



## For a Clean Environment

Decentralization of Solid Waste Management – GTZ in Yemen

gtz







## For a Clean Environment

Worldwide, population growth and increasing consumption inevitably lead to a massive accumulation of waste, which in turn causes drastic problems for the environment and people's health. Yemen is no exception to the rule.

Currently, Yemen's waste management is undergoing decentralization and is coordinated by the newly established governorate and district governments. In 1999, the Yemeni Government introduced the "Cleaning Fund" legislation, which lay the financial foundation for the decentralization process. Ever since, five percent of people's electricity bills is directed towards their hometown's waste cleaning.

A lack of experts and know-how, however, make it difficult for the local governments to fulfil their task. The challenges are numerous: Where are the necessary vehicles and staff to be taken from? How should citizens collect their waste? What is the right location for a landfill site and how should it be built and operated?

The Project, "Decentralization of Solid Waste Management in Yemen", carried out by the German Technical Cooperation (GTZ) on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), has taken on these challenges. In different districts throughout the country, GTZ experts train members of town, municipal and governorate authorities in matters of solid waste management. Together with the local officers in charge, they establish viable cleaning systems. Its success speaks for itself; numerous Yemeni towns and communities have since gotten their garbage problem under control. They possess their own waste management system, well-trained staff and an efficient system for disposal fees. Further, the private sector, formally focused on waste recycling, has become increasingly involved in matters of solid waste management.

However, to work exclusively with the country's decentralized governments was not sufficient. Consequently, since 2007 the Ministry of Local Administration (MoLA) has been the Project's main partner, in-charge of waste laws, regulations, and disposal fees. To ensure the Ministry is able to carry out such tasks to the best of its ability, GTZ experts work to develop the capacity of Ministry staff. Efforts have included assisting the Ministry in the establishment of a specific division for waste management, training personnel and offering overall consultancy.



## A Shining Example

"Unique, unbelievable, breath-taking" – just some of the words used to describe the beauty of Sana'a's old city center.

The city is a World Cultural Heritage Site and has already witnessed a lot during its two thousand year history. However, until recently, part of this otherwise epic picture was marred by foul-smelling garbage littering the narrow streets and splendid squares. It was not until 1999 that things took a turn for the better.

Back then, in close cooperation with the municipality, GTZ developed a waste management system for old Sana'a. The conditions were difficult, with the narrow and winding streets making it hard for any cleaning vehicle to get through. Furthermore, Sana'a's inhabitants were not used to collecting their garbage and taking it out at designated times, instead of just throwing it out of their doors. A change of mentality was needed.

To overcome these challenges, staff members of the waste management division, GTZ experts and citizens had to work hand in hand. Merchants and shops were provided with waste bins, along with those distributed on public streets. Next, logistical problems had to be solved. How were the garbage collectors to get into the narrow streets to empty the new waste containers? Specially designed pushcarts, bicycles, and motorized vehicles offered the solution. The small and versatile wheelers made even the narrowest paths accessible.

It is not only shop owners who benefit. The garbage collection also passes every private house in Old Sana'a. A carefully planned route and fixed collection times are integral parts of the comprehensive waste management concept. Its acceptance by both business people and residents is highly visible. "The streets have stayed clean for years now, which is good for business. Our customers, locals as well as tourists, prefer to shop in a well-kept environment," says Mohammed, a Sana'a merchant.

The garbage collected is taken to Sana'a's waste deposit. Formerly a matter of constant worries, often causing smoldering fires, the site today presents itself as an efficient enterprise. Thanks to intensive training by GTZ experts, the site's personnel now possess the know-how needed to run the facility properly. Every part of the site is now accessible to the collection vehicles, whilst the workers compress the arriving garbage, and cover it up. At first glance it becomes obvious that there are professionals at work.

What initially began in the old city center was just the seed of a waste management system that soon evolved to assist the whole of the Sana'a area. A true shining example!

# LOGISTICS

## تنظيم العمل Logistik





## Pure Beauty

Famous since pre-Christian times for its grand cities and commercial importance, the Wadi Hadhramout remains a center of attraction today. Its beauty, however, is in many places deeply affected by the omnipresence of garbage – covering streets and fields like an ugly disease. That is not to mention the health risks and the lack of hygiene it causes for its inhabitants.

With the introduction of the Cleaning Fund, the governorate procured the money needed to take on the waste problem. Again, what was lacking was the professional know-how. In the Hadhramout, the GTZ project came just at the right time: it offered technical consultancy, helped in establishing the waste management office, and trained its staff.

Due to these interventions, the situation in the Hadhramout has changed considerably within the last years. Seiyun, the governorate's capital, is a good example. Where in 2005 the inhabitants would still have thrown their garbage onto the surrounding fields without giving it a thought, today it would hardly occur to them, as the garbage collection takes a daily tour. In many streets, the waste workers collect the garbage directly in front of every house; where the streets are too narrow, there are containers at disposal. The marketplace is also cleaned up twice a day: in the afternoon organic waste is collected and in the evening packing material and other residual waste is taken away. A new and secure waste deposit guarantees its proper disposal. A glance over the town speaks for itself: the streets, squares, and markets are clean.

The changed cityscape, however, is primarily the result of hard work. Firstly, the size of the service area was decided, then how much material, staff, and financial resources would be needed. The fair distribution of the Cleaning Fund among the different communities had to be carefully calculated by the governorate, which receives and administers the money. Thanks to these funds and an intensive training of the municipal waste departments' staff, it was possible to develop an efficient waste concept for Seiyun and other towns in the Wadi, like Tarim and Shibam. Today, this concept is an integral part of the local legislation. Far from sitting back to enjoy their success, the proactive staff of the Seiyun waste department continue to seek ways to improve the system. In regular meetings they analyze the cleaning situation and take care to manage flaws before they have a chance to manifest themselves. In this way, sustainable waste management is assured.

# WASTE MANAGEMENT

Abfallmanagement إدارة المخلفات





## Soaring Seaport

Counting more than half a million inhabitants, Aden is the second largest city in Yemen. Having always been an important center for commercial activities, the seaport of Aden is still growing rapidly. All of a sudden, the old landfill site was not located on the outskirts anymore, but right inside the town. Thus, a new site had to be found.

For this reason, the municipality opened a new waste deposit outside of town. However, the construction and proper operation of the facility posed a problem; there was a severe lack of professional personnel and necessary know-how. Recognizing their needs, Aden's Governor approached GTZ waste experts for assistance.

In the first place, the construction of the waste deposit needed careful and professional planning. Making use of GTZ's advisory service in matters of technical planning and budget coordination, the city carried out the first phase of construction. Just as important, however, was the facility's proper operation: for instance, the way that the waste is integrated into the deposit and its continuous supervision. In workshops, workers are now trained in running the site professionally. Moreover, GTZ experts developed specific user manuals which offer guidelines for the everyday work of the deposit personnel.

The next step is to increase the efficiency of the garbage collection – the amount of waste collected being an important point of reference. New load sensing equipment on the deposit site will soon allow staff to identify the exact amount of waste collected. In the near future, this will offer a whole range of new opportunities for the city's waste management; namely a cost and amount monitoring system, based on which the assignment of vehicles, personnel, and financial resources can be efficiently determined.

This professional method of operation was primarily achieved through the comprehensive training programs. In special training sessions, officers from different fields learned about the most important of their new responsibilities. For instance; budget calculation and planning was the focal point for the finance division; executives attended workshops on management concepts, scheduling and run cutting; and the technical personnel learned about operation, maintenance and security matters. Moreover, responsible officers received technical advice on procurement and bidding, as well as consultancy about principles of environmental protection and work-related laws. Today, they share and thus pass on their knowledge to their colleagues.



# LANDFILL OPERATION

Deponiebetrieb تشغيل المقلب





## Paradise Lost?

A unique realm of flora and fauna, bustling with an abundance of endemic species – this is Socotra, the "Arabic Galapagos". Millions of years ago, the island broke off the mainland and has remained isolated and largely untouched ever since. The islanders have had only a little contact with the mainland and thus elaborated their own language and traditions. However, for a number of years this paradise in the Indian Ocean has been at risk. Modernity has entered its shores and the island is changing its face. The Yemeni Government is now confronted with the challenge of introducing the modernization process in an environmentally sustainable way.

Within 15 years the environment of the islanders has changed drastically. A little airport and a harbor were built, paved streets unlocked the island, trade relations were forged and a larger variety of products made available. With the growing number of people has come an increasing amount of garbage, sadly dominating the picture of the little island more and more.

The "Socotra Development Program", a cooperation project between the Yemeni Government and the United Nations Development Program, turned to GTZ for assistance in solving the island's garbage problem. Today, two waste deposit sites, numerous collection points, garbage trucks, and trained personnel are at hand. The first steps have been taken, however, the complex basic conditions require far more.

Just a few years ago, people on the island lived off what the land had to offer: therefore the concept of cleaning up garbage systematically is completely new to them, as are the harmful consequences of the increasing amounts of waste. Nonetheless, community participation is an indispensable prerequisite for efficient waste management. Socotra's inhabitants have to collect their garbage and wish for their environment to be clean. In this matter, education and awareness raising still have a long way to go.

What makes the task even more difficult is the fact that the inhabitants of Socotra are very poor. It is impossible for them to finance the disposal out of their own pockets. Therefore, different and appropriate ways of financing are necessary, in tune with the island's realities. An interesting possibility might be revenues from tourism. Moreover, the amount of garbage could be reduced, if the mass of plastic and metal packing material was being recycled.

Socotra is special – not only with respect to its natural beauty. To establish a sustainable system of waste management requires a lot of patience and time...

# PUBLIC AWARENESS

Öffentliches Bewusstsein وعي المواطنين





## Future Impact

The immediate effect of the waste management project is obvious: garbage has disappeared from the streets and landscapes and is taken to a secure deposit site. Behind the scenes, however, much more is at work. To organize such complex waste management logistics it takes more than just vehicles and workers. It is supported by a multilayered structure consisting of organised administration, laws, accounting systems, infrastructure, and know-how. The greatest effort is to ensure that everything and everyone are united in addressing the tasks at hand - that people are aware of what needs to be done and able to work competently to achieve those goals.

The new responsibilities are a big challenge for the governorate and local governments. They are confronted with establishing efficient administrative systems at a governorate, district, and municipality level. A well functioning waste department and the introduction of a waste management system thus accomplishes many things: the authorities build up their respective administrations, define responsibilities, and develop report and quality management systems. Through close contact with the private sector, private enterprises learn about the economic potential of waste management and how best to implement it.

On the municipal level, the introduction of waste management had a considerable impact. Just a couple of years ago, most people in Yemen were not aware of the risks caused by open garbage. In many places this has now changed. Thanks to numerous public training courses, people in the regions are now generally aware of the situation. The inhabitants now demonstrate a greater interest in standing up for their towns and villages – not only regarding waste management.

All this can only work because the concepts employed by GTZ experts are adapted to the needs of the people. Systems and strategies are tailored to fit the characteristic conditions they work in.

Convinced by the effectiveness of the GTZ approach, the Yemeni government is currently considering the future. In cooperation with GTZ experts, they aim to develop a national waste management strategy. This strategy is to define responsibilities on a government level, establish national standards, and pass the necessary laws and regulations.

# EFFICIENT ADMINISTRATION

Funktionierende Verwaltung الكفاءة الإدارية





## Together for a Clean Environment

To achieve a goal, a strong team is more powerful than any single individual. This simple truth, which applies to all aspects of life, is all the more true for the decentralization of solid waste management. Where challenges are complex and development constraints manifold the German Development Cooperation works hand in hand with its local partners. We all share the same wish: to create a clean and hygienic environment for the inhabitants of Yemeni towns and villages.

It is most of all our Yemeni partners and the Yemeni population which account for the lion share of the project's success. Without the participation and active support of the Yemeni people, no waste management system could work productively: it needs public awareness and involvement to be established on a sustainable basis. Our institutional partners are: the Ministry of Local Administration (MoLA), the Environment Protection Authority (EPA), the Ministry of Public Works and Highways (MPWH), the Social Fund for Development (SFD), the Public Works Fund (PWF), as well as various governorates and municipalities.

Yet, close relationships with our partners and local counterparts are thereby just as important to us as cooperation with other organizations involved in development. To combine a wide array of know-how and to address the different needs and demands of the development processes, the project cooperates with different partners: the German Development Service (DED), the Center for International Migration and Development (CIM), the German Development Bank KfW, the Japan International Cooperation Agency (JICA), and the United Nations Development Program (UNDP).

By harmonizing our procedures and by aligning our programs, we are channelling all our activities towards one overarching goal: the creation of a sustainable, decentralized waste management system for Yemen's towns and municipalities.



## GTZ Profile

As an international cooperation enterprise for sustainable development with worldwide operations, the federally-owned Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH supports the German government in achieving its development-policy objectives. It provides viable, forward-looking solutions for political, economic, ecological and social development in a globalized world. Working under difficult conditions, GTZ promotes complex reforms and change processes. Its corporate objective is to improve people's living conditions on a sustainable basis.



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