

Building the Mediterranean future together

TECHNICAL REPORT

Summary of the Plan Bleu's
programme of work
2009-2012

July 2012



Urban waste and material flow analysis outline in the Mediterranean



Table of contents

Table of contents.....	1
Issues and aims of the programme	2
An initial analysis of the state of play in the Mediterranean	4
Household waste production.....	4
Adverse determining factors.....	4
Inadequate insight into current processes	6
COLLECTION and treatment provision.....	7
Globally inadequate capacity	7
Key role of the informal sector	8
Limited institutionalised sorting and recycling	10
governance of the sector	10
Responsibility delegated to impoverished local authorities.....	10
Inadequate human and financial means	11
Compartmentalisation by sector.....	11
Encouraging initiatives to be built upon and shared	13
Furthering awareness-raising	13
Amongst consumers and residents	13
Amongst local producers	14
Amongst decision makers	15
Mobilising fresh resources	15
Identifying and assessing potential revenue from recycling	15
Sharing waste recovery experiences	15
Facilitating access to innovatory funding	16
Better structuring the sector.....	17
By setting up an appropriate regulatory and legislative framework	17
By increasing funding to local authorities.....	19
By rendering stakeholders in the sector more professional and responsible	21
Bibliography	24

This report was drawn up by Sylvain Houpin, Programme Officer for « Urban Areas » at Plan Bleu, based on the studies conducted by Oliver Kesperue, Plan Bleu Programme Officer for « Waste », and with the assistance of Lise Debout, consultant.

Issues and aims of the programme

Faced with the expected influx of almost 100 million additional town-dwellers in the countries bordering the Mediterranean by 2025, concentrated mainly on the Southern and Eastern banks (from Morocco to Turkey), promoting sustainable urban development has been deemed crucial to sustainable development in the Mediterranean. As such, it was chosen as one of the seven priority action areas under the Mediterranean Strategy for Sustainable Development (MSSD), drawn up on the basis of the report entitled « A sustainable future for the Mediterranean: the Blue Plan's environment and development outlook » and adopted in 2005 by the 21 riparian countries and the European Union (EU).

As an integral part of the sustainable urban development issue, urban waste has been identified as a priority under the Barcelona Convention¹, in various initiatives within the Euro-Mediterranean Partnership² and also within the Union for the Mediterranean.

The MSSD sets targets to halve the rate of increase in urban and hazardous waste by 2015 in conjunction with preventive measures. Indeed, whereas waste treatment methods may represent a hazard for the environment, waste management helps preserve it:

- Even when buried, waste represents a health hazard since it releases biogas and leachate³, which may pollute the groundwater;
- In terms of climate change, the production, collection, transport and treatment of waste may increase the concentration of greenhouse gases (GHGs) in the atmosphere.

Managing waste is not only a technical challenge, however. If optimal operational planning and management of waste is to be achieved, it is also crucial to record and comprehend the environmental and health impact, financial and economic parameters, social and cultural aspects as well as the political and legal framework. The issue should, moreover, be addressed within the broader context of sustainable development, also taking account of production and consumption patterns, combating climate change, developing economic activities, creating jobs, sustainable tourism, etc.

The implementation of public health and environmental protection objectives, and the preservation of natural resources in the Mediterranean vary from one state or local authority to another. This has given rise to a patchwork of definitions and indicators, complicating the interpretation of environmental statistics. It is therefore crucial to innovate in forecasting studies in order to establish the medium and long term perspective.

To remedy these difficulties Plan Bleu has embarked on a multi-annual programme of work intended to evaluate urban waste trends in both quantitative and qualitative terms, through an analysis comprising three activities:

1. **Four national studies including one case study on a town.** This approach was intended to provide a full picture for each country of the institutional set-up at national level and its implementation within a city. The collection and treatment capacity available to the municipality was also assessed. Given the exceptional political context prevailing in the region in 2011 only two of the four studies (Tunisia and Turkey) were completed. The Syrian study was abandoned part way, whereas 80% of the study was completed for Egypt.
2. **A regional flow analysis study.** Based on an analysis of foreign trade (and domestic production) data, the aim of this study was to provide physical data upstream of waste production, thereby providing an analysis of waste production potential. Since waste statistics in the Mediterranean tend to focus on the amounts collected or treated and there is no data on waste production, this study concentrated on a limited list of products chosen for their marked impact on municipal waste production.
3. **A handover workshop.** The workshop was an opportunity to hand in and discuss all the studies conducted under the programme in order to take stock of the state of play in the region and consider how to proceed further on the basis of the prospects opened up by the national and regional studies.

¹In the MSSD as in the Global Environment Fund's « Trans-boundary Diagnostic Analysis » and the identification of « hot spots » within the framework of national action plans under the Programme for the assessment and control of pollution of the Mediterranean (MED POL) to combat land-based pollution.

²Urban waste comprises one of the three priority areas of the Euro-Mediterranean Horizon 2020 initiative to de-pollute the Mediterranean by 2020.

³ During storage and under the joint action of rainwater and natural fermentation, waste produces a liquid fraction known as « leachate ». Rich in organic matter and trace elements, leachate cannot be directly disposed of in the natural environment, requiring careful collection and treatment.

These activities were conducted between 2009 and 2012 with the support of Veolia Environnement.

This document strives to provide a summary of all the studies conducted within the programme on urban waste in the Mediterranean, building on discussions in the handover workshop and supplemented by input from experts not involved in the studies.

It is not intended as an exhaustive overview of the urban waste issue in the Mediterranean. Based on the facts which emerged from the programme, it strives rather to provide some pointers towards understanding the state of play in the region and the stakes involved.

Further studies will be required before the analysis can be taken any further and a set of appropriate recommendations submitted to decision takers.

An initial analysis of the state of play in the Mediterranean

HOUSEHOLD WASTE PRODUCTION

Adverse determining factors

Marked demographic growth

Whereas more than half the world population now lives in towns and cities, two in every three people in the countries surrounding the Mediterranean are already urban dwellers. By around 2050 the urban population in the countries on the European shore is likely to stabilise at around 170 million (140 million in 2005), whilst to the South and East it is expected to double to reach over 300 million (151 million in 2005). The driver behind this urban growth is increasingly endogenous, fed by internal redistribution, inter-urban migration and a rural exodus which is petering out in some cases (Egypt, Tunisia, etc.) or holding up in others (Morocco, Syria and Turkey). A good third of this growth will take place in the Mediterranean coastal regions, coastal towns in particular.

The effects of urban growth rates of 0.7%/annum in Spain and Greece, and 3.6% in Morocco and Tunisia have varied from town to town depending on their capacity to absorb the increased need for infrastructure for essential services⁴.

To the « North », the requirement to preserve natural resources and control the impact of the recycling and treatment industries and with less dense urbanisation has been reflected in additional logistical efforts, factoring in the environmental constraints of the treatment plants. The Naples waste crisis serves as a reminder, however, that nothing can be taken for granted.

To the « South », city outskirts more often than not take the form of shanty towns, complicating the provision of basic services. Thus accessing services and maintaining cleanliness in towns in order to provide a decent living environment remains the main challenge in the cities to the South.

In Tunisia, demographic and economic growth over the last two decades has come about within a global context conducive to economic growth, with GDP increasing by an average of around 5% per annum at constant price. This has led to marked urban growth and a rising standard of living, with the ensuing shift in consumption patterns being reflected in the production of increasing amounts of waste

Aspiring towards non-sustainable patterns of consumption

Twice as much municipal waste is currently produced in Europe as in the Maghreb countries. Whilst the situation varies widely from one country and more particularly one local area to the next, it is nonetheless fair to say that average municipal waste production in the EU stands at around 500 kg/per capita/per annum compared with 250 kg/per capita/per annum for the Maghreb countries⁵. According to the figures published by the Mediterranean Environmental Technical Assistance Programme (METAP) in 2000, however, per capita waste production in the countries to the South and East has risen by 15% over the last ten years. These trends can be attributed to the growing economies in the countries around the Mediterranean.

With the economies of these countries becoming increasingly open to international trade, growing consumption is consequently bringing about changes in the production and composition of waste. Similarly, rising household income is being reflected in an increase in high waste staple goods, with elasticity of demand⁶ in a ratio of 1.5 to 2.2.

⁴ Sources: State of the Environment and Development in the Mediterranean, Plan Bleu MAP, 2009 and UN population division, World Urbanisation Prospect, 2008 revision

⁵ Source: Medcités

⁶ Income elasticity of demand is calculated as the ratio of the percentage change in demand to the percentage change in income. It measures the responsiveness of the demand for a good to a change in the income of the people demanding the good. As not all products have the same income-elasticity, increased income changes the structure of consumption. Source: Wikipedia (French)

According to a recent report by the World Bank⁷, by 2025 town dwellers will be generating 2.2 billion tonnes of waste per year, compared with the 1.3 billion they currently produce. Treating this waste will cost 298 billion Euros per year compared with 163 billion today. The sharpest increase in waste volume will come about in China, Eastern Europe, the Middle East and North Africa.

In the so-called MENA region (Middle East and North Africa), waste production, currently standing at 63 million tonnes per annum, is expected to reach almost 135 million by 2025. This means that whilst the number of town dwellers will have grown 1.59-fold, the quantity of waste will have been multiplied by 2.14. Unlike the countries in the Organisation for Economic Cooperation and Development (OECD), in the Middle East and North Africa waste production will grow faster than the number of inhabitants, even if the per capita quantity produced is still lower than in the OECD countries.

In Tunisia, waste volume is currently growing by 3%/yr. High waste potential consumption and waste production are set to increase, mainly in the urban areas.

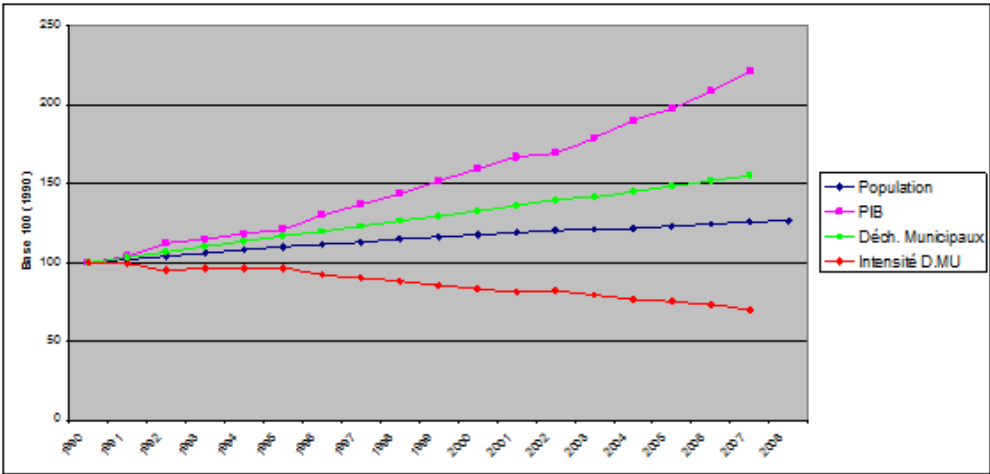
In Morocco, waste of urban origin now accounts for 5 MT of the 6.5 MT produced, only 15% of which is disposed of in regulated landfills. Morocco produces 18,000 t of household waste per day, of which 14,000 t are produced in the urban environment (i.e. an average of 250 kg/capita/year).

Intensity of waste generation in Tunisia

GDP virtually more than doubled over 17 years, from 10,816 MTND in 1990 to 23,958 MTND in 2007. Over the same period, per capita GDP rose from 1326 TND to 2343 (Figure 1). Municipal waste generation is growing on average at half the rate of GDP. Average growth in waste production tends to lie halfway between that of demographic growth and GDP.

Moreover, waste generation intensity, expressed as the ratio between production and GDP, was brought down from 138 Kg/1 000 TND in 1990 to 97 Kg/1 000 TND in 2007, i.e. a 30% drop.

Figure 1: Changes in GDP, demography and municipal waste generation intensity



A worrying trend in waste composition

Changing consumption patterns, largely as a result of imports and the importation of manufactured goods, is driving a change in waste composition. Municipal waste in the South and East of the Mediterranean currently contains twice as much organic waste and two times less cardboard waste than European dustbins. The discrepancy is changing, however, with some categories such as plastics showing an increase in the Mediterranean countries. In most countries to the South and East of the Mediterranean, the proportion of biodegradable waste is on a clear downward trend as the share of plastics and other synthetic materials increases.

⁷WHAT A WASTE. A Global Review of Solid Waste Management, Daniel Hoornweg and Perinaz Bhada-Tata, World Bank, 2012

Importing waste-producing distribution models

Generally speaking, the industrialisation of regional economies and more particularly access to consumer goods are driving a change in the nature of waste, with large amounts of packaging and advertising flyers. Changing food packaging methods chosen by large supermarkets due to their technical properties and cost are fuelling a major increase in plastic waste.

Pollution from plastic waste is still a relatively new concern for the authorities, which are required to set up appropriate means of treatment.

In Morocco, the distribution sector was traditionally made up of souks selling foodstuffs from agriculture (fruit, vegetables, poultry and cattle), municipal markets and grocers' shops.

Since the 2000s there has been a supermarket surge throughout Morocco. In 2001, 200 large stores of over 300 m² were recorded, including 12 hypermarkets working along the lines of central purchasing agencies, amounting to a 31% increase in the number of sales outlets between 1998 and 2001. A study conducted by the Ministry of Trade and Industry in 2001 forecast considerable supermarket expansion over the coming years. In 2006, they accounted for less than 10% of retail trade but are growing rapidly as supermarket cover in urban areas spreads. In Morocco, as in other countries, supermarkets have been instrumental in changing consumer habits.

The vast majority of specialised superstores (domestic equipment, furniture, clothing) are all Moroccan, unlike the predominantly food-oriented supermarkets, which are for the most part the result of foreign investment (notably Auchan and Metro). These superstores also generate the most consumer waste and directly affect the type and production of household waste.

Food products (fresh, liquid, groceries and biscuits) take up 47% of total sales surface in these stores. Although large amounts of fruit and vegetables have always been consumed in Morocco, this type of distribution has given rise to new types of packaging such as trays or packs of washed and pre-cut vegetables. The proliferation of this type of distribution and the ensuing changes to consumption patterns go some way towards explaining the increased amount of packaging linked to the emergence and growth of what to date had been products of minor interest (canned goods, cardboard packaging for non-perishable foodstuffs, polymer or cardboard packaging for perishable goods, non-recycled plastics for dairy products, etc.). Moreover, in Morocco as elsewhere, some imported goods, notably beauty products, which account for a large share of the turnover of these brands, are now marketed in non-recyclable packaging (bottles of perfume, tubes of cream, etc.).

These changes in consumption patterns raise questions about the sustainability of the new consumer behaviour compared with the low-waste habits of the past (sale by weight of non-perishable goods such as rice and wheat, unit sales for products such as medicines, paper tissues, sticking plasters, etc.).

Source: Quelques éléments sur la grande distribution au Maroc. Report drawn up by Chemonics on behalf of the American Agency for International Development. January 2006

Inadequate insight into current processes

Analysis hampered by the lack of data availability and quality

Plan Bleu's forward research on solid waste began in the 2000s. The initial results were published in 2005, in the Mediterranean environment and development outlook. The data in this report on trends in solid waste volume (covering both household and municipal waste) is drawn from national statistics between 1985 and 2000. The trends are linked to two essential explanatory variables - GDP and demography- in order to establish their correlation or elasticity. Two scenarios for 2025, a « business as usual » (or trend) scenario and an alternative scenario were used to (i) attribute orders of magnitude concerning the non-sustainable nature of development patterns and (ii) highlight the savings potential linked to recycling policy. The alternative scenario is in fact based on the « uncoupling » of waste production and GDP growth observed and studied in the Netherlands and Norway, two countries which virtuously practice prevention and recycling.

Plan Bleu concludes that if such approaches were to be widely applied throughout the Mediterranean it would imply an average annual reduction of 150 MT of waste, in other words savings of 95 billion USD in collection and treatment costs. Although these studies have brought to light one of the main environmental pressures linked to economic growth in the

Mediterranean, these estimates expressed in terms of raw waste do nothing more than highlight current and future shortcomings relating to collection and treatment methods.

Simple analysis of the data alone will not prompt innovation or breakaway solutions leading to the « internalisation » of costs relating to the management of solid waste as close as possible to the source of production. The data was provided by the bodies responsible for collection and treatment (landfill operators and administrators) and shed no light on the explanatory factors behind waste production, « the real culprits »: economic activity and household consumption.

The programme of work for 2009-2012 did not, however, allow the objective of introducing a genuine « material flow analysis in the Mediterranean » to be reached.

Although it was possible to use some of the data on the main waste-generating imported products, difficulties with collecting data on waste from local production limited the analysis and the possibilities for making global use of national studies conducted in this field.

Whilst this appears to be an appropriate methodology for conducting forecasting exercises on urban waste on a regional scale, it will be difficult to implement at national level in the countries on the Southern and Eastern shores of the Mediterranean due to a lack of data remaining still too high.

In Tunisia, waste weighing first began in 1999, following the opening of the Djebel Chekir landfill in the District of Tunis. The second landfill, built in Bizerte in the north of the country, came into being in 2007. Even with the landfill, during the first few years data was not adequate given the parallel existence of unregulated dumps and the lack of waste transfer stations.

Moreover, household waste production remains un-quantified. The data presented in Eurostat statistics shows that this type of waste accounts for about 84% of municipal waste production. Its reliability is questionable, however, given that such statistics are not available at national level.

Finally, there is currently no retrospective data available regarding trends in the coverage rates of municipal waste collection activities.

COLLECTION AND TREATMENT PROVISION

Globally inadequate capacity

There is generally no data available on trends in coverage rates for municipal waste collection in the countries to the South of the Mediterranean. By definition, areas outside their boundaries are not the concern of urban municipalities. In Tunisia, for example, several studies⁸ revealed that coverage for waste collection services extends to 95% of people living in urban areas compared with 90% in rural zones. With the urban population having risen from 58% in 1990 to 66% in 2007, the municipal waste collection coverage rate was estimated at about 93 % in 2007.

In Egypt, solid waste management has always consisted of the recycling or composting of any waste produced or its disposal in a landfill. Recycling by the formal sector accounts for a mere 2% of total waste generated, with composting at 8%. The remaining 90% is shared between the informal recycling sector and burying in open landfills. It is estimated that recycling by the informal sector could account for some 40% of total generated waste.

All too often, given the inadequate state of collection, waste is burnt in the open air by « rag pickers » or local residents. Disposal in landfills (barely regulated if at all) is still practically the only method of waste disposal. Virtually all the waste collected will end up in a landfill. It is estimated that the proportion of waste collected for recycling or composting hovers around a mere 5% of the amount collected in most countries (with the exception of Turkey)⁹.

Many towns only have unregulated dumps, which have existed for decades for the disposal of all types of waste produced but whose capacity cannot keep up with current production.

⁸Country Environmental Analysis - World Bank, Report No. TN-25566, April 2004

Study mission on the strategy for private sector participation in investment and operations in the solid waste field in Tunisia- Report I: Analysis of the state of play – Republic of Tunisia – Prime Minister – SOGREAH – IDC – IDEA, January 2007

METAP – Regional project on solid waste management in the Mashreq and Maghreb countries – Country report (Tunisia) - GTZ-ERM-GKW, January 2004

⁹ Plan Bleu estimates

These landfills are rarely regulated and controlled and have no geo-membranes to protect the soil. Consequently, leachate discharge may pollute the groundwater and immediate environment. Although notable improvements are underway in many countries, considerable effort is still required, particularly in medium-sized towns and rural areas.

In Tunisia, the past decade saw rapid growth in the waste management sector, the number of active regulated landfills rising from one in 1999 to 14 landfills and 48 transfer stations in 2008. Others are either being built or calls for tender have been launched for their construction. These 48 transfer stations are used to collect waste before it is transported to the 10 large regulated landfills, thus replacing the former unregulated landfills. The landfills and transfer centres are run by private operators under service contracts launched by the ANGED (National Waste Management Agency), which also supervises their operations.

Key role of the informal sector

In most countries to the South and East of the Mediterranean, with the notable exception of Turkey, collection and selective sorting are largely dealt with by the informal sector. Although some private systems exist in certain countries for the collection and sorting of specific types of waste (metal, plastic bottles, etc.), volume is still limited and the focus is on the most easily recoverable waste. These systems tend to comprise small scale, private operators working on markets providing a minimum return but with limited volume.

In most countries these age-old practices provide large numbers of jobs, particularly for people from a rural background who have recently moved to the towns, most of them illiterate. Knowledge of this sector is limited given the virtual non-existence of statistical data.

In the absence of any real organisation in the profession (cooperatives and/or associations), the multiplication of middlemen in some towns (from the individual collector to the wholesale collector and the crusher who indiscriminately accepts waste from the municipal services as well as from informal collection), particularly in Morocco, provides for free-rider income but with no improvement in service quality. Although these activities create jobs for low-qualified workers, they pay very little, and the profits are distributed in inverse proportion to the arduous nature of the work.

Working conditions remain tough in most countries for workers in this sector. Several studies have shown that scavengers and dustbin men tend to work under precarious social conditions and are exposed to serious health risks (respiratory disease, headaches, skin and eye disease, etc.).

In Tunisia, a survey conducted in 2005 on the informal sector in the District of Tunis revealed that less than 2% of the waste produced was collected by rag-pickers. The study distinguished between two main categories of pickers:

- Professional rag-pickers, whose only source of income is what they collect. They number about 700:
 - 400 working in the landfills and junkyards (200 of them on regulated landfills, of whom only 95 are authorised by the ANGED, the remainder working illegally);
 - 300 working in dustbins, markets, supermarkets or directly in homes.
- Part-time rag-pickers, who have another job and fall back on « rag picking » as an additional source of income: council workers, janitors and others. They work on landfills and in junkyards, dustbins in towns or directly in homes.

It is estimated that the District of Tunis produces 700,000 tonnes of household waste per year, i.e. 1,918 tonnes per day. The rate of waste collection by the municipal or regional services stands at about 90%. This means that the amount of waste collected by the refuse services and disposed of in landfills must be in the order of 630,000 tonnes per year, i.e. 1,726 tonnes per day.

The assessment of the amount of waste recuperated only takes account of so-called « clean » waste, such as plastic, various metals, cardboard and other plastic or metal packing products, textiles, rubber, etc. A maximum of twenty tonnes is believed to be salvaged on a daily basis by both recognised and clandestine rag-pickers at the District of Tunis regulated landfill (estimate based on statements made by rag pickers in the survey, with a 50% mark up to take account of under reporting). Such waste recovery activity represents a mere 1.6% of waste disposed of in the landfill.

With the same hypothesis at national level (waste salvaged by pickers accounting for 1.6% of waste dumped in the landfill) and a collection coverage rate of 62.5%), the total amount salvaged at national level in 2007 could then be estimated at around 23,000 tonnes.

In Bizerte, certain types of municipal waste are selectively collected by citizens and made available to private collectors in the informal sector. Other types of waste are taken from dustbins by pickers.

These include in particular:

- Stale bread (for ethical reasons, to avoid throwing bread away). It is used to feed cattle;
- Scrap and old metal (partly scavenged from containers). It is sold on to metal trading companies or directly to the El Fouledh foundry in Menzel Bourguiba;
- Old electrical apparatus and faulty or broken domestic appliances. They will either be repaired and reused or dismantled in order to extract precious metals;
- Old clothes and shoes, resold as second-hand;
- Plastic bottles (partly scavenged from containers). They are fed into the Éco Lef system.

No information is available regarding either the number of people working in the informal sector, nor the amount of waste collected. That said, certain types of waste such as aluminium, copper and ferrous metals are rarely found on the regulated landfills.

Informal collectors tend to use rather basic collection methods, often nothing more than a wheelbarrow or cart. Some local dustbin men work in this sector after hours (providing a supplementary income)

A well-assimilated informal system in Egypt: the Zabbâfîn community

From the word zibbâla, meaning dustbin, the zabbâfîn provide a comprehensive waste management service for the residents of Cairo. Initially composed of migrants, this community took shape in the late XIXth century and has so far managed to overcome the various difficulties placed in its path by service modernisation policies.

The first migrants to settle in Cairo and make their living from collecting the city's waste were the wâheyya (sing. wâhî), from wâha meaning oasis, from whence they came. They went around collecting waste from residents under agreements with apartment owners, to whom they paid an initial sum in order to enjoy privileged access to the waste from their buildings. They were then paid by the tenants in the form of a monthly baksheesh. Paper was sold to hamman owners to fuel their boilers and any organic matter was dried and sold to fuel sellers in the Cairo stores. When in the 1930s waste-generated fuel was gradually replaced by oil, the wâheyya sought other outlets for this organic matter. They turned to a group of migrants, Coptic peasants from Assiut governorate in Upper Egypt. Not owning any land, they had come to Cairo in search of work, settling initially in Imbâbâ on farming land to the North-West of Greater Cairo. These Copts bought the organic waste from the wâheyya as food for their pigs. The wâheyya continued to take payment from the tenants, although the waste was effectively collected by these new collectors now known by the name of zabbâfîn. The zabbâfîn were required to pay access dues to the wâheyya who « owned » the « contracts » with the real estate owners. During the 50s, once recyclable materials such as plastic and metal started to appear in waste, the zabbâfîn gradually embarked upon sorting activities, mainly the job of women and children at home, subsequently selling on the sorted material. As the composition of waste in Cairo changed and the city grew, the zabbâfîn organised their collecting. The residents of Cairo were hard pushed to distinguish between wâheyya and zabbâfîn. The community system was emerging without the residents who enjoyed the service actually realising. Even today, the male members of the zabbâfîn community continue to collect waste on a daily basis using donkeys or pick-ups, taking it back to their districts where the women sort it by material. Recyclable materials are bought by individuals known as mo^halemîn (sing. mo^halem) who have workshops, whilst the organic material is used to feed the pigs. The manure is subsequently sold to middlemen who in turn sell it as agricultural compost. Thus the origins of the community's emergence lie in this story and persist until this day. They have shaped a highly hierarchical, hard-to-penetrate community to which some 90,000 people in Greater Cairo belong.

Source: La transformation des gouvernements urbains locaux en Égypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

Limited institutionalised sorting and recycling

Sorting in most countries tends to be carried out by the informal sector. In Egypt for example, according to available data on solid waste management there are currently 34 plants involved in recycling and composting, no operational incineration systems and four landfills for 29.69 million tonnes of waste collected in 2009.

Some communities may have transfer centres, from which transport vehicles carry the collected waste to landfills, indiscriminately taking in household waste, hospital waste as well as some industrial waste. Despite the existence of some private sorting and collection systems for specific types of waste, however, very little waste is treated and what is mainly involves the most easily recoverable types. These systems consist of small scale private operators working on markets ensuring minimum returns but where volumes are limited

In Tunisia, the national strategy for household and similar waste comprises the following four aspects:

- Setting up regional technical landfills and transfer centres,
- Closing and rehabilitating unregulated landfills (over 400),
- Introducing integrated waste management systems (collection, sorting, treatment, reclamation, etc.),
- Developing new waste treatment, recycling and recovery systems (taking account of waste composition).

Thus waste, like residue, can either be stored in an appropriate place intended for such purpose (landfill) until it naturally biodegrades, or can be incinerated or recovered through recycling.

According to ANGED, 0.5% of waste collected is composted, 5% is recycled and 50% is disposed of in regulated landfills and 44.5% in municipal tips

GOVERNANCE OF THE SECTOR

Responsibility delegated to impoverished local authorities

In many medium and low-income countries it is the local authorities that are responsible for solid waste management services. More often than not these services constitute the largest budget item for towns and one of the most important sectors in terms of municipal jobs.

However, «the countries to the South and East of the Mediterranean have a marked centralist tradition. From independence through until the 80s, States established themselves as guarantors of national unity, drivers of economic development and as those responsible for the basic public services (education, health, water, security).

Although the towns, provinces and regions would appear to enjoy more prerogatives than in the past, they continue to be closely controlled by States and their central administrations. In the countries throughout the region, the Ministries of the Interior play a key role in supervising the local authorities. More often than not decisions taken by these authorities are monitored in advance, sometimes for even the most routine management operations such as the replacement of officials taking retirement.

Local public services are also often provided by central state administration, public companies and national agencies such as ANGED, the body responsible in Tunisia for managing household waste tips virtually throughout the land, or the Ministry for Water and Irrigation, which is still directly involved in water distribution in Jordan. »¹⁰

In Egypt, most governorates delegate management responsibility to «Environmental Monitoring Units» (decentralised Ministry of the Environment Services). Solid waste management is not explicitly covered in the state budget. The governorates finance solid waste management mainly through levies on electricity bills, property taxes and subsidies from their budget. Waste collectors also levy a door-to-door collection fee.

It is difficult, however, to piece together the cost of solid waste management for each governorate in order to assess how much the sector spends at national level. In 2004, a report by the World Bank's Mediterranean Environmental Technical Assistance Programme (METAP), estimated expenditure on solid waste management at national level in

¹⁰ Source: Report from the 2008 Forum of Mediterranean local and regional authorities, Institut de la Méditerranée

1998 at between 32 and 37 million Egyptian pounds (EGP), i.e. about 0.04 to 0.05% of GDP and expected spending to rise from 2003-2008 to almost 1,000 million EGP, i.e. about 0.15% to 0.25% of GDP.

Inadequate human and financial means

The institutional shortcomings of the local authorities to the South and East of the Mediterranean are further compounded by the chronic shortage of human, technical and financial means for them to do their job properly. Thus Mediterranean local and regional authorities are hampered by marked shortcomings in their management capacity, preventing them from becoming drivers of development in their area.

Some of the main internal shortcomings affecting local and regional authorities to the South and East of the Mediterranean are inadequate staff training - of supervisors in particular - and an inflexible management framework for local staff. Being permanently under-equipped further aggravates the authorities' lack of autonomy, whilst the lack of technical means leaves local and regional authorities totally dependent on technical and financial support provided by the State.

Tunisia, in order to meet its environmental protection policy targets, has introduced a funding system based on specific financial instruments, including the "Fund for a clean environment and city aesthetics" (FPPEV). The system is supported by local taxation - notably the tax on built land (TIB) -, waste collection and disposal taxes, and sanitation taxes.

Most of the funding for municipal waste management is generated by local taxes on collection and eco-taxes at post collection level. As a rough guide, total income from eco-taxes amounted to 25M€ (44 MTND) in 2007, equating to around 0.3% of the national budget and 0.5% of tax revenue for the 2007 budgetary year.

Funding and the recovery of costs relating to waste management are currently provided by two complementary systems:

- A local authority-led system covering financing for the collection and transport of domestic waste and part of the cost of disposal. This system is based on local tax revenue, subsidies and fees;
- A State-led system through the ANGED, which largely concerns funding for the transfer and disposal of household waste on landfills (post-collection), waste management system operations and the industrial waste management system. It is based on loans, grants and eco-tax levies.

Compartmentalisation by sector

Most of the countries covered by the study have embarked upon virtuous pro-active policies on urban waste management. These policies, which tend to be defined as part of national strategies, introduce management tools more often than not focused on specific types of waste (industrial, hazardous, medical, etc.). The upshot of such type-compartmentalisation in waste management is that responsibility is shared between the various ministerial departments. In Egypt, for example, each ministry is responsible for the waste produced by activities under its aegis. Dividing up competence in this way may hamper an integrated and territorialised approach to waste in the countries in the area.

In Egypt, the various different solid waste management activities are undertaken by numerous entities in the public, private and informal sectors. At national level no one single body is entrusted with solid waste management, nor is there any national entity in charge of coordination.

Local authorities are responsible by law for solid waste management within their area. Their role is essentially limited to road maintenance as well as collection and transport to the storage and treatment plants. Sub contractors are regularly used to assist with these activities.

However, the Governorates of Cairo and Giza enjoy a special regime, under which « Cleaning and Beautification Authorities » (GBA) are in charge of solid waste management. These authorities have their own specific budget within the general budget of the State, providing for public and private sector operations.

In Tunisia, the Ministry of the Interior and Local Development, the Ministry of the Environment and Sustainable Development and the National Waste Management Agency are the main bodies in charge of waste management, as well as the town councils.

Waste management is governed by several statutory instruments. The solid waste sector is organised by the promulgation of a legal framework. It is based on the «polluter-pays» and « producer- recuperator » principles. These rules entrust the producer or holder of the waste with responsibility for its disposal, organise supervision of disposal systems, impose a take-back obligation and establish the terms of treatment.

Encouraging initiatives to be built upon and shared

FURTHERING AWARENESS-RAISING

Amongst consumers and residents

In the countries to the South as in those to the North, changes in quantity and composition of household waste reflect the major impact of consumption patterns on waste.

Waste production reveals economic set-up and mode of consumption. It depends on several socio-economic factors - demography and tourism in particular - as well as climate. A study conducted in Greater Tunis in 2004 showed that a high-income family in the city produces almost 2,600 kg of waste each year compared with the 730 kg produced by a low-income family.

This trend calls for specific responses in terms of waste prevention, collection and treatment, implying above all waste reduction programmes, more sorting at source, selective collection and waste recycling as well as the pressing issue of managing pollution linked to current waste disposal methods.

The success of one-off awareness-raising campaigns shows that people are receptive and concerned to improve their living conditions. However, there is scope for more awareness-raising regarding the consequences of consumption patterns as well as the need to adopt more appropriate behaviour on a daily basis.

In Morocco, initial success in raising beach user awareness through the Bahri Dima Clean operation

On 22 April 2012, some 2,400 people, including almost 750 children (orphans, school pupils, etc.), 520 company managers, 93 volunteers, 50 workers and around 1,000 students took part in the beach clean-up at Ain Diab and Sidi Abderahmane in Casablanca. Almost 3 tonnes of waste were collected at this event, held on World Earth Day.

The event was organised by the Bahri association and combined the environment with a range of activities, artistic workshops, shows and sports activities. It was attended by the US Consul General and US Ambassador as well as the Mayor of Casablanca in order to highlight the importance of environmental protection.

Several associations also took part in this event, including the Surf de Safi Association, which raises environmental awareness in its region. The members of Surfrider Foundation Morocco came from Agadir for the event and drew the attention of parents and children alike to the importance of protecting the coastline.

Source: www.surfridemaroc.com

In Tunisia, more specifically in Bizerte, waste collection rates fall well short of per capita waste production despite comprehensive coverage. In the absence of statistics, it is difficult to hazard any figures.

The introduction of a voluntary container-based collection system is of economic interest for the local council, but misuse by both the council (scale, location, upkeep) and residents (failing to respect collection rules), has created a negative impression regarding its cleanliness. People still prefer a door-to-door collection system.

Over recent years, however, the number of fly-dumps has dropped. Waste slipping through the net of the conventional collection system tends to be collected during regular clean-up campaigns and when important events are being held in the region (galas, shows, politicians' visits, etc.) involving regional and local structures as well as civil society. The council services have estimated that the volume of rubbish collected during these campaigns amounts to 5 to 10% of total municipal waste.

Amongst local producers

Capitalising upon and promoting initiatives undertaken by the hotel sector

The growth of tourist activity has a serious impact on the environment in terms of energy consumption, water supply, waste water production, air pollution and also waste production.

The waste produced in towns geared to tourism varies widely according to the season and market days. In Tunisia, for example, domestic waste production increases by 25% in summer for the least touristy areas and by up to 50% in the tourist towns.

The hotel sector is therefore central to these environmental issues and may constitute an important lever for curbing the impact.

Operators in the sector are particularly mindful of the commercial impact of the environmental initiatives they undertake in their establishments in response to the expectations of clients from the countries to the North, who are increasingly sensitive to environmental marketing arguments (« eco-labels », quality charters, etc.).

In several countries, innovatory approaches are emerging amongst major international and local operators. These programmes, sometimes with specific technical support within the framework of decentralised cooperation, may involve activities such as:

- Raising awareness about curbing waste production,
- Specific action on food waste in large establishments,
- The introduction of specific collection and sorting systems,
- On-going environmental « education » for local staff.

In Tunisia, one-off initiatives exist in the hotel sector. Various initiatives have been launched in response to the expectations of clients who are becoming increasingly aware of environmental quality. They relate to water, energy and waste.

On the waste front, some hotels in Djerba have drawn up agreements with Tunisian reclamation companies. Polyethylene terephthalate (PET) is sorted at source into specific containers and collected either by a recycling company in Sousse or by the hotel employees who sell it on to Eco-Lef. Used cooking oil is collected by Eco Oleo to produce bio fuel. In most cases, green waste is not reused. One hotel in Djerba, however, has set up a composting system for green waste, the compost produced being spread on the hotel gardens.

Stale bread is collected to feed livestock.

There is nothing exceptional about this type of approach in countries where informal recycling channels are particularly active in recovering hotel waste. This does not apply to the island of Djerba, however, where the distance from the main towns has prevented informal systems from developing as they have elsewhere. Hotels have embraced these systems as part of a marketing strategy. Given their essentially European client base, they use their environmental action to promote their site.

Hotel owners qualify for the Life eco-label if their facilities meet good environmental management criteria. It was introduced by the Ministry for the Environment as part of a pilot project launched in 2009 in four priority sectors (tourism, textiles, the agri-food industry and detergents).

A further label - the Green Key - is especially for ecologically sound tourist establishments. Such labels allow customers' environmental expectations to be met. However, whilst sensitive to waste issues, clients are not particularly aware as far as water and energy are concerned, seen by tourists as belonging to a level of comfort owed to them by the owner.

Amongst decision makers

There is currently no historical data available in the Southern Mediterranean countries to show how rates of coverage for municipal waste collection services are evolving.

If more effective public policies are to be drawn up and implemented, then it is crucial to enhance knowledge of the sector and of related impacts and issues (environmental, health, socio-economic but also in terms of local governance), particularly by establishing and monitoring relevant indicators. Quality tools cannot be created, however, without the active involvement of the authorities in the countries to the South and East, particularly in the production and sharing of data.

Sharing experience between those with responsibility in the region is a way of raising the awareness of decision makers and has already proven its effectiveness in several fields. For many years a multitude of decentralised cooperation initiatives have been conducted on the urban waste issue between authorities in Europe and in the countries to the South and East of the Mediterranean, sometimes with the backing of international financial institutions.

It would seem expedient to continue and strengthen such operational activity, including during meetings between the Southern and Eastern Mediterranean countries themselves.

MOBILISING FRESH RESOURCES

Identifying and assessing potential revenue from recycling

Illegal exports and on-site waste treatment are generally seen as the main problem in the countries to the South, given the growing scarcity of natural resources and hence of raw material for industry at global level (« PEAK ALL » phenomenon). It is becoming clear, however, that the countries in the region might be well-advised to view urban waste as "an opportunity" rather than a "burden" and to switch from "waste management" to an approach based on "resource management".

Burgeoning waste is opening up new prospects, particularly for recycling. The recycling industry can actually be regarded as a major component in an environmental industry. Waste provides the raw material for some economic, agricultural, craft or industrial activities and exploiting this potential may have a positive impact on the entire waste management chain and beyond (creating jobs and financial resources). This could result in waste being treated as a tradable product with economic value.

It should be noted that, pushed to the extreme, this approach could have perverse effects. A good waste management follows the 3 R rule, namely: reducing, reusing, recycling. Recycling is the principal remedy, but waste production reduction must be a priority.

Sharing waste recovery experiences

In Europe, the waste management and recycling sector is growing apace, with an estimated turnover of over 100 billion euros each year. This manpower intensive sector employs between 1.2 and 1.5 million people. The recycling industry is supplying manufacturing industry with ever-greater amounts of raw materials. At least 50% of the paper and steel, 43% of the glass and 40% of the non-ferrous metals produced in the EU is currently produced from recycled materials.¹¹

In most countries to the South and East of the Mediterranean, recycling systems are still in their infancy. According to ANGED, 5% of household and similar waste in Tunisia is recycled.

There is thus huge potential in most countries in the region for developing recycling systems in terms of the volume of waste currently treated, the scale of traditional collection methods as well as the technical support they receive through decentralised cooperation activities in the region.

However, the level of technology which allows waste to be recycled into raw materials is generally comparable to the level of technology required to design the original products in the first place.

Major investment will be required alongside technology transfer and capacity building amongst the stakeholders involved if modern household waste recycling systems are to be set up.

¹¹ Source: Assessment of the household waste management system in Tunisia, L. Haouaoui and F. Loukil (UAQUAP, Institut supérieur de gestion, Tunis), June 2009

The Eco-Lef labelling process in Tunisia

Since the 1990s, Tunisia has committed heavily to waste management, introducing progressive strategies and programmes. Particular emphasis was placed on recycling and recovery. In 1997, a label known as Eco-Lef was introduced, targeting the reclaiming and recovery of recyclable waste. The Eco-Lef system is run by ANGED and encourages individual collectors to collect waste plastic or metal packaging in exchange for payment determined according to the volume collected and type of packaging. The collectors have to transfer what they collect to collection centres known as Eco-Lef points.

By late 2009 the following had been achieved:

- 310 Eco-Lef points set up, 79% of them privately managed;
- 231 companies set up by university or college graduates with State backing as part of a programme to reduce graduate unemployment;
- 109 recycling companies granted ANGED approval;
- 85,000 tonnes of plastic collected since the start of the system.

Facilitating access to innovatory funding

Collecting and transporting municipal waste, treating and disposing of waste on landfills but also reuse/recycling systems provide considerable investment opportunities for the public and private sectors alike.

Investment may come in several guises, ranging from foreign direct investment (FDI) under public private partnerships (PPPs) or concession contracts, to more innovatory mechanisms based on carbon credits as part of clean development mechanisms (CDMs).

In Tunisia, the national integrated waste management strategy is based on private sector participation (PPP), the aim being to reach 50% participation in waste management infrastructure investment by 2016.

In Bizerte, 50% of the CO₂ emissions from the Beni Nafaa landfill were traded under the CDM.

As in most countries in the region, the State budget nonetheless continues to be the main source of funding for communal investment in waste management, municipal budgets often only just managing to cover running costs.

Although such promising and innovatory initiatives are few and far between in the Mediterranean, international cooperation, whether consisting of technical assistance or the funding of infrastructure projects, will continue to act as a significant partner in developing and modernising the waste sector, particularly by tapping into these innovative financial mechanisms. It is up to local authorities to ensure that all sources are mobilised.

Contracting out to the foreign private sector: what lessons from the Egyptian experience?

In 2000, the Egyptian authorities launched a reform exercise in the waste management sector. By leveraging the international tendering procedure their aim was to improve the performance of what was still highly inefficient waste management. Several concession contracts were signed in Egypt's two megalopolises: Alexandria and Greater Cairo, although for several reasons the expected results were not achieved. Most of the foreign companies rushed to invest in Egypt without having conducted appropriate studies in advance. It was thus only once they had already embarked on the negotiating phase leading up to the signing of contracts that some of them discovered the reality of Egypt.

Once in operation, their (European) technology proved ill-adapted to the Egyptian urban layout, the type of waste produced and people's habits. The authorities themselves were also ill-prepared. Inadequately studied methods of cost recovery for the competent authorities and often excessive sums for citizens have given rise to repeated outstanding debts, facing foreign companies with a tricky financial situation. Public-private partnerships were also new and alien for the authorities, some of which did not therefore understand their obligations and expected everything to flow from the companies in a one-way partnership. The implementation of a waste management model marked by integrated system management and concession contracting failed to take account of local features (social, environmental, technical and political), causing most of the companies to go bankrupt. Thus shortly after signing their contract, three Greater Cairo companies withdrew from the market.

In 2011, it was the turn of Véolia propreté in Alexandria. The only companies that managed to cope with the peculiarities of the local set up were those opting for total immersion, which brings with it a heavy price tag and implies turning ones back on European environmental and technological standards. The failure of these concession agreements with the private sector thus acts as an incentive to revisit what is seen as a cut-and-dried solution. It highlights the need to take account of local reality and design models compatible with them- which still do not exist.

Source: La transformation des gouvernements urbains locaux en Egypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

Fresh funding opportunities opened up by clean development mechanisms (CDMs)

Clean development mechanisms (CDMs) were defined in article 12 of the Kyoto protocol as a means for introducing CO₂ emissions reduction projects. Each reduction project can be certified (Certified Emission Reduction - CER) by the UN. Once certification has been granted, so-called verification checks are conducted on an annual basis under UN supervision in order to measure the volume of CO₂ emissions avoided through the mechanism. The project operator is therefore granted carbon credits he may subsequently trade in order to fund his project. CERs are the only carbon credits which may be used by players with statutory obligations in respect of greenhouse gases (in other words signatory states to the Kyoto protocol or industrialists covered by the European emissions trading scheme). Industrialised countries may thus support CER projects in industrialising countries in order to buy credits.

ONYX (now Véolia) in Alexandria was the first CDM to be set up in a developing country. There are currently 4,000 projects registered in 74 countries around the world.

From 2013 onwards the European Union will only purchase carbon credits if the CDM projects are based in least developed countries (according to the UN classification, thus excluding India, China and Brazil). Only 1% of projects registered are currently located in such countries.

There has been criticism of the negative effects of CDMs relating to waste. Indeed, carbon credits are granted on landfills for recuperating the methane produced during the decomposition of organic waste or for the volume of waste incinerated. Thus the greater the volume of waste deposited in the landfill or incinerated, the greater the profit, hardly encouraging recycling. In some cases, unofficial recyclers have even opposed projects. Collectors in Delhi (India), for example, demonstrated on 24 October 2011 in the company of NGOs, citizens and residents (CDM Watch, Whatch This, NGO Voices on the CDM, April 2002, 13p).

Source: La transformation des gouvernements urbains locaux en Egypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

BETTER STRUCTURING THE SECTOR

By setting up an appropriate regulatory and legislative framework

Although the contrasting experiences to be seen in Tunisia and Turkey in particular show how effective the introduction of pro-active regulatory structures can be, it is not enough to simply transpose rules from one country to another in order to transform on a sustainable basis as complex a sector as that of urban waste management.

Major differences exist between the countries of the region in terms of institutional organisation (local authority competences and means), economic development and also environmental education.

Integrated approaches should be promoted at territorial level in order to take account of the specific features of local economies, local practices and players, with this "territorialisation" of government policy building on the support of beefed up, competent local authorities.

These institutional developments will necessarily entail clarification of responsibilities and improved inter-linkage between the various institutional levels.

The influence of Turkey's EU accession process on the waste sector

At the end of the December 2004 European Summit, the European Union decided to open accession negotiations with Turkey on 3rd October 2005. Improving the efficiency of waste management was identified as an environmental policy priority in this accession process, triggering far-reaching change in the sector. These changes are intended as a response to environmental and economic criteria stipulated by the European Union's Accession Directives (chapter 27). They follow « timetables for alignment » proposed by the EU and are reflected in operating procedures, service management and associated investment.

Since 2005, numerous laws have been published in order to tighten up the regulatory framework applicable to the waste management sector and introduce the legislation needed to correctly recover costs and protect the environment. These laws have pertained to reducing waste production (Solid Waste Control Regulation (14.3.1991-20814; amendment 05.04.2005-25777)), hazardous waste (27.08.1995-22387; amendment 14.04.2005-25755), but also the general principles of waste management (Regulation on General Principles of Waste Management (05.07.2008-26927) and the Landfill Regulation (26.03.2010-27533)). They have had a significant effect, particularly as regards the reduction and recycling of packaging and hazardous waste (batteries and accumulators, medical waste, etc.).

These legislative changes are also meant to nudge waste management in Turkey in a more integrated direction. The 2008 national programme sets out the priorities intended to respond to the EU accession criteria on the environment, leading to the drawing up of the 2008-2012 Solid Waste Plan by the Ministry of the Environment in May 2008. The main aim of the plan is to shape national policy and executive structures for drawing up regional waste cycle management plans. There is a need for a more organised, more integrated structure better tailored to economic market issues in Turkey. The plan targets the following: public institutions and organisations responsible for waste management, municipalities and other major producers of waste as well as representatives of the private sector active in the waste field. This national waste management plan stresses waste prevention and recovery, household waste management and the introduction of environmentally friendly means of treatment and disposal.

The EU accession process has also led to the development of statistics on waste production, treatment and management. Under various EU-funded programmes, Turkey has gradually adopted the same statistical nomenclature as the EU in order to make its data comparable at European level.

These various changes have led to a consequent increase in national waste management spending since 2005. Total investment needed to harmonise with the European directives between 2007 and 2012 amounted to 2.4 billion euros, intended to be picked up by the municipalities, the private sector and the various legislative mechanisms set up to supervise waste management.

Nevertheless, the Turkish government has so far continued to be the main source of funding, just ahead of the EU in second place. Although inherent to the accession process, this EU funding is feeding an imbalance in investment in the waste management sector between Turkey and other countries in the area.

Although Turkey has been particularly active in developing the institutional, technical and legal side in order to introduce integrated waste management, progress has fallen short of expectations on three main points: infrastructure, institutional management and raising the awareness of society.

The waste collection service does not provide comprehensive cover in Turkey, mainly because under the decentralisation process administrative, financial and technical difficulties have prevented many small municipalities from introducing the operational framework needed to support good waste management. Hence there is scope for progress, particularly as far as cooperation between local councils is concerned. This explains why 150 regional unions of municipalities were created in 2011. They take in 1,800 of 3,200 municipalities and could be instrumental in improving the situation.

By increasing funding to local authorities

Introducing integrated waste management in the towns of the Southern and Eastern Mediterranean countries requires considerable investment in sustainable waste treatment infrastructure such as council-run waste management facilities, sorting stations or waste treatment and recovery installations.

In most countries in the region, such investment is currently beyond the reach of the local authorities, even in the largest towns.

Besides the essential institutional reforms, local authorities must also be furnished with the necessary means to intervene, particularly by transferring adequate amounts from the national budget, but also by granting them enough autonomy to mobilise funds from international financial institutions involved in development aid as well as the private sector.

Encouraging the pooling of means by promoting inter-communality

Since not all municipalities have the same resources for coping with the cost of integrated waste management, the development of management structures shared between local councils may help resolve such issues by producing economies of scale and by sharing expenditure between the various communities. This holds particularly true in the case of wealthier towns near the centre and less well-endowed communities further out.

Various approaches have been tested. There is a trend towards the introduction of inter-communal or regional mechanisms for landfill management, such as in Jordan, the Palestinian Territories, Tunisia and Turkey, for example.

Administrative regions have been established in these countries to manage transfer stations and landfills. They make it possible to share the substantial running costs as well as the cost of recovering and dumping municipal waste.

Various experiments have been conducted in setting up inter-communal or regional landfill management mechanisms. However, these regional or inter-communal bodies are not fiscally consolidated as such.

Indeed, it would appear that there is no one tax mechanism in place throughout these areas of cooperation. The absence of such mechanisms may well undermine cost sharing capacity at inter-communal level. Although fiscal consolidation mechanisms could help to fairly balance the costs between rich and poor towns, they would currently appear to be non-existent in the region.

As a whole, these highly appropriate mechanisms remain unknown in practice. Whilst representing interesting modes of management from a geographical, economic and political point of view, they still require further work, particularly on the legislative and tax front.

In Jordan, in accordance with article 41 of the 1955 municipalities law, regulation n° 17 of 1983 introduced Joint Services Councils (JSC) (the inter-communal cooperation bodies in the Palestinian Territories go by the same name). These inter-municipal agencies are responsible for managing certain shared public services. They currently number 21, 16 of them dealing exclusively with landfills. They are administered by a board comprising a chairman, who must be a specialised engineer, appointed by the Ministry for Municipal Affairs, and several members who are mayors of the municipalities making up the JSC.

Source: La transformation des gouvernements urbains locaux en Egypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

In Turkey, three regions and 11 sub-regions have been set up under the solid waste plans. Drawn up at regional level, these plans are intended to finance sanitary landfill sites, reduce the amount of waste produced, encourage recycling, reduce transport costs, etc.

In Tunisia, the legal and institutional framework for inter-communal waste management is being consolidated under the programme on integrated waste management (PRONGID). ANGED is, however, still in charge of procurement for waste operations.

Regional committees made up of stakeholder local authorities have been set up in order to monitor the running of the landfills and transfer centres as well as payment by the towns of the costs incurred by waste disposal.

The Bizerte regional council has established inter-communal cooperation as a priority in respect of:

- Management of the transfer centres and regulated landfills,
- Management of some channels: demolition waste, green waste, bulky waste, etc.,
- Optimising collection and achieving economies of scale.

The report, however, provides few details about financial resources and tax contributions for these inter-communal cooperation bodies. The text of the recommendations mentions the need to tighten up the law on inter-communal cooperation.

Specifying the role and building the capacity of bodies in charge of the sector

In most of the countries, municipal services focus essentially on operational functions (direct collection, equipment maintenance, etc.), which they usually provide themselves. Although ample manpower is sometimes available, the workforce tends to be poorly qualified and with minimal supervision.

These services are absorbed by the scale of everyday tasks and often lack the capacity of analysis and strategic vision needed to improve the service. As things stand, outsourcing to potential private operators is not an option.

Besides encouraging the coordination and pooling of means at inter-communal level, the introduction of integrated urban waste management in the towns of the region should also allow specialised operational bodies to be established as a back-up to the municipal services, the latter having refocused on the more strategic tasks of guiding and supervising third party operators (public or private) and assessing this essential municipal service.

A precondition to the drafting of public policy able to meet the growing needs of towns in the region is the setting up of financially autonomous and technically competent institutions such as ad hoc organising authorities - for example joint single-profession associations (or any other appropriate legal forms as long as they have the necessary means and capacity) - for waste collection and treatment.

In Tunisia, the example of the National Waste Management Agency (ANGED)

Waste management in Tunisia is rendered unique largely by its national waste management body, one of a kind in the region. The National Waste Management Agency is a public, non-administrative body set up in August 2005 by decree no. 2005-2317. It comes under the aegis of the Ministry for the Environment and Sustainable Development. Its main task is to assist in the drawing up of national programmes and the implementation of governmental waste management policy, to provide assistance with waste management to local authorities and industry and to promote partnership between all stakeholders, with emphasis on local authorities, industry and individuals. The ANGED plays a leading role in proposing laws on waste as well as being responsible for monitoring implementation of the Integrated Waste Management Programme (PRONGID) with its focus on waste treatment and reuse. ANGED's responsibility for procurement regarding the setting up and operation of landfill facilities has given rise to a two-tiered waste management system in the country. The local authorities are responsible for collection and transport, whereas landfills and treatment are dealt with nationally. This shared approach eases the financial burden of waste management on local authorities. At the same time it facilitates local approaches to concessions in the framework of less risky investment for the private sector, particularly since ANGED actively encourages inter-communal cooperation, thereby creating effects of scale for both municipalities and private investors alike.

In Egypt in the 1980s when the demographic explosion got the better of municipal waste management, overwhelmed as a result of shortcomings in the informal sector, the Egyptian authorities set up national sanitation agencies in the capital's two governorates. In 1983, Presidential decree no.284 brought the Cairo and Giza Cleaning and Beautification Agencies (CCBA and GCBA) into being, responsible for cleanliness and waste management in the two governorates. These agencies stripped the governorates of the prerogatives granted to them by law. Having legal status, the agencies enjoy administrative and financial autonomy and answer directly to the Prime Minister's Cabinet. Their staff is chosen by the Prime Minister (art.3 of law no.4 of 1994) potentially on recommendation by the governors of Giza and Cairo.

The aim of the national authorities in setting up these agencies was to improve waste management in various respects. The agencies were seen as a preliminary to the first steps towards privatisation. Placing them directly under the authority of the central government was seen as a way of rendering them more competent, given the inadequate technical and financial means of the local authorities. The decision also showed the government's determination to focus specific means on the Egyptian capital.

The CCBA and GCBA have signed public service concession contracts with the foreign multinationals in Cairo and Giza and are responsible for monitoring them. Thirty years on, however, these agencies are like empty shells, devoid of financial and technical resources.

They enjoy no financial autonomy since they do not directly collect sanitation taxes. They are thus subject to the financial authority of the Ministry of Finance and their capacity to invest and take the initiative is curtailed.

Lacking technical capacity, they do not constitute a credible interlocutor for foreign private companies, which prefer to turn directly to national bodies with better qualified manpower. The lack of training and ability amongst their workforce, moreover, has contributed to the emergence of a climate of hostility towards these foreign companies, whose work is seen as an intrusion.

Although these bodies were initially intended to act as facilitators, this has never really been their role. They actually constitute a counter-example to the ANGED even though, like the latter, they continue to undermine local authority prerogatives - a questionable situation from the point of view of decentralisation.

Source: La transformation des gouvernements urbains locaux en Egypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

By rendering stakeholders in the sector more professional and responsible

Exploring transposition of the extended producer responsibility principle

Driven by the European Union, the Northern Mediterranean countries (NMCs) have corrected the limitations of a statutory mechanism which until now implicitly saw waste as being « orphaned » of any collective responsibility. Increasingly systematic application of the principle of extended producer responsibility (EPR) should lead to the cost of management (previously incumbent upon the public authorities as guarantors of the public interest) being in-sourced to producers and, indirectly, consumers.

This principle could also constitute one of the keys to more sustainable waste management in the SEMCs, although this will necessitate forward-looking studies on a new basis of analysis. Improving understanding of flows, their composition and origin is crucial to the development of EPR.

Awareness still needs to be raised in the Southern and Eastern Mediterranean countries, however, regarding the possibility of encouraging exporter countries to become involved in creating national eco-organisations to organise collection and treatment systems.

In France in the late 80s, the territorial authorities in charge of household waste management faced a dual issue: a major increase in the quantity of waste and the need to switch to quality management. This prompted a hike in management costs, which the authorities had to pass onto the citizens with no possibility of effectively influencing the type of waste produced in terms of volume, hazardousness and also recyclability.

This is one of the reasons which prompted the French government, as others, to overhaul its waste management policy. It felt that all or part of the financial and/or material responsibility for the management of waste created by the products they market should be switched to the producer (manufacturer or importer), as a means to curb the environmental impact of growing amounts of waste.

The OECD pioneered the formalisation of the EPR principle, launching a debate in the 80s about internalising the external costs relating to waste management. In 1994, it led international level deliberations regarding the advantages inherent in this principle and the conditions for its implementation, publishing in 2001 a document entitled « Extended Producer Responsibility - a Guidance Manual for Governments ».

Since 1991, Germany has been implementing this type of regulation, involving those responsible for placing products on the market (or product manufacturers) in managing the waste generated by their product packaging. It is no longer the producer of the waste alone who is responsible for funding, but also the product manufacturer, who may also bear operational responsibility.

At the same time, European Union studies have highlighted the importance of certain waste flows, either due to their hazardous nature, as is the case with batteries and accumulators, or because of the growing amounts being generated, as with packaging. These flows require specific and appropriate management. The European Union translated this policy into two directives, in 1991 and 1994 respectively. They did not then impose the use of EPR. At the same time, waste recycling and reuse targets also started to be increasingly set in Europe.

In France, the principle according to which economic stakeholders, producers and distributors who market waste-generating products are partly or wholly responsible for waste management has been in existence since 1975 and is stipulated in article L. 541-10 of the environmental code: «Pursuant to the principle of extended producer responsibility, producers, importers and distributors of these products or of elements and materials used in their manufacture may be required to provide for or contribute to the management of the waste they produce.» The first application of producer liability in France dates back to the 80s when management of waste lubricants was financed by a tax levied on base oil marketers. But it was not until 1st April 1992 that the EPR mechanism really took off, with a decree setting up the household packaging channel.

Two main principles prevailed at the outset in the EPR principle:

- Relieving the territorial authorities of whole or part of the cost of managing waste and switching funding from the taxpayer to the producer (« polluter pays » principle);
- Internalising the cost of managing a product once used into the retail price of the unused product in order to encourage the producer to embrace eco-design.

It was not long before recycling was added as a third significant objective.

Source: Rapport sur les modalités d'évolution et d'extension du principe de responsabilité élargie des producteurs dans la gestion des déchets, MEDDE, Directorate General for Risk Prevention, March 2012

Mainstreaming informal systems in institutional provision

In most countries, the informal sector plays a significant role in urban waste collection. This urban service can only be improved on a sustainable basis if the means already available in the towns are better exploited and stakeholders in this sector therefore fully integrated into the urban economy.

Artisanal collection needs to be combined with an effective treatment system in order to encourage economies of scale in core investment (rubbish tips, landfills, biogas production plants, recycling systems, etc.).

This will require a far-reaching overhaul of the sector, making stakeholders more professional and developing the selective sorting strengths of these systems whilst curbing free-riders and middlemen in order to improve the quality of this local service at an affordable cost for the local economy.

Several international operators have already attempted to follow this path by contracting out public services in towns throughout the region. The approach taken by the Veolia group in Alexandria, Egypt, for example, which led to many of the town's rag-pickers being given a job, will certainly remain as one of the most emblematic experiences in the region.

The economic difficulties Veolia faced in Alexandria, however, have shown just how big a challenge retaining jobs and a high quality service at affordable cost for the local economy within a more institutionalised system remains for authorities in the Southern and Eastern Mediterranean countries determined to take this path.

A resilient informal sector in Egypt

Throughout their history the zabbâln have on several occasions been forced to adapt to external pressure caused by the authorities' wish to modernise the service. However effective the service provided by the zabbâln, the authorities felt that as of the 1980s their methods, deemed traditional, were no longer compatible with the technological updating of the service they were seeking.

As of that date, various policies seriously disrupted the zabbâln community (ban on the use of donkeys in the 1980s, multiple threats to demolish their districts, outsourcing to private international companies in 2002 and the slaughtering of their herds of pigs in 2009).

The community nonetheless showed remarkable resistance and resilience and continues to this day to play a key role in waste management. Although the authorities have always conducted policy with no regard for the community, the zabbâln have gradually gained legitimacy. Thanks to their ability to adapt, unequalled by private formal groups, and the support they receive from NGOs and international backers, the zabbâln have managed to retain a legitimate niche for themselves in the waste management sector.

Their ecological skills have recently come to the fore, giving them a further boost. Some see the zabbâln as an example of sustainable development since their economy supports 90,000 people and they recycle and reuse 80% of the waste they collect. For all their technology, the European companies established in Egypt have never managed to equal such levels of performance.

The Governorate of Cairo's new sanitation plan drawn up by the Ministry for the Environment in 2010 with the aim of solving difficulties that the privatisation reform was unable to overcome, therefore foresees the formal mainstreaming of the community within the waste management service. This time it is therefore up to the community to design a new model of modernity.

Source: La transformation des gouvernements urbains locaux en Egypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

In Cairo, waste collection in the working class districts: Making a virtue of necessity!

For the residents of Cairo's working class neighbourhoods as for the rag pickers, waste has a value. Waste is salvaged in a myriad of forms, providing a supplementary source of income. Residents sort their waste at home and sell certain materials on to itinerant buyers with their mule-drawn carts or to local residents who pick up on request. Bread, fabric, plastic bottles, cardboard boxes, egg trays and even bones are kept and sold on. The purchase price goes by the kilo for the given material. Each buyer deals exclusively with one material, which he then processes or resells in unchanged form. Bread is dried and sold to breeders as animal feed, bones are used to make glue, plastic bottles are washed and sold as containers to residents of the neighbourhood, cardboard boxes go for recycling and fabric to Cairo's textile factories. Since they sell their materials, the residents are prepared to take them to specific resale points if buyers do not ply the streets. This explains why most of the waste collected in these neighbourhoods by private companies and the zabbâln is organic. Whilst this waste composition is attributed to consumption patterns in poor households which produce less solid waste, it is also the result of these multiple sorting and resale activities where nothing is wasted and everything is processed.

Source: La transformation des gouvernements urbains locaux en Egypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers, Debout Lise, Doctoral thesis on town planning and development, Lyon Lumière II University, under the guidance of Eric Verdeil and Franck Scherrer, defence in November 2012

Bibliography

PUBLICATIONS

- Ben Amor, Faouzi (2011). *Études nationales et études de cas de la gestion des déchets urbains – Cas de la Tunisie. Programme de travail du Plan Bleu sur la gestion des déchets et les flux de matières.*
- Benoit Guillaume, Comeau Aline (2005). *Méditerranée ; les perspectives du Plan Bleu sur l'Environnement et le Développement.* Plan Bleu, Editions de l'Aube.
- Chemonics (2006). *Quelques éléments sur la grande distribution au Maroc. Rapport préparé à l'intention de l'Agence Américaine pour le Développement International.*
- Debout, Lise (2012). *La transformation des gouvernements urbains locaux en Égypte. Observation par l'intermédiaire de la réforme de la gestion des déchets ménagers.* Thèse de Doctorat en Urbanisme et Aménagement, Université Lyon Lumière II.
- El-Sherbiny Rami, Debout Lise (2011). *Études nationales et études de cas de la gestion des déchets urbains – Cas de l'Égypte (rapport intermédiaire).* Programme de travail du Plan Bleu sur la gestion des déchets et les flux de matières.
- Haouaoui L., Loukil F. (2009). *Evaluation du système de gestion des déchets ménagers en Tunisie. Cinquième colloque international «Energies, changements climatiques et développement durable », Hammamet, Tunisie, juin 2009.*
- Hoomweg Daniel, Bhada-Tata Perinaz (2012). *What a waste: a global review of solid waste management.* World Bank.
- Keserue, Oliver (2009). *L'analyse prospective « déchets » du Plan Bleu : de l'analyse du « vrac » à l'analyse des flux de matières pour une politique sur les déchets adaptée aux contraintes des pays méditerranéens.* Plan Bleu
- MEDDE, Direction générale de la prévention des risques (2012). *Rapport sur les modalités d'évolution et d'extension du principe de responsabilité élargie des producteurs dans la gestion des déchets.*
- Sustainable Business Associates (2010). *Diagnostic de la gestion des déchets hôteliers de Djerba.*
- Ünlü, Kahraman (2011). *Études nationales et études de cas de la gestion des déchets urbains – Cas de la Turquie. Programme de travail du Plan Bleu sur la gestion des déchets et les flux de matières.*

PARTICIPANT CONTRIBUTIONS AT THE SEMINAR ON 29 MARCH 2012

- Mr Oliver KESERUE, Véolia Environnement (former Plan Bleu Programme Officer)
- Mr Faouzi Ben AMOR, Expert, « Tunisia » national study
- Mrs. Lise DEBOUT, CNRS CEDEJ, Expert, « Egypt » national study
- Mr Kahraman ÜNLÜ, Expert, « Turkey » national study

THE EXTERNAL EXPERTS

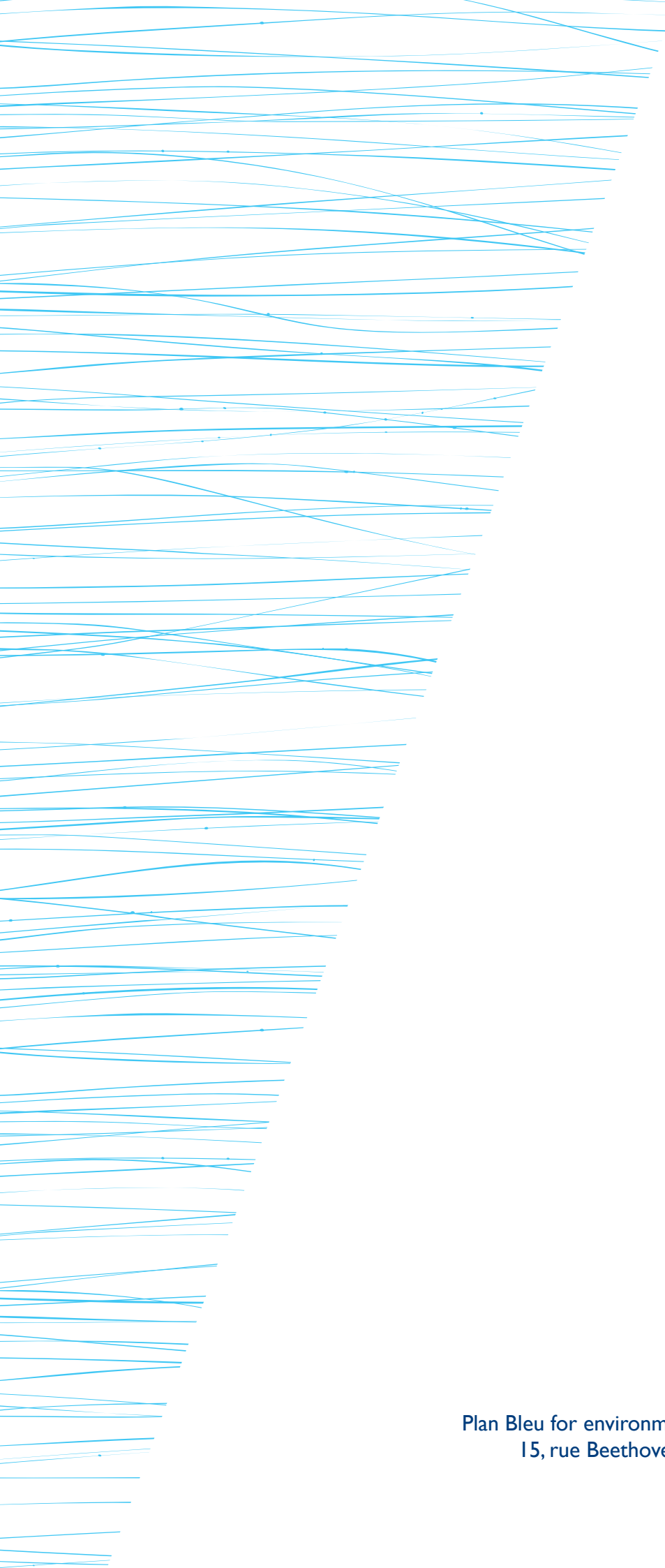
- Mr Ridha BRAHIM, National Waste Management Agency (ANGED), Tunisia
- Mr Jean-Jacques DOHOGNE, ACR+
- Dr Hassan EL BARI, Moroccan Solid Waste Association (AMADES)
- Mr Frederic GALLO, Regional activity centre for cleaner production, UNEP/MAP

THE PLAN BLEU TEAM

- Mr Sylvain HOUPIN
- Mr Jean Pierre GIRAUD
- Mrs Dominique LEGROS
- Mrs Nathalie ROUSSET

WEB SOURCES

- www.acrplus.org
- www.medicities.org
- www.surfridermaroc.com
- www.dechets-waste.egypt.over-blog.com



Plan Bleu for environment and development in the Mediterranean
15, rue Beethoven, Sophia Antipolis, 06560 Valbonne, France
+33 (0)492 387 130 - www.planbleu.org