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FROM ANTHROPOCENTRIC DESIGN TO ECOSPHERIC DESIGN: QUESTIONING DESIGN EPICENTRE

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1. Introduction

It may appear a radical or contradictory posture to proposing a change of epicentre for professionals of design and product-service development areas, as they assume human beings and human needs as the centre of their doing, and therefore, they live and coexist under an anthropocentric design paradigm. However, from a deep ethical convincement, where reality is showing us that human life is unsustainable and that we are not aware of the total dependency of the Earth wellbeing and its limited resources, we believe that there is no other way than changing epicentre.

2. The hegemonic paradigm

During the XIX century there was no threatening signal for an anthropocentric view: conquering nature and finishing with the wild world was a common purpose of human civilisation. Since industrial revolution two very important concepts could converge: on the one hand, technology and its advances dynamised by science, inventions and innovations, which were oriented basically to offer a better quality life and more *human wellbeing*. On the other hand, economical science development established as a normal condition a financial structure where we all are depending on money a the core axis in order to reach wellbeing delivered by technology. However, this couple technology-economy, under a capitalistic or socialistic political structure has not solved with equity life quality and human wellbeing. On the contrary, financial economy is functioning as the core theme of everything, it has the control of technological development and it has subjugated it in order to exploit values and invented needs under a dream of a permanent and sustainable growth and well being *ad infinitum*. Financial economies slavery is such today, that world paralyses depending on the news of economical crisis of developed countries.

The interdependence, or better said, the dependence and globalisation can lead to a world economic disaster, as the incoherence of creating a Bad Bank, a financial institution created to hold nonperforming assets owned by a state guaranteed bank, unsustainable in the long term, that buys toxic products with public money (debts and real estates that slow dynamic and trust and that worth nothing) in order to dinamise stock market. Of course, the immediate answer has been positive and there have emerge other strategies, as the ones of countries that subsidise the buying of cars with public money. In the long term, to run an economy like this is unsustainable.

In line with this, all technologies have been developed under the ideal of human growth and wellbeing, and basic and applied sciences have fed the technological development enslaved to the capitalistic growth proposal. Of course, being design an actor of products, processes and services technological boost, it has based its development on this idea of human wellbeing i.e. the concept of needs.

However, the basic problem is that the heritage concept of human wellbeing has been manipulated by an ethics that replaced the coexistence with the environment and associated it as synonym of consume vision and consumer needs. In other words, it has come to the nonsense of believing in consumption and consumption theories as the obvious and logic way of solving our wellbeing as a specie. This is the ideological core of the hegemonic paradigm, an anthropocentric development in a growing race towards an idea of a feasible utopia, where wellbeing and human development will be achieved as long as more and more products are designed and consumed, and as long as our technological arsenal is renewed in less time. This way, the race for product development has been undertaken based on the notion of innovation based on the market and endless energetic resources availability. A greed for novelty and differentiation has been stimulated.

In line with this, in the anthropocentric vision that characterises our days, human being is the referent, where its nature and wellbeing are the judge elements and therefore, its axiological structure and ethics follow the next premise: world organisation as a complex whole, depend on human needs, and therefore, all other beings and nature itself are judged and valued in line with *human nature*, and this means that judgements and values about human being are over everything else. However, we should not forget that, even being the rational specie and therefore the dominant one, our specie is just one specie from about 50 millions of earth species, where the most of them are unicellular and insects.

Certainly, the anthropocentric design has been up to the moment consistent with the exposed premise, though some societies of developed countries are entering a post - consumer stage [Lloveras 2009]. With this premise all the needs have been classified and stratified depending on the demand, the acquisitive capacity and the competition for the differentiation. Therefore, according to the client values and his/her economic purchasing capacity, he/she will be able to find mobile telephones from ten Euros, up to ten thousand Euros, just as an example.

Now then, if he or she wishes total exclusivity and can pay for it, he or she will be able to buy a mobile telephone in white gold with diamonds valued for a million dollars. In this enormous range that accentuates inequity, although there may appear the purpose of offering major technological services, the arguments for mobile telephones of ten thousand Euros or of a million dollars are 'exclusivity'. Exclusivity is sustained in the material used (titanium, gold and diamonds) to suggest that he or she possesses an exclusive and inimitable jewel. But the functional service of communicating and the technological base for it are practically equal. Now it is needed to establish other ideas on the questions to the paradigm of anthropocentric development. From design field, let's see which ways or alternatives have been given opposite to the previous situation.

3. Moving towards a different paradigm

3.1 Some historical milestones

In the field of the education in product design, it is possible to take as a referent of attempt of paradigmatic break the School of Ulm, more exactly Die Hochschule für Gestaltung Ulm of the 50s [Cantz 2003]. Other authors have established a strong conceptual influence [Betts 1998; Margolin 1988]. The confluence of artists, scientists and philosophers was from its beginnings the space for a debate in depth and a question of the social function of design. On the one hand, a strengthened model to give continuity to the modernism interrupted in the Second World War was set out. Through a programme of technical education, it wanted to support the reconstruction of West Germany of post-war period, finding a place for the country on the world market. But on the other hand, a vision of a new role of human needs as a civil responsibility removed from the banalities or the hedonism of the individual, typical of the increasing consumerism of post-war period, was discussed. This debate of both, students and teachers, was one of the reasons of its closing in the year 1968.

In spite of the influence of the School of Ulm in Latin-American design schools and in positions towards the notion of development of not consumer products, the ideas were kept and still are kept isolated. The most identifiable exception was the work developed in the design of capital goods in Chile during the frustrated government of Salvador Allende in the 70s [Bonsiepe 1985]. Nowadays, trends like Open Source Software, inspired by Ulm [May 2006], and other streams that come together to the development of "Free Software" have taken force.

In the same line of thought against consumerism, the multidisciplinary convergence of current design is stimulant. Science based approach and rationalism are changing slowly to looking for efficiency of resources, function - form - aesthetics relevance, open technological development and cooperated knowledge management and development. This happens even in a radical way, as processes of open innovation, without patents or paying author's copyright. But all this is staying in the academic area and in some circles called of "civil resistance or disobedience".
About the 80s, there is a referent called *Green Design* [Papanek 1995], with a strong intention of break and questioning of the concept of need, aroused from a vision of the consumer capitalism.
Already from the beginning of the 70s in *Design for the Real World*, Papanek was marking a polemic approach, speaking about the design for 'real' needs. With the notion of 'real needs', it is assumed that, on its contrary, there are 'invented needs' or 'created needs' and therefore not 'real' needs. In other words, *unnecessary needs* are those that market has boosted, supported by slogans like "what are you waiting for to get it!, take advantage of this special offer!, be the first in having and enjoying it!". Till today, this is the current speech of marketing, sales and advertising, boosting consumption and making this way economy 'sustainable'.

3.2 Social design

More recently, Silvia and Victor Margolin [Margolin and Margolin 2002] have theorised around *social design* or, better said, around a *social model of design*. They argue that designs purpose for the market is creating products for selling, while social designs purpose should be the fulfilment of human needs. The fundamental idea is to return to the understanding of human basic needs, over a model of the market who insists on the vision of a consuming user for whom it is necessary to create needs constantly.
It is important to mention that in the beginnings, the conceptual base of social and ecological design models was oriented to technological transfer (exo-technology) with a philanthropic spirit, more than a search for a cooperated construction from a vernacular technology (endo-technology). In line with this, a discussion around the different technological streams must be carried out, for example the substitution of the concept 'technological transfer' by the concept 'technological adoption' [Javi 2006]. Technological adoption includes the 'actor oriented perspective' identified as the target person, in a specific context and with a cooperated development from the beginning of the project.
Social design has been appropriate and has gotten good results in development contexts as interdisciplinary work with occupational therapists, social workers, psychologists and healthcare professionals. As part of teams working with architects and healthcare professionals, they have been working applying *universal design* principles in social spaces as elderly homes or hospitals for example. It has been emphasised on the social responsibility of designers in order to direct their efforts on product development, working interdisciplinary with healthcare professionals, educators, etc. Nowadays a designer agenda must have a social effect with a different consume impact. Design work cannot be just to fill display cabinets and consume or luxury products catalogues.
But social design still does not solve the gap and imbalance in depth, as for example the imbalance between the exploitation and consumption of nourishing and energetic resources. Design with a social approach has become practically a moral palliative facing inequality and socio-economical underdevelopment. This happens because unfortunately the social model confronts a very solid and traditional market model, supported by economical sciences and politics. The social model of design is looking forward to recover and redefine the notion of 'fulfilling human needs', which has been manipulated, reduced and associated in economical sciences to 'market consumption needs'. It is time to take up again social sciences concept of *human needs for surviving with life quality* as a core concept from a physiological, psychological, emotional and sociological perspective, moving away from a consumer and economical vision. In any case, it must be taken into account that human needs are still conceived in an anthropocentric paradigm, rescued however from consumerism. This way it is easier to give the next step towards a non anthropocentric paradigm.
Victor Margolin makes a call towards a social design model based on five capital types: human capital, social capital, financial capital, institutional capital and physical capital. This way he makes from design practice a concrete way for contributing on the reduction of technological gaps within

societies or excluded groups. He proposes to build a new social agenda for design and product development professionals for living, education and health. His development fields and application can lead us to the design of more supportive and fair social and governmental structures as: design for education and educational environments, design for health, design for encouraging autonomy of marginal communities or even of vulnerable organisations, collectives, cooperatives and small companies. In general, we are talking about design oriented towards social and communal wellbeing; a design centred on current inequality problems, creativity oriented to support civil societies equity and to empower people towards their needs in nourishment, health and education.
It is clear that social design is necessary, because if current consume dynamic continues, immersed on the same values structure, we all are going to be peripheral, assisted and vulnerable. We all are 'the people' living based on the consumer model, developed countries and those countries that try to develop following the same model. Worthy and contradictory, the purpose of the social design model can be generalized. On the one hand, this statement is based on the damage of environmental conditions, droughts, flooding, pollution and weather change, food shortage and bad distribution. On the other hand, the accelerated used of non renewable energies, among other problems, will finish turning the most of Earth population into more peripheral, less assisted and vulnerable populations. Therefore, to design practice model based on the five capital types [Margolin 2007], we have to enhance his conceptual statement adding the idea of 'energetic capital', as it cannot be thought as indefinable available. Nowadays energetic capital is absolutely important, because it is one of the factors that allows to put into context the components of a design situation in absolute terms of feasibility. If there is no energetic availability in a specific context, a design and all it consequent products, will not be able to be used.

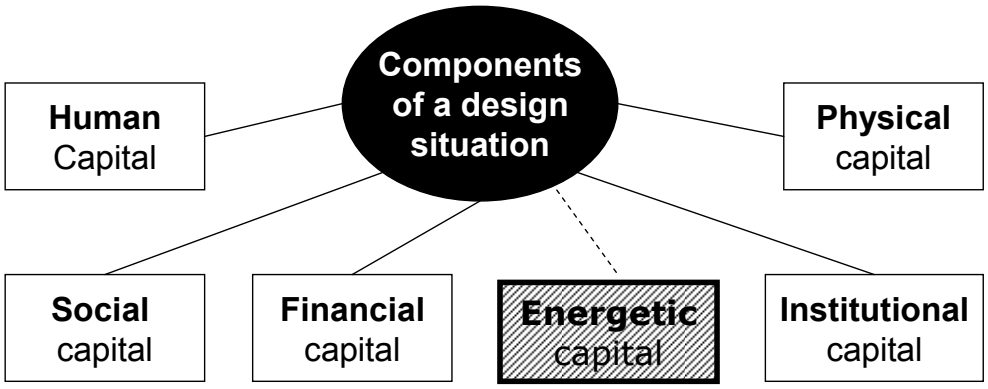

Figure 1. Components of a design situation. Based on: Margolin, Call for Social Design, 2007

3.3 Sustainable design

Here has been considered *social design*, but today there are many others design approaches: design for experience, responsible design, interaction design, universal design, inclusive design, user centred design, ecodesign, clean design, design for environment, total design, etc. However, although the pertinence of these approaches which rescue and discover human value over commercial value, all of them follow in one or another way the hegemonic political and economical paradigm. This is a paradigm where human being is the centre of everything and, convinced that he is the centred, he is stimulated to be responsible and support economic and financial structure of consumerism. In line with this, all these design approaches are necessary, especially the eco-environmental approach that has evolved through three big phases [Madge 1997]: *green design*, which was part of the 80s discussion about *light and dark green consumers*. After it, *'ecological design'* in the 90s took some concepts of deep ecology in order to redefine design purpose, thinking about rationalising materials and processes handling. Finally came the idea of *'sustainable design'*, from global design and at the same time sustainable, thinking about human and environmental interdependence.
The above approaches are necessary, because they approach to an holistic consciousness and therefore, they move away from considering human being as the centre. However, they are not enough

in the sense that human specie still does not recognise that, in order to survive on the Earth, we cannot continue behaving as the Earth centre. Energetic resources are already in its zenith, Hubbert's peak theory will happen, shall it be in 2015 or not. It is a fact that in human civilisation scale is the immediate scenario, because it is undeniable that oil and all fossil energies are finite resources.
The systemic-eco-environmental vision has allowed to recognize the mistakes of civilisations development looking for conquering, dominating and exploiting nature [Owen 2005]. This is the first mirror to admit consumerism and nature exploitation effects.

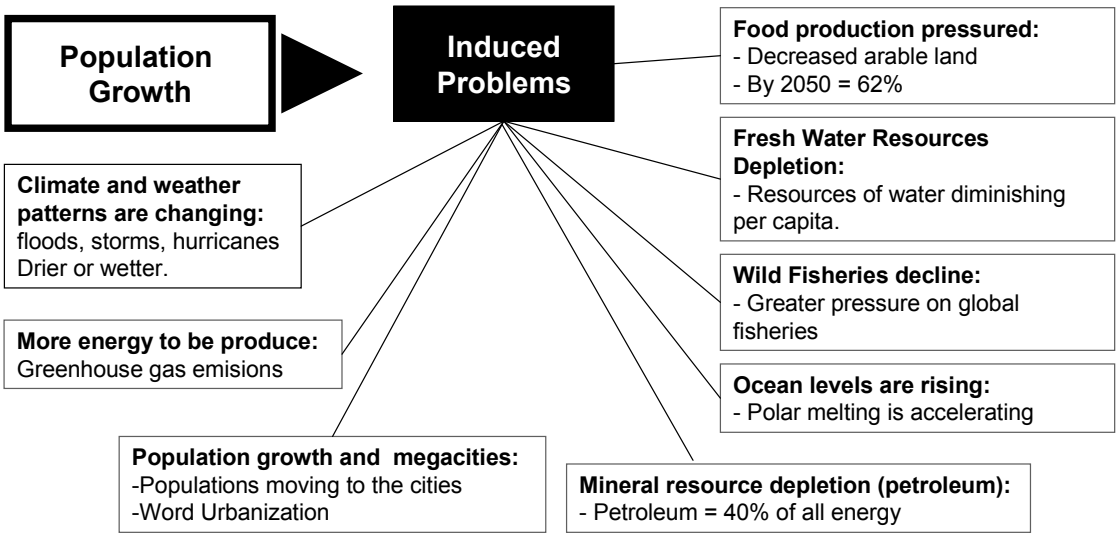

Figure 2. Induced Problems. Adapted from: Owen, Ch. Growing the role of design, 2005

As mentioned above, the mirror shows that human needs fulfilment based on a market centre model and a values system that justifies itself through the idea of progress, has lead us to an imbalance between human specie and the rest of planetary nature. Here a new values structure is needed, a behavioural ethics that harmonizes with the ecosphere, where all human beings belong to and from which all depend in real and absolute terms. According to Earth Manifesto:

> "A trusting attachment to the Ecosphere, an aesthetic empathy with surrounding Nature, a feeling of awe for the miracle of the Living Earth and its mysterious harmonies, is humanity's largely unrecognized heritage. Affectionately realized again, our connections with the natural world will begin to fill the gap in lives lived in the industrialized world. Important ecological purposes that civilization and urbanization have obscured will re-emerge. The goal is restoration of Earth's diversity and beauty, with our prodigal species once again a cooperative, responsible, ethical member" [Mosquin & Rowe 2004]

In line with what is expressed on the manifesto, we can ask the central question about the hegemonic design paradigm.

4. Should human being and his/her needs be design epicentre?

This question will demand us thinking carefully, but above all, it is an invitation for reconsidering social and economical aspects of consumer behaviour adopted by the most of us. Essentially, it is an invitation to think about a new way of design performance, taking into account everything about design, a space where people are able to recognise themselves as symbiotic and interdependent with the rest of planetarium species. This contrasts with the current situation, where we are acting as the domineering specie that subjugates and exploits nature.
If we are conscious that we are a dependent part of the ecospheric Earth matrix, we will also be able to identify the real generated problems and it will be possible to start real and deeply creative human acts regarding to the built environment. This conscience of membership and ecospheric dependence must invite us to think about some aspects for a new way of behaviour, like it will be explained in the following lines.

Diversity and variety are being lost, and that includes human nature and its culture, because the idea of globalisation has imposed and promoted a life style standard focused on a consumption society. The idea that human being life's quality depends on it has been sold. On the contrary, diversity and variety of earthling species and human life styles acceptance is an ethical behaviour of tolerance that would encourage the creative potential of Earth and would eliminate the egocentrism and the homocentrism. As a partial result, human society has growth in inequality of possibilities and opportunities, and the ideological, educative, social, cultural and economical structures connect people in productive and reproductive dynamics of the consumerism model, which become the model to be followed.
Equity and the acceptance of the ideological, cultural, social, economical, technological and scientific differences, should guide humanity to the motto: *diversity with equality,* eliminating the comparative assessment that promotes models between domineering people and ruled people. Nevertheless, for leaving this anthropocentric point of view, it is necessary to accept the opposite to Darwinism of evolution by competition: co-creation and cooperation between the planetarium species for coexistence. A more creative, harmonic and conscious of ecosphere human intelligence has to appear, and this intelligence has to be organize in equity with the capacities, actions and vital rights of the rest of planetarium species: equity between species, between humans and generations, like the "Radical Simplicity" says [Merkel 2007].
The Earth must be understood as an alive being, from the ecospheric point of view which talks about the Gaia postulate [Lovelock 1989]. It must be identified that, inside the earthling ecosphere, every system, alive or not, coexists in a complex dynamic, being always close to the equilibrium or to the catastrophes. Therefore, we cannot expect to solve human problems from a linear and deterministic point of view. For example, problems of social, economical and energetic injustice are important and we have to be faced, but they are the consequence of the lack of a solution for the debilitation of ecosystems and the exploitation of resources from philosophic and anthropocentric actions. The fuel fossils decline is not resolved just with biofuels, because "feeding" the gas tank will imply sooner or later not feeding a hungry population, and this is not just unsustainable but lacks of ethic.
It is necessary to establish a complex and holistic view where we can recognise the human specie in a responsible way, at the same level and right of acting of any other specie or unit, like parts of the ecosphere. All this points unavoidable at a new perception as a specie, that being intelligent, should achieve survival not by exploiting the land and perceiving it just like a simple resources supplier. That is why it is fundamental to establish a new ethics for acting, a new human behavioural code, where we can be recognised as a eco-dependent and interdependent specie and not as a domineering one. These new ethical principles should be oriented towards the search of the dynamic equilibrium between use and distribution of food, and towards a discouraging of consumption beyond the needs for surviving. It must not be accepted ethically the economical imbalance of the existence of richness in few persons or few countries without a value of real and probable use. In this sense, the wish of austere life styles, with conscience of impact and with specific acts like many civil movements and non - governmental organizations of today is needed.

4.1 Complexity as a possible alternative for changing design epicentre

Talking about a biospherical equilibrium compromises design to looking for theories that allow the understanding of all living beings –including human beings- within a system with complex behaviour near to or faraway from equilibrium. According to Morin (1997), *complexus* is something "that is weaved together". Complexity is a woven structure of events, actions, interactions, determinants, contradictions and vicissitudes that represent the phenomenological world.
In this sense, complex theory, science of totality, or deterministic chaos [Gleick 1987; Morin 2007] could be an option for decentralising and scaling the design approach, considering human beings fairly with other biotic systems. In order to understand systemic behaviour from a complexity perspective, it is necessary a systematic observation and a consistent reasoning. However, this is not enough: an holistic understanding is needed, a coherent comprehensive whole that allows passing from order to chaos and from chaos to order [Briggs and Peat 1990]. This new epistemology based on complexity theory would not propose a new centre with a hierarchical organisation of design actions. Proposing a new centre would be similar to Copernican revolution: to pass form a geocentric model to a

heliocentric model [Martínez Miguelez 1993]. Changing from an anthropocentric design to an ecospheric design must be understood following Hubbles' thinking, a design approach with holistic vision in a coherent whole without a centre. A holistic approach is meaningful, because it allows understanding the systematic concatenation of a problem i.e. how a specific situation is being affect by many causes. A complex approach can help to understand two basic issues: the systems' dynamic behaviour and its equilibrium degree [García Acosta 2002].
A comprehensive, complex and interdependent design is proposed, without denying Newtonian-Cartesian paradigm, where it is possible to work in specific design and product development scenarios, but at the same time, a design concept capable to overcome the reductionist, mechanical and hierarchical vision founded on the idea of sustainable development and growing economies. The goal is going further from antinomies of the parts in relationship with the whole (parts-whole) and of the individuals in relationship with the whole (individuals-whole), replacing it with dialectic and dialogic approach between design and ecosphere, built environment and Earth, Homo Faber and Gaia.
A ecospheric design compromises a new ethic, a human values review, even a psychological maturity evaluation of the whole humanity against a trivial reality that assumes as opposites human being and animals, or culture and nature. It is not possible to continue exalting men beyond animal [Morin 1994]. However, ecospheric design entails basically a decision and a new political global action, probably with implications as depth ears, energy waste and fruitless efforts.

5. Conclusion

In short, the anthropocentric paradigm in design has deep and logic historical roots in the economical, social and political structures that support and promote it. It has not been considered as one of the consequences of humanity civilization process that assumes land and its media as resources that can be exploited and dominated to get benefits for the human race as domineering specie. But the growth paradox became unavoidable in the presence of nowadays reality of watching the limits and impacts in the resources and in the environment, that puts not just other species at risk, but humanity survival.
An understanding of complex systems for assessing in a better way the effects of the human activities, its social and ethical impact and the energetic demand of products manufacturing is needed. A biospheric equilibrium should locate the human, environmental and energetic condition in the same level. When searching a change of a epicentre for the design, it is not meant to resign to human condition and its survival right. The aim is a change of conscience in order to recognize ourselves like an eco-dependent specie of the conditions that Earth gives to life.
It is set out a change of design epicentre in order to recognise ourselves with such an intelligence that we cannot show us like exploiters but like co-dependents of the continuity of life in earth, of our life as a specie and the life of million of other species. A design that moves its view focussed on needs and wishes of human specie to a design with the view focussed on earth. It should appear the space for discussion and get ready to propose new principles as the result of deep thoughts, in order to be able and guide a new design vision: a vision of ecospheric design.
Therefore the basic postulate of '*ecospheric design*' does not set out to leave human dimension, but to put it in a fair scale in relationship with Earth (the ecosphere). We cannot understand the '*ecospheric design*' just like a new denomination, a conceptual retouch or a paraphrase for the exposed '*green design*', '*ecological design*' and '*sustainable design*'. What we should expect with the '*ecospheric design*' is to decentralize human being as unique actor, and the purpose of the project should be living well on the environment (well-being), recognizing other actors (the rest of the species) in the project of well-being in Earth (being well and living without being endangered species). In this sense, the '*ecospheric design*' differs, in fact, it opposes to the paradigm that represents '*sustainable design*', as it shares the incompatibility mentioned by growth theory [Fournier 2008] that understands development and sustainability as an oxymoron.
The understanding of development as growth *ad infinitum* connected only to GDP index must be replaced by the decrease oriented to sustainability – as regulator, not in the negative meaning, where other indexes operate, for example: life quality and well-being of the species (human is one of them) and its relationship with energetic demand and consumption, which is required for quality and well-being. If this school of thought is accepted, it cannot operate anymore with an anthropocentric or even

biocentric view. Like it is mentioned in the Manifesto for the Earth, the ethical priority moves from humanity (anthropocentric) and from any other alive being (biocentric) to Earth-home that includes them (ecospheric Gaia). This way we avoid the risk of losing the biocentric equality proposed by deep ecology years ago.

We need a design view, where the central aspect is paying attention to the acting inside a new ecospheric ethics, where the focus is over four aspects: dynamic equilibrium, equity, complex co-dependent view and holistic understanding.

However, for the hegemonic paradigm, this approach and other similar approaches that question the ethical sense of continuing with consumerism as well-being and life quality ideas, are simply utopian proposals, absurd thoughts or even threats, and they never will admit that they are arriving to a utopia for human development, until we are able to see the reality regarding the irreversible energetic crisis which is coming. If a new ethical view as point of reference arises, it is possible to live with new social and cultural structures, only if they do not enslave humanity for work and 'keep' a life level which is generating damages. But thinking about a change of economical, financial, ecological and geographical structures is coming into force, a new theoretical-conceptual basis is emerging from economy. [Martinez – Alier 2009].

In short, "ecospheric design" must be guide by the deep understanding and the maintenance of the dynamic equilibrium. For example, design for food biodiversity and design with food biodiversity (in context, well-balanced and equitable diet). It should work for the efficiency and efficacy of energies used, redefined and resized not in the limitation of economic sciences, but understood in a complex and holistic way, the use of the energies in dynamic equilibrium, instead of an exploiter like lately has been happening.

Inside this framework, with a new ethics as guide, it is possible to think about and make coexist vernacular technologies with edge technologies. Design can be a mediator of the scientific and technological advances, without putting them to the service of nature exploitation and consumerism stimulation.

- It is about creating a technology governed by ecospheric conscience, a development that shows and allows the coexistence of abilities and basic human capabilities, today relegated as handmade curiosities or to historic museums of technology. It refers to the guiding of ourselves quickly towards the renewable energies, and include a planetarium ethics of nanotechnology and robotics.
- It is about promoting a technology that respects the nomad and collectors practices at the same time as located biotechnological developments.
- It is about encouraging technologies which recognize and promote the simplest physical, mechanical, chemicals and biological principles and over all more efficiency in terms of energetic consumption.

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