

Ecological City: a Planner's Dream

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In this article the author considers theoretical aspects of a new ecological or sustainable approach to city planning. The article explores interdisciplinarity: the arguments for planning in the natural sciences (ecological rationality) and the social sciences (social rationality) and their interconnections (nature contract).

IN THE YEAR 1800 50 million people, or 5.5% of the world's population, lived in cities. By 1990 two milliard, or 45% of the population, lived in cities; in Europe, however, the figure in 1990 represented already 80% of the population. Similarly, one could say, the emphasis in environmental issues has moved gradually from the protection of fens and woodlands and the like, to solving the problems of the city.

At the same time, environmental problems are more and more entwined with the general problems of society and urban centres. As the project of industrial society changes into the project of post-industrial society the social aims are no longer resting directly on the

modern cultural project. Society appears as a difficult to manage complex entity, full of hidden risks.

There has been an enthusiasm in industrial culture for developing models of the "ecological" or "sustainable" city, combining ecological issues with societal requirements ever since the previous wave of ideas dwindled, that is, the period in western Europe from the beginning of the 1980s onwards. This previous wave was the era of the restructuration of cities in the wake of the decline of the old industries, and the revitalization of the old city districts in connection with them. It was in the heartlands of central Europe, that a great interest of this new subject matter of the eco-

logical city emerged. These were the countries where industrial activity had been concentrated, especially the Netherlands, which is the most densely populated country in Europe, and where each square kilometre of land is seen as important and an object of strict planning, and Germany, where the interest of the reuse of the Ruhr district was great. In Germany the awareness of the environmental problems in the urban environment was influenced by the visible entry of the green movement into politics.

The interest towards the ecological city development has been increasing outside Europe, in North America and Australia. The ecological city has also been well represented on the agendas of international organisations; urban planners within the ECE, EU and the World Bank having shown particular interest. There is also a desire to make ecology the main principle for solving the problem of the megapolises of the developing countries (e.g. The megapolis project of U.N. University). The Nordic countries too are on the list of those interested. In Sweden, Denmark and Norway, the ecological question in connection with the urban has been understood as a continuation of the development of the concept of earlier small scale urban communities and communities within city districts. This has now been set out in the form of ecological villages, combining the urban and the rural within the same basic principle that was represented by Ebenezer Howard's concept of the Garden City in England at the end of the last century: solving the environmental, hygienic and social problems with respect to nature.

In practice, there have been few substantial models aimed at whole cities. Usually, ecovillages only have been applied to small communities. However, the idea of the ecological city has been applied in planning new city districts, in renovation, as well as in sector planning, related e.g. to the use of energy, traffic, or waste disposal. Thus the problem arises that there is no real overall view, that the concern ends with planning of a certain area

or activity. A noteworthy exception to this has been the planning of the Ruhr district, which started in the 1980s, where there is an attempt to connect ecological demands with societal aims.

The scientific background of the approach towards an ecological city

The physicist Steven Weinberg has in 1992 published a book called *Dreams of a Final Theory* in which he discusses the possibility of a "grand theory" of explanation of the whole world. Those urban planners who during the last years have tried to develop a model of an ecological city confront a similar task albeit on a different level. In fact underneath all this there is a need of a new theory of the city. In this task all the difficulties related to the dualism between the *natural sciences* and the so-called "*Geisteswissenschaften*" are involved. In the concept of an ecological city all the elements of objective – subjective differentiation of sciences are present.

In many examples *the ecological city models are models of a policy science type*, which are related to a positivistic scientific approach. The approach is a problem-solving applied scientific method. There are policies, projects and plans, which have their roots in environmental problems. These in turn have social and physical causes.

There is also a different scientific approach to the ecological city which emphasises the city as a construction in the human mind, not as an objective issue. The ecological city is not only an object of circulation of energy and material. The concept of environment is different, and the language of talking about the environment is quite another in this scientific tradition. The hermeneutic Geisteswissenschaft-tradition involves looking subjectively at the world, differently from what is usual in objective policy-science. There are not many attempts to make analyses combining these two orientations in environmental studies in general or in an urban context in particular.

The combination of different approaches involves a discussion of the nature of interdisciplinarity. In practice, the planners combine different elements, mostly only objective facts, which are used in connection with a rational problem solving method. The subjective world, the meaning of the city in the minds of people remains usually far from the traditional planning process. From a scientific point of view we would understand *interdisciplinarity* as a discourse about a continuum between a loose combination of separated scientific approaches and a unified science – “a dream of a final theory”. If someone accepts a loose combination of different sciences, that is *multidisciplinarity*. In *transdisciplinary* approach, one tries to formulate new schools of thought using profound combinations of different sciences. If one frequently prefers working groups with members of different scientific fields instead of one multiscientific expert, everyone is working in a group on the basis of his or her own research background. The working process then remains on the level of multidisciplinary. In planning processes, in the world of practice, multisectoral combinations of experts working together do not form closely knitted groups. If there is one expert with a background in Geisteswissenschaften his or her work usually differs so much from those with expertise in sciences or engineering that the desirable synergy remains absent. This means that in ecological city developments the stress will be in material elements such as circulations of energy and matter, use of ecological sound materials and so on.

The work of Wouter T. de Groot, *Environmental Science Theory* (1992), which is trying to develop an *environmental science* is a good example of this problem in scientific practice. The author is freely combining different scientific traditions and languages, which have different scientific grammars. In such an approach, if one is not going more deeply into philosophies of science – in constructing a theory of environmental science – there is the

danger, that the whole analysis remains superficial. The combination is done without taking the ontological and epistemological commitments of different elements into consideration. In his discussion of policy making analysis, which involves elements from many sciences, the author gives a far too brief discussion of the characteristics of these other scientific traditions. E.g. when talking about the actors in policies he is briefly discussing some features of social-psychological interactive theories. This theory-building has, however, a different homeland than policy-science which is the main subject of the theory presented in the analysis, and would demand a deeper analysis of the connections with policy-theories. Still, the analysis of de Groot is one of the few attempts to make a multi-dimensional discussion of environmental policy approaches. These are also needed in considering environmental issues in an urban context.

Ecological rationality of ecological city

Ecology is understood as a two-fold claim. On the one hand there is the question of the capacity of the environment to withstand human activity and, on the other, the question of how the urban activities are connected to each other. *Capacity* depends firstly upon the size of the population. One must ask what size of population the city can support without a decrease in the sustainability of the eco-system, when the habitus on which the city is dependent is taken into account. Secondly, there is the question of the quantity and quality of the urban activities, for instance the traffic or the industrial activity. The capacity is limited by the amount of energy and matters available, as well as the efficiency by which materials can be metabolized and reused.

The concept of urban ecology emphasises the natural-ecological questions as a part of urban life. *Nature comes into the urban*. There are currently many ideas about this issue. A mechanical way of understanding nature “coming” into the urban is to deal with the

city's so-called environmental problems by means of environmental protection. Thus the city is "ecologized". A second understanding of the issue is to see nature as a part and central element of the city itself. In a third understanding, nature and city (and urban life) cannot be separated from one another.

Ulrich Beck's recent writings (1994) represent a view that differs from the fragmented approach in which nature is made a distinct object of study separated from the human. According to him, ecology can not be studied only as an elementary factor in the development of the social consciousness; rather it is completely entwined with cultural and socio-economic development. On the whole, this development perspective has become problematic. Both observing *nature* and *nature itself* are entwined in the understanding we have of the world, and at the same time they are of that world itself. It is also the same regarding the urban; nature and the urban are entwined and form a totality. They can not be separated from each other.

The other extreme in understanding the nature of urban ecology is represented by the classification of various elements connected to nature, in the belief that environmental problems really can be solved. The following issues are then important (Beckenbach and Diefenbacher, 1994):

- Standardization of harmful substances (starting point: medical and chemical)
- Biodiversity
- Cyclic models, the circulation of matter and energy
- Ecological, urban and rural life styles and modes of action: understanding of a total unity, dependency on the earth's tolerance levels.

A background to the above list is *the systems theory thinking* that, on the one hand, when it comes to the non-renewable resources, the earth is a closed system and that, on the other, when it comes to the energy from the sun, the

earth is an open system. But when the observation is made on a local level, such as the city, one sees that in practice there are no longer any closed systems. However, often in the study of the cyclic models, and when presenting the environment in conjunction with societal factors, the observation tends towards presenting a closed system, because it simplifies the issues considerably (Meyer and Schultze, 1994).

Such a *metabolic city* is, however, not a closed area but has, rather, a hinterland, or support area, on which it is dependent. In a strict sense, the livelihood and existence of the Western city depends on the whole global community, both in the production of goods and in waste discharge. The air pollution from settlements and their overconsumption in the Western industrialized world have consequences across the whole planet (Stren, 1992).

Social rationality of ecological city

The concept of "*urbanity*" began to be re-defined at the end of the 1980s by German urban sociologists, noticeably in Häussermann and Siebel's work *Die neue Urbanität* (1987). From there it extended to architectural and city planning literature. It was also taken up in the English speaking world where the concept of urbanity had traditionally a different meaning. By urbanity Häussermann and Siebel mean all that which is included in the urban life style, both as physical and functional structure in the city, as well as human life and all its nuances. It also includes the interaction between city and nature. In this context "new" means, according to the writers, that in the very fact that understanding the city within the framework of modern rationality has become difficult, it has become a complex system that continuously is susceptible to change.

The ecopolis view point has recently moved in two directions. On the one hand, the city has started to be seen from the viewpoint of *a way of life*, as something much wider than the

old "bad" city and "good" nature division. A more "ecological" life style would be better than the present one. One dreams, for instance, of traffic free, peaceful city centres, where children can play on the former roads, and where dogs and cats would not get hit by traffic, in other words, cities where distances would be short and the traffic much more flexible and varied (Koskiahio, 1994). Different ecological city utopias contain elements of a new kind of social life in harmony with ecological requirements.

On the other hand, criticism is aimed at the idealization of nature in general and, more specifically, at urban intervention. Luc Ferry, in *Le nouvel ordre ecologique* (1992), isolates the radical ecology that puts the biological life at the centre and displaces human life. Such ecologists mean, he states, that we should give, for example, trees, frogs, running water and the ozone layer the same legal rights as humans. Such a "nature contract" contains the seeds of *tyranny and totalitarianism*. Protecting nature at any cost would also mean accepting negative aspects, such as the HI-virus, earthquakes and flooding, which also are a part of nature. Our moral responsibility for nature only emerges, Ferry states, where nature in one way or another appeals to our human values, and to those ideas which we humans value greatly. Häussermann and Siebel refer to the fact that urban settlements were originally also built for the very reason of protection against nature and external enemies. We can see visible signs of this even today, as in the moats of Copenhagen, and in the fortifications that have become lakes and park lands within the city after it expanded beyond its former walls. The writers also point out that the ecologicalization of the city, the search for and realization of an ecological way of life or the greening of the city, mean an increase both in the everyday workload, as well as in the suffering from which the cities had already released us as a result of *the civilization process*.

The nature contract and the urban

The "social contract" debate seems to have been followed by the "nature contract" debate. Michel Serres (1990) states that nature threatens mankind with death. In order to avoid catastrophe mankind needs a new relationship, a new contract, with nature. Just as the social contract ended the war between people, likewise the nature contract, which would be entered into between two powers, mankind and nature, would end the lawless violence, and we would end up with a co-existence regulated by norms; just as in the human world we ended up with social policy legislation, for instance, the regulation of the use of labour.

The unification of nature and mankind in the world of the subject means going beyond the point where the human and non-human are two different worlds. This means that all threats will be encountered by both. An external threat would be, for instance, the destruction of life through a nuclear power catastrophe, while a virus would be an internal threat. Humans have become similar "test animals" as animals themselves. The images of the risk-society presented by Beck, containing invisible and unrecognized threats, are examples of this (Beck's summary in Beck and Beck-Gernsheim, 1994). Jean Baudrillard states that man plays with his own destiny, sacrificing his fate to an unknown experimental fate, while other species have been at the mercy of natural fate (Baudrillard, 1994). Beck, on the other hand, states that the modes of expression of interweaved global insecurity do not stay under the control of mankind. Mankind is not only threatened by catastrophe, but also by the fact that a new image of man has not emerged, no ideal about "new man" that could live in symbiosis with nature.

The nature contract can not only be looked at as an abstract man-nature relationship. *Nature becomes personified* as a human environment in different ways as, for instance, in the city. But then the following questions arise:

Does the new nature contract mean giving up the old function of the city, where people built cities specifically as a protection against nature? Behind sheltered walls people were able to cultivate their human culture and spiritual sciences and think of improving their lives. So, is the task of the city linked with the civilization process now changing? Are the city inhabitants now getting new obligations in their relation to nature? Does the nature contract demand a new way of life in the city? Is the urban culture on the whole changing? What is happening to the old dialectic relationship of urban-rural? Ultimately, the question is about a new rationality.

Planning

The planning has difficulties in functioning in an urban environment which chaotically brings forth new things. The ecologization and greening of cities means a change of world view in planning. City planners since the Bauhaus in the 1920s have acted according to *functional principles* in order to achieve, for instance, environmental hygienic aims. Even though greenery was introduced from the beginning into areas of working class tenements, a true understanding of taking into account *ecological principles in town planning has been lacking until the present day*.

Greening can clearly be seen in all ecological city plans, whether in plans for new areas with, say, winter gardens or other garden areas, or in the introduction of greenery into old mid European perimeter blocks. A good example of this is the cover picture of a report about the ecological planning of the model block no. 108 in the Kreuzberg district of Berlin (Küenzlen et al., 1985). The old brick housing block is covered in greenery from top to bottom. The extreme is the gardens, greenhouses, and the sheep and shepherds on the roof tops.

From a more traditional urban point of view one could ask, how many mice or other creatures crawl along the walls and ventilation

shafts. How much water penetrates into the structure of the building? Who maintains the green areas and technical matters? The maintenance of the yard is the responsibility of the inhabitants even under normal circumstances, and even this causes problems, much more so when the workload is added to by the management of sheep... So, when one factor in the system is changed, others change too. The eco-city, therefore, also requires a redefinition of work and leisure time.

In America, some have set out to correct the lack of an overall concept. Researchers and architects at the University of Kentucky have developed a so-called *Implantation Model* (Yanarella & Levine, 1992). The main principle behind it is the "holism" of the ecological city which is realized through so-called implantations. The idea is that each individual planning objective and realization brings the overall thinking forward. There are attempts to simulate beforehand all kinds of effects on the environment – both physical as well as functional, and new strategies are being devised for continually changing circumstances. Implantation is a practical example of what working on the previously mentioned local or lower level could mean.

Another example is the *Alternativer i praksis* idea-bank, drawn up by the Alternativ Framtid movement (1990) in Norway. The bank contains references to the fact that questions pertaining to way of life style in planning practices necessarily demand the development of participation systems and "personal growth", from bottom up approach instead of from top to down principles. Participation becomes working voluntarily for the good of one's own environment, and personal growth becomes a matter of changing attitudes to accept this. Thus, the way of life is changing. This *ecological way of life* also contains human rights challenges and care of the globally weak. In other words, there are fairly far-reaching requirements that touch upon basic social issues of power and responsibility.

In the Nordic countries, many official municipal plans dealing with the ecological city already require changes in attitudes and behaviour that would not yet be possible in official planning in many other European countries. A particularly good example is one Norwegian traffic planning assumption that the majority of the city-dwellers are expected to resort to public transport, and leave their cars at home (*Transportplan for Storbyområdet Stavanger ...*, 1990).

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In the beginning of the 1990's, the interest of the research group of housing and the environmental research at the University of Tampere turned to an analysis of the improvement of present-day cities from the holistic point of view. This includes ecological demands together with social, economic and political factors related to city development. The research group wanted to study the real meaning and contents of these discussions. A research group named ECOPOLIS was formed and the work started in 1993.

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