Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Sustainable Urban Development

Introduction

Today more than half of the global population lives in cities. According to UN Habitat the share of people living in urban areas will increase to 70% by 2050 with the majority of urban growth taking place in emerging economies and developing countries. Cities are responsible for around 70 % of global energy-related greenhouse gas (GHG) emissions as sectors with high emissions such as industry, transport, housing and waste concentrate in metropolitan areas.

Cities – especially those in coastal areas or deltas – are also very strongly affected by the impacts of climate change: rising sea levels, water shortages, floods, more intense hurricanes and heat waves threaten the wellbeing and economic assets of city dwellers. At the same time, cities can facilitate effective adaptation: the high density of people and a high variety of uses and functions, reduces the costs per capita to provide access to infrastructure as drinking water, mobility or health services. Mixed functional patterns, safe and secure public spaces additionally facilitate eco-friendly, cheap and efficient ways of transportation as walking and biking. When designed well they can also contribute to disaster risk management and greener cities. All of this is especially required for informal settlements, which are more vulnerable to the impacts of climate change.

During COP 21 in Paris cities have been highlighted as important actors for mitigation and adaptation activities and their engagement in the past has been recognized. They bear a key role in the implemention of the Paris Agreement to contribute to the achievement of the 1.5° C goal at the local level. In addition to climate issues, cities need to simultaneously address a variety of challenges. Sustainable Development Goals (SDG) 11 highlights the need to make cities and human settlements inclusive, safe, resilient and sustainable.

The New Urban Agenda, passed at the Habitat III conference in 2016, provides a roadmap how cities can fulfill this role. Effective measures to protect urban dwellers from the impacts of climate change can only be achieved through an integrated urban planning approach which follows the criteria of sustainable and climate compatible development. Smart cities' approaches, such as digitalisation can provide new opportunities for these goals, but also pose challenges to the liveability of the cities in its own right.

Since 2008, the International Climate Initiative (IKI) of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been a key element of Germany's climate financing. In 2015 the IKI has, for the first time, included sustainable urban development / sustainable building as a cross-cutting theme to be supported. The German government is committed to continue its support for integrated climate compatible and resilient urban development in the coming years.

Urban solutions on mitigation action

The IKI project *Generating Energy from Waste Water and Organic Waste – (Waste to Energy)* is reducing greenhouse gas (GHG) emissions in the Indian city of Nashik.

One goal of the project is to demonstrate a technical solution that is reproducible and financially feasible in densely populated urban areas and is in line with the Indian government's climate change targets and new Indian urban development programmes, such as Atal Mission for Rejuvenation & Urban Transmission and Smart Cities Mission.

The construction of a waste-to-energy demonstration project has begun and brought together a range of actors in Nashik in an effort to design, build and operate a plant in a Public-Private-partnership (PPP). Since power gener-

ation from waste has been included in the Indian feed-in tarif for renewable energies this technology has become even more favourable for cities. Moreover, the tender process revealed that the filling and sale of biogas as industrial gas can even be an economic alternative to power generation. This can be an additional option for future biogas plants in the Indian biogas sector. In a feasibility study the following results have been estimated for the project:

- Avoided GHG emissions: ca. 4,700 t CO_2 equivalents/ year (Assumption that 50 per cent of the methane production of the plant can be avoided: 1 t CH_4 equals 25 t CO_{2eq}).
- Electricity generation guaranteed by the operator: 3,100 kWh/day.
- Amount of raw material: 10 t/day organic raw waste from food.
- Amount of septage as incoming material: up to 20 t/day from emptying septic tanks.
- Amount of organic fertilizer produced: up to 2 t/day.

For further information, please visit the project website
https://www.giz.de/en/worldwide/29484.html
www.urbansanitation.org

Cities preparing themselves to the impacts of climate change

The IKI project *Cities Fit for Climate Change* supports cities in tackling the challenges presented by climate change. It advises its partner cities Chennai (India), eThekwini/ Durban (South Africa) and Santiago (Chile) on how to adapt their development plans (land-use plans and binding development plans), urban development strategies, and urban design ideas etc. and put them into practice in a way that makes them fit for climate change.

The intention is to make climate change an integrated and strategic element of urban development. Plans, programmes and strategies in the city and investments based on them become more resilient to climate risks such as increased flood hazards and take into account the need to take action to mitigate climate change by, for example, creating runoff and retention systems.

Since its inception in November 2015 the project has:

- Supported the development of a Climate Resilience Plan to be included in the Spatial Development Framework in eThekwini/Durban. The plan will benefit the entire metropolitan area as resilience factors will be more strongly considered and budgeted for in the future.
- Developed guidelines for and mainstreamed climate aspects into the planning and construction of city-wide infrastructure measures in Santiago de Chile, impacting thousands of dwellers
- Conceptualized the rehabilitation of an important waterway and the space around it in the city of Chennai
- Supported better coordination and greater integration of urban development and climate change through the establishment of municipal exchange platforms in all three partner cities
- Actively contributed with events and inputs to international processes such as Habitat III and the UNFCCC process

For more information, watch the project video:
https://www.international-climate-initiative.com/de/nc/mediathek/videos/film/show_video/show/cities_fit_for_climate_change/

Website:
https://www.giz.de/en/worldwide/43392.html.

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