TOWARDS AN ECOLOGICAL SOCIETY: HOW LANDSCAPE ARCHITECTURE CAN CONTRIBUTE TO A CULTURAL TRANSITION

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Keywords: *Ecological design, ecological understanding, ecological aesthetics, modern society, cultural adaptation, landscape architecture*

Abstract
In the last decades, the impoverishment of our biophysical environment has become quite clear. Ecological thinking can be a proper way to deal with these issues. However, environmental awareness hardly seems to penetrate all layers of society. It seems that, although promising ecological plans exist, modern thinking, with its focus on efficiency and economics, is still largely present in the development of the environment. A shift towards an ecological based society is necessary. The purpose of this paper is to explore why a transition towards ecological thinking is hard to accomplish and how the field of landscape architecture can contribute to this transition.
This is done by placing ecological thinking in the cultural context of modern society. For this a conceptualization of cultural adaptation is used, which can explain how a cultural transition works and what the position of landscape architecture in a culture is. It becomes clear that ecological aesthetics are not well appreciated in society yet and that ecological modernization - the science that describes and prescribes how ecological transition could work in economical and political organizations - is hampered due to a missing power base. Modern thinking is still dominating economical and political organizations and therefore lacks environmental issues and globalization problems. Since these organizations are the investors and the commissioners of landscape projects, these projects often neglect environmental issues. For a transition towards an ecological based society, ecological understanding and acceptance of ecological based aesthetics by all layers of society are essential.
To do so, landscape architects can contribute in four ways: (1) bringing different disciplines together, by creating holistic designs and integrative plans; (2) making workable concepts, by translating current environmental knowledge in practical design solutions; (3) visualizing ideas to communicate with people and create debates; and (4) realizing iconic strategic projects to inspire ordinary people.

Introduction

In an increasingly industrializing world, the consequences of human actions on the environment have become increasingly apparent. In different fields of science, experts seem to agree that within a few decades several crises will occur if no effective action is undertaken. It comes down to the fact that human society threatens the earth's living systems. One can think of numerous problems, for example the loss of species, destruction of agricultural lands, depletion of forest and fisheries, loss of human cultural diversity and declining urban cores.
Since the environmental crisis in the 1970s, ecological design has emerged as an approach that could work on these problems. Van der Ryn and Cowan (1996) named five principles for ecological design as solutions to the numerous environmental problems: (1) solutions grow from place: there has to be more attention to the context of the place, the unique cultural and physical characteristics; (2) ecological accounting: environmental and social factors, like energy, water, materials and indoor and outdoor air quality, are equally appraised next to the financial side of the design; (3) design with nature: designing with regard for nature, for example by using the movement of the sun in the design of a building; (4) everyone is a designer: the design process should be an open process by collaborating with all the stakeholders; and (5) make nature visible: in an increasing urban world it is critical to enable children and adults to see and access natural systems and processes. In this paper, we define ecological design as "any form of design that minimizes environmentally destructive impacts by integrating itself with living processes" (Van der Ryn and Cowan 1996, p.18).
The problems regarding the earth's living systems show that a transition towards a society based on ecological principles is needed. But ecological design does not seem to be well accepted in some parts of society. Landscape architecture can be seen as a promising field to address the environmental problems (Johnson and Hill, 2002), also because it has ecological thinking at the core of its legacy (Mozingo, 1997). However, the field of design and planning has not always been aware of this position, and even now the field has to evolve in order to play an important role (Forman, 2002).

The goal of this paper is therefore to investigate why this transition towards a more ecological society is hampered and how the profession of landscape architecture can contribute to this transition. Taking the stance that modern society is opposing ecological transition, this paper starts with placing landscape architecture and ecological design in a cultural context. We discuss how culture and a cultural adaptation can be conceptualized in order to see what is needed for a transition. We will then discuss ecological understanding and ecological modernization and bring in the role of ecological aesthetics in this transition. We end with suggestions how landscape architects can contribute in an ecological transition.

How can cultural adaptation be conceptualized?

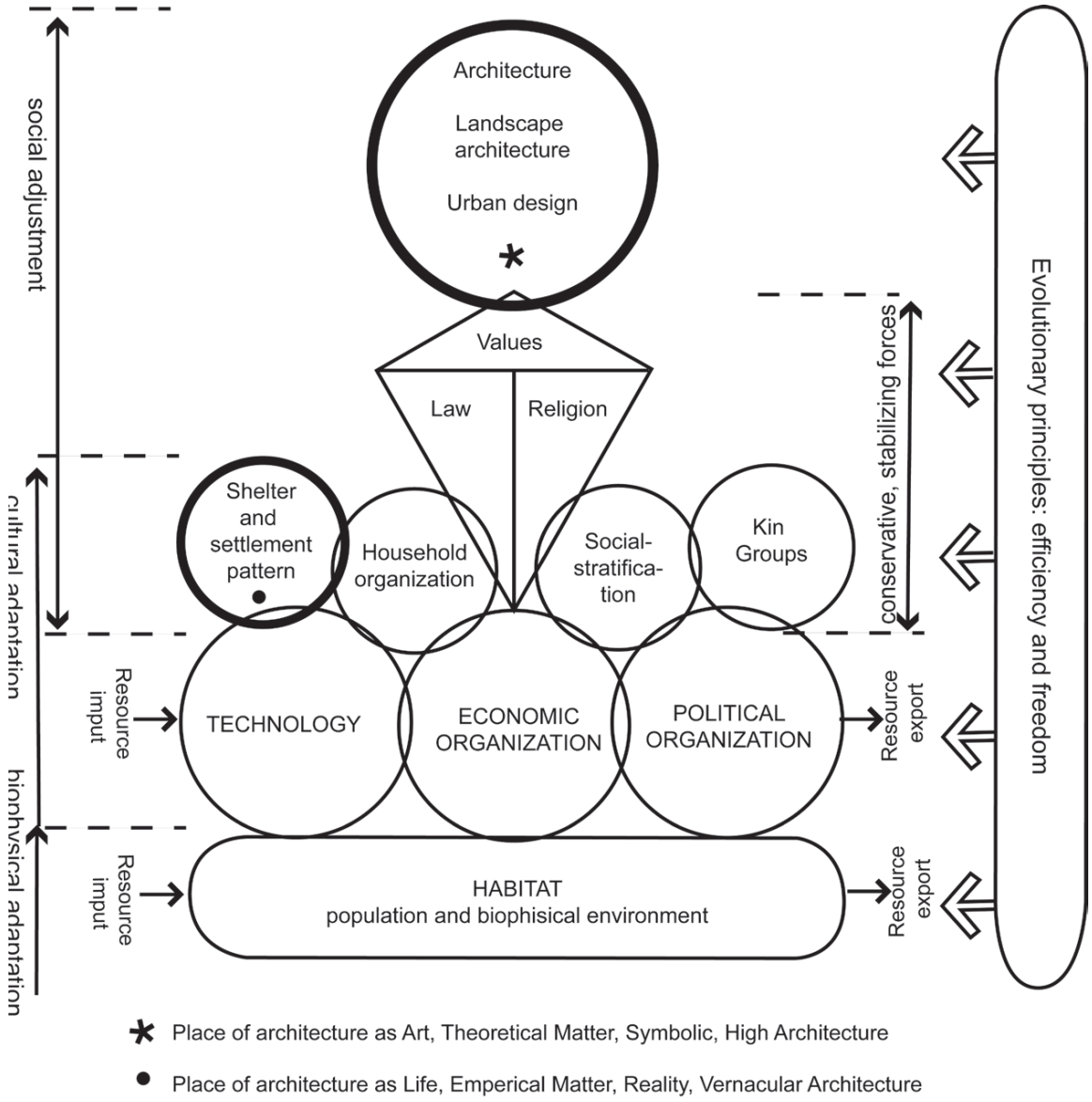
A clear description of culture is hard to give. Nigel Holden (2002) gives twelve definitions that have been made to describe the concept of 'culture'. According to him:

- culture shapes behaviour and influences one's perception of the world;
- culture is produced by the past actions of a group and its members;
- the members of a culture system share a set of ideas, and especially, values;
- these are transmitted (particularly from one generation to another) by symbols;
- culture is learned.

Yehudi Cohen (1968) offers a conceptualization of culture that places the aspects named by Holden in a diagram that can be used to visualize cultural adaptation. Cohen (1968) states that adaptation in culture is the process by which men makes effective use of the energy potential, its resources, in his habitat. Originally, the most elementary source of energy was muscular, but later wind, waterpower, coals, oil and gas were used to generate heat and electricity. Every culture can be conceptualized as a strategy of adaptation to the habitat, and each culture represents a unique social design with own techniques for extracting energy from its habitat. Figure 1 shows the conceptualization of culture by Cohen that was modified by Jusuck Koh (1978), to fit for an industrialized world. The base of every culture is the habitat, the biophysical environment. Cohen (1968) named the organizations which are the primary forms of adaptation to the habitat the techno-logical and political institutions of a society. Koh added the 'economic organizations' to the primary forms of adaptation to suit industrialized society. Every time when men introduced a new energy system, for example when the steam engines were invented, new related techniques and transportations systems were developed and social relations were reorganized. With that their culture changed.

Further illustrated in figure 1 is that the primary forms of adaptation, technology, economical organization and political organization, influence the secondary forms of adaptation. Secondary forms of adaptations are for example households, settlement patterns, social stratification, and kin groups. Furthermore, Cohen describes cultural values, laws and religion as the conservative adjustive strategies. Together with the secondary forms of adaptations, they stabilize large changes in the used technologies, the political system and the economic systems. At the top of the scheme the expressions, part of the values, are positioned. Expression can be in art, literature, language or poetry, but also in (landscape) architecture and urban design. A change in a primary cultural adaptation will have a great effect in its social adjustments, but changes in a social adjustment will have less effect on the primary adaptation or the habitat. When a change in society is to be made, this conceptualization can be used to indicate why changes work or not work.

Figure 1.
Conceptualization of culture. Highlighted is the position of landscape architecture (Koh, 1978).



About the position of landscape architecture as a form of architecture Koh sees architecture as an adaptation, rather than a fine art: “As adaptation, architecture is a manifestation of a dynamic interaction between human evolutionary principles – efficiency and freedom – and human ecological context – habitat, technology, political and economic organizations” (Koh 1978, p.16). Landscape architecture manifests itself the same way due to the evolutionary principles and the human ecological context and can therefore be seen in two positions in the diagram. First, landscape architecture can be seen as a way of expression, thus, as a social adjustment at the top of the diagram. Second, the profession of landscape architecture deals with the planning, design and management of the environment, based on technology and science. Landscape architects shape the settlement and can therefore be seen as part of the secondary adaptation ‘shelter and settlement pattern’.

Ecological Design In A Cultural Context Of Modern Society

The ecological movement as concern for the health of the earth as we know it nowadays has never been and is still not yet sufficiently accepted. We try to explain this by placing ecological thinking in the cultural context of modern society. The 1920s started with a strong economic development and technological innovation in the use of energy. This led to a

society whose focus was on manufacturing instead of agriculture and it had a focus that was (inter)national and synthetic instead of regional and real (Jellicoe and Jellicoe, 1995). The industrialization and mechanization resulted in more work in the cities and less work in agriculture. Together with an understanding that this machine age could raise the living standards, people moved to the cities (Rogers, 2001). To deal with an enormous growth of new citizens, city planning and with it the political organization came up with new concepts, rules and regulations that were supposed to deal with the migration and to control modern industries and businesses. All these developments and social changes were changes in the primary adaptation layer of the cultural adaptation model (see figure 1) and cannot be seen separate from an adaptation of the way we organize our environment and express ourselves. New concepts like Ebenezer Howard's 'Garden City Movement' and the city concepts of Le Corbusier were developed. Different modern movements in architecture and art, like the Art Nouveaux, Jugendstil, the 'Amsterdamse School' and expressionism, emerged in this period of rapid development and a changing society.

For landscape architecture this cultural shift towards a modern society resulted in adjustments at all scales. On the small scale 'functionalism' became the norm (Rogers, 2001) and got followers of persons like the American landscape architect Eckbo and the Dutch landscape architect Warnau. On the city scale, social ideals, especially in the realization of buildings for workers and the need for houses after the WWII, resulted in modernistic concepts. In the Netherlands the Bijlmer (figure 2), a neighbourhood in Amsterdam built around 1970, was the Dutch functionalistic translation of the ideas of Le Corbusier. Within the regional scale the efficiency drift of engineers moved on. The design of the Dutch Noordoostpolder (figure 3) can be seen as an example at the regional scale where the focus was mainly at efficiency in agriculture. The organization of rural areas was purely based on agricultural optimization and with the introduction of the highway, the realization of infrastructure was built upon efficiency (Pregill and Volkman, 1993).

Already at the end of the nineteenth century environmental awareness showed up as a reaction on this rapid development. George Perkins Marsh (1801-1882), tried to show how the activities of mankind affected the climate, topography, vegetation patterns, soil and the living areas of species. In Man and Nature (1864) Marsh addressed the carelessness of man to its environment. He wanted his empirical data to be warning signs and means to understand "the action and reaction between humanity and the material world around it" (Marsh, 1965). This increased the awareness that the environment is an organic system in which the parts are interrelated. However, it took until the 1970s when the "need to reconcile human objectives with the operation of natural ecosystems became general and influential upon the practice of landscape design" (Rogers 2001, p.482). McHarg, in his famous Design with Nature, advocated the vision for planners and designers not to see the earth as an exploitable resource but as the source of life. In this sense, McHarg was one of the first people to give attention to an ecological view as the basis for planning and design (Franklin, 2001). Today, in the field of landscape architecture and planning, ecological design can be seen as a transformation of McHarg's ecological approach (Koh, 1982). Ecolo¬gical design is on one hand a vision, in the cultural diagram pointed out as a value (figure 1), but it is also knowledge, used to organize shelter and settlement patterns that minimizes environmentally destructive impacts by integrating itself with living processes. Using ecology as a basis for design, minimizing energy and material use, reducing pollution, preserving habitat, fostering community, health and beauty becomes apparent (van der Ryn and Cowan, 1996).

Nowadays major habitat changes, like climate change, water and food crisis, are eminent, but these changes do not seem to be of primary importance by economic and political organizations. An example of a current project that does not take the changing habitat into account is the urban development in the Zuidplaspolder in the Netherlands. Policymakers appointed the Zuidplaspolder, with six meters below sea level one of the deepest polders in the Netherlands, as a potential building area. Instead of building on higher and therefore safer locations and preserving the typical Dutch polder, technological interventions are needed to control this habitat that is under threat of climate change and hydrological problems. Therefore this paradoxical residential development can be seen as a paragon of urban development in the modern society. Instead, the economical organization and the political organization need to reorganize, or adapt to limit a further escalation of these habitat problems. Cohen (1968, p.45) says about this: "Man (…) has sought to free himself from the restrictions and limitations of his habitat. This is the mainspring of cultural evolution. However, it must be borne in mind that although people may welcome technological innovations that provide them with increasing mastery over their habitat, they tend to resist the necessary accompanying changes in their organization of social relations". Historically, technological inventions provided adaptation to the habitat. Currently, new technologies are available that provide us a way of living that is better for our habitat - in landscape architecture ecological design can be seen as a knowledge base which is available to deal with environmental improvement - but the combination of primary and secondary adaptations and the conservative adjustments make cultural evolution, embedding available knowledge and technology in culture, a slow process.

Ecological Aesthetics

Mozingo (1997, p.57) addresses that "successfully promulgating ecological designs requires the recognition and application of culturally based aesthetics". Additionally, Joan Iverson Nassauer (1995) argues that ecological quality can hardly be seen directly by people. People see through cultural lenses and these looking glasses decide whether they appreciate the landscape or not. The idea of the picturesque has become so ingrained in landscape perception that it is hard to accept they are founded in culture. Nassauer argues that there has to be a translation of ecological patterns into cultural language, which she calls messy ecosystems in orderly frames. People may care about improving ecological quality, but the ecological function cannot have a negative influence on the appearance of their own environment. She states that the designer should not only be aware of landscapes as ecological systems, but also as communication systems. Furthermore Koh (2005) mentions several critiques on ecological design. For example, it restricts creativity and is conservative, there is a lack of creative understanding of ecological principles, ecological design is often 'not sexy' because of the preference of visual clarity in the Netherlands, the Western view towards art as being man-made and artificial and its aesthetic theory is not able to explain the beauty and creativity of nature.
Thus the appreciation of ecological aesthetics and ecological design in our modern culture is one of the essential aspects to come to a more ecological oriented society. Or like Mozingo (1997, p.57) states it: "aesthetics matter and effectively influences cultural change". The only question left is how political organizations and economic organizations can become penetrated with this ecological awareness.

Ecological Understanding And Ecological Modernization

To overcome the resistance against changes in organizations and institutions it is important for people to understand that human actions have consequences for our habitat. This is what Hill (2002) calls ecological understanding. She further states that "he or she could be expected to adopt a strategic approach that tries to limit ecological risk in a different way than someone who does not expect there to be consequences" (Hill 2002, p.273). An ecological understanding helps to avoid that irreversible mistakes are made in changing our environments.
The process to reach this ecological understanding is supported by ecological modernization. Ecological modernization can be seen as an overall guiding orientation, promoting environmental innovation. The ecological modernization discourse developed when ecological crisis was recognized in the 1970s. The research done by ecological modernization focuses on integrating social sciences and policy perspectives on the ways in which societies deal with their biophysical environments. Government policies - at national and transnational level – must play a central role in influencing the lifestyle changes and in providing good conditions for research and development (Mol, et al., 2009). Subsidies, tax regimes and long-term investments can be seen as examples in which government policies can play a role.
The Dutch environmental policy has been identified as pioneering in ecological modernization. The Netherlands was among the first countries to develop a comprehensive environmental policy planning in cooperation with businesses, which served as a model for other countries (Smith and Kern, 2007). In the fourth national environmental policy plan (NMP4), which was released in 2001, the Dutch government works at a transition approach, which is also known as the 'transition storyline'. The final goal of this transition is to reach for a sustainable society in thirty years (VROM, 2001). The transition storyline can be seen as a way to give new input to the ecological modernization discourse. This storyline has three basic elements (Smith and Kern, 2007): (1) the goal of steering Dutch society towards socially envisioned sustainable systems; (2) transitions can be the subject of social experiments; and (3) transitions require learning processes and policy pressure, in order to bring improved practices in the mainstream.
Whilst the institutionalization of the discourse states the need for structural change, it fails to reach sufficient depth for the task. Then why is the transition storyline not working well? Existing institutions, actors and interests are often bending the transition discourse in the short-term which downgrades the discourse (Smith and Kern, 2007). In that case, technology, research and development policy are only repositioned, but we cannot say that social relations and cultures are changed. People who propagate the transition discourse often stand alone, and they fail because they miss a proper supportive base of power. According to Smith and Kern (2009) the debate needs to become broader and public, and there needs to be a supportive powerbase that supports a transition storyline.

Conclusion

We have seen that a change in the primary adaptation is necessary to change a cultural system, that the modern society was able to emerge due to changes in these primary adaptations, in technology, economic and political organization, and that landscape architecture is part of the way we organize our settlement pattern and part of the values of a culture. We have also seen how ecological thinking, together with ecological design, ecological aesthetics, ecological understanding and ecological modernization, developed as a reaction on the modern society, but that ecological aesthetics are not widely accepted and ecological modernization is hampered due to a missing power base.
We can state that ecological thinking or understanding is not yet entirely embedded in modern society. Referring back to the cultural adaptation model (figure 1), we think there is still a strong modern philosophy in the primary adaptation base, especially in the economic organization and political organization. The institutions, which are part of these economic and political organizations, often are the commissioners of landscape architects and planners. When they continue to have modernistic viewpoints, with standardized objectives, short term thinking and fast economic returns, there will be less ambition for ecological design and solutions.
Furthermore, we can conclude that an ecological transition is only possible when the primary adaptations change and in this way culture evolves toward an ecological society. Landscape architecture on its own, is not able to change the economic and political system, necessary to boost the ecological transition. Ecological modernization can make this difference, but there is not (yet) a solid powerbase for a transition in the primary adaptations of economy and politics that provides structural change. There is a broad ecological understanding needed in the economic and political organization, to accelerate the process of ecological modernization. A broad foundation of knowledge, supported by landscape architects, scientists and universities can accelerate the transition process towards an ecological understanding.
But what can be the role of a landscape architect in this transition? As we have seen in the cultural adaptation model, landscape architects are active in the technology pillar and settlement pattern. Their theories, visions and styles are an adjustment of these systems. At this moment they are not able to change the economic and political system on their own. Cooperation between landscape architects and social disciplines is necessary. On one hand,, the social theories of ecological modernization can be a theoretical foundation for landscape architects and will strengthen the broad foundation of knowledge in the technological system. On the other hand we think landscape architects have four characteristics that create a knowledge base for ecological modernists to change the society and make ecological aesthetic more appreciated. (1) Landscape architects are capable to bring different disciplines together to come up with holistic solutions. (2) Landscape architects are practical thinkers, which means that they are able to translate ideas of ecological modernists, into workable spatial concepts. (3) Visual communication is needed to convince the ordinary people. Landscape architects can have a role in visualizing ideas, and (4) by realizing strategic and iconic projects landscape architects can inspire political and economic institutions.

Acknowledgments

We would like to thank our professor at Wageningen University, Jusuck Koh, for the encouragement to submit our paper to the ECLAS conference and for the useful comments on the previous version of this paper. Furthermore, we would like to thank the NH Bos foundation and the Wageningen University Fund (WUF) for their financial support to this opportunity.

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