

Barriers to urban planning

The realisation of sustainable urban development is a major challenge for local governments today.

Unplanned growth in urban areas has resulted in serious infrastructural problems. Local authorities need a broad and integrated development plan. However, they are often unable to act in this area due to:

- o a total lack of credible specific data (e.g. population density)
- o out-dated data
- o fragmented, decentralized data base
- o missing data digitalization
- o poor data standardization
- o insufficient networking & cooperation between different public service departments.

The method of urban planning

In order to combat a city's sanitation, health, water and solid waste issues in a comprehensive way, urban planning should:

- o identify the existing sanitation conditions through data collection & analysis
- o highlight tag sources of pollution, priorities for intervention and appropriate solutions in each area; and elaborate priority locations for propose centralized and decentralized sanitation facilities

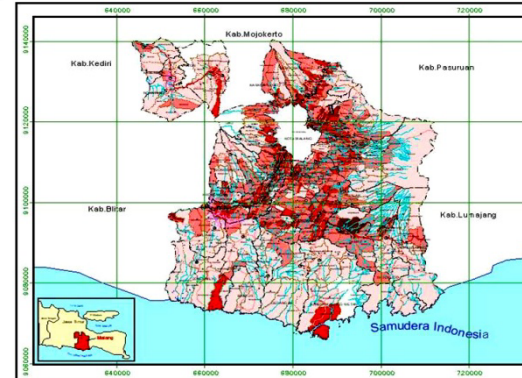
- o provide verifiable indicators to assess the city government's performance in managing environmental and public health issues.

BORDA BNS Networks Mission

The mission of BORDA (Bremen Overseas Research and Development Association), and its Basic Needs Services (BNS) Partner Network, is to improve the livelihoods of disadvantaged groups within societies and to sustain the functioning of eco-systems through dissemination of demand-oriented BNS. BORDA and its network develop and disseminate innovative solutions to facilitate access to BNS.

DEWATS Sanitation Mapping

SanMap is a GIS based software mapping and simulation system including additional methodical components. This package allows systematic location of available information and the development of a plan to **upgrade sanitation and wastewater treatment infrastructure in a comprehensive manner**. Depending on development priorities, the mapping software supports various combinations of queries related to the **characteristics of target groups** (e.g. health status), **geographic specifications** (e.g. residential areas) and economic status.



**A strategic planning support tool
including a software-mapping
programme for sustainable
infrastructure development
in urban areas**

SanMap |
DEWATS Service Package

Developed and disseminated by
BORDA & BORDA BNS Network

DEWATS SanMap: medium-term city planning for sustainable infrastructure development

Key SanMap features

In order to create a complex data-base for planning interventions in the target area SanMap includes:

1. Framing SanMap:
 - o Definition of responsible people in public service departments in local governments
 - o Agreement upon the specific sanitation mapping area
 - o Clarification of data availability & requirements for collection of missing data.
2. Presentations to stakeholders about the current situation and developing a work plan, methodology & parameters of data collection.
3. Preparation of SanMap by:
 - o checking the available data
 - o recruiting & training a field team
 - o preparing target groups for field data collection.
4. Field data collection:
 - o Focus group discussions & interviews (participatory assessment)
 - o Transect walk
 - o Manual map plotting.
5. Data Processing:
 - o data digitalization, summarizing, verification & conversion.
6. Stakeholder training & producing a final report:
 - o reporting the final results
 - o demand-oriented analysis & recommendations
 - o software training.

Citywide Mapping

Before obtaining detail it is important to know the citywide sanitation conditions. Using available secondary data a city map (scale 1:25.000) is developed by the SanMap software with consideration for six different parameters:

1. Water supply
 2. Solid waste management
 3. Unserved areas
 4. Population density
 5. Waterborne diseases
 6. Socio-economic situation
- These parameters can be combined and unified according to specific queries. Consequences of changes & actions can be simulated.

Sub-district Mapping

Once an overview of the citywide sanitation infrastructure has been obtained special target areas, such as low-income settlements, can be identified and focused on with sub-district mapping (scale 1:5.000). Primary data is collected through household surveys, GeoCoding, etc. A sub-district map is created using 30 different parameters which can be grouped into the following:

1. Topography
2. Demography
3. Water supply
4. Health conditions
5. Sanitation infrastructure
6. Public sanitation facilities
7. Industry & sanitation

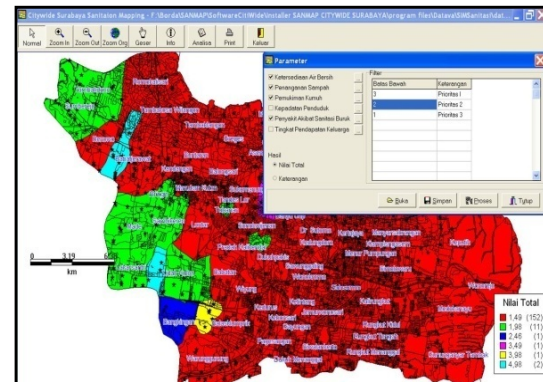
Benefits of SanMap

Coordinated by BORDA's regional offices & implemented with local BNS Partners, SanMap provides:

- o Systematic localisation of available information and collection of data
- o Complex maps and simulations on different scales that visualize the (possible) conditions of the area
- o Ability to develop a plan for upgrading WatSan infrastructure
- o Calculation of investment costs & support for funding assistance
- o Courses of action and preparation for the first steps towards improving sanitation in target areas.

High-level solution

Today, BORDA and its BNS Partner Network have already assisted numerous municipal governments with urban infrastructure development planning. SanMap has previously supported the creation of urban development plans in India and Indonesia.



BNS Partner Network in SADC Region



University of Kwazulu Natal
(Pollution Research)
South Africa



Environmental Engineering
and Pollution Control
Organization Tanzania



Water and Sanitation
Association of Zambia,
Zambia



Technologies for
Economic Development
Lesotho

DEWATS Service Packages

- o School Based Sanitation
- o Community Based Sanitation
- o Emergency Sanitation
- o Sanitation for Hospitals & Hotels
- o Wastewater Treatment for Agro-Industry
- o Sanitation for Prisons
- o Sanitation for Real Estate
- o Sanitation Mapping
- o Municipal Sludge Treatment Plant
- o Health Impact Assessment & Hygiene Education
- o Capacity Development
- o Research & Development



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