

## THE GERMAN 'REFINA' R+D PROGRAM FOR THE REDUCTION OF GREENFIELD DEVELOPMENT AND FOR PROMOTING SUSTAINABLE LAND MANAGEMENT

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### ABSTRACT

The REFINA R+D program for the reduction of Greenfield development and for promoting sustainable land management is a new German research programme funded by the BMBF, the German Federal Ministry of Education and Research. The German federal government has set a goal of reducing land consumption to 30 hectares (75 acres) per day in 2020 as part of the German National Strategy for Sustainable Development (NSSD). In order to provide a scientifically reliable basis for decisions and measures, BMBF launched the R+D Program REFINA in October 2004. REFINA will grant the development and testing of innovative concepts for the reduction of greenfield development to achieve a multitude of goals such as e.g. protection of the environment and nature, economical growth, socially balanced housing, architectural urban quality, and mobility. The R+D effort includes ecological, economical, and social aspects like equality, participation and education. REFINA has a funding grant volume of 20 million Euros and lasts for five years. First projects started in December 2005.

**KEYWORDS:** *reduction of land consumption, sustainable land management, brownfield redevelopment, revitalisation, land recycling, innovative land management, reduction of greenfield development*

### BACKGROUND AND FRAMEWORK OF THE REFINA PROGRAM

In the year 2000 the Federal German Government decided to establish a council for sustainable development and a "Green Cabinet". In April 2001 the Council was appointed by Chancellor Gerhard Schroeder. The German Council consists of 19 independent individuals from all social groups. One of its first work-products, the German National Strategy for Sustainable Development (NSSD) focuses a wide variety of topics. The reduction of greenfield development, frequently paraphrased as "land or open space consumption" is one of these topics.

Undeveloped landscape is a limited resource. In Germany, open landscape is designated as new areas for housing and transport-related development at a rate of 105 hectares per day. The German federal government has set a goal of reducing land consumption to 30 hectares per day in 2020, because the developed land itself and the

fragmentation of the landscape caused by traffic ways is accepted as one of the essential causes of species loss in central Europe. Land use and fragmentation causes a decline in habitats for animals and plants and in recreational landscapes for humans. Furthermore, the existing economic, social-political and urbanistic problems constrain new approaches. In particular the demographic change of the society (with a decreasing population, aging, migration, social and cultural polarization) is a tremendous challenge for the cities and communities. In shrinking regions e.g. the maintenance of the communal infrastructure for transportation, supply and disposal systems, education, health care, etc. is a financial burden to be carried by a declining population. The various ways to achieve a "Smarter Growth" of the developed areas in Germany includes scaling down land consumption by planning means, by means of greater recycling of land that has been used before but is now derelict and abandoned, or by means of changes in building patterns and densities of urban areas.

In order to provide a scientifically reliable basis for decisions and measures, BMBF launched the R+D Program REFINA within the national R+D Framework-Program "Research for Sustainability" in October 2004 in the Federal Bulletin "Bundesanzeiger". REFINA allows to grant the development and testing of innovative concepts for the reduction of greenfield development, to achieve a multitude of goals such as e.g. protection of the environment and nature, economical growth, socially balanced housing, architectural urban quality, and mobility. The R+D effort includes ecological, economical, and social aspects (like equality, participation and education). REFINA is a concerted action between the BMBF, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the Federal Ministry for Transport, Building and Urban Development (BMVBS) to pick up and enhance existing results from BMVBS and BMU research programs on one hand side, and on the other side, to ensure a collaboration of all actors involved in land management to prove that developed methods will work in practice.

### REFINA TOPICS

The REFINA Program comprises three main topic areas:

I. Exemplary model concepts of innovative land management for selected regions showing different development conditions: targeting

on integrated and interdisciplinary model concepts for particular sites, municipalities or regions which provide solutions for innovative land management.

II. Analyses, methods, and evaluation tools for sustainable land management and land recycling: targeting on further develop or existing tools for sustainable land management. Subtopics are A: Improved solutions for the re-use of abandoned and derelict sites, B: Evaluation tools for soil quality and protection needs of sites, C: Regional and national analysis of the sustainable land development and D: Methods and instruments for a sustainable land management.

III. Development of new information- and communication-structures: targeting on improvement of the problem-awareness and knowledge in the public and enhancement of the communication of the stakeholders in land management. Grants are given for the development of new methods and concepts for advisory services and public relation as well as for education and training, the dissemination of best practice examples for sustainable land management, improvement of existing databases, information and decision support systems for a detailed consideration of land recycling, land management and survey of soil uses and soil qualities. Further on, measures for international knowledge transfer with other countries to support the global, prevention oriented soil- and sustainability oriented land protection and the constitution of inter- und transdisciplinary competence networks are supported.

The work will focus on practice-oriented examples in cooperation with the relevant stakeholder-groups and decision-makers while being accompanied by scientific know-how. REFINA's requirement is that methodical development needs to be closely connected to practical applications. Therefore, regional and local stakeholders are tied into the entire R+D effort.

## CURRENT STATUS OF REFINA

Resulting from the REFINA announcement, researchers from research organizations, from communities and companies submitted more than 200 project proposals (141 for REFINA I and II, 60 for REFINA III) with an involvement of more than 1000 organisations. A jury of well reputed experts from Federal and Federal States institutions, research organizations and NGOs evaluated the proposals. Important evaluation criteria were the innovation potential, reduction of the land consumption rate, transdisciplinarity (involvement of relevant stakeholders from policy, administration, economy and society directly in the project), multiplier potential (general results which are applicable in other similar regions, situations) and inclusion of ecologic, economic and social needs (such as equality, participation, education, and urbanistic qualities).

29 project clusters and 7 single projects with high innovation and application potential were selected to be funded by the BMBF. In the sum, these are currently 73 contracts and further 30 projects are in preparation. More details are available from: <http://www.fz-juelich.de/ptj/index.php?index=2235> (only in German). First projects

started in December 2005. All applied projects should be granted in the second half of 2006. The project applicants represent a large variety: among them are 12 municipalities, 25 companies, 8 research associations, 35 universities, but also 4 NGOs. Over 90% of the projects involve municipalities or private land owners.

The "community" dealing with the reduction of land consumption and sustainable land management consists of a multitude and variety of stakeholders: Federal ministries, Federal states (Länder), municipalities, regional associations, regulators, policy makers, planners and architects, landscape architects, engineers, facilitators and consultants, land owners, real estate managers, development agencies, bankers, insurers and investors, non-profit professional associations, associations of communities and municipalities, trade associations, NGOs and citizen groups. This leads to new cooperation models within the REFINA R+D program but also for the different stakeholders themselves.

The selected REFINA projects work on different site types: brownfields, transport and railway areas, mining areas, industrial areas, agricultural areas, military conversion areas, regional development, shrinking cities and urban areas.

## OUTLOOK

Important for an effective collaboration of the REFINA projects and to secure a prompt derivation of generalized research results as well as an intensive public relation, the BMBF will install a REFINA coordination team by mid of 2006. Furthermore, beginning in 2006 a series of technical and multidisciplinary workshops will be executed, which are open to all interested experts in the fields. A specific web page (address to be published) will disseminate all available and relevant information.

The execution of the funding program REFINA is supported by a steering group consisting of experts from the involved Federal ministries and agencies, from the Federal states and associations. The steering group supports critically the projects and the whole program. They discuss selected projects as well as more general and project overlapping questions. On one hand side, the steering group ensures an efficient coordination with the related research of the other ministries to consider already existing research results. On the other side, the group is also multiplier to bring new results to the end-user.

A joint book series (REFINA-Schriftenreihe) of the three involved ministries should disseminate selected research results for policy making, technical experts and the interested public.

Within the next five years, REFINA intends to develop good examples for a scientifically based transformation of development plans and land use plans but also by its contribution to the inner urban brownfield recycling which is one important indicator for a conserved handling of existing greenfields.

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