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Assessment of sustainable land use in Germany: the project Fin.30

Sophie Schetke, Theo Kötter, Benedikt Frielinghaus, Dietmar Weigt

During the last years, urban expansion and the development of settlement areas have been the driving forces of an enormous consumption of land, the usage of natural resources and the loss of ecosystem services in Germany. In the wake of continuous land consumption the German government has elaborated a quantitative benchmark fostering reduced land consumption towards 30 ha/d in 2020 from 114ha/d today (Deutscher Nachhaltigkeitsrat 2004). To realise this enormous step politicians as well as urban planners are demanded to focus on inbound and concentrated settlement development characterised by re-densification of built-up areas and land recycling of brownfields (Kötter and Weigt 2006).

Against this background the paper presents a multidimensional approach of the research project Fin.30 to realise reduced land consumption and to assess the manifold impacts of continuous urban sprawl on sustainable settlement development. Fin.30 is a research project of the University of Bonn (Department of urban planning and real estate management) funded by the German ministry of education (Bmbf) under the roof of its research initiative Refina (Research for reduced land consumption).

Decision making for reduced land consumption
The contribution of the research project Fin.30 to the named lack of planning-oriented tools and methods to reduced land-consumption is twofold. In addition to negative ecological and social

impacts of ongoing urban sprawl increasing economical deficits in lots of German communes coping with follow-up costs such as costs of maintenance and financing of new infrastructure can be stated. Picking up the two tasks of current land use planning - sustainable and economical reasonable development - Fin.30 focuses on two major elements.

The first module of the project Fin.30 is the conception of a Mca-scheme covering the three dimensions of sustainability. It aims at analysis, decision-making and monitoring of land use in coping with sustainable spatial development (see also Kötter et al. 2008, submitted). The scheme of Fin.30 is applied at the scale of preliminary, strategic land use planning on municipal level. The assessment strictly focuses on new residential land displayed in municipal land use plans of three case study areas. Figure on this page a short insight into the hierarchical construction of the Mca beginning with categories highlighting the scientific focus of the operationalisation of the three dimensions being subdivided into criteria. The last step is formed by quantifiable indicators for the three dimensions which are explained in the following paragraphs. In terms of ecological impacts, such as the impact on recreational function, biotope quality, the loss of valuable farmland or the persistence of protected areas by additional housing, the centre of assessment covers aspects such as resource protection and natural risks potentials which have to be taken into account during the planning process (see German federal building code, environmental impact assessment act, Federal nature conservation act). Driving forces for planning-oriented indicators are the

assessment of Ecosystem functions (see Constanza et al., 1997; *Millennium ecosystem assessment* 2005; Schetke et al., 2008, submitted) being affected by additional settlement areas, the use of natural resources such (e.g. valuable soil, biotope-networks) and the natural risk potentials affecting the suitability of a site for settlement purposes (e.g. groundwater, flood-risk).

The assessment in terms of social suitability of new residential land focuses on the technical and nature-oriented quality of living surroundings and human well-being. Availability and accessibility of adequate recreational facilities as well as social and technical infrastructure (Schetke and Haase 2008) are of central interest.

A second focus is put on the attractiveness of a site in terms of climatic conditions and noise exposure and the perception of an area in terms of image.

For economic purposes the main questions concerning long-term economic effects and improvement of representation of new house settlement areas are of prime importance. Beside the compilation of project-orientated development costs mainly long-term follow-up costs are calculated in respect of applying the assessment-scheme on the level of the land use plan and in times of curtly communal budgets. The aim of the economic assessment is not to calculate the absolute financial effects but a compilation of site-related and decision-relevant monetary effects. Beside the outlined Mca, the second module of Fin.30 is the conception of an allocation fund as a tool to execute financial balance between spatial development in inner and outer urban areas. The fund should be established on the local governmental level and its deposit will be

allocated by marketable and lucrative area developments, if necessary by official appropriation. Consequently the fund will be applied neutrally, which means without straining the budget of the commune. The charged financial resource of the lucrative outskirts areas may be used to improve the efficiency of the areas in deficit in the interior zone by eliminating the economic constraints, e.g. brownfields, increased planning costs or marketing problems. Currently the implementation of funds like this is aligned with many unanswered juristic issues yet.

New perspectives and task for a realisation of reduced land consumption

Current planning processes in Germany and political goals to reduce land consumption such as the 30-ha-goals of the German council for sustainability teach us that there is still a long way to go. Unilateral quantitative planning targets aiming at an arbitrarily fixed figure of 30-hectares blur the sight for protection of natural resources and qualitative on-site assessment. Until now few practical proposals have been made to put the 30-ha-goals into practical planning. But significant spatial steering effects remain doubtful. The conceptualization of tradable certificates of land is still under political discussion and promotes increasing land consumption of large, wealthy communes which are capable to buy certificates from smaller, poorer ones. Also fiscal instruments focusing on gradual tax charge according to localization of new residential areas within a city (inner versus outer parts) are under discussion but difficult to communicate. The last amendment of the German federal building code promoting an abolishment of

environmental impact assessment of construction in inner areas by reducing environmental impact assessment, land recycling can be seen as a step backward regarding ecological purposes and less effective to steer urban development significantly. The project Fin.30 shows that a planning-oriented Mca for on-site assessment incorporating the concepts of ecosystem functions, human well-being of living surroundings and cost-oriented settlement development can be an effective tool to implement reduced land consumption within strategic spatial planning. In addition to that a great demand for political and legal steering instruments is evident.