

Impactreport



Municipal Solid Waste Management

Context

The development of the solid waste sector in the last decade shows rapid changes. Mass consumption and a throwaway ethic are reasons for growing amounts of solid waste. Growing quantities of waste demand additional capacities for transportation, storage, treatment and disposal. While appropriate technology and environmental concerns have to be considered, social aspects and community involvement are equally important.

In some cases it was impossible to introduce appropriate technologies due to a lack of support from the population or from industries.

German Technical Cooperation (TC) projects have demonstrated for more than 25 years that solid waste management is not just a technical issue. The term "integrated solid waste management" is applied to demonstrate that social, legal, environmental, political and technical questions are equally important and must be considered. A holistic view of solid waste requires various disciplines to be put together in order to reach last-

ing and adequate solutions. Waste management is directly related to:

- Cleanliness and hygiene in towns and cities
- Good governance at the responsible institution, i.e. the municipality
- Conservation of resources and environmental protection
- Employment

Challenges for GTZ

Chapter 21 of Agenda 21 deals with "Environmentally sound management of solid wastes" and considers the four major waste-related programme areas to be the following:

1. Minimising wastes
2. Maximising environmentally sound waste reuse and recycling
3. Promoting environmentally sound solid waste disposal and treatment
4. Extending waste service coverage

Solid waste management has a vital role to play in the achievement of the Millennium Development Goals (MDGs) because

- Adequate collection services for all improve public health and community hygiene
- Better services create jobs and income for people, including the urban poor
- Sound treatment and disposal procedures reduce the pollution of the environment
- Avoidance, reuse and recycling allow to save natural resources

While industrialised countries often privatise waste management services, commercialisation and private sector participation is still at the beginning in low- and middle-income countries.



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Pictures relate to the box about impacts of solid waste management



Technical Cooperation in Municipal Solid Waste Management – some Examples

GTZ operates as an implementing institution on behalf of the German Government and other donors. Tailor-made project concepts are typical of GTZ approaches. Specific needs are answered by specific expertise combined with knowledge management gained from many years of practical experience and lessons learned from a wide range of projects. Key factors of GTZ project concepts include sustainability, participatory methods and transparency.

A brief description of some selected TC projects and executing organisations illustrates the diversity and complexity of our portfolio.

Decentralisation of solid waste management is the subject of the TC project in **Mexico**. The environmental state agency of the state of Mexico (SEGEM) and GTZ jointly improved planning instruments and databases, and realised a large number of training schemes for technical personnel in municipalities and in the state environmental agency.

Collaboration between the public sector and private sector benefited from two public-private-partnership (PPP) projects: (1) mechanical-biological waste treatment proved to be feasible in the Mexican context in conjunction with the German company Faber, and (2) co-processing of selected waste fractions in cement kilns is supported in cooperation with the company HOLCIM.

Special attention is paid to the informal sector, which plays an important role in Mexico. In the unique training programme for “Municipal Solid Waste Management for Trainers” elaborated by the Mexican Ministry for Environment and Natural Resources (SEMARNAT) and GTZ, the train-the-trainer course was able to reach about 600 persons in 2004 alone.

The municipalities of Maputo and Matola in **Mozambique** and GTZ started a TC project in 2002. Besides technical issues the project focuses on capacity-building and institutional sustainability. Legal aspects and public education are integrated parts of the programme. The project intervenes on different institutional levels. Development strategies and financing models are elaborated and discussed with sector ministries at the central level. Operational planning, training and monitoring of the implementation processes are provided to the city’s waste department. Training on the job and learning by doing combine theoretical input with practical exercises. In cooperation with Médecins Sans Frontières (MSF) and Care International, two community-based informal waste collection groups have been assisted in formalising themselves and finally have been contracted by the municipality to provide a primary waste collection service. Providing basic waste collection services for an additional 7% of the total population of Maputo, the two pilot projects can be seen as a great success. The mu-

nicipality plans to extend this model gradually to all suburban areas.

In 1999, the municipality of Phitsanulok in **Thailand** and GTZ started a project which aimed at improving municipal waste management in Phitsanulok. The idea was to develop a model of a sustainable solid waste management system by integrating municipal administration, citizens and the private sector alike. The second phase (since 2002) intends to disseminate the experience gained from Phitsanulok to other cities in Thailand. Additionally, support is provided to the Ministry of Natural Resources and Environment (MoNRE) with regard to the elaboration and improvement of the legal framework and regulations in waste management. This stepwise approach followed the successful model of “Community Based Management of Waste” in Phitsanulok, which is well known to municipalities throughout Thailand and beyond. Through organisational adjustments, cost-effectiveness for waste management has been improved considerably: For example, through improved routing of collection the number of collection trucks has been reduced by almost 50%.

These three examples from three continents show different tailor-made projects which comply with the requirements of our project partners. Therefore GTZ looks back on considerable experience and is well established in the solid waste sector. In general, TC



projects have developed a wide range of project concepts such as:

- Community participation and public awareness
- Commercialisation of service providers and creation of joint councils for solid waste management
- Planning of solid waste management systems
- Design and manufacturing of tailor-made collection vehicles and equipment
- Design and construction of treatment and disposal facilities
- Regulations, guidelines and standards
- Private sector participation and informal sector involvement

Impact

Negative impacts of poor waste management on people and the environment are easy to determine. However, reliable data on positive impacts of solid waste management improvements are sometimes difficult to obtain. The following illustration demonstrates the link between particular activities and related impacts of the project “Solid Waste Management in the Greater Maputo Area (AGRESU)” in Mozambique.

Considering that Mozambique is one of the poorest countries worldwide it is surprising to learn that approximately 40% of the total municipal budget of Maputo in 2004 was for expenditures on solid waste collec-

tion. At the same time less than half of the population is satisfied with the quality of services and disposal standards are not acceptable.

- ① Looking at the Maputo project the **starting point** was piles of waste in the streets and burning waste in containers.
- ② One of the many **activities** or services provided by the AGRESU project was the participatory development of a waste management plan.
- ③ What should be done with a waste management plan? **Utilising** the information of the plan serves as a basis for further decision-making. As there was no reliable information for decision-making now reliable data, development scenarios and priorities are available.
- ④ **Direct benefits** of a waste management plan for decision makers include that municipal funds can be assigned in a more efficient way.
- ⑤ **Indirect benefits** may include that the positive example set by the municipal waste department provides a basis for other departments to apply similar improvements.

Lessons learned

More than 60 solid waste management projects during the past 25 years allow GTZ to draw conclusions from lessons learned, in particular:

Good governance. Well-managed solid waste management services are easily recognised if streets and public spaces are clean, the landfill is well run and citizens of various income groups express their satisfaction with collection services. Therefore, good waste management is directly related to well-organised municipal bodies and should be regarded as an excellent indicator for good urban governance.

Social aspects. GTZ has a tradition in participatory approaches. Tasks and roles in solid waste management vary between men and women and have to be considered when it comes to planning, and when allowing for people’s habits. Early consultation with the public has been successful in various projects. Finally, the provision of services depends on acceptance by the public. The integration of the informal sector is an important issue in many countries. Hundreds of thousands of waste pickers worldwide make a living on recyclables. When changing





A scene in India: cows feeding on a pile of waste in the streets.



Tailor made refuse collection system in Gaza

processes in municipal solid waste management, it is important not to displace this highly vulnerable group. With regard to site selection for treatment and disposal sites it is standard practice to involve the public and NGOs within public hearings.

Private sector participation. Successful cooperation between the public and private sector can be seen as an indicator for properly functioning municipalities: professional cooperation, the formulation and monitoring of service contracts, and the recovery of costs for services are difficult tasks which require well trained personnel as well as regulations and guidelines which allow for PSP.

There is also considerable experience with public-private partnerships in GTZ projects. This concept requires a private firm to contribute to a joint project in an effort to promote certain techniques or procedures. Areas of cooperation include environmental and social standards, training of personnel, and technology transfer.

Financial sustainability. In several projects very important benchmarks have been achieved with regard to

cost recovery and financing of solid waste services. Although often considered as municipal services free of charge, joint billing systems with electricity or water have been introduced successfully in some cases. However, the polluter pay principle and the responsibility of manufacturers are far from recognised practice in many countries.

Legal aspects. Although many countries have complex and modern environmental laws, implementation and enforcement is often very weak. This is sometimes linked to standards which are not realistic in low-income societies. GTZ personnel therefore assist partner institutions to develop appropriate regulations and standards. Whenever possible, technical standards should be based on practical applications in the region.

Resource recovery and environmental aspects. The promotion of recycling and composting has clear environmental advantages. However, technologies and procedures applied in the industrialised world are often too complex and costly for application in low- and middle-income countries. Therefore appropriate and tailor-

made systems are developed in GTZ projects and tested on a pilot scale before techniques are recommended for large-scale application.

On the other hand there are countries that have no examples of good **waste disposal** anywhere within their borders, and air and water pollution and land degradation are the inevitable result of this lack. Upgrading of disposal sites and the development of appropriate landfill standards are a key concern for any municipal solid waste project and various examples of good practice are available. In addition, the need to reduce greenhouse gas emissions is becoming more important and may be feasible on a larger scale after the Kyoto Protocol has been ratified.



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