URBAN STRATEGIES AND PRODUCT DESIGN IMPROVEMENTS

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1. INTRODUCTION

The introduction of unpleasant topics into the political agenda of countries such as the continuous environmental deterioration, its negative impacts and demanded strategies, has put into **highlight a change of paradigm into the very conception of projects: the need to bring environmental issues into communities in a very straight relation. That means, among other implications, the maintenance of an environmental culture reflected on product design, services, engineering, as well as architecture typologies and urban patterns.**

This work deals with the unavoidable reality that projects can no longer be introduced without incorporating sustainable patterns; for such reason, the goal of this presentation is to propose a methodological approach to manage urban sustainable strategies related to EcoDesign proposals, promoting research and projects into a closer workgroup to effectively increment the implementation of environmental design solutions.

In order to meet a successful response in building sustainable environments, one essential prerequisite is the given attention to the concepts of green architectural typologies and its impact on urban settlement patterns. The introduction of such aspects requires combined efforts, both working with urban plans and policies, as well as mobilizing communities with a cultural background acceptance and a persuaded attitude in order to search and adopt innovative technologies, which may represent a gain in terms of minimized environmental impact and increased quality of life.

2. PRELIMINARY CONSIDERATIONS

In Eco-Design philosophy the areas of product design, architecture and urbanism have the need to be totally integrated. To strategically be implemented, each of them must play its role: ecodesign managers should observe new developments in legislation as well as urban planners and architects have the need to investigate innovative products and technologies to minimize impacts towards environment while optimizing the use of clean solutions.

The culture of creating transdisciplinary workteams between managers, designers and architects, however, has, unfortunately, not been of an expressive nature in Brazil. Figure 1 points some of the reasons that may justify a lack of a closer approach between those areas.
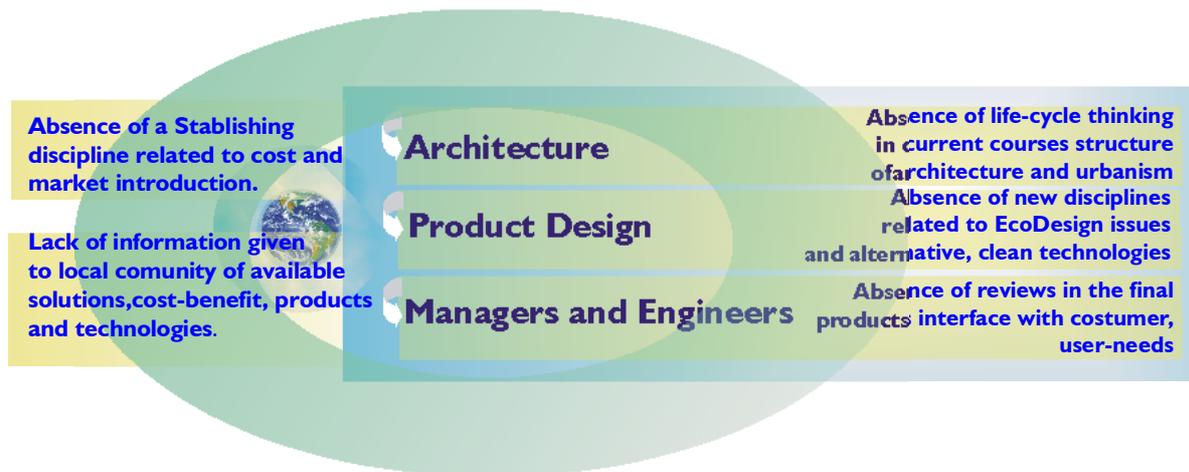
Figure 1: Scheme of demands for a closer interaction between areas.

The absence of a discipline related to cost and market introduction of Eco-innovations in undergraduate courses is usually a common bottleneck among all areas. In Brazil; there is still one more general obstacle, the one related to the lack of information given to local communities of available solutions, cost-benefit, access to products and clean technologies which can already replace old ones. That may difficult cultural acceptance to the substitution of old patterns to the increased technological options of EcoDesign, as well as represents the maintenance of a reactive posture towards sustainability.

3. WHY START AND HOW TO IMPLEMENT A PILOT PROJECT

A special focus should be concentrated around innovative products and its influence on the improvement of a healthier urban environment. The urban space has been chosen for our focus because of the possibilities of creating policies and strategies to maximize the EcoDesign.

Urban planners and architects have the potential and the ecological responsibility of introducing into projects a straight correlation with innovative technologies, based on green architecture, making use of environmentally-oriented product design (DFE-Design for Environment), which deals with aspects such as material-efficient design, energy efficient design, low pollution design among others, which are selected parameters in order to achieve environmental gains.

Every business, as well as constructed areas, places a burden on the environment, although there is no such thing such as "totally environmentally friendly", every level of production, use and disposal is usually accompanied by the consumption of energy, environmental burden through transportation and emissions, among others. It must be our goal, however, to restrict and monitor the environmental impacts through the choice of technological options representing the lowest possible levels of negative impacts concomitant to the best use of available resources.

More than 80% of all product-related costs and environmental impacts of a product during its manufacture, use and disposal are determine during the product-planning phase. For such reason it is highlighted the urgent need of introducing transdisciplinary courses and EcoDesign culture in order to promote workteams in Brazil's research centers and universities.

The cultural acceptance of new, sustainable products, for instance, will introduce an irreversible change in the current architectural typologies and urban settlements in the central neighborhoods of the city of Rio de Janeiro. Commitment and participation are the key words to be adopted by local community.

The promotion of the environmental benefits may occur in the conception of new projects and (or) redesign of old ones. To instigate and introduce motivation into local community towards a pro-active posture some key-questions should be made, as shown in scheme on figure 2.

Why Start

How to Start

Law requires

Customers demand

Improve image

Green Architecture is healthier

Green Architecture represents an economy in the long run

What is the Planning task, problem user need or product we are dealing?

Research on market and local user-culture

What is the benefit of investment to the user group ?

How fundamental can our deliberation be? Eco-redesign, Eco-Inovation or a Complete new concept?

Figure 2: Key-questions in order to instigate local community to adopt a sustainable culture through Eco-Design.

In Eco-Redesign the starting point is a reference product originating either from company's own production or from competencies. The responsibility is directed to product designers and engineers. Figure 3 shows the opportunities of strategic sustainable interventions in Design.
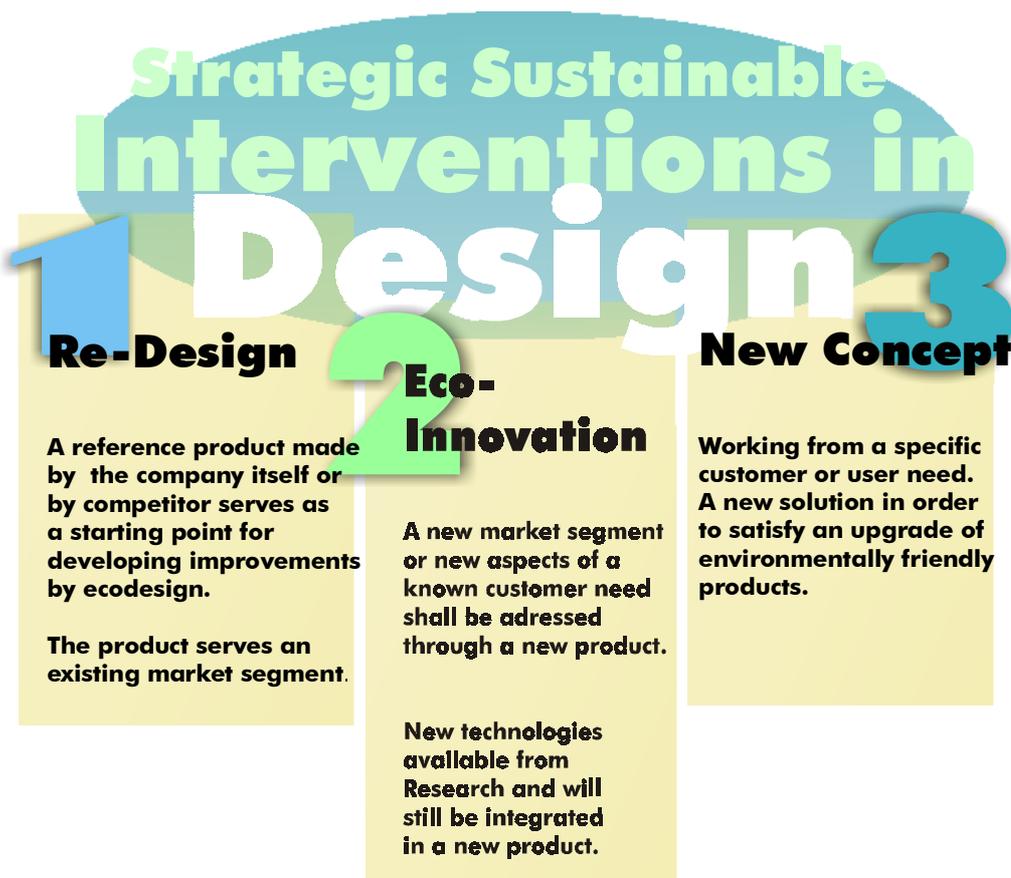
Strategic Sustainable Interventions in Design

1 Re-Design

A reference product made by the company itself or by competitor serves as a starting point for developing improvements by ecodesign.

The product serves an existing market segment.

2 Eco-Innovation

A new market segment or new aspects of a known customer need shall be adressed through a new product.

New technologies available from Research and will still be integrated in a new product.

3 New Concept

Working from a specific customer or user need. A new solution in order to satisfy an upgrade of environmentally friendly products.

Figure 3: The opportunities of strategic sustainable interventions in Design.

All of the mentioned opportunities will be implemented once it is investigated:

- *1. What are the user needs;*
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  2. Determine how product-related environmental consideration influence buying behavior (EcoDesign culture in community);

  3. Explore the competitive situation (local cost-benefit of EcoDesign);

- *4. Work with realistic scenarios and solutions;*

Checklists may facilitate a preview of realistic options, including the is recycling methods are available as well as the highlights of environmental relevant properties. The great advantage of making use of them, however, is that all areas can work without a special methodological expertise in specific area, that means that it can be used in a transdiciplinary workgroup. The quality and effectiveness of checklists will be based on the environmental acknowledgements of the workteams. Some examples of checklists which have already been useful in the implementation of EcoDesign are listed on figure 4.

Figure 4: EcoDesign Checklists

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4. THE LINKS WITH URBAN STRATEGIES

In order to link urban strategies with product design improvements a selection of aspects to be compromised with have been identified shown in figure 5.

Figure 5: Urban strategies and product design: improvements- interfaces to implement EcoDesign workteams

The city empowerment: people, culture and health, livable cities introduces the aspects of involvement and commitment. In Rio de Janeiro's case study for instance, a brief historical consideration is needed to understand the importance of this aspect; it could start by mentioning that the economic speculation has deeply transformed the city urban tissues. In that phenomenon, mostly observed in the central urban areas of late developing countries, it can be verified both social and economical disparities from one area to another. That, usually happens because of an evolving economic base of it, which has, for long periods, brought to central areas the influx of population; that

- besides population growth - has characterized a challenging scenario for the city policies and urban planners in order to provide livelihoods, infrastructure, social services and other governmental contributions.

Nevertheless, in the last two decades, there has been a tremendous pressure on the urban environment limits related to quality of urban life. One important contribution is referred to the existence of invaluable architecture (sick buildings syndrome) and environmentally poor habits, for they represent an additional negative impact on environment.

One key ingredient in order to achieve positive gains in this specific subject is the substitution of the old architectural patterns. That, however, represents a challenging group of actions, specially related to economic and cultural backgrounds.

A guidance to work with local empowerment for Ecodesign implementation has to start by avoiding large scale, both shocking and expensive transformations. Small-scale changes may be introduced instead, such as the changes of communities and neighbors habits, with local participation on an EcoDesign strategy to local needs, as suggested on key-questions scheme proposed in this article. The instigation and motivation of local participation in EcoDesign matters is the genesis of the implementation process.

The innovative and the commitment; deal with the way innovative, clean technologies that will be locally selected and utilized. That is the second step ahead, straightly related with background information and the tools like checklists.

An improvement on more sustainable choices can only be introduced within involvement. In this phase, the appeal to renovation of efforts related to the city's sense of pride appears to be strategic to motivation. Voluntary attitudes and of local community synergies will be explored. For this reason t*his topic* highlights the importance of developing a local change in the cultural habits and structures, that would increase the demand on EcoDesign based solutions, local market, as well as the introduction of an EcoDesign philosophy.

The Mandatory Urban Patterns, the last topic deals with the fact that: to be available does not means to be effectively implemented by local community, for such reason, clean technologies will only provide an option, not a mandatory solution, although available in the market. An extra support must be given in the beginning of the implementation, such as local facilities, among others, in order to compete with traditional patterns. Changes in transportation solutions, changes in architectural patterns, changes on urban design, all have the need to be clearly emphasized on special policies and standards of one region, particularly when dealing with late developing countries, where priorities are far from the investments on green architecture and EcoDesign based solutions.

5. CONCLUSION

The responsibility and possibilities of intervention by Urban Plans is diversified, urban design and land use codes are the most appropriate links to implement the new philosophy. The confrontation with current patterns of local land use codes and the proposals of additional environmental data as a mandatory procedure in one strategy of a mandatory nature that can guarantee the introduction of a gradual, minimum elements of a health, livable environment.

The process of empowering sustainable cities, to be effectively introduced, has to start with local actions, that work encompasses site-specific technological interventions and systems-wide ecological thinking, for such reason, it is highlighted the need of interdisciplinary courses- starting in undergratuade levels- in local Universities in order to explore local potentials while creating a new pattern of projects conception, for design must be sustainable for local conjectures.

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