of the systems of territorial information to fair governance and to a sustainable development requires at the same time an availability of the data and an adapted processing of the information with the objective to join the processes of territorial decision. The representation of a common territorial knowledge accessible to a large number (from the layman to the expert actor), supported by an interdisciplinary scientific coordination, is the prerequisite necessary for the collective construction of the social link and the spatial co-action.

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