



Munich Personal RePEc Archive

# **Building a New World: An Ecosystemic Approach for Global Change Development Design**

Pilon, André Francisco

University of São Paulo

21 March 2013

Online at <https://mpra.ub.uni-muenchen.de/49101/>  
MPRA Paper No. 49101, posted 16 Aug 2013 15:51 UTC

# Building a New World: An Ecosystemic Approach for Global Change & Development Design

André Francisco Pilon  
Associate Professor, University of São Paulo  
[gaiarine@usp.br](mailto:gaiarine@usp.br)

Problems of difficult settlement or solution in the world cannot be solved by segmented academic formats, market-place interests or mass-media headlines; instead of dealing with taken for granted issues (the apparent “bubbles” in the surface), public policies, research and teaching programmes should detect the issues and deal with them deep inside the boiling pot. Policy discussions and policy making require new paradigms of growth, power, wealth, work and freedom embedded into the cultural, social, political and economical institutions (more critical than individual motives and morals). Urban planning cannot be subordinated to the interests of business corporations, cities cannot remain as privileged centers for profit and capital accumulation, transforming citizens in mere users and consumers, but must preserve and develop mankind heritage, encompassing history, values, architecture, landscapes, the arts, the letters. Being-in-the-world is more than living on it, it demands an ecosystemic approach, the construction of a new social fabric, as new structures emerge in the socio-cultural learning niches and develop critical capacities to operate changes in the system. Problem solving implies dynamic and complex configurations intertwining four dimensions of being-in-the-world, as they combine, as donors and recipients, to induce the events (deficits and assets), cope with consequences (desired or undesired) and contribute to change (diagnosis and prognosis): intimate (subject’s cognitive and affective processes), interactive (groups’ mutual support and values), social (political, economical and cultural systems) and biophysical (biological endowment, natural and man-made environments). An integrated ecosystemic approach to education, culture, environment, health, politics, economics and quality of life should develop the connections and seal the ruptures between the different dimensions of being-in-the-world, in view of their mutual support and dynamic equilibrium.

Keywords: culture, politics, economics, environment, ecosystems, education

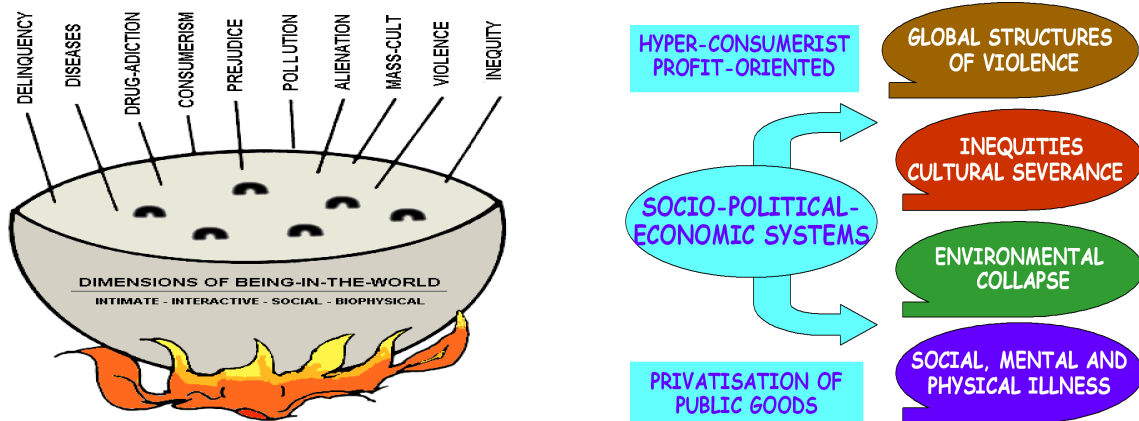
Contemporary problems are closely interconnected and interdependent, they cannot be understood and solved within the present context of weakening social bonds and cultural, political and economical disarray, usually a generous ground for market-place’s interests, publicity-oriented behaviour, fragmented academic disciplines and misguided government policies (Elohim, 2000).

As a syndrome, “not a set of separate changes, they reflect the interrelated pressures, stresses, and tensions due to an overly large world population, the pervasive and increasingly systemic environmental impact of economic activities, urbanization, consumerism, and the widening gap between rich and poor, both within and between countries” (McMichael, 2013).

The present crisis reflects a prior disordering of thought, perceptions and values (Orr, 1994), it is a sign of the severe cultural crisis of our times, which break through the core of all societal institutions – education, justice, governance – already impaired by the maneuvers and collusions of political and economical dominant groups, by the stronghold of national and international corporate interests.

Deforestation, desertification, global warming, biodiversity losses are linked to powerful economical and political interests, which define every aspect of humanity and nature as part of the market rubric (Irwin, 2007), legitimising business expansion in terms of models based on consumerism and abuse of natural resources - increasing inequalities, violence and poor quality of life throughout the world.

Environmental impact studies should not be treated as a mere formality, development strategies rooted in mega-projects disregard fundamental human needs and ignore the principle of "right relationship", which respects the integrity, resilience, and beauty of human and natural environments as the foundation for a new economic order (Brown and Garver, 2009).



**Figure 1** The real problems lie deep inside the boiling pot, not in the superficial bubbles.

**Figure 2** Current socio-political-economical systems are detrimental to the quality of life.

In "asymmetrical societies" (Coleman, 1985), large differences in power between natural persons and legal persons (individuals and enterprises), permit business corporations to have a substantial influence on public policies and State affairs, as they diffuse responsibility along hierarchical structures and safeguard their shareholders as mere investors in the financial markets.

The dominant approach to the environment favoured by corporate, state and international authorities, shows that present conditions are contingent outcomes of the undesirable impacts of overall policies and market conditions (Robbins, 2004); multi-actor, multi-level and multi-sector structures interfere with state steering and governmental practices throughout the world.

Privatisation and deregulation reduce the role of government, especially at the national level, and hence weaken its mandatory powers over environmental standards; the current "global corporate economy subordinate environmental standards to what are presented as "requisites" for "free" global trade and proprietary "rights" by the World Trade Organization (Sassen, 2010).

Changing the current "world-system" is mandatory; "it has boundaries, structures, member groups, rules of legitimation, and coherence; it is made up of the conflicting forces which hold it together by tension and tear it apart as each group seeks to remold it to its advantage; it has a life-span over which its characteristics change in some respects and remain stable in others" (Wallerstein, 1974: pp. 347-57).

A "new global covenant" should be carefully planned (Held, 2004), emphasizing social justice, physical, social and mental wellbeing and the equilibrium between natural and built environments. The conceptual direction and the legitimacy of development strategies should be based on a comprehensive framework, instead of surrendering to specialisation and fragmentation.

The environmental crisis "stems from the prevailing power-driven ethos, the anomic individualism, which divert human concern into technological invention, scientific advancement, and unlimited material consumption and production" (Orhan, 2003). The focus should not be on the "bubbles" of the surface, (consequences), but on the configurations deep inside the boiling pot (figs 1, 2).

These bubbles have dynamic properties, “they co-exist among many others in a cluster, as the collection of all factors affecting health, environment, working conditions, economy, education, culture, etc.; each bubble is influenced directly by a companion bubble’s interface but also indirectly through the companion bubble’s connections to other surfaces” (Wilcox 2007).

It is a conceptual error, “trying to solve isolated and localized problems, without addressing the general phenomenon, which have the conditions to solve specific problems” (Volpato, 2013). Poor quality of life, urban violence, should be understood as a result of the violence of urbanization processes, governed by real estate interests, concentration of jobs in distant areas from where the majority of the population lives, etc.

In many problem-ridden, economically unequal and intrinsically violent cities of the emerging countries, most people become uninvolved in civic life due to the outspread criminality (Baiocchi, 2005): while some enjoy life in fortified enclaves most of the city dwellers live in makeshift slum housing, without the basic social services (health, education, police authority, etc.)<sup>1</sup>.

This goes along with turmoil, uncertainty, lack of confidence, fear and impotence (Rotmans and Loorbach, 2009). “The more the city concentrates the necessities of life the more unlivable it becomes; the notion that happiness is possible in a city, that life there is more intense, pleasure is enhanced, and leisure time more abundant is only mystification and myth” (Lefebvre, 2003).

Ecologically sustainable behavior is linked to positive social involvement: in contrast to “extrinsic” goals, like money, image and status (which are means to other disputed ends), “intrinsic” goals are inherently gratifying to pursue, like self-acceptance (growing as a person), affiliation (having close, intimate relationships), community feeling (helping the world be a better place) (Kasser & Ryan, 1996).

Within one generation, the gap due to the lost of value systems (specially religion and ideology) has been filled by the prevalent ideology of the market; in the lack of an alternative value system<sup>2</sup>, most of the religious sects in the urban areas reinforce the idea that political and economical success, in the current system, is a sign of divine blessing towards the chosen ones.

Teaching ethics do not thrive in highly corrupt societies. Beyond profit-searching motives of business corporations and other vested interests, transboundary issues like human rights, pollution, deforestation, drugs and criminality impose a significant reconfiguration of state control and political authority, in which power must be shared on ethical grounds in a transnational basis, by transnational organisations.

The role of law, the work of attorneys and judicial courts is frequently hampered by the very system in which they have their insertion, “legal” and “illegal” strategies are mixed together in the assemblage of current political and economical interests; powerful lobbies,

---

<sup>1</sup> “Nothing more visibly reveals the overall decay of the modern city than the ubiquitous filth and garbage in its streets, the noise and massive congestion that fills its thoroughfares, the apathy of its population toward civic issues and the ghastly indifference of the individual toward the physical violence” (Bookchin, 1979).

<sup>2</sup> “Environmental culture boldly unmasks the institutional and systemic violence of our culture and reveals how our culture’s life-destroying practices and ethical and spiritual bankruptcy are closely linked to our failure to situate ourselves as ecological beings” (Plumwood, 2002). Heinzerling & Ackerman (2004), criticize the use of cost-benefit analysis in setting environmental policy, on the ground that there is a profound mismatch between ethical values and economic valuation.

deeply ingrained in the public administration, favour mega-projects with intensive use of resources, rather than the appropriate technologies.

To cope with environmental collapse, environmental justice should be extended beyond national boundaries, beyond political and economical interests of malicious consortia and corrupted or lenient governments, which easily comply to ill-intentioned propaganda and lobbying by influential groups and questionable business organisations, always willing to control public affairs for the sake of their private interests.

Territorial and jurisdictional aspects are fundamental in terms of governance (Ashley, and Crowther, 2012); political and cultural forces blunt our response to the growing complexity of our ecological catastrophe (Buell, 2003); present ecological problems cannot be understood or resolved without dealing with deep-seated problems within society and its structurally amoral political-economical system (Bookchin, 1982).

Legal procedures will not forestall neither the *planned obsolescence* of products designed for the dump nor the *perceived obsolescence* fostered by propaganda induced consumerism, which, among other psychosocial strategies, arise in people the sensation that products should always be substituted by new ones, buying and disposal converted into rituals of a culture that makes consumption a way of life (Foster and Clark, 2012).

The focus should not be on the consumer's behaviour, but on its social and cultural embeddedness, on its interdependencies with the economic and political frameworks, on the pervasive impact of mass-media, marketing and advertising in the formation of public opinion about products, services and prevailing lifestyles, on the cultural crisis that breaks through the core of all societal institutions.

The emphasis on human rights, rather than collective political action, only reiterates individualistic approaches (Harvey, 2005). The fundamental change is economic, social, cultural and political; priority should not be given to growth, but to sustainability, human development, order and stability in civil society: if one group gets richer, others can be used and discarded and will not share in the wealth (Bown, 2007).

"Social inclusion" only accommodates people to the prevailing order and do not prepare them to change the system (Labonte, 2004); once "included", a new wave of egocentric producers and consumers reproduce the system responsible for their former exclusion, increasing the abuse of nature in the name of the so-called "progress" and irresponsible consumerism.

Growth, power, wealth, work and freedom must acquire new meanings (O' Sullivan, 1987). The accumulation of wealth to the exclusion of other components of the development process (safety, health, education, equity, ethics, justice, beauty) has led to overwhelming natural devastation and severe social and cultural impacts, with high levels of crime and violence in the so called "emerging countries".

Privatisations, deregulations, sweeping market-oriented reforms, resulted in relinquishing state's control to the huge power of private sectors; in this context, new technological waves will not rescue a devastated environment, nor relieve the effects of inequities, uprootings, displacements, hunger, violence, ecological insults and deep social division in contemporary society (American Anthropological Association, 2005).

Cultural and educational policies succumb to the prevailing political and economical interests, converting the population into consuming subjects, appropriating their thoughts and bodies and transforming them into the property (commodities) of influential people and questionable business corporations, which use propaganda, lobbying and corruption to intensify profits and secure their hegemony over public affairs.

---

Advances in applied ethics should be made “by thoughtful and innovative thinkers in any activity area; specialists of several professions who work together, within a multidisciplinary approach, must base their action on some common principles of ethics and on an understanding of each others' obligations, responsibilities and professional standards” (Soskolne, 1997).

When the political, economical, cultural and ethical disarray normalises and condones inequities, transgressions, violence and atrocious behaviours, the "philosophical" questions of ethical, moral and overall civic education are frequently left aside, information and communication technologies being presented as a panacea, not as a resource or an instrument.

Development proposals, technological “solutions”, often ignore social, cultural and environmental impacts, binding nature as natural capital with financial domains (Sullivan, 2013), they demand even more resources and increase pollution and waste without changing the irrational system of production, transport and consumption that plagues the globalised world<sup>3</sup>.

If pressures on systems steadily increase, “catastrophic bifurcation” can appear without obvious early warning signals, and the resulting changes are always difficult to reverse; understanding how such transitions come about in complex systems such as human societies, ecosystems and the climate is a major challenge (Scheffer et al., 2001).

“Sustainability” based on capital and technology, cannot be a substitute for the wealth of resources drawn from the natural world: “strong sustainability” entails containing population growth and curbing consumption, meeting the needs of the current generation as opposed to their demands and living within the productive capacity of nature (Layzer, 2008).

No prior age could have conceived development as plunder (White, 1999; Trainer, 2000), implying systemic risks (Giddens, 2001), global catastrophic risks (Bostrom, 1997), simultaneous crisis formation (Harvey, 2006), global and integral accidents (Virilio and Turner, 2005), total risk of catastrophe (Ewald, 1997), general disaster (Massumi, 2003), the worst imaginable accidents (Beck, 2007).

Preparing people to assume their positions in society, both as professionals and citizens, cannot be reduced to ritualistic actions, such as voting or paying taxes, nor can it encourage an uncritical ideological allegiance to the “free-market”, transforming schools in training centers for compliant egocentric producers and consumers, instead of centers of critical inquiry and institutional change.

Development must be based “on the satisfaction of fundamental human needs, on growing self-reliance, on the construction of organic articulations of people with nature and technology, of global processes with local activity, of the personal with the social, of planning with autonomy, and of civil society with the state” (Max-Neef, 1991). A proper cultural environment, a common ethical ground, is more important than the best legal prescription.

“Transboundary and global environmental harm present substantial challenges to state-centered (territorial) modalities of accountability and responsibility; the globalization of environmental degradation has triggered regulatory responses at various jurisdictional

---

<sup>3</sup> “Promoters of multi-billion dollar development megaprojects systematically misinform parliaments, the public and the media in order to get them approved and built; they often avoid and violate established practices of good governance, transparency and participation in political and administrative decision making” (Flyvbjerg, B., Bruzelius, N. and Rothengatter, W., 2003).

scales to address the so-called “accountability deficits” in global environmental politics” (Mason, 2008).

Institutional change is “a great transformation from predominantly relationship-based regulation systems to impersonal institutions and formal rules, creating trust at systemic (versus idiosyncratic) levels and allowing huge reductions in individual marginal transactions costs; institutions for risk-sharing at a systemic level decrease individual risk and allow longer time horizons” (Meisel, 2004).

Institutions provide the rules of the game in society, the humanly devised constraints that shape human interaction (North 1990); they stabilize the behavior and interaction of agents, create predictability and decide how authority is constituted, exercised, controlled, and redistributed (March and Olsen, 1989).

“Weak public institutions and deeply entrenched networks act together to prevent accountability, funneling finance and influence along unofficial channels for the benefit of corrupt groups; political people participate in governmental processes primarily to secure and retain access to personal enrichment at the expense of the public good” (Whitton, 2009).

Whole system change depends on developing a sufficient critical, collective and connective intelligence of systematic and systemic aspects of organisational change: “there is always a tendency for significant challenges (such as education for sustainability) to be understood and accommodated within the norms of the existing system - rather than change the system to be congruent with the challenge” (Sterling, 2009).

It is generally accepted that cross-cutting programmes on sustainable development imply a worldwide change of focus and procedures in different areas of production, distribution, consumption and discard, reducing consumption, reusing products, and recycling materials. This is not only a matter of education, but of governance and societal organisation<sup>4</sup>.

### **The Ecosystemic Approach for Education, Culture and Quality of Life**

Understanding a problem is to understand the relationships between the events and the context in which these relationships occur. People with different values interpret the “same” evidence in different ways (Kahan, 2012), the information has a minor role compared to emotions, values and ethics (Etzioni, 2003; Dietz, 2011). The enlightenment ideal that “informed” people opt for the common good is still a presumption.

“Education as a whole, and environmental and sustainability education in particular, are limited in their ability to make a positive difference to assure a more sustainable future” (Sterling, 2003). “Whilst environmental education in schools help to normalise environmental values, children will take cues for appropriate behaviour from the media, peer group and society as a whole” (Bedford, 2002).

“Education and the media have only succeeded in fostering a culture characterized by narrow vested interests, intolerance and violence. To build a sustainable society we need to fundamentally redesign many of our technologies and social institutions so as to bridge the wide gap between human design and the ecologically sustainable systems of nature” (UNESCO-EOLSS, 2008).

---

<sup>4</sup> Environmental issues cannot be assessed in abstraction from the questions of wealth and power and the divergent priorities which beset actual politics (Rabkin, 2008). Private consumption at the cost of amenity and future is not a necessity of nature; it is to a large extent a cultural activity linked to the emergence of the knowledge economy, “with returns in the form of profits instead of wages” (Huppes, 2008).

Table I  
Dimensions' equilibrium in the ecosystemic model of culture

	<i>Donors</i>			
<i>Recipients</i>	INTIMATE	INTERACTIVE	SOCIAL	BIOPHYSICAL
INTIMATE	Creativity	Support	Services:	Vitality
INTERACTIVE	Altruism	Teamwork	Alliances	Niches
SOCIAL	Citizenship	Partnerships	Organisation	Spaces
BIOPHYSICAL	Care	Defence	Sustainability	Equilibrium

Table II  
Dimensions' disruption in the non-ecosystemic model of culture

	<i>Inflictors</i>			
<i>Victims</i>	INTIMATE	INTERACTIVE	SOCIAL	BIOPHYSICAL
INTIMATE	Solipsism	Subjection	Neglect	Harm
INTERACTIVE	Egotism	Fanaticism	Co-opting	Dispersal
SOCIAL	Abuse	Corporatism	Tyranny	Extinction
BIOPHYSICAL	Injury	Damage	Spoliation	Savageness

Table III  
Intertwining the four dimensions of the world in the diagnosis and treatment of the problems

Stages of Process	INTIMATE	INTERACTIVE	SOCIAL	BIOPHYSICAL
Diagnosing the Events	Subject's Cognitive and Affective Status Existential Control	Dynamics of Primary Groups Communities' Organisation	Cultural Aspects Social Structure Public Policies Services	State of the Natural and Built Environments Beings and Things
Eliciting Favourable Changes	Subjects' Cultural, Emotional and Educational Development	Improving Relationships Social Networks Community Building	Public Policies Law Enactment Social Control Civic Action	Quality of Natural and Man-Made Environments Beings and Things
Evaluating the Process of Change	Well-Being Awareness Resilience Creativity	Proactive Groups Community Solidarity Cohesion	Social Movements Well-Fare Policies Social Trust Citizenship	Equilibrium of Natural and Man-Made Environments

In this sense, the United Nations decade for education for sustainable development emphasized critical thinking and problem solving, interdisciplinary and holistic multi-method, values-driven approaches, encompassing environmental principles, social awareness, ethical dimensions, economic prudence, confidence and participatory decision-making (Lindberg, 2005).

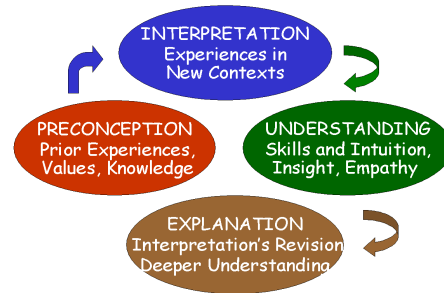
Teaching for meaning in a cultural context that values only information transmission is one of the main challenges for education in our times (Boostrom, 1997): "in order to salvage the realm of character and moral development, the present ethos should not center on individual good and individual value alone, but on the environment and the public space, as a global system".

Creation of choices, generation of capacities, development of motivations depend on complex configurations formed by four dimensions of being-in-the-world (intimate, interactive, social and biophysical), as they combine to induce the events (deficits/assets), cope with consequences (desired/undesired) and contribute for change (Pilon, 2009; 2010).

The equilibrium (table I) or disruption (table II) between the different dimensions are linked to opposite models of culture (ecosystemic or non-ecosystemic); the process of change encompasses a synchronized work with the four dimensions (table III; fig. 3). All dimensions of being-in-the-world should be considered altogether in view of an integrated approach to public policies and research and teaching programmes.



	INTIMATE	INTERACTIVE	SOCIAL	BIOPHYSICAL
DIAGNOSIS OF THE EVENTS	SUBJECTS' COGNITIVE AND AFFECTIVE ACTUAL STATUS	GROUPS 'AND COMMUNITIES' DYNAMICS AND COHESION	PUBLIC POLICIES LAW ENACTMENT CITIZENSHIP PARTICIPATION	NATURAL AND MAN-MADE ENVIRONMENTS BEINGS, THINGS
ELICITING NEW EVENTS	DEVELOPMENT OF SUBJECTS' EXISTENTIAL SELF-CONTROL	DEVELOPMENT OF GROUPS AND PRO-ACTIVE COMMUNITIES	DEVELOPMENT OF PUBLIC POLICIES AND CITIZENSHIP	PROMOTION OF NATURAL AND MAN-MADE ENVIRONMENTS
IMPACT ON EACH DIMENSION	ENHANCEMENT OF SUBJECTS' WELL-BEING	ENHANCEMENT OF GROUPS AND COMMUNITIES	ENHANCEMENT OF POLICIES AND CITIZENSHIP	ENHANCEMENT OF OVERALL ENVIRONMENT



**Figure 3 The process of change encompasses a synchronized work with the four dimensions.**

**Figure 4 From preconception to explanation: heuristic-hermeneutics in the socio-cultural niches.**

Education cannot be thought apart, it does not prosper in a context of social fragmentation and weakening social bonds: creation of choices, generation of capacities, development of motivations depend on cultural, social, political and economical aspects; the quality of institutions and incentive structures are more critical than the quality of individual motives and morals (Krol, 2005).

“Education is both a great hope and a great danger: it can develop questioning, innovation and creativity, enable to recognize the powerful forces that drive unsustainable living and develop self-confidence and organizational skills, but it can also play the opposite role, deadening curiosity and innovation; encouraging acceptance of unsustainable living as being normal; and to passively wait for others to take action” (UNECE, 2013).

Man’s relationship with his fellow beings encompass the concepts of group and grid: the former refers to the clarity of the boundaries around a group to which people belong; the latter to the strength of the rules which govern how people relate to one another<sup>5</sup>: hierarchical societies with strong ties score highly on group and grid; individualist or market-driven ones are weak on both (Douglas, 1996).

In order to have a congruent understanding of things, a population must occupy a “semiotic niche”<sup>6</sup> and be embedded in the same “semiosphere” (Kull 1998). As complex and dynamic systems to reason and make decisions, these “mental models” are personal, internal representations of external reality, which provide the mechanism through which information is filtered and stored and individual behaviours consolidated (Jones, 2011).

Rather than being trapped into the path-dependency of pre-established problem-definitions, the work with the socio-cultural learning niches develop a capacity to ask wider questions, reframing the problems in the process (fig. 4). The objective is not to solve taken for granted problems, but to unveil and work with the dynamic and complex configurations that originate the problems.

<sup>5</sup> “Being-in-the-world” encompasses four modes of existence (Binswanger, 1963): man’s relationship with himself (*Eigenwelt*); man’s relationship with his fellow beings (*Mitwelt*); man’s relationship with overall society (*Menschenwelt*); man’s relationship with his environment (*Umwelt*). Interaction requires that actors be aware of each other’s actions, and that they adjust their own behaviour (and possibly their own goals), taking the behaviour of the others into account (Hanneman, and Riddle (2005).

<sup>6</sup> A niche is a new structure, a small core of agents that emerges within the system and is seen as the incumbent for innovation; emergent structures around niches stimulate the further development of these niches and the emergence of niche-regimes” (Frantzeskaki and Loorbach, 2009).

To create awareness and capabilities beyond the traditional schemes of thought, feeling and action, subjective and objective realities should be entangled, creating an “excess of meaning” (Gadamer, 1977), encompassing the alien that we strive to understand and the familiar that we take for granted, a process encompassing socialisation, externalisation, combination and internalisation (Nonaka and Konno, 1998).

In a socio-cultural learning niche, the problems associated with the individual and collective project of life can be unveiled and dealt with by heuristic-hermeneutic process; intermediary objects (curious things, images depicting every day life), can be presented to the participants to generate awareness, interpretation and understanding beyond established stereotypes.

The contributions of the participants can be analyzed both from a thematic and an epistemic point of view: the thematic analysis refers to “what”, to the emphasis and inclusiveness of the different dimensions individuals associate with the experience (contents); the epistemic analysis refers to “how”, to the structure of thought of the individuals in view of the dimensions of being-in-the-world<sup>7</sup>.

The methodology is participatory, experiential and reflexive; heuristic-hermeneutic processes reveal reality in a specific space-time horizon of understanding, feeling and action, unveiling subject-object perceptions and contentions (*intimate dimension*), sharing them with the participants (*interactive dimension*) and setting the ground for new paradigms for being-in-the-world (*social and biophysical dimensions*)<sup>8</sup>.

Cultural, educational, social, economical, environmental and health problems cannot be sorted out by segmented projects; without considering micro, meso and macro relationships. Like bubbles in the surface of a boiling pot, segmented problems are symptomatic of the assemblage of political, economical, social and cultural variables that should be dealt with altogether.

In line with Ackoff (2010), “analysis only explains how the pieces of a system work, but synthesis is essential to understand a system and the interactions between its parts: the appropriate end of a social system is development, not growth; arguing about values is useless, but realizing the significant role values play in judgments lead to more constructive discussions and decision-making”.

Cultures define the knowledge of the past and the expectations for the future: “they shape individual and collective identities, affect the impact of innovations and social change, construct the social meanings of technologies, create new boundaries, new forms of social exclusion and marginality, frame our experience of space and place in everyday life, as well as individual and collective identities” (Sociology of Culture Conference, 2010).

---

<sup>7</sup> 1) *Appropriation*: construction of new paradigms and forms of being-in-the-world, alteration of cognitive, affective and conative horizons. 2) *Common-sense*: conformity to established, stereotyped, commonplace, pedestrian way of seeing things, without further questioning. 3) *Scholarlike*: reduction to logical categories and frozen schemes to achieve closure, classifying and describing properties in terms of academic paradigms. 4) *Dependency*: reliance on exterior authority to qualify own experience; alienation, bewilderment, confusion, inconsistency. 5) *Resistance*: opposition to being involved, failure to see any meaning in the experience. 6) *Dogmatism*: adherence to fixed paradigms and habitual ways of being-in-the-world.

<sup>8</sup> The four dimensions are involved in the process: 1) *Intimate*: subject-object relationships are unveiled by images or objects selected to catch the eye (like bottle caps linked by a string, etc.), passed along to the participants, who write down their perceptions in a non-identified piece of paper; 2) *Interactive*: statements are distributed out of sort, and read aloud by the participants, who share and enrich their initial perceptions by the contributions of all; *Social and Biophysical*: cultural, economic, political and environmental conditions are experienced and analysed in view of ecosystemic and non-ecosystemic models of culture.

Although collective practices, according to evolutionary theories of change, may be selected by the social environment rather than by individual dispositions, cultural evolution is also linked to the role played by human intervention, which entails intelligence, purpose, calculation, planning, learning, arguing, persuading, discussion, and argument (Nelson, 2005).

Beyond environmental education, development education needs the construction of a “new story for mankind”, enhancing local and global citizenship, human rights and justice, supporting people to understand and transform the social, cultural, political and economic structures affecting life at personal, community, national and international levels (Irish Aid, 2007).

It includes education for citizenship, which cannot be reduced to formal or ritualistic actions, such as voting or paying taxes, nor can it encourage an uncritical ideological allegiance to the “free-market”, transforming schooling in training centers for a compliant work force, which takes for granted the perverse life style of “egocentric producers and consumers” (Chermayeff and Tzonis, 1971).

“The industrial culture divides the person into parts and the world into fragments, but the environment is one whole, it is not cut up into specialties, disciplines and departments” (Drengson, 1995). Problems require “boundary-crossing skills, abilities to change perspective, to cope with complexity and to synthesize knowledge of different disciplines or areas of expertise in a critical and creative way” (Fortuin et al., 2008).

“Environmental awareness is not simply awareness of the natural environment but also of social, economic, cultural and other dimensions; it requires ‘dynamic’ skills to discover and study the environment and find solutions, capacity to discern the relevant dimensions of a situation, readiness to accept responsibility, initiative taking, independence, commitment” (Hugonnier, 2008).

It means reorganizing to produce more of the things that people need — like food, shelter, clothing, education, security, health care — and less of the costly things they do not — like military hardware, pollution, traffic jams, useless chattels and crime. Failures in governance at many levels, and the resulting suspicion and mistrust, clearly also play a role in the current state of affairs<sup>9</sup>.

The emphasis on rational decision-making based on “facts” is no longer defensible; emotions, values and ethics play a much stronger role than mere information.. Environmental education requires a knowledgeable and congruent teaching and learning theoretical ground, a core element for comprehension, preparedness and action, abilities to participate in, influence, share and control the learning process (Tilbury et al., 2005).

People with different values draw different inferences from the same evidence (Kahan et al., 2012); development, and utilization of concepts, tools and practices must take into account the collective forms of being-in-the-world; citizen-consumer's potential to alter natural consuming habits, to 'shop ethically, 'care for the environment' and 'think globally' depends on social motivation rather than rational choice (Klintman, 2012).

---

<sup>9</sup> According to the Sustainability Transitions Research Network (2010), green innovations and new practices tend to face an uphill battle, which is played out on economic, technical, political, scientific, and cultural dimensions: “the core problem regarding sustainability transitions is how green innovations and sustainable practices (in behaviour and policy) struggle against existing systems or regimes; incumbent systems in transport, energy, and agri-food domains are difficult to dislodge because they are stabilized by various lock-in mechanisms that lead to path dependence and entrapment (vested interests, low costs, established beliefs, sunk investments, favourable institutions)”.

Beyond the objectivistic description of facts or dissemination of information to the public, acceptance of ethical norms, peace building, environmental equilibrium requires a whole host of ethically interpreted and ordered social experiences, a capacity to develop morally relevant interests as the bases of rights-bearing, a broad, universally rationalised cultural knowledge (Znaniński, 1935).

Trans-disciplinarity does not only combine views or merge ideas, the trans-disciplinary discussion questions the “givens”, it forces the “detachment” from ones’ familiar discipline, culture, and belief, which is not a denial of initial identities, nor complete attachment to the alternative: “it is a new awareness, a distance from the world that comes before any type of analysis you may wish to undertake” (Takashi, 2010).

What are the prospects of education as a whole, and environmental and sustainability education in particular, regarding the severe threats faced by today’s world? Identifying complex configurations that predict particular outcomes asks for an analysis of assumptions, contentions, consensus and conflicts, which are essential to the definition of the problems and to build new paradigms to live better in a better world<sup>10</sup>.

“Education for sustainability” includes international development, economic development, cultural diversity, social and environmental equity, human health and wellbeing. In order to deal with sustainable development in both environmental and cultural terms we need a theory of cultural sustainability, since the concept of sustainability implies a holistic approach to modelling economic, biological and cultural processes (Throsby, 2008).

Media “popularizers” should draw attention to the “issues on environmentalism and culture as significant and important in symbolic and visual terms, emphasising different incentives for taking positive action, and getting institutional support to ensure both legitimacy and continuity in the process” (Hannigan, 1995). Well-being is not simply an individual attribute, but a profoundly social relational phenomena.

University teaching is vital in maintaining a social conscience based on self-awareness and self-transformation, for preparing people to assume key positions in society, both as professionals and citizens; the discussion of current problems should transcend traditional disciplines and national boundaries, in the light of global perspectives, international cooperation, transdisciplinary research and teaching programmes.

Despite the number of institutions addressing issues of environmental degradation and sustainable development, environmental problems have been exacerbated rather than solved: «this is mainly due to the fact that international environmental governance lacks co-ordination and is at odds with other areas of global governance, notably economic and development governance» (United Nations University, 2010).

A process of change must be associated with the development of an ecosystemic model of culture, leading to public action to transform current development policies and structures that wipe out biodiversity, destroy natural and built environments, abuse landscapes and resources, demolish living-spaces and generate unmanageable refuses that menace the future of life on Earth.

---

<sup>10</sup> To “moral and democratic education” (Lind, 2003), and more important than the need for a radically different economy, is to change current values, notably the present commitments to competition, individualism and acquisitiveness, and the conception of progress (Trainer, 2001). Market induced policies conceive fashion stylists as relevant as Shakespeare, a footballer, a value equal to Michelangelo, a rapper, not less than Stravinsky; this cultural relativism is the result of a demagogic, pseudo democratizing cultural policy, which does nothing more than to dissolve culture in a “everything is culture”; in the absence of the State, culture is reduced to a mere commodity (Finkelkraut, 1987).

## Findings and policy lessons

Can we imagine a world in which wise and impartial international regulators would have the authority to implement the right set of norms and policies to safeguard humanity's cultural inheritance, natural and built environments, aesthetic and life saving values for future generations? Creating transnational governance systems to deal with these issues constitutes one of the greatest challenges of our times.

The ecosystemic approach to live better in a better world encompasses different domains – environmental sciences, social sciences, politics, economics, anthropology, psychology, education, public health, governance and ethics - and entails an integrated holistic theoretical and practical approach, which can be applied to different problems of difficult settlement or solution in the contemporary world.

As by-products of the prevailing models of culture (ecosystemic or non-ecosystemic), ethics, education, culture, natural and man-made environments, physical, social and mental well-being should be supported by the societal structures and integrated in an overall project of quality of life (not treated as separate objects of segmented programmes).

Public policies, teaching and research programmes, nowadays segmented in different domains, should consider the configurations intertwining the different dimensions of being-in-the-world, strengthening their connections and sealing their ruptures, in view of their dynamic equilibrium. The diagnosis and prognosis of the events should:

- 1) define the problems within the “boiling pot”, instead of reducing them to the bubbles of the surface (fragmented, taken for granted issues)
- 2) assess the deficits and assets of the dimensions as donors and recipients, considering their relationships in a mutually entangled web (configurations);
- 3) promote the singularity (identity, proper characteristics) of and the dynamic equilibrium between (reciprocity, mutual support) all dimensions, strengthening their connections and sealing their ruptures;
- 4) contribute for the development of an ecosystemic model of culture, as an essential condition for consistency, effectiveness and endurance.

To develop new ways to understand things and create a critical capacity to operate change in the forms of being-in-world, new paradigms of growth, wealth, work, power and freedom should be embedded into the educational, cultural, economic and political institutions, beginning with a work that would distinguish the teaching and learning socio-cultural niches from the overall system, with its proper characteristics and semiosphere.

A concerted action by public and private sectors, social organisations, scientific and technical institutions, requires that these various parties cease to defend their vested interests in benefit of a real change in the current world system: instead of taking current prospects for granted, a previous definition of desirable goals and the exploration of new paths to reach should be posited.

The development and evaluation of teaching programmes, research projects and public policies should contribute for the transition from a non-ecosystemic to an ecosystemic model of culture; in this sense the configurations formed by the ensemble of the four dimensions should be taken into account (a framework for this purpose is applied for diagnosis and prognosis of present and future events).

## References:

- ACKOFF, R. L. *Differences That Make a Difference: An annotated glossary of distinctions important in management*. Triarchy Press, Axminster, 2010.
- AMERICAN ANTHROPOLOGICAL ASSOC., Bringing the Past into the Present. *104<sup>th</sup> Annual Meeting*, Washington, 2005.
- ASHLEY, P. A. and CROWTHER, D. *Territories of Social Responsibility. Opening the Research and Policy Agenda*, Gower Publ., Surrey, 2012.
- BAIOCCHI, G. The Citizens of Porto Alegre. *Boston Review*, March/April 2005. [online]: <http://bostonreview.net/BR31.2/baiocchi.html>
- BECK, U. *Cosmopolitan Vision*, Polity Press, Cambridge, 2007.
- BEDFORD, T. Parliament Committee on Environmental Audit. United Kingdom, 2002. [online]: <http://www.publications.parliament.uk/pa/cm200203/cmselect/cmenvaud/472/3022702.htm>
- BINSWANGER, L. *Being-in-the-World: Selected Papers of Ludwig Binswanger*. Condor Books, London, 1963.
- BOOKCHIN, M. *The Ecology of Freedom*. Knopf, New York, 1982.
- BOOKCHIN, M. *Limits of the City* Black Rose Books, Montreal, 1996.
- BOOSTROM, R. Teaching by the Numbers, in Burbules, N. C. and Hansen, D. T. *Teaching and its Predicaments*. Westview Press, Boulder, 1997: 45-64.
- BOWN, L. *What do we Mean by Development?* Development Education Centre [Birmingham] and Educating and Acting for a Better World [Ireland], 2007 [online]: <http://www.developmenteducation.ie/files/resources/What.pdf>
- BROWN, P. G. and Garver, G. *Right Relationship: Building a Whole Earth Economy*, Berrett-Koehler Publishers, San Francisco, 2009.
- BUELL, F. *From Apocalypse to Way of Life: Environmental Crisis in the American Century*; Routledge, 2003.
- CHERMAYEFF, S. & TZONIS, A. *Shape of Community, Realization of Human Potential*. Middlesex, Penguin Books, 1971.
- COLEMAN, J. *The Asymmetric Society*, New York, Syracuse University Press, 1985.
- DIETZ, T., The Art of Influence, *Nature*, 479:176: 2011
- DOUGLAS, M. *Natural symbols: explorations in cosmology*, Routledge, New York, 1996
- DRENGSON, A. *The Practice of Technology: Exploring Technology, Ecophilosophy, and Spiritual Disciplines for Vital Links*. Suny, Albany, 1995.
- ELOHIM, J. L. The Performance of the World System. A Critical Viewpoint in Parra-Luna, F. *The Performance of Social Systems: Perspectives and Problems*. New York, Kluwer Academic/Plenum Publishers, 2000.
- ETZIONI, A., Toward a New Socio-Economic Paradigm, *Socio-Economic Review*, 1, (1) 105-118: 2003). Available at SSRN: <http://ssrn.com/abstract=2157130>
- EWALD, F. Le retour du malin genie. Éskisse d'une philosophie de la précaution. In Godard, O. and Long, M. *Le principe de précaution dans la conduite des affaires humaines*. Association NSS-Dialogues. Editions Quae, 1997.
- FINKIELKRAUT A., *La défaite de la pensée*, Paris, Gallimard, 1987.
- FORTUIN, K. P. J. et al. The European Workshop: a course aimed at educating students to cross boundaries. *Engineering Education in Sustainable Development (EESD) Conference*, Graz, 2008 [online]: [http://www.esa.wur.nl/NR/rdonlyres/B2FA6130-462D-43BF-8D67-B797439AA538/70366/030908\\_paper\\_Fortuin\\_Bush\\_Henriksen.pdf](http://www.esa.wur.nl/NR/rdonlyres/B2FA6130-462D-43BF-8D67-B797439AA538/70366/030908_paper_Fortuin_Bush_Henriksen.pdf)
- FOSTER, J. B. and CLARK, B. The Planetary Emergency, *Monthly Review*, 07 (64), 2012 [on line]: <http://monthlyreview.org/2012/12/01/the-planetary-emergency>
- FLYVBJERG, B. et al. *Megaprojects and Risk: An Anatomy of Ambition*, Cambridge University Press, 2003.
- FRANTZESKAKI, N. and Loorbach, D. A transition research perspective on governance for sustainability, *Sustainable Development: A Challenge for European Research Conference*, Brussels, 2009. [http://ec.europa.eu/research/sd/conference/2009/papers/9/derk\\_loorbach\\_and\\_niki\\_frantzeskaki\\_transition\\_research.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/sd/conference/2009/papers/9/derk_loorbach_and_niki_frantzeskaki_transition_research.pdf#view=fit&pagemode=none)
- GADAMER, H. G. *Philosophical hermeneutics*. University of California Press, Berkeley, 1977.
- GIDDENS, A. *The Global Third Way Debate.*: Polity Press, Cambridge, 2001.

- HANNEMAN, R. A. and RIDDLE, M. *Introduction to Social Network Methods*. University of California, Riverside, 2005. [online]: <http://www.faculty.ucr.edu/~hanneman/nettext/>
- HANNIGAN, J. A. *Environmental sociology, a social constructionist perspective*. Routledge, London, New York, 1995.
- HARVEY, D. *A Brief History of Neoliberalism*. Oxford University Press, 2005.
- HARVEY, D. *Spaces of Global Capitalism: Towards a Theory of Uneven Geographical Development*. Verso, 2006.
- HELD, D. *Global Covenant: The Social Democratic Alternative to the Washington Consensus*. Cambridge: Polity, 2004.
- HUGONNIER, B. Education For Sustainable Development in OECD Countries: Opportunities and Challenges. Workshop on Education for Sustainable Education, Organisation for Economic Cooperation and Development, Paris, 2008 [online]: <http://www.oecd.org/dataoecd/39/12/41308608.pdf>
- HUPPES, G. Eco-efficiency: From focused technical tools to reflective sustainability analysis. *Ecological Economics*, 68 (6), 2009: 1572-1574.
- IRISH AID *Development Education: an Introduction*. Irish Foreign Office Publication, 2007 [online]: <http://www.irishaid.gov.ie/Uploads/Irish%20Aid%20and%20Development%20Education.pdf>
- IRWIN, R. 'After Neoliberalism': Environmental Education to Education for Sustainability, Conference Presentation, Philosophy of Education Society of Australasia, 2007 [on line]: [http://www.academia.edu/3123057/After\\_Neoliberalism\\_Environmental\\_Education\\_to\\_Education\\_for\\_Sustainability](http://www.academia.edu/3123057/After_Neoliberalism_Environmental_Education_to_Education_for_Sustainability)
- JONES, N. A. et al. Mental Models: An Interdisciplinary Synthesis of Theory and Methods, *Ecology and Society*, (16) 1; 46, 2011 [online]: <http://www.ecologyandsociety.org/vol16/iss1/art46/>
- KAHAN, D.M. et al. The polarizing impact of science literacy and numeracy on perceived climate change risks. *Nature Clim. Change*, 2, 732-735, 2012.
- KASSER, T., & Ryan, R. M. Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*, 22, 280-287, 1996.
- KLINTMAN, M. *Citizen-Consumers and Evolution: Reducing Environmental Harm through our Social Motivation*, Palgrave Macmillan, 2012.
- KROL, G.-J. *Environmental problems, morals and incentives in modern societies*. Institute of Economic Education, University of Münster, 2005 [online]: <http://www.wiwi.unimuenster.de/ioeb/downloads/forschen/Krol/EnvironmentalProblems.pdf>
- KULL, K. On Semiosis, Umwelt, and Semiosphere. *Semiotica*, 3/4 (120), 1998: 299-310 [on line]: <http://www.zbi.ee/~kalevi/jesphohp.htm>
- LABONTE, R. 2004. Social inclusion/exclusion: dancing the dialectic. *Health Promotion International*, 19 (1): 115-121.
- LAYZER, J. A. The Environmental Case: Translating Values into Policy. *Sustaining Cities: Environment, Economic Development, and Empowerment Conference*. MIT Dept. of Urban Studies and Planning, 2008 [on line]: <http://mitworld.mit.edu/stream/572/>
- LEFEBVRE, H. *The Urban Revolution*, University of Minnesota Press, 2003
- LIND, G., The meaning and measurement of moral judgement competence revisited - A dual-aspect model. In: D. Fasko & W. Willis, Eds. *Contemporary Philosophical and Psychological Perspectives on Moral Development and Education*. Hampton Press, Cresskill, 2003.
- LINDBERG, C. The UN Decade of Education for Sustainable Development. UNECE High-Level Meeting of Environment and Education Ministries, Vilnius, 2005. [online]: <http://www.unece.org/env/esd/HLM.intervent/UNESCO.Carl.doc>
- MARCH, J. G. and Olsen, J. P. *Rediscovering institutions: the organizational basis of politics*, Free Press, 1989.
- MASON, M. The Governance of Transnational Environmental Harm: Addressing New Modes of Accountability/Responsibility. *Global Environmental Politics* (8) 3: 8-24, 2008.
- MASSUMI, B. *A User's Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari*. MIT Press, Cambridge, Mass. 2003.
- MAX-NEEF, M. A. *Human Scale Development: Conception, Application and Further Reflections*, New York, Apex Press, 1991.

McMICHAEL, A. J., Globalization, Climate Change, and Human Health, *N. Engl. J. Med.* 2013; 368: 1335-1343 [online]: [http://www.nejm.org/doi/full/10.1056/NEJMra1109341?af=R&rss=currentIssue&&utm\\_source=buffer&buffer\\_share=5e4c5&](http://www.nejm.org/doi/full/10.1056/NEJMra1109341?af=R&rss=currentIssue&&utm_source=buffer&buffer_share=5e4c5&)

MEISEL, N. *Governance Culture and Development: A different Perspective on Corporate Governance*, OECD Development Centre Study, Paris, 2004.

NELSON, R. R. *Evolutionary Theories of Cultural Change: An Empirical Perspective*. Columbia University, 2005 [online]: [http://etss.net/files/Nelson\\_Cultural\\_Change.pdf](http://etss.net/files/Nelson_Cultural_Change.pdf)

NONAKA, I. and Konno, N. The concept of "Ba": Building foundation for Knowledge Creation. *California Management Review* (40) 3, 1998.

NORTH, D., *Institutions, institutional change and economic performance*, Cambridge University Press, Cambridge, 1990.

O' SULLIVAN, P. E. Environment science and environment philosophy. *The Int'l J. of Environment Studies*, 28; 257-267, 1987.

ORHAN, O. Three Modes of Environmental Justice in World Politics. *The annual meeting of the American Political Science Association*, Aug 27, 2003 [online]: [http://www.allacademic.com/meta/p62643\\_index.html](http://www.allacademic.com/meta/p62643_index.html)

ORR, D. *Earth in Mind*, Island Press, 1994.

PILON, A. F. The Bubbles or the Boiling Pot? An Ecosystemic Approach to Culture, Environment and Quality of Life. *Environmental Geology*, 57 (2) 2009. [online]: <http://www.springerlink.com/content/w6l306m214813077>

PILON, A. F. Living Better in a Better World: Development and Sustainability in the Ecosystemic Model of Culture. *OIDA International Journal of Sustainable Development*, 2 (4): 25-36, 2010 [on line]: <http://ssrn.com/abstract=1713371>

PLUMWOOD, V. *The Ecological Crisis of Reason*. Routledge, New York and London, 2002.

RICHMOND, B. The "Thinking" in Systems Thinking: Seven Essential Skills. Waltham, MA: Pegasus Communications, 2000.

ROBBINS, P. *Political Ecology: a Critical Introduction*. Blackwell Publishing, 2004.

ROTMANS, J. and Loorbach, D. Complexity and Transition Management, *Journal of Industrial Ecology* (13) 2: 184-196, 2009.

RABKIN, J., A review of: The global environment and world politics, 2nd ed. by Elizabeth DeSombre, *The Electronic Journal of Sustainable Development* (2008) 1(2) [on line]: [http://spin.medic.ukm.my/Contents/ZZZT3133/ZZZT3133/CModule/Lesson9/1315344428\\_REVIEW\\_OF\\_THE\\_GLOBAL\\_ENVIRONMENT\\_AND\\_WORLD\\_POLITICS.pdf](http://spin.medic.ukm.my/Contents/ZZZT3133/ZZZT3133/CModule/Lesson9/1315344428_REVIEW_OF_THE_GLOBAL_ENVIRONMENT_AND_WORLD_POLITICS.pdf)

SASSEN, S. Cities are at the center of our environmental future, *S.A.P.I.E.N.S.*, (2) 3, 2010, [online]: <http://sapiens.revues.org/index948.html>.

SCHEFFER, M. et al., Catastrophic shifts in ecosystems. *Nature*, 413: 591-596, 2001.

SOSKOLNE, C.L. Ethical, Social, and Legal Issues Surrounding Studies of Susceptible Populations and Individuals. *Environmental Health Perspectives*, 145 supplement 4, 1977

STERLING, S. Whole Systems Thinking as a Basis for Paradigm Change in Education: Explorations in the Context of Sustainability. *Doctoral Thesis, University of Bath*, 2003. [online]: <http://www.bath.ac.uk/cree/sterling/sterlingtitle.pdf>

SULLIVAN, S. The Natural Capital Myth, The Public Political Ecology Lab, University of Arizona, working paper, 2013 [on line]: <http://ppel.arizona.edu/blog/2013/03/15/natural-capital-myth>

STERLING, S. 'Mission impossible' - or 'never ending story'? CREE seminar University of Bath, 2009 [on line]: <http://www.bath.ac.uk/cree/seminars/BathSterlingJuly09.ppt>

SOCIOLOGY OF CULTURE CONFERENCE, *Culture and the Making of Worlds*, Università Bocconi, 2010 [on line]: <http://www.esaculturebocconi2010.org/the-conference/the-theme.html>

SUSTAINABILITY TRANSITIONS RESEARCH NETWORK, *Mission Statement*, 2010 [on line]: [http://www.transitionsnetwork.org/files/STRN\\_research\\_agenda\\_20\\_August\\_2010\(2\).pdf](http://www.transitionsnetwork.org/files/STRN_research_agenda_20_August_2010(2).pdf)

TILBURY, D. et al. *A National Review of Environmental Education and its Contribution to Sustainability in Australia*. Australian Dept. of the Environment and Heritage and Research Institute in Education for Sustainability, Canberra, 2005 [online]: [http://www.aries.mq.edu.au/pdf/Volume2\\_brochure.pdf](http://www.aries.mq.edu.au/pdf/Volume2_brochure.pdf)

TAKASHI, M. Diversity, Trans-disciplinarity and Sustainability Science Education. *The 2nd International Conference on Sustainability Science – ICSS*, Rome, 2010 [on line]: [http://icss2010.net/download/documents/24-JUNE/Sessione-5\\_Sustainability-science-education/3\\_T-Mino.pdf](http://icss2010.net/download/documents/24-JUNE/Sessione-5_Sustainability-science-education/3_T-Mino.pdf)



- THROSBY, D. Linking Cultural and Ecological Sustainability. *The International Journal of Diversity in Organisations, Communities and Nations*, (8), 1: 15-20, 2008.
- TRAINER, F.E. Where are we, where do we want to be, how do we get there?: *The International Journal of Inclusive Democracy* .(6), 2, 2000 [on line]: [http://www.inclusivedemocracy.org/dn/vol6/trainer\\_where.htm](http://www.inclusivedemocracy.org/dn/vol6/trainer_where.htm)
- TRAINER, F.E. Natural Capitalism Cannot Overcome Resource Limit *Minnesotans For Sustainability*, 2001 [on line]: [http://www.mnforsustain.org/trainer\\_fe\\_simon\\_lovins\\_critique.htm](http://www.mnforsustain.org/trainer_fe_simon_lovins_critique.htm)
- UNECE Education for sustainable development: a holistic approach to envisioning change and thereby achieving transformation, *Steering Committee on Education for Sustainable Development*, 2013 [on line]: <http://www.unece.org/fileadmin/DAM/env/esd/8thMeetSC/ece.cep.ac.13.2013.4e.pdf>
- UNESCO-EOLSS Joint Committee, Encyclopedia of Life Support Systems, 2008 [on line]: <http://www.eolss.net/>
- UNITED NATIONS UNIVERSITY, Website on Sustainable Development Governance, 2010: [http://www.ias.unu.edu/sub\\_page.aspx?catID=155&ddlID=17](http://www.ias.unu.edu/sub_page.aspx?catID=155&ddlID=17)
- VIRILIO, P. and TURNER, C. *The Information Bomb*, Verso, 2005.
- VOLPATO, G. L., *Ciencia: da filosofia à publicação*, Cultura Acadêmica, São Paulo, 2013.
- WALLERSTEIN, I. *The Modern World-System*, New York, Academic Press, 1974.
- WHITE H., *Figural Realism*, John Hopkins University Press, Baltimore, 1999.
- WHITTON, H. Teaching ethics in highly corrupt societies: Concerns and opportunities. Anti-Corruption Resource Centre. 2009 [on line]: <http://www.cmi.no/publications/file/?3345=teaching-ethics-in-highly-corrupt-societies>
- WILCOX, L. S. Onions and bubbles: models of the social determinants of health. *Prev Chronic Dis* 2007; 4 (4). [on line]: [http://www.cdc.gov/pcd/issues/2007/oct/07\\_0126.htm](http://www.cdc.gov/pcd/issues/2007/oct/07_0126.htm)
- YANG, M: Introduction, *International Conference on Architecture and Cities for the 21st Century*, Valencia, 1998. [online]: <http://whc.unesco.org/uploads/activities/documents/activity-489-1.pdf>
- ZNANIECKI, F. *Ludzie terażniejsi a cywilizacja przyszłości* (The People of Today and the Civilization of Tomorrow), Książnica Atlas, Lwow, Poland, 1935.

#### Summing-up

Public policies, research and teaching programmes should consider the dynamic and complex configurations that make up reality, encompassing, as donors and recipients, four dimensions of being-in-the-world: intimate, interactive, social and biophysical. Projects respect the integrity, resilience, and beauty of human and natural environments in a new economic order.

In view of the transition from a non-ecosystemic to an ecosystemic model of culture, a framework for evaluation and planning of public policies, research and teaching programmes is posited to critically examine the relationships between natural, governmental, economic, social and cultural aspects of being-in-the-world, in view of the emergence of new paradigms of power, growth, wealth, work and freedom.

Ethical norms, peace building, environmental equilibrium are associated with ethically and ordered social experiences, as new paradigms are embedded into the economic, social, political, cultural and educational institutions, in view of the development of morally relevant interests as the bases of rights-bearing and a broad, universally rationalised cultural knowledge.

Problems should be assessed in different contexts and settings (micro, meso and macro) as expressions of the interplay of dynamic configurations intertwining the different dimensions of being-in-the-world (diagnosis and prognosis), as they combine to induce the events (deficits and assets), cope with consequences (desired and undesired) and contribute for change (potential outputs).