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CONNECTIVE CITIES

Connective Cities Dialogue Event

Planning Integrated Solid Waste Management at Municipal Level

26-28 September 2016 in Hanseatic City of Rostock, Germany

Partners of Connective Cities

Deutscher Städtetag

ENGAGEMENT GLOBAL
Service für Entwicklungsinitiativen

SERVICE AGENCY
COMMUNITIES IN ONE WORLD

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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Foreword

The Dialogue Event on "Planning Integrated Solid Waste Management at the Municipal Level" took place from 26 to 28 September 2016 in the Hanseatic City of Rostock. Rostock hosted and co-organised the event, and provided conference rooms in Rostock's city hall. Representatives of the city gave interesting insights into the city's solid waste management strategy and presented innovative projects on how to organise waste management in an environmentally safe and efficient way. They also organised highly informative site visits to illustrate different aspects of the city's waste management system.

The organisers of the Dialogue Event would like to take this opportunity to thank the City of Rostock and the municipal waste management company "Stadtentsorgung Rostock GmbH" for the wealth of information made available to the participants, their warm hospitality and the excellent cooperation prior and during the event.

The Dialogue Event was attended by about 35 urban practitioners from Morocco, Tunisia, Egypt, Italy, France, Austria, Zimbabwe, Albania, and Germany. Two waste management experts respectively from the German Association of Cities (Deutscher Städtetag) and from the German Association of Local Public Utilities (Verband kommunaler Unternehmen e.V.) also contributed to the three-day exchange. Discussions benefited greatly from the vast experience of participants with different regional perspectives. The organisers wish to thank the participants from cities across the world for presenting their case studies, sharing their expertise and contributing to the lively and meaningful discussions during the event.

About this documentation

The following publication documents the main results of the event. It contains a brief introduction to major aspects of Integrated Solid Waste Management and summarises local experiences presented at the event. The report also highlights key outcomes of the peer learning and action planning sessions. Action planning resulted in the development of four project ideas to improve waste management in different cities. These ideas are outlined briefly at the end of the publication.

The documentation also seeks to inform readers about the way Connective Cities works. It describes the approach as well as the methodology used at the event and explains how the initiative supports joint learning, knowledge exchange and municipal cooperation across the world.

We hope you will enjoy reading the report.

Alice Balbo and Alexander Wagner

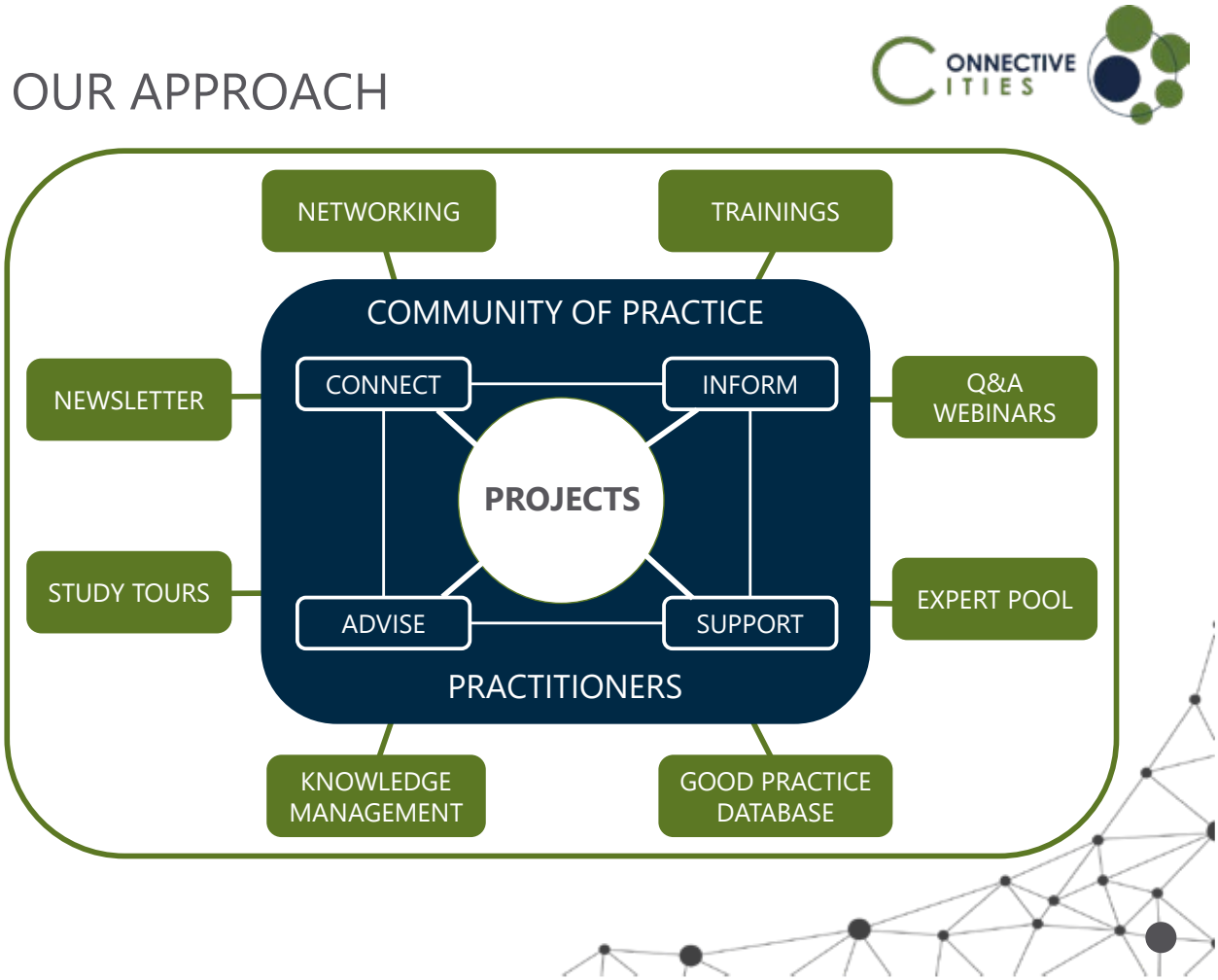
Mr Bouslimi from La Marsa presenting the results of the peer-to-peer consultation

Connective Cities

International Community of Practice for Sustainable Urban Development

Cities play a crucial role in providing infrastructure and vital services to their residents. Municipal authorities shape the living conditions of tens of millions of people globally. Consequently, the 2030 Agenda for Sustainable Development gives a prominent role to urbanisation and cities with the inclusion of a stand-alone goal for cities and human settlements (Goal 11 "Make cities and human settlements inclusive, safe, resilient and sustainable"). However the role of municipalities cannot be confined in one single goal. Local authorities have been playing and will continue to have a crucial role in the process to achieve many of the Sustainable Development Goals.

Many cities across the world face enormous challenges, which are further increased by urban growth. These challenges call for effective and innovative multi-stakeholder approaches. Many solutions already exist at the local level, but they are not widely known and there is a lack of systematic access to practical solutions. Connective Cities seeks to close this gap by mobilising knowledge on the ground and practical experiences with sustainable urban development for joint learning across the world. Connective Cities supports access to international know-how and networks for urban stakeholders. The platform assists with capacity building and



facilitates the development of innovative projects and solutions according to local requirements.

Connective Cities is a project jointly carried out by the German Association of Cities (Deutscher Städtetag), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Service Agency Communities in One World of Engagement Global. The initiative is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

Connective Cities' activities focus on four thematic areas: good urban governance, integrated urban development, municipal services, and local economic development. The platform provides opportunities for local practitioners from cities across the globe to share their expert knowledge and experiences. It identifies examples of good practice and supports peer-to-peer learning as well as cooperation between local actors from different cities.

By organising dialogue events in different parts of the world, Connective Cities facilitates face-to-face exchange and networking opportunities among practitioners from city administrations, the private sector, academia, and civil society. Topics include urban planning and participation, urban management, local development, and green urban economy, among others. Dialogue events create an environment which stimulates the development of innovative ideas and strategies for the solution of local challenges. In many cases, the discussions lead to longer-term forms of knowledge exchange and cooperation among the participating cities. Longer-term projects are further supported by trainings, study tours, project workshops, and virtual discussion forums. The internet platform provides additional information, e.g. on good practices in different thematic areas, and offers a pool of experts for technical support (http://www.connective-cities.net/en/).

"Connective Cities is not a one-way process of learning, but a mutual learning experience between actors from cities of different parts of the world."
Alexander Wagner, Project Manager, Connective Cities

Rostock promotes a bicycle-friendly approach to mobility. As part of this strategy and as an additional service to street cleaning, the city employs a person who is specifically responsible for cleaning the cycle tracks in the city ("Radewegewart"). The employee removes glass, dirt and larger objects and reports damaged cycle tracks. This innovative initiative helped Rostock to win a nationwide prize for providing excellent services to cyclists.

Background, Objectives and Results

Connective Cities organised three workshops on Integrated Solid Waste Management (ISWM) in the past to foster the exchange of experiences and learning processes based on concrete local projects and challenges. The Connective Cities Dialogue Event on Solid Waste Management in the Hanseatic City of Rostock has broadened this knowledge exchange by including actors from new countries and cities.

The Dialogue Event pursued the following objectives:

- To facilitate networking between urban actors;
- To support an application-oriented exchange of experience on good practices in solid waste management based on presentations of the participants;
- To create learning opportunities through peer-to-peer consultations;
- To encourage the formulation of innovative ideas for urban projects in the solid waste sector;
- To foster further collaboration among participating practitioners across two or more municipalities.

Presentations of participants demonstrated a broad variety of aspects and approaches related to the planning and implementation of solid waste management, which were discussed in thematic working groups (see chapter "Local Experiences"). Discussions focused on challenges in implementing different kinds of projects. Participants identified possible solutions to these challenges and discussed their transferability to other regions. Emphasis was given to the specific conditions of the local context which requires tailor-made solutions rather than "one-size-fits-all" approaches (see chapter "Outcome of Peer-to-Peer sessions"). The event also led to the development of four project ideas which can be further refined and implemented in the respective home communities (see chapter "Action Planning").

The waste management company in Rostock "Stadtentsorgung Rostock" uses three waste vacuum cleaners to clean areas on the streets that cannot be reached with other cleaning equipment. The vacuum cleaners are driven by electric battery and carried around on a special pickup truck.

Previous Connective Cities Dialogue Events on Integrated Solid Waste Management:

Practitioners' Workshop: "Solid Waste Management and Recycling", 22 – 24 May 2016, Dead Sea, Swemieh, Jordan

www.connective-cities.net/en/media-centre/documentations/connective-cities-practitioners-in-jordan

Practitioners' Workshop: "Integrated Solid Waste Management in Sub-Saharan African Cities", 2-4 December 2015, Nairobi, Kenya

www.connective-cities.net/en/media-centre/documentations/practitioners-workshop-solid-waste-management

Practitioners' Workshop: "From Waste to Resource – Planning for Integrated Solid Waste Management in Sub-Saharan African Cities", 14 – 17 April 2015, Kinondoni / Dar es Salaam, Tanzania

www.connective-cities.net/en/media-centre/documentations/from-waste-to-resource-integrated-solid-waste-management

Methodology

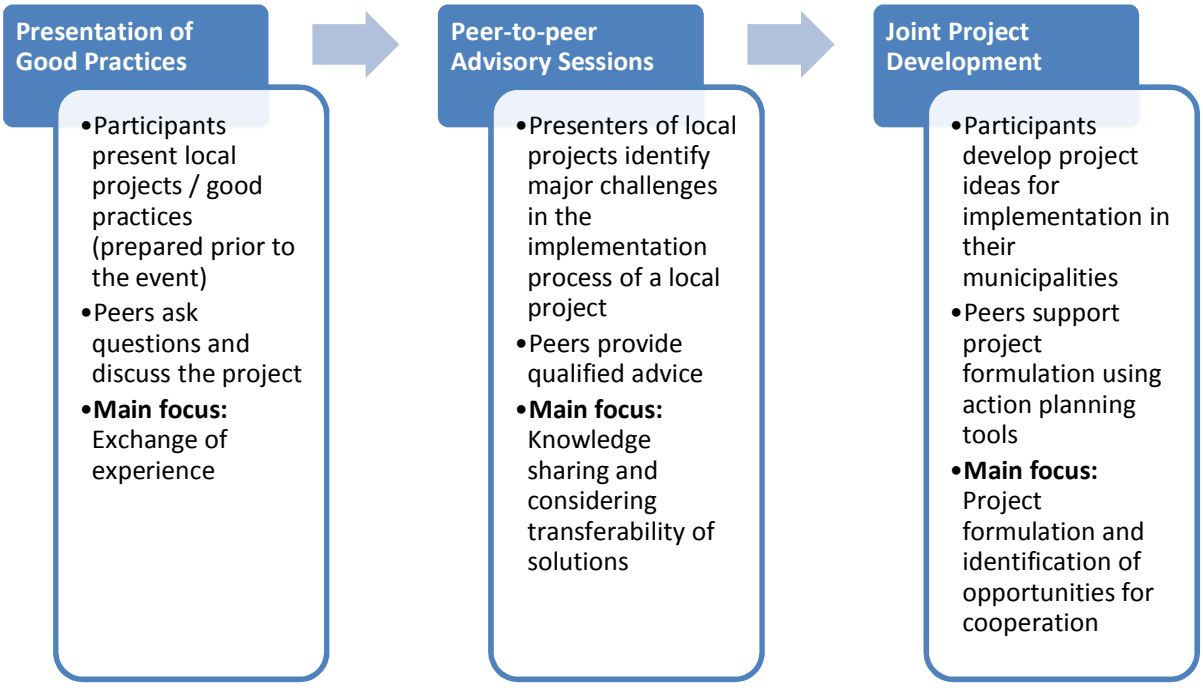
Connective cities – as a community of practice - has developed a methodological approach for dialogue events that is geared towards the needs of participants and supports joint learning. The chosen methodology encourages participation as well as open and practical discussions. Such an approach also supports the development of ideas for future project activities and cooperation.

Participants take already an active role in the preparation of the dialogue events. Prior to the event, they prepare a presentation with a "good practice" or a concrete problem situation from their work environment. The presentations give answers to key questions regarding the institutional background, the approach, the conclusions, and the transferability of the project. The projects are presented in form of posters at the event. The idea is to give an insight into practical actions and challenges on the ground. Site visits organised by the host city underpin the practical relevance of the dialogue event.

Dialogue events are usually structured along four phases with different objectives. The **first phase** serves to **introduce the topic to the participants**. Thus, Holger Matthäus, Senator for Buildings and Environment of the Hanseatic City of Rostock, and Henning Möbius, Managing Director of Stadtentsorgung Rostock GmbH, the municipal waste management company gave an overview of the integrated solid waste management system in Rostock. They informed about approaches, structures and quantities of solid waste management in Rostock. Dr Abdallah Nassour from the University of Rostock analysed the state of integrated solid waste management at the local level in emerging countries. Otto Huter from the German Association of Cities responded to the presentations highlighting the opportunities of using an integrated approach to waste management.

The **second phase** is dedicated to the **exchange of local experience** in working groups based on the presentations of participants. In Rostock, presentations from 14 different cities were discussed in four working groups.

Workshop Phases of Connective Cities Dialogue Events



The presentations displayed a vast variety of approaches applied in solid waste management depending on local preconditions and priorities. All presentations are summarised in the section "Local Experiences".

The **third phase** focuses on analysing specific challenges associated with the implementation of the projects that were presented in the previous phase. In several **peer-to-peer advisory sessions** these challenges are discussed with a view to explore options to solve these problems. The main goal of this consultation process is to gather opinions and assessments from practitioners with different professional knowledge and regional expertise thus deepening knowledge exchange and enabling participants to look at a problem from a new angle. Find out about the results of this phase in Rostock in the section "Outcome of Peer-to-Peer sessions".

In the **fourth phase**, participants **jointly develop project ideas** to improve solid waste management in their municipalities. These project ideas are mapped out in working groups with other colleagues using different action planning tools (problem tree analysis, stakeholder mapping, strategy development). Here again, the project formulation benefits from the diverse knowledge of other peers. Additionally, opportunities for future collaboration between participating experts or cities are explored. At the dialogue event in Rostock, ten project ideas were proposed, of which four were further developed in working groups (see chapter "Action Planning"). After the dialogue event, Connective Cities continues to support participants from municipalities by offering learning programmes, virtual project workshops, information on funding opportunities for inter-municipal cooperation, and expert exchange.

The waste management company in Rostock "Stadtentsorgung Rostock" has eight underground containers for the collection of glass and paper. They are located in areas of the city were space is scarce or the cityscape should not be spoiled by garbage containers. The underground containers have a size of up to three cubic metres and are emptied up to four times a week by one person with a special garbage collection vehicle. In addition, the city uses approximately 300 conventional street containers for the collection of glass.

Discussion among participants in working groups

Introduction to the Topic

Waste management is one of the most important services that municipalities provide to their citizens. Public waste management involves overcoming technical, financial and political challenges, but offers local authorities also the opportunity to increase their credibility towards their citizens.

The problems faced by many municipalities in delivering appropriate waste management services are linked to the general process of urbanisation. As countries urbanise, production and consumption patterns change, which in turn results in increasing amounts of waste. Poorly managed waste has a negative impact on health, local and global environment, and the economy. Successful waste management, on the other hand, can not only reduce negative impacts, but may also unlock potential in terms of enhanced resource-efficiency and increased employment. Municipal solid waste management is often the largest single budget item and one of the largest employers in cities.

There are several ways of managing waste. Depending on local circumstances, practices vary and are utilised to a greater or lesser extent. From a sustainability angle, preventing waste is the most preferred option, whereas waste disposal is the least preferred choice. In general, solid waste management entails the following activities:

1. **Prevention and Reduction**, e.g. through consumer education and improved product design;
2. **Waste collection**, e.g. door-to-door collection or through drop-off collection points;
3. **Reuse** of waste, e.g. glass bottles for refilling;
4. **Waste separation** to enable recycling processes, e.g. glass, paper, metal, organic waste, and recycling to obtain secondary raw materials from solid waste;
5. **Recovery** of resources from waste, e.g. chemical or biological processes recovering energy such as biogas from waste;
6. **Disposal** as the ultimate treatment of waste that cannot be recycled, e.g. incineration and disposal in landfills.

Another important activity related to municipal waste management is the **cleaning of streets and public places**, which has an effect not only on public health and security, but also on local economic development for example in the tourism sector.

Solid waste management touches many technical aspects like organising collection systems, setting up an economically sound fee system, introducing recycling processes and disposing waste in line with environmental standards. However, the cooperation with different stakeholders as well as the institutional and policy framework are also important issues to consider. This means that there is not just one universal solution to waste management. Rather, effective and sustainable waste management systems combine successfully different options available according to the local context.

"Waste management has to take into account the specifics of each country, e.g. the legal system, financing opportunities such as the availability of long-term loans, and the responsibilities of local authorities."

Otto Huter, German Association of Cities,
Senior Advisor for waste management and water

A framework which captures this complexity is the **"Integrated Sustainable (Solid) Waste Management"** (ISWM) framework. It distinguishes three dimensions which need to be considered when developing or reforming a waste management system:

1. **Stakeholders:** Local authorities, civil society, service users, private sector (formal and informal), funding agencies;
2. **Elements of the waste system:** Generation and separation, collection, transport, reduction, reuse, recycling, recovery, treatment and disposal;
3. **Interrelated Aspects:** technical, environmental / health, financial / economic, socio-cultural, institutional, policy and legal framework.

Although the local context ultimately determines structure and elements of a solid waste management system, some general **recommendations** can be drawn from experiences worldwide:

- Managing waste successfully requires the active involvement of residents;
- Financial sustainability is an important aspect of a functioning waste management system and a crucial challenge for many cities. To address this aspect, potentials for cost reductions should be identified and cost recovery should be increased. Private sector participation can be a viable option to improve cost-effectiveness, but needs to be

complemented by sufficient management capacity in the municipal government;
- Effective waste management needs a strong and transparent institutional framework, reliable data on the quantity and composition of solid waste, and transparency in decision-making, e.g. regarding fee structures and procurement.

Integrated Solid Waste Management in the Hanseatic City of Rostock

Solid waste management in Rostock is handled by the "Stadtentsorgung Rostock GmbH", a municipally owned waste management company. The company employs about 160 people and has an annual turnover of 15 million EUR. The company's operations are financed by user fees. The company's activities include the collection and transportation of household and bulky waste, street cleaning and emptying of public trash cans, and the collection and processing of organic waste, among other things. The company is also responsible for the charging of fees. Every household is charged a fee.

Approximately 100,000 tons of household waste are disposed of annually in Rostock. Almost all household waste is either recycled or used to recover resources. To fulfil its many tasks, "Stadtentsorgung Rostock" operates a vehicle fleet with about 130 vehicles. Larger or hazardous waste (like household appliances, e-waste, oils and solvents, and construction waste) is collected and separated in four recycling centres. Garden waste and tree cuttings are processed in a composting plant, which sells the compost afterwards. Paper and cardboard as well as lightweight packaging are also recycled by other enterprises. Residual waste is treated in a mechanical-biological processing plant. The plant produces biogas through the fermentation of organic parts of the residual waste. Only a small amount of waste that cannot be recycled or recovered ends up in an incineration plant.

An important aspect of the company's work is public relations, which includes awareness raising (e.g. battery collection campaigns), online presence, cooperation with the media, and sponsoring of social and sports activities.

„Germany has strong cities. Our strength is partly rooted in our municipal companies. They provide public services to our citizens, e.g. in the water, energy, transport, housing and waste management sectors. These companies create profits which are reinvested in the cities. The city of Rostock earns 50 million EUR annually to finance other municipal services that need funding."

Holger Matthäus, Senator for Buildings and Environment of the Hanseatic City of Rostock, Germany

„We consider our company to be a partner of the city, particularly in environmental protection. We seek to provide the best service to the residents for the most favourable rates possible. We also sponsor small youth and social projects and use these opportunities to educate the youngsters on how to reduce and treat waste in an environmentally-friendly way."

Henning Möbius, Managing Director, Stadtentsorgung Rostock GmbH, Germany

Many **cities in middle- and low-income countries** face difficulties in providing adequate waste disposal services. The reasons for this are manifold. Frequently, laws and regulations for the treatment of waste are missing or are not sufficiently implemented. There is also a lack of practical local know-how among decision makers. For example, technical solutions are suggested but these are not feasible under local conditions. In addition, waste management services are underfinanced and long-term strategies are not in place. Data on quantities and composition of waste are missing thus making it difficult to choose adequate treatment strategies. Furthermore, many municipalities lack capacities and technology to comply with environmental protection standards. Only a small percentage of the collected waste is recycled or recovered. Very often, waste ends on unsecured landfills or is not even collected, but dumped near residential areas with adverse consequences for human health and the environment. In many countries, the informal sector is relatively important for the collection and recycling of waste. However, working conditions and social security for those working in this sector are generally poor.

Possible solutions to improve municipal waste management in middle- and low-income countries include:

- Assisting decision makers with know-how from academia and the private sector;
- Enhancing vocational training for staff of waste management services;
- Raising awareness among residents;
- Increasing producer responsibility (industry) for waste disposal;

- Using waste fees to improve cost coverage and sustainability of waste management systems;
- Improving the separation of recyclable materials;
- Introducing the separation of "wet" (food and organic waste) and "dry" (recyclables) waste at source (by the waste producers);
- Supporting profitable waste processing methods (composting, Mechanical Biological Waste Treatment, Refuse Derived Fuel Treatment);
- Establishing recycling / waste management centres in cities;
- Creating decent employment opportunities in the waste management sector.

Two teams with several employees are responsible for clearing weed from streets with cobblestones and from traffic islands in Rostock. The removal of weed also helps preventing damages to road surfaces. A special machine for the eradication of weed is used. That way, the use of chemicals can be avoided.

"Waste management needs decision-makers. And decision-makers need support. Numerous objectives regarding waste management in emerging countries can be achieved through targeted knowledge transfer. Let us start small – in mosques, schools, and universities. And let's be realistic about time frames. Improving a waste management system can take up to 20 years."

Dr Abdallah Nassour, Associate Professor,
Department of Waste Management and Material Flow,
University of Rostock, Germany

For further reading:

Connective Cities Dialogue Event on «Planning integrated solid waste management at the municipal level", Concept Paper, 2016;

www.connective-cities.net/fileStorage/Veranstaltungen/Dialog-veranstaltung_Rostock/Concept_Paper_SWM_Connective_Cities_Rostock.pdf.

D+C Development and Cooperation, Garbage Challenges, Vol. 43, 2016; (D+C is an international journal published on behalf of Engagement Global and the German Federal Ministry for Economic Cooperation and Development)

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World Bank: What a Waste – A Global Review of Solid Waste Management, Washington 2012;

http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1334852610766/What_a_Waste2012_Final.pdf.

UN-Habitat: Solid Waste Management in the World's Cities, London / Washington 2010;

http://unhabitat.org/books/solid-waste-management-in-the-worlds-cities-water-and-sanitation-in-the-worlds-cities-2010-2.

Local Experiences

Working Group 1:

The Sustainable Mediterranean Old Towns (SMOT) Project: Implementation of an Eco-Point in the Old Town of Sfax, Tunisia

The Sustainable Mediterranean Old Towns (SMOT) Project is co-funded by the European Union. It focuses on the development of waste management projects in historical centres of towns in different Mediterranean countries. In Sfax, two waste disposal points (eco-points) are being established as part of a pilot project that aims at exploring disposal methods for different kinds of waste (e.g. household waste, waste produced by small businesses like artisans, merchants, etc.). Activities include the installation of containers and equipment, the tiling and painting of the sites and the installation of plumbing, power and fire protection facilities.

"The site visits in the historic centre of Rostock were very interesting. For example, we have a problem with weed which is eradicated by hand. The machinery used in Rostock to eradicate weed as well as the waste vacuum cleaner would be very useful and improve street cleaning."
Mr Mondher Haddad, Director, Department of Environment and Waste Management, City of Sfax, Tunisia

The Integration of the Informal Sector into Municipal Waste Management in La Marsa, Tunisia

The project supports the integration of informal workers engaged in the collection of waste (the so-called barbéchas) into the formal municipal waste management system. The project seeks to improve the living and working conditions of the informal workers and the quality of waste separation in the city. A key element of the project was the creation of an association of workers active in the informal waste management sector. This improved both their legal and their social status. For example, they are now equipped with protective clothing and trolleys and have improved access to health-related services and micro-credits.

"Stadtentsorgung Rostock" operates about 130 vehicles, of which 18 vehicles are used for the disposal of household waste. The company owns (via ownership of SR Technik GmbH, a subsidiary company) a garage for the maintenance of these vehicles. On a small scale, private cars are also repaired in this garage. Income is also generated from commercial cleaning assignments..

"It was a challenge bringing informal workers together and convincing them to organise themselves in an association. Many of them were distrustful of public authorities. In the end, civil society organisations facilitated the process."
Mr Sofiene Bouslimi, Coordinator of the Department for Environmental Affairs, City of La Marsa, Tunisia and Coordinator of the National Waste Management Network in Tunisia (Wama-Net)

Further information:

www.co-mun.net/tunisie/les-reseaux-thematiques/les-reseaux-thematiques

Waste Separation in Benslimane, Morocco

In Benslimane, the city council opted for the delegation of waste collection and disposal to a private company to make the service more professional, efficient and transparent. At the same time, the council decided to engage citizens more effectively in waste separation through education and awareness raising campaigns. Waste separation and collection is organised in form of voluntary disposal of recyclable domestic waste to containers in the street. A number of challenges are impeding the progress. These include a lack of infrastructure, insufficient communication with citizens and a lack of environmental awareness among residents.

"When we were managing the service ourselves, we had only ten employees. Now we have 80 people working in waste management and we have more and better equipment. But the service is also expensive for the municipality. It takes two-thirds of our budget. In addition, charges paid by the residents have tripled. However, it was the right decision because the city is now much cleaner than before and it is much easier to monitor service delivery."

Mr Mohammad Sajid, Officer in the Department of Waste Management, City of Benslimane, Morocco

Integrated Waste Management and Citizen Mobilisation in Dunkirk, France

The Urban Community of Dunkirk set out to improve solid waste management by reducing waste production, increasing recycling rates, and reducing incineration and the utilisation of landfills. To achieve these objectives, citizens need to be involved on a broad basis. This is being done, for example, through door-to-door visits. The door-to-door visits assist with the quality control of waste separation (examination of content of recycling bins) and help educating residents.

"To me it is very important to be in touch with the users of our services, because they let me know about their experiences and come up with their own ideas on how to improve services and even on how to reduce waste."

Mrs Angélique Delforge, Coordinator Door-to-Door Communication for the mobilisation of citizens, Urban Community of Dunkirk, France

Working Group 2:

Integrated Solid Waste Management Systems – A Framework for Success in Düsseldorf, Germany

Usually, the planning process of a municipal integrated solid waste management system is divided in five phases:

1. definition of problems and objectives;
2. identification of framework conditions and collection of data (e.g. waste characteristics, waste treatment infrastructure);
3. analysis and forecasting of future development for the next ten years (e.g. population growth, consumer behaviour, changes in laws);
4. drafting of concept and action plan including measures for monitoring and evaluation;
5. political decision by the municipal council.

Developing an integrated waste management concept is imperative for each city. Concepts should pay attention to local requirements and foster regional integration. Additionally, waste management should be regarded as a process that constantly needs to be improved and adapted in line with changing realities on the ground. Other success factors include getting key actors to support the project and to agree on tangible targets, and motivating residents to support and to participate in waste management.

„Waste management always includes thinking about social and political aspects because everybody is affected by it. Waste management offers the chance to include every resident thus supporting participation processes. Make the number of citizens participating in waste management activities the yardstick of your success. The more people you involve, the better."

Mrs Gabi Schock, Corporate Communications Department, Stadtwerke Düsseldorf (Public Utility Company), Düsseldorf, Germany

Integrated Solid Waste Management in Mohammedia, Morocco

Morocco has a national waste management plan that aims at professionalising the waste management sector, constructing landfills in line with environmental standards and increasing the amount of waste that is recycled or recovered. As part of the implementation of this strategy at local level, the city of Mohammedia embarked on a pilot project to introduce the separation of waste

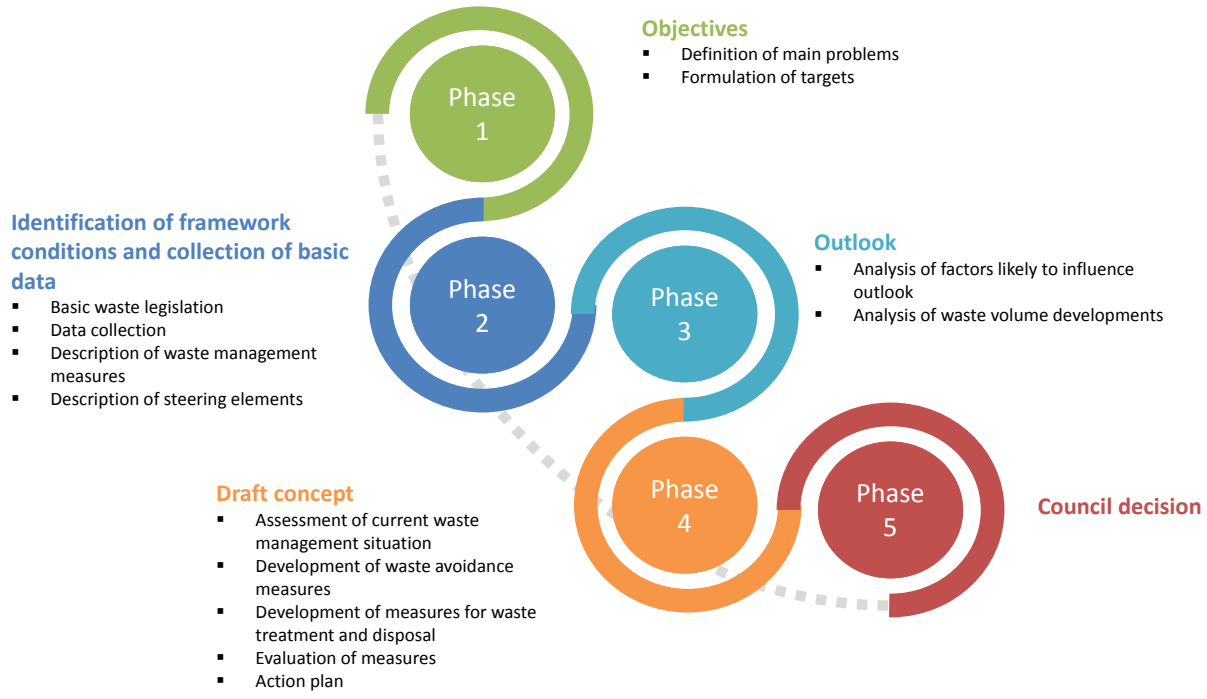
at its source (glass, paper and cardboard, organic waste, among other things) in two schools and two neighbourhoods. Activities included awareness raising programmes to educate residents, waste collection and recycling or recovery of waste on a commercial basis. So far, results of the project have been mixed due to technical, economic and social challenges. The biggest problem, however, was how to mobilise residents and to convince them to support the project.

„The real challenge for municipalities introducing waste separation at its source is the mobilisation of the residents. Their active and sustainable involvement is crucial for extending waste separation to other neighbourhoods."
Mrs Nazha Bassou, Officer in the Department of Waste Management, City of Mohammedia, Morocco

Municipal Waste Management Plans (PCGD) - Good Practice in Tunisian Municipalities and its Application in Bizerte

The Municipal Waste Management Plan (PCGD) is a tool that improves local governance and municipal planning of services in the waste management sector. GIZ is supporting the development of PCGDs in several cities in Tunisia to optimise waste management and to promote jobs in the green economy. To this end, handbooks and training materials were developed, staff members of municipalities have been trained as multipliers and pilot projects have been initiated. For example, in Bizerte containers were set up and about 450 households are participating voluntarily in a waste collection system three days a week. GIZ also supports a waste management network of municipalities in Tunisia (Wama-Net) which has so far 40 members. The city of Bizerte is one of them.

INTEGRATED SOLID WASTE MANAGEMENT SYSTEMS



© Gabi Schock

„Introducing a Municipal Waste Management Plan helped us to achieve things, e.g. a pilot project to increase the frequency of waste collection. However, changes and upheavals related to the revolution slowed progress. But it is still important to have the plan, because it sets strategic goals and provides a different perspective to the day-to-day business."

Mr Lotfi Bousbih, Director City Cleaning, City of Bizerte, Tunisia

Further information:

www.co-mun.net/comun/unsere-themen/abfallwirtschaft

Waste Collection Systems in the Hanseatic City of Rostock, Germany

Rostock collects waste from private households using various waste containers equipped with a chip that automatically identifies the household the bin belongs to. There are separate bins for the collection of light packaging materials, paper and cardboard, organic and food waste, and residual household waste. Households with larger properties can also opt for home composting. Residents can use a total of 107 large containers in the city for the disposal of larger amounts of waste, e.g. paper, and drop larger, bulky items at one of the four existing recycling centres. Waste glass is only collected through a drop-off system using large containers at designated collection points where glass is separated by colour. Illegally dumped waste can be reported to an environmental telephone hotline or on a website that supports citizen participation in Rostock (www.klarschiff-hro.de/index.php).

"Residents can report problems with waste on our website "Klarschiff". They can also monitor on the website when and how their complaints are being processed by the city department. The city department owns a special pickup truck to deal with complaints made to the website. Citizens can also submit complaints to the website which fall under the responsibility of other city departments."

Mrs Sylke Schütt, Officer for public relations and waste-related information services, Department for Environmental Protection, Hanseatic City of Rostock, Germany

Working Group 3:

Economic Instruments in Solid Waste Management[1]

Economic instruments in waste management are aimed at financing all waste management activities and generating revenues to cover all costs involved. Well-designed economic instruments also support the cost efficiency of solid waste management systems and improve the resource efficiency (avoidance, recovery, reuse and recycling).

However, in many municipalities waste management is not financed by fees but through the general budget of the municipality thus making it difficult to operate on a cost-covering basis. Waste management systems are often underfinanced because the real costs of the system are not known and economically disadvantaged households cannot afford to pay charges. Experiences show that efforts to modernise waste management systems are more likely to be successful, if:

- Political leaders are willing to support changes;
- Awareness campaigns increase the interest of citizens;
- Waste management activities can be financed;
- Environmental laws and law enforcement mechanisms are in place;
- A focused and cautious approach is used and a mix of instruments for financing and cost recovery is applied.

Fee Structure for Local Waste Management in Rostock, Germany

In 2016, the total costs of waste disposal in the city of Rostock were 15,234,948 EUR. Those costs are financed through waste disposal charges that every household needs to pay by law. The waste disposal charge in Rostock is divided into a charge for the waste bin and a charge for recycling. The charge for the waste bin covers the disposal of residual waste from households and businesses. The basis for the calculation is the bin volume and the number of times the bin is emptied. The charge for recycling covers the disposal of domestic waste through recycling (paper etc.). This charge is based on a lump sum per capita for each person living in a household.

1 Mr Evermann from AVG Köln (Cologne, Germany) could not be present in Rostock, but handed in a presentation prior to the event.

"Charges are more accepted, if they are calculated in a transparent manner. We try to set incentives with our charges. By dividing the fee into two parts and calculating the fee for residual waste based on the amount of waste produced by a household, residents are getting an incentive to better separate the waste thus reducing the amount of residual waste they have to pay for."

Mr Ronald Lange, Officer, Department of Waste Management, Hanseatic City of Rostock, Germany

Ronald Lange presenting a good practice from the Hanseatic City of Rostock

WE-NET: Working for Environmentally Educated Towns

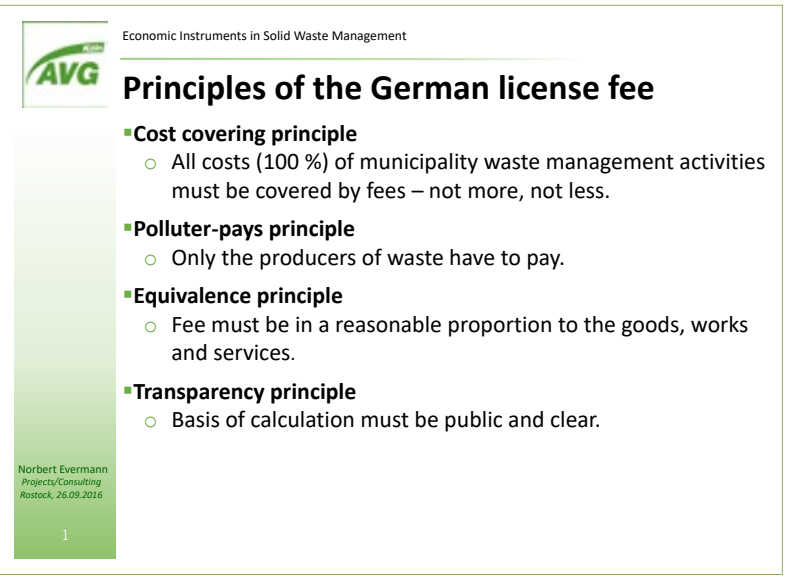
The project WE-NET: Working for Environmentally Educated Towns is funded by the "Europe for Citizens" Programme and coordinated by the Municipality of Thiene. It is aimed at promoting the separation and recycling of waste by establishing a network of municipalities and civil society associations from across Europe to exchange knowledge, experience and good practice on the topic. Thiene, a municipality with 24,000 inhabitants in Italy, introduced waste separation successfully over the past 20 years. It used participatory planning approaches thus recognising the needs of the citizens already in the planning stage. For example, the authorities provided multilingual information as well as bins activated by electronic keys distributed to participating households to facilitate the separation of waste. Great attention was also paid to the identification of collection points since citizens prefer not to have them too close to their homes. Information campaigns were conducted constantly. The example shows that involving citizens from the start increases their support to waste separation. This is a crucial precondition for establishing an economically sustainable waste management system.

"Involving citizens in the decision-making process concerning waste management is key to ensuring that all processes will be successful. People need to feel listened to and empowered in order to buy into the process and to avoid a 'not in my backyard' attitude."

Mrs Irene Zanetti, Communication Officer, ALDA - European Association for Local Democracy – Representing the consortium WE-NET, led by the City of Thiene, Italy

For further information:

www.alda-europe.eu/newSite/project_dett.php?ID=82



© Norbert Evermann, Project Manager, AVG Köln, Cologne, Germany

Planning Integrated Solid Waste Management at the Municipal Level in Albania

GIZ is starting a programme to support the development of Integrated Solid Waste Management systems in Himara, Rrogozhina and Peqin in Albania to reduce the carbon footprint of these cities. Main aspects of the support will include the modernisation of infrastructure (e.g. waste recycling, composting) in an affordable way and environmental education, particularly in schools, to mobilise and to engage communities. It is also expected that the tourism sector will benefit from a cleaner environment. The programme seeks to support technology and knowledge transfer, also through the cooperation between German and Albanian municipalities.

"Supporting Integrated Waste Management at local level requires encouraging leadership, supporting capacity development, and awareness raising. Each of these aspects calls for special efforts based on the local situation, but no approach will work alone without the others. Any support has to include these three dimensions."

Mr Hermann-Josef Plumm, Programme Director, Climate-friendly Integrated Solid Waste Management, GIZ Albania

For further information:

https://www.giz.de/en/worldwide/294.html

Working Group 4:

Waste Recovery as a Micro-Enterprise

N.O.Y.A.C.E. (Norton Youth Advocacy for a Clean Environment) is a civil society organisation and small scale enterprise that is engaged in waste collection and the cleaning of public spaces in Norton, Zimbabwe. It also sensitises the youth on issues related to waste management and organises information campaigns. It employs seven people who collect waste from supermarkets and local dumping sites, and sell it after separation. However, waste collection is labour intensive and does not generate much income. To make waste collection and recycling more profitable, modern machinery and better technology are needed as well as support from the government and local authorities. In addition, ownership of community members and training of waste collectors need to be increased.

"With a youth unemployment rate of 82% in my country waste management becomes our chance. Most of my friends are not working and I was also not working previously. But then I thought: I want to contribute to the change that I want to see. We wanted to unlock the value in waste."

Mr Regis Musarurwa, Founder, Norton Youth Advocacy for a Clean Environment (N.O.Y.A.C.E.), Zimbabwe

Waste Management in Munich, Germany

Waste management in Munich started in 1891 mainly to protect citizens from epidemics. Initially, handcrafted bins and horse cards were used to collect the waste. Most of the waste was organic and preselected. Nowadays, AWM Munich is a successful model company owned by the city of Munich with 1,477 employees. Its operations are based on the principles of sustainable waste management.

"Currently, we work towards collecting more organic waste and to avoid waste production. One example is the nationwide introduction of a minimum charge for plastic bags. I think there is still a lot to be done. The City of Munich also shares expertise on waste management with other cities, for example its twin city Harare, the capital of Zimbabwe. We can offer knowledge exchange in the areas of waste separation, composting, maintenance of trucks, and public awareness campaigns."

Mr Kuno Kübler, Officer for Hazardous Waste and Water Protection, AWM, Munich, Germany

Refuse Derived Fuel as Part of the Integrated Management System of Solid Waste in Alexandria Governorate, Egypt

The Alexandria Governorate supports a RDF (Refuse Derived Fuel) project to meet both the challenges of growing amounts of waste and increasing energy demand. Waste is converted into RDF (Refused Derivative Fuel) and used as an alternative fuel in two cement plants (Alexandria Cement Titan and Al-Ameriyah Cement). The project contributes to reducing the amount of waste transferred to the El-Hamam landfill, where most of the waste is disposed, thus diminishing the financial expenses for managing waste.

"The main drivers of the project were the prospect of easing the financial burden of waste management, the lack of energy in 2012 and the private company that was interested in investing in the development of RDF."

Mr Akram Abd El-Moaty El Dakak, General Director of the Environmental Unit, Alexandria Governorate, Egypt

Integrated Waste Management in Vienna, Austria

The City of Vienna is responsible for the entire chain of waste management: collection, treatment, and disposal. The city's approach in waste management is threefold: to avoid producing waste, to collect recyclables separately, and to recover energy through the thermal treatment of residual waste. The waste management services collect and treat approximately one million tons of waste per year.

One third of this waste is collected separately. No waste goes directly to the landfill for disposal. The city uses about 432,000 bins for collection and 4,300 drop-off collection points for recyclable waste. It operates almost 300 collection vehicles and 19 recycling centres where different recycling methods are applied. For example, garden waste is processed into compost which is then sold again.

"What is special about Vienna is that we own the full range of waste management services along the value chain. We take care of waste 'from the cradle to the grave'. That way, the city secures its influence on waste management."

Mrs Martina Ableidinger, Responsible for Foreign Affairs in Department 48 (waste management, street cleaning, and vehicle fleet), City of Vienna, Austria

Four recycling centres support the collection and separation of bulky or hazardous waste generated by households in Rostock. The waste is either collected or can be dumped by residents at the centres. Waste separation at the centres include batteries, oils and solvents, green waste, construction waste, paper and cardboard, and scrap metal. This service is covered by the waste charges except for the disposal of tyres and construction waste, for which an extra fee has to be paid. Electrical appliances are also collected at the centres. However, due to the principle of shared product responsibility, the responsibility for the disposal of electrical appliances rests with the producing companies. Green waste is processed into compost at a composting plant and sold at the site.

Focus and Outcome of Peer-to-Peer Sessions

The peer-to-peer working groups focused on analysing specific challenges of projects presented by the participants, and on identifying possible solutions to these problems. As participants are all qualified experts in their field, the level of the discussions was generally high, and the peer-to-peer approach enabled participants to include different perspectives in future problem-solving strategies.

Participants were asked to present "real" challenges from their own work context. Discussions were structured along four steps: 1. Participant explains the case / challenge, 2. Peers ask questions for better understanding, 3. Peers present ideas regarding problem-solving strategies, 4. Participant evaluates suggestions and commits himself / herself to implement three selected ideas / strategies in a chosen time frame.

A key aspect of these sessions is confidentiality. The discussions benefit from an open atmosphere where participants are able to talk freely about different issues without fearing negative repercussions. For this reason, this chapter provides only a summary of identified challenges and problem-solving strategies without linking them to a specific local context.

Challenge: Setbacks in planning process

- Set realistic (longer-term) time frames;
- Realise quick gains and identify steps which can be implemented quickly;
- Adapt and improve plans continuously.

Challenge: Low rates of waste separation

- Start strategic planning with an analysis of the territory and the recycling sector;
- Integrate steps that are easy to implement and quick-wins in strategy;
- Start with one particular form of waste (e.g. glass, paper), identify largest / most relevant producers;
- Identify opportunities for employment and local economic development;
- Integrate the informal sector, e.g. support associations of waste collectors, lobby for informal waste collectors at national level;
- Initiate pilot projects / recycling centres in selected districts;
- Establish a network with surrounding communities;
- Communicate with residents (see next point).

Challenge: Lack of motivation to separate waste and of environmental awareness

- Conduct opinion polls / surveys / face-to-face interviews with users;
- Attach easy-to-understand information on bins;
- Identify supportive stakeholders (e.g. schools, house owners);
- Integrate volunteers in activities;
- Identify neighbourhoods which are likely to be supportive;
- Conduct participatory appraisals;
- Create incentives / competition (e.g. competition for catchy slogans for waste separation);
- Develop innovative public relations strategies (e.g. identifying role models / advocates / ambassadors; special events, e.g. zero-waste events, street festivals, art exhibitions on waste and recycling; social media);
- Promote innovative recycling strategies (supermarket for used products, flea markets, up-cycling);
- Support education campaigns in schools and kindergartens involving teachers and teacher associations;
- Strengthen law enforcement.

Challenge: No integration of informal sector in waste management

- Improve relationship between citizens and waste collectors, e.g. collaboration with schools;
- Conduct a census of waste collectors;
- Support the establishment of associations of informal workers in the waste management sector and facilitate meetings with decision-makers;
- Lobby towards policy makers for recognition of profession, facilitate meetings with associations of people working in the informal sector;
- Suggest subsidies to associations by recycling companies;
- Facilitate access of workers to public services (health, education, etc.).

Challenge: No facilities to treat e-waste and hazardous waste

- Conduct in-depth data collection that includes technical as well as social aspects;
- Establish small shops (e.g. shops that sell telephone cards or have solar panels to charge a phone) as collection and information points;
- Enhance technical support for recycling and disposal through joint projects with universities, donor agencies and the private sector;
- Initiate campaigns to raise awareness and to achieve behavioural change;
- Develop strategies to include the informal sector.

Challenge: Overcoming "institutional blindness" in administration responsible for waste management

- Initiate discussions with team leader;
- Identify success models in other cities;
- Initiate a working group with like-minded colleagues;
- Establish a unit for strategic thinking;
- Support training of higher management;
- Suggest a review of policy strategy and vision of the company.

Residual waste is treated in a mechanical-biological processing plant in Rostock. The process starts with the filtering of metal, glass and stones from the waste. After that, the waste is shredded and separated into plastics and biological waste. The plastic is utilised for energetic recovery. The biological waste is fermented to produce biogas. 240 cubic meters of biogas can be obtained from one ton of residual waste. The biogas is partly used for the generation of power and heat and partly further processed into bio natural gas. All in all, the processing plant produces twice the amount of energy that is used to operate it.

Group discussion during the peer-to-peer consultation

Action Planning and Next Steps

On the last day of the Dialogue Event participants developed four project ideas, which were further discussed in working groups using three action planning tools (problem tree analysis, stakeholder mapping, strategy development). The working groups drew up preliminary action plans by formulating the main objective of the project and identifying key activities as well as the support needed to implement the project idea.

In this session, participants changed their perspectives and focused on problem solving strategies based on the challenges identified in the previous sessions. The joint development of project ideas together with other colleagues helped to create fresh ideas and new approaches. Additionally, opportunities for future collaboration between participating experts or cities were explored.

1. Project: Up-cycling project for young people in Thiene, Italy

Objective: To increase the awareness of young people on resources and waste and to promote respect for resources and waste among young people

Activities: The main target group of the project are young people. To tailor the project according to their needs and interests, it is necessary to involve them already in the planning process. Therefore, first activities will include initiating a dialogue with youngsters on goals, name, logo and the communication strategy of the project. At the same time, research will be conducted, e.g. on products produced in the city suitable for up-cycling as well as on possible long-term partner institutions. Those may include private sponsors and waste management companies for collaboration and exchange of experience. It is important to think about the sustainability of the project (e.g. long-term partnerships) right from the start. Next steps will encompass developing a communication strategy (e.g. video produced by young people), a call for artists interested in collaboration, and a high profile kick-off event to inform residents.

Necessary support: To be successful the project needs skilled youngsters willing to buy into the idea and artists or artisans interested in participating in the implementation. The project would benefit from role models who support the project in public. Necessary is also a budget tailored according to the results of the consultation process and support from the municipality, e.g. through the provision of infrastructure.

2. Project Title: Disposing E-waste in Alexandria, Egypt

Objective: Collection, reuse and recycling of e-waste according to international standards

Activities: Main activities to implement the project will include research and building a database for e-waste, e.g. cell phones and computer equipment. After that, a project description and a business plan will be developed. Finally, a kick-off meeting with major stakeholders will be held (e.g. universities, experts, interested private sector companies, local authorities).

Necessary support: An important precondition for a successful implementation is establishing partnerships with universities, research institutions and international organisations active in the field of e-waste. Additionally, further collaborations with telecommunication companies and the Department of Health Affairs in the Alexandria Governorate as well as technical experts have to be initiated. The project would also benefit from knowledge exchange with cities in Germany that have developed good practices with managing e-waste.

3. Project Title: Amazing Bizerte, Tunisia

Objective: Reduction of organic waste

Activities: Steps for implementation will include an event, e.g. workshop, to bring stakeholders together, the conduction of a feasibility study and the collection of data, e.g. on the quality of organic waste. To introduce the separation of organic waste successfully, a communication strategy needs to be developed and ideas to involve the local population need to be elaborated, e.g. through awareness campaigns. Finally, a composting plant needs to be set up which will be accompanied by a wide range of other activities such as the training of staff.

Necessary support: Ensuring political support and integrating major stakeholders like universities, schools, mosques, and NGOs are crucial success factors for the project. In addition, it is essential to get the support of the local population.

4. Project Title: Waste Recycling in the Construction Sector in Sfax, Tunisia

Objective: Reuse waste from the construction sector

Activities: Implementing the project will encompass conducting a feasibility study and classifying the waste on the basis of national plans from the National Authority. Further, the involvement of important stakeholders has to be guaranteed and the infrastructure for the reuse of waste has to be built.

Necessary support: Important elements for a successful implementation will include the availability of adequate technical solutions and financial donors. It is also necessary to involve the municipality and different stakeholders like construction companies. Another aspect is getting access to expertise to develop a communication strategy.

Rostock finances daily beach cleaning in its attractive tourist centre, Warnemünde. Employees use a special beach cleaning machine to filter the sand on the beach. All in all, beaches in Warnemünde are not very polluted since marine litter does not pose a big problem and environmental awareness among tourists is rather high. Cigarette filters and seaweed are the main items being sifted out by the machine.

Follow-Up Support

Connective Cities provides direct follow-up support for project planning and further development of project ideas in the following ways:

- Virtual networking and further knowledge exchange through the website and webinars;
- Linking experts from the Connective Cities' expert pool with interested cities (in some cases funding for expert advice can be made available);
- Providing support for moderating stakeholder meetings;
- Sharing information on funding opportunities for collaborations between cities and facilitating contact to funding institutions.

The Service Agency Communities in One World of Engagement Global provides different funding opportunities for the implementation of municipal cooperation projects between German and international municipalities. Under the 'Partnership Projects for Sustainable Local Development' (Nakopa[2]) programme German municipalities can apply for financial support for development projects with municipalities in emerging and developing countries. Small scale projects and first exchange opportunities to establish municipal cooperation can be supported through a fund for small projects.[3] Get in touch with the Service Agency for further information on these funding opportunities.

2 For further information: https://skew.engagement-global.de/unterstuetzung-durch-nakopa.html (information in German only).

3 For further information: https://skew.engagement-global.de/kleinprojektefonds.html (information in German only).

List of Participating Institutions

- Abfallwirtschaftsbetrieb München (AWM), Waste Management Services of the City of Munich, Germany
- Abfallentsorgungs- und Verwertungsgesellschaft Köln mbH (AVG), Waste Management Company Cologne, Germany
- Alexandria Governorate, Egypt
- Deutscher Städtetag (Association of German Cities), Berlin, Germany
- City of Benslimane, Morocco
- City of Bizerte, Tunisia
- City of Mohammedia, Morocco
- City of La Marsa, Tunisia
- City of Sfax, Tunisia
- City of Vienna, Austria
- Entsorgungs- und Verwertungsgesellschaft mbH (EVG mbH) Rostock, Germany
- enviMV e.V., Germany
- envitecpro GmbH, Germany
- European Association for Local Democracy (ALDA), Belgium
- GIZ Albania
- Hanseatic City of Rostock, Germany
- Norton Youth Advocacy for a Clean Environment, Norton, Zimbabwe
- Regional Environmental Centre (REC), Albania
- Stadtentsorgung Rostock GmbH, Municipal Waste Management Company Rostock, Germany
- Stadtwerke Düsseldorf (Public Utility Company), Düsseldorf, Germany
- University of Rostock, Germany
- Urban Community of Dunkirk, France
- Verband kommunaler Unternehmen e.V. (VKU), German Association of Local Public Utilities, Berlin, Germany

The participants of the Connective Cities dialogue event in front of Rostock's city hall

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Connective Cities is a joint project of
Association of German Cities
Gereonstraße 18 – 32, 50670 Cologne | Germany
Project contact:
Alice Balbo
Email: Alice.Balbo@engagement-global.de

Engagement Global gGmbH / Service Agency
Communities in One World
Tulpenfeld 7, 53113 Bonn | Germany
Project contact:
Alexander Wagner
Email: Alexander.Wagner@engagement-global.de

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
Friedrich-Ebert-Allee 40, 53113 Bonn | Germany
Project contact:
Dr. Manfred Poppe
Email: Manfred.Poppe@giz.de

Author
Dr Griet Newiger-Addy

Editorial review
Alice Balbo, Alexander Wagner

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Fabian Ewert, Visuelle Kommunikation

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Addresses of the BMZ offices

Bonn Office
Dahlmannstraße 4
53113 Bonn
Germany
Tel. +49 (0) 228 99 535-0
Fax +49 (0) 228 99 535-3500

Berlin Office
Stresemannstraße 94
10963 Berlin
Germany
Tel. +49 (0) 30 18 535-0
Fax +49 (0) 30 18 535-2501

poststelle@bmz.bund.de
www.bmz.de