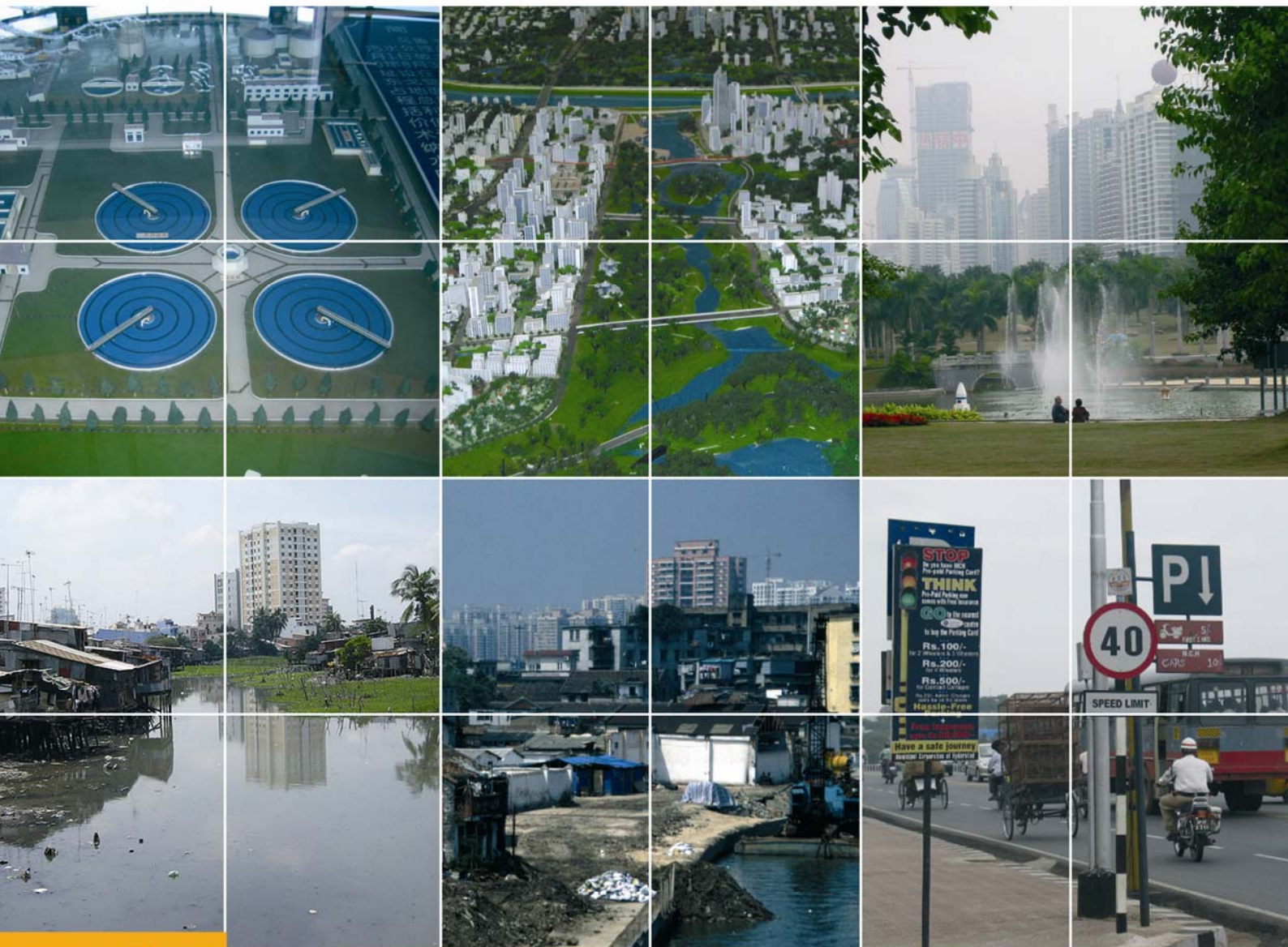


# Research for Sustainable Development of the Megacities of Tomorrow



## Urbanisation as a Global Challenge

Urbanization is one of the most powerful developments of global change both as socio-economic transformation and through the complex interactions of urban areas with their physical environment.

In 1975, less than 30% of the world's population were city dwellers. By 2007 more than half of the world's population is estimated to be living in urban areas, where nearly 90% of the future population growth is likely to be concentrated. Growing by a total of 60 million inhabitants per year, the urban share is expected to rise to about two-thirds of the global population by 2030.

The urban transition is associated with a complex set of social, economic, environmental and psychological factors. People feel the incentive to migrate in order to escape rural poverty, serious environmental problems and often the social confinement of their rural communities. Moreover, they follow a pull, the allure of the city, which promises more varied opportunities and a more secure and free life. These promises remain strong enough to entice people to leave their homes; however, they are often not fulfilled.

Cities in many places of the world are subject to dramatic economic and financial crises. Fast and unbalanced growth has often created fragmented spaces with an increasing social segregation. Unemployment, environmental degradation, insufficient infrastructure and lack of access to key resources are some of the problems aggravating the pressure particularly on the urban poor.

But still, urbanisation is not necessarily a bad thing. Urban development holds the potential for substantial improvement of living conditions. The metropolitan areas of the world are the focal points in the global economy and concentrate flows of people, information, resources, goods and capital. These high densities provide a basis for relative efficiency in economic activities, use of natural resources and life-style patterns, which in turn may lead to an increase in productivity and average income. Other potentials of urbanism are related to technological innovation, access to information and education, efficient land and energy use, provision of clean water, and access to health care services. If distributed equitably, the benefits of urbanization could improve the quality of life for urban dwellers significantly.

In order to seize the opportunities of urban development strategically, it will be essential to gain a more comprehensive understanding of how the complex driving forces and underlying patterns of urbanization could be governed by urban management.

## Urban Areas as Central Arenas for Global Sustainability

The economic, social and ecological impacts of urban areas are usually not confined to the immediate city boundaries and not even just regional phenomena. Urbanisation has global consequences. Cities draw on resources from a wide area, not only from their hinterlands but from all over the world. They are integrated in global value chains with flows of goods and services, people, capital and information. Urban lifestyles and consumption patterns contribute in a multidimensional manner to social, economic and environmental dynamics on a global level. Globalisation reinforces these trends and can increase pressure on natural resources at rather distant places.

In this sense, cities are increasingly becoming centre stages for decision-making on global sustainability. The management of cities has an extensive effect not only on the surrounding regions, but often far beyond.

The acceleration in pace and intensity of mega-urbanisation are particularly challenging for the strategic and innovative capabilities of decision makers in politics, economy and civil society. These extremely large cities are "laboratories of change" in which new economic and social trends are created and tested with increasing speed. A large proportion of the future economic growth in developing countries will be generated in the mega-urban areas. At the same time, they are places with societal fault lines which manifest in fundamental social conflicts. Also, the effects of urban metropolises on regional and global environmental parameters (e.g. through emissions, land-use and land cover patterns etc.) cannot be overlooked, just as the potential impact of global change on their inhabitants.

## Sustainable Development of "Megacities of Tomorrow"

The number of mega-cities with a population of more than ten million is expected to grow considerably to more than 25 within the next decade. Most of them will be located in developing and newly industrialising countries. In addition, a considerable number of smaller cities are growing at around 3-4% annually which is twice as fast as the average for all cities. If this rate continues, these cities will approach the size of a megacity quickly.

These "Research for Sustainable Development of the Megacities of Tomorrow" (broadly defined as those expected to approach the ten million mark within the next decade) are of particular interest to the programme on "Research for Sustainable Development of the Megacities of Tomorrow" set up by the German Federal Ministry of Education and Research (BMBF).

The emerging megacities are placed at the forefront of sustainable development. Decisions taken in these cities today will have a significant global impact tomorrow and should be taken in the spirit of sustainability. Above all, they may still offer the chance for precautionary action, learning from past experience with today's megacities.

In that sense, many of the fast-growing cities with over a million inhabitants stand at a crossroads. They may still have a choice between different pathways of development; however, deliberately choosing a sustainable direction poses a huge challenge for policy makers. Given best practice for environmental management, infrastructure development or urban governance is as rarely available as are resources to resolve many of these issues effectively and with well adapted solutions.

### Research as a Key Resource

The research programme by the German Federal Ministry of Education and Research (BMBF) focuses on increasing the knowledge base needed to meet these challenges. Decisions on urban development in emerging megacities need to draw on a solid foundation of scientific knowledge. Those taking the decisions need to be able to take advantage of new and well adapted technologies, identify effective management tools and appraise and transfer "good practice" from other cities where appropriate. Scientific research, capacity building and the development of new technologies, therefore, are key resources to widen the range of policy options for the governance of mega-urban development.

The programme aims at the development and implementation of solution-oriented, innovative and integrated planning and management concepts for sustainable urban development in selected developing and newly industrialising countries. Outcome of the research should be strategies and pilot projects that contribute substantially to solving the problems and reaping the opportunities that result from the massive agglomeration in urban areas. The emphasis of the research lies on "prevention and therapy" instead of just "diagnosis". Capacity building and international networking figure prominently in this programme. Projects whose results promise to be commendable (*good practice*) or even transferable (*best practice*) will be given preferential treatment.

In soliciting and selecting research proposals, BMBF required German scientists and companies to develop their projects in a user-oriented and participative manner, i.e., in close cooperation with local institutions responsible for urban development in the respective countries. From the outset, stakeholders from politics, economy and society were included to ensure that the research

questions are suited to real, local needs. Additionally, the projects have to address the ecological, economic as well as social aspects of their research topics in a coherent concept to promote the objective of a sustainable development of tomorrow's megacities. These must inevitably be studied multi-dimensionally and, as far as possible, in an interdisciplinary fashion.

At present, it is in its initial phase. 16 projects have been ear-marked for start-up funding. These teams will be funded for two years in order to elaborate their proposals, consolidate ties with stakeholders in the partner regions and put assumptions and concepts to an early field testing. In mid 2007, the projects will undergo evaluation and (if approved) pass into a first three-year implementation phase.

The projects considered strike a geographic as well as thematic balance. They deal with urban agglomerations in Brazil, China, Ethiopia, India, Iran, Mexico, Morocco, Peru, South Africa, Tanzania and Vietnam. The projects are dedicated towards specific practical needs, exigencies as well as innovation potentials of urban living such as: housing and construction; nutrition and urban agriculture; public health and quality of life; urban planning and governance; energy supply and consumption; mobility and transport; water supply, waste treatment, and environmental management.

### Research for Sustainability – a Global Obligation

The research programme on emerging megacities is part of the BMBF framework programme "Research for Sustainability". This programme demonstrates that sustainability is a key issue that runs through all policy fields and areas of life. Research for sustainability makes an elementary contribution to resolving some of the inherent conflicts between these fields. This is considered a precondition for achieving the goals to preserve the natural bases of life, enhance equity in our societies and secure prosperity for present and future generations.

The framework programme is part of the sustainability strategy of the German Federal Government. It addresses the global developments of recent years and highlights the dynamic function of education and research in sustainable development. The focus is placed on four fields of action:

- Sustainability in Industry and Business,
- Sustainable Concepts for Regions,
- Sustainable Use of Resources, and
- Strategies for Social Action.

The framework programme aims to link technological progress to social processes and targeted transfer to the education systems. It is designed as a "learning programme" in which initiatives and measures can repeatedly be adapted to new findings



The particular approach of the research programme on “Megacities of Tomorrow” contributes to the objectives of this framework programme in a particularly comprehensive manner. The experiences with this approach will contribute to the development of future research promotion activities of the German Federal Government aiming at increasing our scientific knowledge base for a sustainable and innovative society.

Due to the strong international reference of research for sustainability, particular effort will be made to strengthen the European and international links in the area of urban research and policy development.



**For further information:**

[www.bmbf.de](http://www.bmbf.de)

[www.fona.de](http://www.fona.de)

[www.emerging-megacities.org](http://www.emerging-megacities.org)