SUSTAINABLE HUMAN DEVELOPMENT IN A MEDIUM-SIZED CITY: THE EXAMPLE OF FREIBURG, GERMANY

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Summary

When in 1969 Freiburg's city council decided, against the nation-wide trend, to retain and expand its tram network, sustainability issues made their debut in the city's policy. In the following 30 years the city has developed sustainable strategies for key sectors of urban development—land use, transport policy, energy, water and waste management. This article reports on the experiences gained in their implementation.

1. The Local Implementation of Sustainable Human Development

Those who are concerned with implementing local policy decisions have two reasons to familiarise themselves with the concept of sustainable human development. On the one hand, the stakeholder is looking for facts; for knowledge about how the urban system functions and about how economic, social and environmental activities are interrelated. On the other hand, his needs are turned towards reflecting on the "human objectives" of his actions. The direction of normative justifications in local politics has changed over the last ten years as urban growth and related pollution have been increasingly recognised as a global problem.

This problematique has moved to the forefront of discussions since the Earth Summit (UNCED) in 1992. UNCED's final document AGENDA 21 mandates local authorities worldwide to undertake a consultative process and to prepare local action plans towards sustainability. Sustainable urban development delivers basic environmental, social and economic services, without threatening the ecological and community systems these services depend on. Although the concept of sustainability is hard to define exactly at

the micro-level (urban) context, local authorities can draw upon a vast reservoir of experience to identify that tendencies of the urban living environment counteract, with high probability, a healthy global ecosystem.
Using this experience a heuristic and pragmatic approach to implement AGENDA 21 on a local level appears feasible. The planner's and politician's task is to identify and quantify these tendencies, if possible, as trends, and to reverse those which, apparently in the long term, cannot "be put right". A sustainable city would differ greatly from most current cities. It would minimise its environmental impact and create a milieu in which humans and nature could coexist in harmony. To implement this objective will likely be easier in medium-sized cities than in megacities. In the case of our example Freiburg, Germany, a medium-sized European city, the following sectors of urban development will be examined more closely:

- land use,
- transport policy,
- energy, water and waste management.

From a systems theory perspective these sectors are partial models. Their integration into a comprehensive local ecosystem model is highly desirable, but hardly feasible for practical purposes. Again, a more pragmatic and policy-oriented concept derived from the principles of AGENDA 21, Local Agenda 21, provides a useful framework to integrate the dynamics of the different sectors of urban development. Local Agenda 21 follows a municipal service system approach that encompasses:

- urban infrastructure (such as transport systems, sewerage, and water supply)
- urban management (pollution control, building inspections, and waste removal etc.)
- urban health policy (clinics, disease prevention, public health systems etc.).

In order to achieve the objectives of sustainable human development, the Local Agenda 21 concept is using an advanced approach of capacity-building and participation, including:

- interdisciplinary engagement in the planning process through local stakeholders;
- education of, and consultations with, community groups to raise public awareness;
- participatory assessment of local social, economic, and environmental conditions and needs;
- mediation and conflict resolution;
- participatory target-setting for action plans; and
- monitoring and evaluation procedures to track the progress of action plans.

By late 1996, more than 1,800 local governments in 64 countries were involved in Local Agenda 21 planning activities.

2. Urban Development in Freiburg

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2.1. Land Use

The current "master" or land use and development plan (LDP) was conceived during the years 1974 to 1979; the projected implementation targeted the period from 1984 to 1990. Due to a large industrial estate no longer being developed and the unexpected housing crisis, partial planning concepts on housing and real estate were revised in 1985 to 1988, the LDP not being updated, however, due to unfinished work on a map of local biotopes. Whereas the city council's and committees' discussions on housing of that time led to the drafting of twelve new development plans with 12 000 housing units, the discussions on the industrial estate came to practically nothing.

The political debate experienced new controversies in 1990. The initial planning concept of a new district called "Rieselfeld" referred to the previous (post-war) LDP, which made provisions for the further development of 500 hectares for residential areas towards the west. After a heated debate in the council, finally 70 hectares of the total area of "Rieselfeld", extending 320 hectares, have been designated for the new district, the remaining areas for a new nature reserve. This twin-track decision approach divides the area of high biodiversity into two halves, of which one is used for development, the other permanently withdrawn. This apparently ambiguous decision of dividing a rather homogenous area gives evidence of an urban political conflict, which results in partial successes for both development planning and nature conservation: the citizens' awareness of environmental issues in land use policy has left its mark on the city planning concept for the new district. A relatively high density assures achieving an urban character, but the new district should not just become a dormitory suburb. The diversity of architecture, housing styles and small cell plots attempts to avoid establishing monostructures and to foster a stable social structure of the future resident population. The advanced standard of sustainable planning appears also in the traffic-reducing spatial link between living and working, the precedence of local public transport and cycle traffic over the car as well as an energy policy which stipulates low-energy construction for all buildings (see 2.3) and their connection to a central district-heating network. Directly adjacent to the urban section is the new nature reserve which will have its own conservation "care" programme, designed specially to maintain the unique diversity of bird life in the urban section. The delineation of this nature reserve is one of the most remarkable political successes of nature conservation over the last years and a unique example within the urban districts of Southern Germany during this decade. The "Rieselfeld" discussion has created a problem-solving model for tackling the conflicting issues of land use and set the pattern for the following debates on the LDP.

After completing the basic work on the map of local biotopes, the decision for updating the LDP was taken in summer 1994. A few months later "sustainable development" appeared, for the first time, explicitly as the key notion for the discussion on land use: "The discussions on the new land use and development plan will be a test for the correct management of our environment and nature". The fact that the discussion on land use has a sustainable urban development perspective differs fundamentally from previous discussions and gives evidence that the interrelations between the scarcity of land and population growth, the density of urban districts, nature conservation and mobility are firmly anchored in the public awareness. The local media and press considered

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Freiburg's approach to managing its limited areas of land as an "acid test" for the future of the city and stimulated controversial debates about scenarios of local action until 2030.

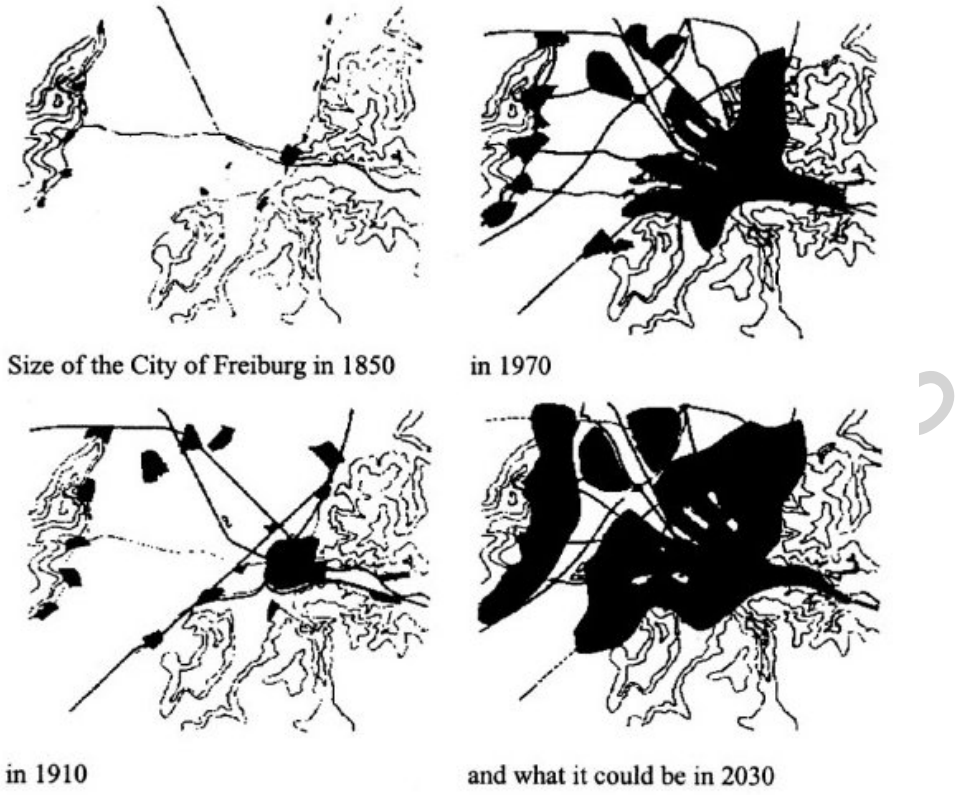

Figure1. Freiburg settlement area, 1850, 1910, 1970

Simple extrapolation of the expansion of Freiburg's urban area from 1850, to 1910, to 1970 and into the year 2030 shows, as in Figure 1, that any further continuous urbanisation would render the idea of a local sustainable development meaningless. Frowein and Löffler's "Vision 2030" shows only remnants of green areas within the urban space; urbanisation has completely absorbed the riverside forest in the Rhine valley.

In the light of this scenario the discussion of the LDP had to solve a basic problem: Is sustainable human development to serve the future of the city as a local objective—in which case urbanisation until 2030 as outlined is detrimental—or is it to serve as a regional objective that does not, a priori, exclude the continuous expansion of its central urban area? The regional concept has often been taken as a highly relevant topic in political debates, yet it is without any substance as long as there is no regional political institution and authority which could implement a comprehensive LDP extending beyond the local boundaries, and which ought to be much more precise than the state or national governments' "master plans". The establishment of a municipal association for the region of Stuttgart is a first attempt by the Land (state) of Baden-Württemberg to achieve a manageable regionalisation of land use policy.

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The Freiburg Office for Statistics and Resident Population assumes an increase in the city population up to 2010 of from 7 000 to 10 000 inhabitants. In addition to the population growth, considerable changes will occur in age structure. Whereas the number of persons over sixty years old will continue to increase, a significant decrease in the number of those under twenty years of age is also expected. There are insufficient demographic data to estimate the demand for housing. Assumptions must also be made about the changes in floor space per inhabitant. There is remarkable elasticity in the way required floor space reacts to an increase in available floor space: An increase in the average floor space per inhabitant of only one square metre would require an additional gross 50 hectares to be developed. An extrapolation for the land required up to 2010 calculated a target area for housing of 126 hectares, for industrial development 180 hectares, for general facilities, energy and water supply and transport 100 hectares, for recreational areas 50 to 100 hectares, thus totalling 450 to 500 hectares.

But an additional land requirement of 450 to 500 hectares cannot be realised without encroachment into sensitive natural areas, and the political conflict between nature conservation and urban development is still on the verge of a crisis. Floating majorities in the council both open and block again development corridors, so that the important task arising in the current discussion of the LDP is to prevent a damaging “stop and go” policy. A deeper understanding of the local long-term trend of urbanisation is extremely useful in order to achieve a more consistent and enlightened political process that gives scope for public participation.

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management instruments. The three main areas of discussion were new public management, administrative environmental management (e.g. eco-management systems) and political environmental management (e.g. environmental budgeting). One of the main questions addressed was how to integrate environmental management reforms with new public management.]

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Biographical Sketch

Dr. Peter W. Heller was born on 5th September 1957 in Frankfurt/Germany. He studied economics and philosophy at the Universities of St. Gallen (CH) and Freiburg (D) and gained his PhD in Economics in 1989 with a dissertation on *The Economic Theory of Environmental Degradation*. In 1989/1990 he was Managing Director of an energy consulting company in Freiburg. In the period 1990-1997 he was Deputy Mayor of the City of Freiburg, in charge of Environmental Protection and Law, Forestry, Energy and Waste Management. From 1993 to 1997 he was Chairman of the International Council for Local Environmental Initiatives (ICLEI; www.iclei.org), Toronto, Canada. Since 1997 he has been Executive Director of the CANOPUS Foundation (www.canopusfund.org) and PerEnergy GmbH (www.perenergy.com), Freiburg. Since 2001 he has been Chairman of the Board of S.A.G. Solarstrom AG, Freiburg, Europe's first listed solar company and leading installer of large-scale photovoltaic arrays, and also a member of the Board of Directors of BASE, the Basel Agency for Sustainable Energy, a Swiss Foundation and UNEP Collaborating Centre (www.energy-base.org) promoting finance of sustainable energy technologies. In 2002 he co-founded SORTECH AG, an R&D company in the field of adsorption technology.

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