



Report on the Solid Waste Management in **TUNISIA**

April 2014

REPORT ON THE SOLID WASTE MANAGEMENT IN

TUNISIA



April 2014



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COUNTRY PROFILE on the solid waste management situation in **TUNISIA**

April 2014

BACKGROUND INFORMATION

Population:	10.778million
Municipal Solid Waste (MSW) Generation:	2.423 million tons (2012)
Per Capita MSW Generation:	
- Urban areas	0.815Kg/day
- Rural areas	0.150Kg/day
MSW Generation Growth:	2,5%
Medical waste generation:	16,000 Tons/year
Industrial waste:	116,000 Tons/year
Hazardous industrial waste:	150,000 tons/year (except of the phosphogypsum waste that exceeds 5 million tons per year)
Agricultural waste:	4,033 Million tons/year
Construction and demolition waste:	n/a
Waste Tyres:	15 000 tons /year
e-Waste:	90,000 tons /year
Packaging Waste:	99,000 tons /year

TECHNICAL PERFORMANCE

Municipal Waste (2012)

MSW Collection Coverage:	
- Urban areas	80 %
- Rural areas	0-10%
MSW Final Destination:	
- Composted	5 %
- Recycled	4 %
- Landfilled	70 %
- Openly dumped	21 %
Number of Controlled Landfills:	0
- Planned	5
- Under construction	5
- Operational	9-10 (the discharge of Guellala is stopped)

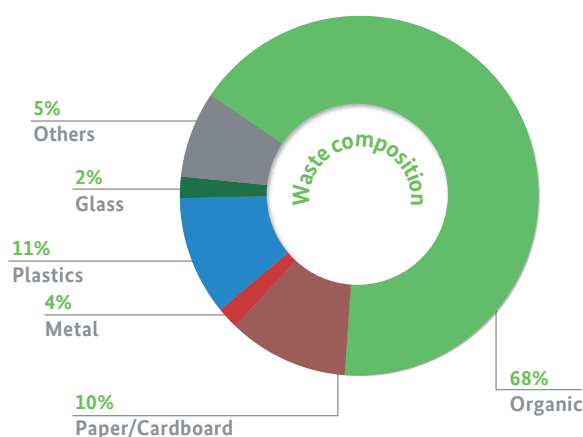
Hazardous and industrial waste

Number of hazardous landfills or plants (Chemical and physical treatment):	None
- Planned	None
- Under construction	3
- Operational	1 stopped because of conflicts with local residents
Treatment for medical waste:	disinfection

Policy and planning environment

National strategy on waste management : 2007/2016

Area	Policy activity
Area 1 : Consultation, information systems, communication, awareness and education on waste management	Design and implementation of an information system
	Strengthening the dialogue between the actors of the Waste Management
	Development of the communication tools between stakeholders
	Awareness and education on waste
Area 2 : Institutional and legal framework	Improving the legal framework for waste management
	Improving the implementation of laws
	Strengthening the institutional aspect
Area 3 : Enhancing human and material capacities	Strengthening the capacity of local public authorities
	Strengthening the capacity of public actors
	Strengthening the capacity of the private sector
	Strengthening the capacity of NGOs
	Conception of a training system
Area 4 : Financing and cost recovery	Strengthening the financial capacity of waste management
	Control and optimization of the costs of waste management
	Evolution of funding for waste management
	Adaptation of the collection means to the local situation
Area 5 : Technical and organizational aspects	Strengthening intercommunality in waste management
	Improve the suitability of the modest local realities in processing
	Planning, monitoring and evaluation of sectors



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Legal framework

- Law 1996-1941 of 10.06.1996: amended by Law 2001-14 of January 30, 2001, on waste control, management and disposal;
- Law 92 – 122 establishing a de-pollution fund (FODEP);
- Law 1975-33 of 14 May 1975: promulgating the organic Law of Commons;
- Law n°97-11 of 3 February 1997, promulgating the code of local taxation;
- Decree N° 2317-2005 of 22/8/2005: Establishing a national waste management agency (ANGED);

Institutional framework

Institution	Tasks/responsibilities
Nationally	
Ministry of Infrastructure and Environment	<ul style="list-style-type: none"> - Preparation and leadership of the national policy on environmental protection - Development of regulations relating to the protection of the environment
Ministry of the Interior	<ul style="list-style-type: none"> - Supervisory authority of municipalities and regional councils - Responsible for monitoring and developing municipal budgets in both investment and operation
National Waste Management Agency (ANGED)	<ul style="list-style-type: none"> - Participation in the development of the national strategy and programs for waste management - Implementation of projects and investments in the field on the account of the State - Infrastructure operations, transfer facilities and landfills for non-hazardous waste - Operation of infrastructure and facilities dedicated to the treatment of industrial and hazardous waste - Technical assistance to municipalities for waste management
Agency for Environmental Protection (ANPE)	<ul style="list-style-type: none"> - Control and enforcement of the regulations on waste management
Ministry of Finance	<ul style="list-style-type: none"> - Participation in the development and implementation of financial instruments in the waste management and recovery of various related taxes.
Ministry of Public Health	<ul style="list-style-type: none"> - Participates in the development and conduct of waste management programs from the sector
Ministry of Industry	<ul style="list-style-type: none"> - Participates in the development and implementation of programs related to waste streams from industrial activities. - Assigns operating permits for installations classified unhealthy and uncomfortable
Ministry of Trade	<ul style="list-style-type: none"> - Participates in the development and conduct of programs related to waste streams from commercial activities
Ministry of Agriculture	<ul style="list-style-type: none"> - Participates in the development of regulations to protect the environment against pollution caused by the management of waste

Locally	
Commons	<ul style="list-style-type: none"> - Collection and transportation of municipal waste - Elimination of waste in municipalities not served by controlled landfills
Regional Councils / Rural Councils	<ul style="list-style-type: none"> - Waste collection/transport and disposal in rural areas
GMG	<ul style="list-style-type: none"> - Collection and transportation of non-hazardous waste in industrial areas

Financial provisions and cost recovery

Collection and transportation of municipal waste

- The costs of collection:
 - For the public collection: 40-70 TND/ton
 - For the collection by the private sector: 30 to 35 TND/ton;
- Financing of the collection/transportation: Own resources of commons: TIB, TNB, TCL and state contribution;
- Recovery of municipal taxes: less than 50%.

Transfer and disposal of waste

- The average cost of transfer and landfilling is 20 TND /ton, the municipality shall contribute up to 20% and the state contributes up to 80% through the FODEP;
- The funding covers all expenses of the landfill.

Private sector participation

- 4.5% of the municipal waste collection is provided by private operators;
- The operation of transfer stations and landfills is completely provided by private operators (100%);
- The collection and treatment of e-waste, oil activities, ..., print cartridges, are fully insured by private companies (100%).

Options for optimization

- Development and implementation of a communication crisis plan;
- Strengthen and make the control system of infringements related to urban health operational;
- Strengthen the financial, logistical and human resources of Commons;
- Encourage municipalities to develop their PCGD;
- Establish and strengthen local governance;
- Strengthen and develop energy from waste.

LIST OF ABBREVIATIONS

AFR	Matériaux et Combustibles Alternatifs
AMSE	Agence municipale des services environnementaux
ANGed	Agence nationale de gestion des déchets
BEI	Banque Européenne d'investissement
BTP	Bâtiments et travaux publics
PSCL	Caisse de prêts et de soutien aux collectivités locales
DAS	Déchets d'activités de soins
DEEE	Déchets électrique, électronique et électroménagers
DGCPL	Direction générale des collectivités publiques locales
DID	Déchets industriels dangereux
DIND	Déchets industriels non dangereux
DMA	Déchets ménagers et assimilés
DSM	Déchets solides municipaux
EPS	Etablissements de soins publics
FADES	Fond arabe de développement économique et social
FODEP	Fond de dépollution
GCT	Groupe Chimique Tunisien
GES	Gaz à effet de serre
GIZ	Coopération Technique Allemande (Deutsche Gesellschaft für Internationale Zusammenarbeit)
GMG	Groupe de maintenance et de gestion
INS	Institut national de la statistique
IRST	Installation de réception, de stockage et de transfert
KfW	Banque allemande de développement (Kreditanstalt für Wiederaufbau Bankengrupp)
MDP	Mécanisme de développement propre
ONG	Organisation non gouvernementale
PCGD	Plan communal de gestion des déchets
PPE	Programme pour l'environnement
RDF	Fuel derive des déchets
SID	Système d'information dynamique

SOTULUB	Société tunisienne de lubrifiants
SWEEP-Net	Réseau régional d'échange d'informations et d'expertises en matière des déchets solides dans les pays du Machreq et du Maghreb
TEO	Taxe d'enlèvement des ordures
TND	Dinar tunisien
VHU	Véhicule hors usage
VRD	Voiries et réseaux divers

EXECUTIVE SUMMARY

This work, carried out for the account of SWEEP-Net /GIZ, consists essentially in updating the report on solid waste management in Tunisia. To collect update information and wanted indicators, a number of actors and information sources have been approached and have contributed positively. The main target actors contacted are: The National Agency of Waste Management (ANGed), the National Institute of Statistics (INS), the National Center for Environmental Technologies of Tunis (CITET), the General Directorate of Local Public Authorities (DGCPL) of the Ministry of the Interior, the Loan Fund and Support for Local Authorities (CPSCl) the Ministry of Industry and the Secretariat of the Environment. The main areas covered by the report are:

- Waste Management Policies, strategies, legal and institutional framework and financing;
- Municipal solid waste management ;
- Ordinary industrial waste management ;
- Hazardous industrial waste management ;
- Medical waste management ;
- Green and agricultural waste management;
- Packaging waste Management ;
- Construction and demolition waste management ;
- Waste tyres management ;
- Oil and lubricants nanagement ;
- E-Waste management ;
- Management of non usable vehicles ;
- International financial and technical assistance programs;
- Building capacities sectors ;
- Recommendations for SWEEP-Net assistance.

1. INTRODUCTION

1.1. SOCIO-ECONOMIC AND POLITICAL SITUATION

The grip of the destiny of the country by three governments since the advent of 14 January 2011 characterized the political scene in Tunisia and the time taken by the National Constituent Assembly to draft the new constitution as the basis for the election of municipal councils, rural councils and regional councils in charge of the operational management of solid waste is too long, the continuous waiting situation is likely to hinder the establishment of national programs for waste management.

The country has 10.778 million inhabitants, of whom 66% live in the communal areas; the national economic growth has not exceeded 2.1% during the last quarter of 2012; the social situation is characterized by an unemployment rate of 17.6% particularly in terms of graduate, a poverty rate of 3.8% and a remarkable regional and social inequality.

1.2. INVENTORIES OF THE WASTE MANAGEMENT

There is currently and since the advent of 14 January 2011, in Tunisia, a worrying deterioration in terms of solid waste management in both urban and rural areas, as evidenced by the proliferation of solid waste dumps and blackheads. Indeed, the current environment offers a pitiful spectacle with wild accumulation and the invasion of waste of all types along the roadways, sidewalks, gutters, in rivers, in urban parks and green spaces, on the talus slopes and in the unbuilt land. The causes are multiple and at several levels:

- Dissolution of municipal councils ;
- Dissolution of rural councils which ensure the waste collection and transportation ;
- Municipal buildings have suffered significant damage due to social demands;
- Recurring strikes by municipal workers demanding better working conditions;
- Closure of disposal facilities being challenged by the local population;
- The responsibility of the waste chain management is shared between the community and ANGED;
- Lack of information and communication plan adapted to the crisis;
- The behaviour of the citizen characterized by the absence of eco-citizenship;
- Total absence of monitoring of violations;
- The difficult financial situation of communities since January 14, 2011;
- Unselfishness and unwillingness of the private sector to invest in waste management;
- The collapse of the value of work and loss of productivity in Tunisia since the advent of 14 January 2011.

The key indicators of the country in the matter characterizing the process of waste management are as follows:

- **Municipal solid waste:** the amount generated is 2.423 million tons/ year, the estimated growth rate is of 2.5 % per year, the MSW are characterized by a strong presence of biodegradable organic matter (68 %), while the packaging represents a rate of 24 % , the MSW moisture content rate is higher than 65%, the specific production of 0.815 kg / capita/ day in urban areas and 0.150 kg/ capita/ day in rural areas, 66%

of the population lives in 264 towns, the municipal budget contributes to the costs of waste management up to 40%, a ton of waste requires payment of 60 to 80 TND for the collection and transport phase and 20 TND for the transfer and burial phase in discharge, MSW collection is covered at 80% in communal areas and 10% in rural areas. To eliminate the MSW the country has 10 controlled landfills (sanitary) with a nominal capacity of 1,788,000 tons/ year, four other semi-controlled landfills in the Valley Medjerda with a capacity of 62,000 tons/ year, five other discharges with a nominal capacity of 0.466 million tons/ year are being built and finally five other controlled discharges are planned with an average capacity of 0.433 million tons/ year. 5Five percent of MSW is composted and 4% recycled ;

- **Hazardous industrial waste generated:** the hazardous industrial waste is estimated at 150.000 tons/ year; 12.000 tons were collected in 2010 and processed in the centre of Jradou. For the treatment of hazardous industrial waste four units are built, with a nominal capacity of 90.000 tons/year. The centre of Jradou start-up before the revolution is stopped due to a dispute with the local population. From the other 3 storage and treatment facilities (IRST) only the centers of Sfax and Gabes are ready to be put into operation;
- **Non-hazardous industrial waste:** non-hazardous industrial waste are collected and transported to landfills controlled by private operators. The only information available on this category of waste is the amount of non-hazardous industrial waste received in 2010 at the ten landfills: Tunis, Bozerte, Nabeul, Sousse, Monastir, Kairouan, Sfax, Gabes, Medenine and Djerba, and it is of 116.000 tons/year;
- **Lubricating oils:** 20.000 tons of lubricating oils are generated per year and only 12.105 tons (year 2012) have been generated and collected in the facilities of SOTULUB, the only authorized company;
- **Used tires:** the deposit of waste is estimated at 15.000 tons/ year (1million units). From the 5 approved treatment units, only one is currently operating with a nominal capacity of 21.000 tons/ year;
- **Medical waste:** the deposit of the medical waste is estimated at 16.000 tons/year, of which 7.000 tons are classified as hazardous. These wastes are originated from public health institutions and private clinics, and the greater Tunis alone generates 40%. The national program includes the construction of six treatment centers by companies granted with the permission of the Ministry of the Environment;
- **Green and agricultural waste:** the deposit of green waste from parks is estimated at 33.000 tons, the green waste from agriculture is estimated at 4 million tons/year, while the production of compost does not exceed 50.000 tons/year;
- **Packaging waste:** the annual deposit of these categories of waste is 55.000 tons of plastic, 44.000 tons of paper/cardboard and 100 tons of brick (liquid foodpackaging); only the foodchain brick is not well developed;
- **Demolition and construction waste:** there is no information on the deposit of this waste category;
- **E-Waste:** the deposit is 90.000 tons/year, the collected amount is 22.500 tons/year, and there are 6 existing processing units authorized by the Ministry of Environment with a nominal capacity of 18.500 tons/year in addition to a new processing unit with a capacity of 24.000 tons/year that will begin in 2014.

2. NATIONAL POLICIES OF MUNICIPAL SOLID WASTE MANAGEMENT

2.1. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Waste management has always been one of the strategic pillars of the policy of the government in Tunisia. The future vision is to improve the framework and protect the environment.

Legally this policy has led to a variety of regulations, including:

- Law 1996-1941 dated 10/06/1996 on the control of the wastemanagement and disposal;
- Law 1975-33 dated 14/05/1975 on the organic law of Commons entrusting waste collection in communal areas to municipalities;
- Decree 726-1989 dated 10/6/1989 relating to rural councils entrusting waste disposal in rural areas to elected councils.
- Institutional waste management is shared among multiple stakeholders; the following table describes the situation:

Table 1: MSW MANAGEMENT, INSTITUTIONAL FRAMEWORK

Institution	Tasks/responsibilities
Nationally	
Ministry of Infrastructure and Environment	<ul style="list-style-type: none"> - Elaboration and conduct of national policy on environmental protection; - Elaboration of regulations relating to the protection of the environment.
Ministry of the Interior	<ul style="list-style-type: none"> - Supervisory authority of municipalities and regional councils; - Responsible for monitoring and developing municipal budgets both in investment and operation.
National Agency of Waste Management (ANGed)	<ul style="list-style-type: none"> - Participation in the elaboration of the national strategy and programs related to waste management; - Achievement, for the account of the State, of projects and investments in the domain; - Infrastructure operations, transfer facilities and controlled landfills for non hazardous waste; - Infrastructure operations and facilities dedicated to the treatment of hazardous industrial and special waste. - Technical assistance to municipalities and industrialists for waste management
Agence de protection de l'environnement (ANPE)	<ul style="list-style-type: none"> - Contrôle et veille à l'application de la réglementation en matière de gestion des déchets.
Environment Protection Agency (ANPE)	<ul style="list-style-type: none"> - Control and ensure the application of the regulations on waste management
Ministry of Finance	<ul style="list-style-type: none"> - Participation in the development and implementation of financial instruments in the management of waste and recovery of various related taxes.

Ministry of Industry and Technology	- Participates in the development and implementation of programs related to waste streams from industrial activities
Ministry of Commerce	- Participates in the development and implementation of programs related to waste streams from commercial activities
Ministry of Agriculture	- Participates in the development of regulations to protect the environment against pollution caused by waste management
Locally	
Municipalities	- Collection / transport /treatment and disposal of municipal waste in the communal areas
Regional and rural councils	- Collection/transport and disposal of waste in rural areas
Group maintenance and management of industrial zones (GMG)	- Collection and transportation of non-hazardous waste in industrial areas

2.2. STRATEGIES, ACTION PLANS AND INITIATIVES

Priority in the national strategy for solid waste management the last few years has been the strengthening of the two main links in the chain of management of household and similar waste, namely:

- Building logistics, human and organizational capacities for municipalities in charge of waste collection and transportation;
- The design and implementation of a regional process of waste transfer and disposal based on the principle of one landfill per governorate (or island) and one transfer station per city (commune or town) and the establishment of accompanying measures for the treatment of generated leachate and methane flaring.

Despite great efforts to improve the household and similar waste management process, there is still much to review and do as well on the strategy level as on the operational level. To manage this challenging post-revolutionary period involves several actions and initiatives:

- Develop a clear national strategy to the public in the management of household and assimilated waste and mobilize the legal, institutional and financial resources for its implementation;
- Strengthen financial, logistics, human and organizational capacities and planning and training for the communities and rural councils, to remove regularly and efficiently the generated household waste;
- Finally solve the social problems of agents working in the sector (casual staff in public and private companies);
- Implementation of a communication and awareness plan for crisis suited for this post-revolutionary period;
- Enable the construction of regional landfills and transfer centres related and planned in the governorates of the country.

2.3. PLANNING AND INVESTMENT

In terms of investment, during 2012, ANGEd mobilized 26.5 million dinars, for their part, municipalities have invested 40.5 million dinars for the acquisition of equipment for collection and transport which makes a total of 77 million dinars.

In terms of operating ANGED has spent 33 million dinars and municipalities spent 260 million dinars, which makes a total of 293 million dinars.

Despite the difficulties impeding the process of transfer and waste landfill in the country caused by land disputes, disputes bordering facilities and social unrest, the national strategy for construction of regional landfills and transfer related is quite well adapted to the specificities of the country. For this nine landfills are operational (the discharge of Djerba is being closed since April 2012), 4 controlled landfills in Mahdia (project currently stopped), Zaghouan, Tozeur and Kerkennah are at the stage of finishing, they have a total capacity of 106.000 tons/year and serve a population of 337.000 inhabitants, two landfills will be built in Beja/Jendouba and Kef/ Siliana with a capacity of 218.000 t/year and will serve the people of the valley of Medjerda (464.000 inhabitants), three landfills are planned in the towns of Gafsa, Sidi Bouzid and Kasserine they will offer a capacity of 215.000t/year and serve 538.000 people, and finally the greater Tunis will have its second discharge in Kabouti with a capacity of 360.000 t/year, it will serve a population of 1.15 million. The work of this discharge is stopped and a settlement of the dispute with residents is being finalized.

Regarding the investment the town pays for the purchase of equipment for the collection and transportation of waste, and participated from 0 to 15% of investment costs for the construction of the first 10 landfills and transfer stations that are currently operating, and the state took over all the investment costs of future landfills and transfer stations (which are ongoing).

2.4. MONITORING

Legally, the control of the offenses relating to waste management is governed by Decree No. 2007-1866 of 23 July 2007 on the list of contraventions of hygiene regulations in areas covered by local authorities and the fines incurred.

Since the advent of 14 January 2011, the situation is characterized by a non-citizenship behaviour and irresponsibility on the part of the citizen and the producer of the waste to the environment. This behavioral outburst resulting from the phenomenon of the revolution must be treated with a management plan for crisis in terms of communication as well as in terms of punishment of the offenders.

The control system must regain its effectiveness in full transparency and social equity. For this, supporting action from the authorities is necessary.

2.5. FISCAL, FINANCE AND ECONOMICAL STEERING INSTRUMENTS

The local tax system provides no fee directly related to the waste collection, it is difficult to consider changes to the system during this period of political transition.

The new constitution that is being drafted will certainly define new ways of financing the sector of waste management; local taxes will be revised accordingly and will move towards citizen involvement in the financing of the entire waste management chain.

For a household of 4 people, a cost of collection and disposal of 90 TND /ton and a specific waste production of 0.815 kg/ inhabitant/ day, the concerned home generates 1.2 tons and a management cost of 107 TND.

FINANCIAL PROVISION AND COSTS

The collection and transportation of municipal waste

The costs of collection:	<ul style="list-style-type: none"> - For the collection by public sector, cost is → 80 TND / ton; - For the collection by the private sector the cost is → 60 TND / ton.
Financing of the collection/ transportation :	Own resources of Municipalities: TIB, TNB, TCL and with the contribution of the state
Collection of municipal taxes :	less than 27%

Transfer and disposal of waste

The average cost of transfer and landfill is 20 TND/ ton. The municipality contributes up to 20% and the state contributes up to 80% through the FODEP.

The funding covers all expenses of the discharge (that is to say that the price may change depending on economic conditions).

2.6. PRIVATE SECTOR PARTICIPATION POLICY

Legally, several texts encourage the private sector to invest in the field of waste management. These include the law 93-120 of 27/12/1993 promulgating the investment incentives code including title II on the fight against pollution and environmental protection and the Decree 1993-1429 of 06.23.1993 suspending customs duties and value added tax due to the importation and the internal system materials and equipment on garbage collection acquired by companies cooperating on behalf of local communities.

In the field of municipal solid waste management, the private sector contributes around 4.5% in the collection and transportation of waste through contracts with local authorities, while attending 100% in the operation of transfer stations and landfills using contracts with ANGED.

It should be noted that this sector faces enormous difficulties to continue working in waste management. Spontaneous strikes, excessive claims, and declining performance of the agents in the work discourage entrepreneurs to take the risk to invest more. This behavior is prejudicial to the public-private partnership and to the labor market.

2.7. PUBLIC AWARENESS, EDUCATION AND COMMUNITY PARTICIPATION

If education and information in the field of waste management took over its usual dynamism, communication/ outreach took over timidly for reasons related to the rupture between the citizen and the administration on the one hand and irresponsible behaviour of citizen and waste producer on the other hand.

Municipalities suffering of instability since the dissolution of municipal councils and the lack of experience of the members of special delegations for communal governance have no communication strategy, whereas at ANGED, a supported program by SWEEP-Net/GIZ the work plan consists of several components:

- A study funded by the World Bank amounting to U.S.\$ 60.000, was launched to diagnose the current situation and develop a communication strategy for two years 2015/2016.

- Develop a communication plan targeting the general public and mainly the local population of the treatment center of industrial and special waste Jradou, at a cost of one million TND and financed by KfW.
- National dialogue initiative itself based on three thematic areas: (i) monthly thematic meetings to discuss issues of waste management, (ii) awareness campaign 'Houmti Tyara' ('my neighbourhood is great'), (iii) a media campaign with a wide distribution: TV and radio spots and website.

2.8. NATIONAL CAPACITY BUILDING AND TRAINING CAPACITIES

Given the deficiencies identified in the management of household and similar waste from all stakeholders including local communities, a national capacity building is necessary. The garbage collectors to executives responsible for cleaning services, to drivers and supervisors should all be targeted by a plan for upgrading the personnel working at all links in the municipal (household and similar, demolition, green...) waste management chain (pre-collection, collection, transport).

2.9. CAPACITY BUILDING REQUIREMENTS

The aim of capacity building programs is to increase the efficiency of the staff in charge of waste management in the planning, organization and operation of the facility, several programs can be selected:

- Develop a plan for thematic training adapted to each actor, from the planner to the technician and from operational management to the executive workers: training sessions, seminars, forums, workshops, dialogues;
- Develop a national popular information strategy on waste management and issues in the sector, dedicated to the general public;
- Implement an innovative outreach plan on eco-citizenship affecting the general public to change behavior in response to its environment;
- Strengthen the legal framework for waste management, especially in areas not covered by existing regulations;
- Institutionalize local and regional governance instead of centralized governance in waste management and train local elected representatives on transparent local governance to meet the expectations of the tax payer;
- Unify management responsibility (collection/transportation/transfer/disposal) of municipal waste on a regional basis, with the objectives being: synergy, economies of scale and optimization of implemented resources;
- Examine the social history of agents working in the sector both in public and in private companies;
- Hire competent technical staff of higher education for municipalities.

2.10. NATIONAL INITIATIVE FOR MULTI STAKEHOLDER INVOLVEMENT

The actors in the waste management are involved at several levels: planning, implementation of the strategy,

control and operation and they are either public authorities or private entities. The areas of intervention are collection, transportation, transfer, landfill, extraction and flaring of methane and leachate treatment.

The upgrade process requires the establishment of a national initiative to involve all stakeholders in defining the role of each.

2.11. CASE STUDIES, BEST PRACTICES, LESSONS LEARNT

In the management of municipal waste, two good practices can be used as lessons learned:

- The municipal waste management plan (PCGD) is a framework for thinking and action; it is a tool of participatory planning and waste management in the municipality. Its domain is the municipality; its horizon is 5 years, all the waste is non-hazardous municipal waste. Four aspects are covered: (i) the technical aspects of collection and transportation of waste, (ii) the organization and management of human resources service cleanliness aspects, (iii) aspects of communication, (iv) the computational costs aspects and the improvement of municipal revenues. The PCGD is made up of four phases: the prerequisite for PCGD, the diagnosis of the current situation, the development of a PCGD, the definition of a municipal waste collection strategy, implementation and monitoring and finally the evaluation phase. 15 towns have already benefited from the assistance of ANGEd/GIZ to achieve PCGD. Several actions to improve waste management have been implemented and others are in progress, several other cities are interested in this plan.
- The municipal waste collection in buried containers: this mode of collection of non-hazardous waste is adopted by the Charles Nicole Hospital in Tunis; several partners have contributed to this project. 16 containers of 5m³ were installed underground in 3 sites of the hospital. The project was initiated by the Ministry of Environment. The Municipal Bureau of Environmental Services (AMSE) is responsible for emptying the containers two times per week. The experience is three years old and an evaluation study was realized by SWEEP-Net in June 2013. With some accompanying measures this collection mode is far better than the classic collection method based on the use of wheeled containers placed on the highway. The town of Sfax is also interested in this collection mode to evacuate waste generated in the old Town and the city center, where the habitat consists of buildings of two or more floors. The town is currently studying the approach as part of a public-private partnership, a pilot project based on the use of buried containers to evacuate household and similar waste generated by large producers.

2.12. INITIATIVES AND PERSPECTIVES

Lessons learned from this post-revolutionary transitional period in the country where the scene is characterized by social movements hindering the process of waste management to function properly is the importance of a comprehensive communication. For example, it is important to launch an initiative for a national dialogue involving all stakeholders to define a future strategy for municipal waste management and to achieve a preventive, sustainable, participatory and integrated waste management:

- **Preventive** : prevention and reduction of waste streams at the source and during the pre-collection and grouping of waste disposal, it could also affect production at the household level by sorting and recycling Intramuros;
- **Integrated**: The concept should cover all categories of municipal solid waste: DMA, DIB, green waste, construction waste, waste treatment activities, it will cover all links in the chain of waste management

(pre-collection, sweeping and cleaning of gutters, collection/transportation, transfer, disposal, sorting, recycling and recovery), without neglecting the material, equipment and organization put in place to ensure rational management of municipal solid waste;

- **Sustainable:** set a long-term strategy involving the three main aspects of sustainable development, namely environmental, social and economic aspects of the sector;
- **Participatory:** The plan to aim for behavior change should present an approach to involve all stakeholders in waste management: national, regional and local authorities (local communication), the producer (the producer pays principle must be demonstrated at all levels of management), citizens and NGOs.

3. HAZARDOUS INDUSTRIAL WASTE MANAGEMENT

The deposit of hazardous industrial wastes, other than phosphogypsum, is estimated at 150.000 tons/year, of which 12.000 t/year alone were treated before the closing of the processing center in Jradou, with the completion of three facilities for receiving, storing and treatment in Bizerte, Sfax and Gabes with a processing capacity of 60.000 tons/year, the total capacity of the country is 150.000 t/year. All four facilities are operated by a private operator under the supervision of ANGEd.

Phosphate extracted from the mining area of Gafsa is transported by rail to three main processing sites: Sfax (Thyna), Skhira and Ghannouch (Gabes). Waste from the process of this mineral (phosphogypsum) are stored in adjacent sites processing units Thyna and Skhira while these wastes are dumped into the sea at Ghannouch.

Phosphogypsum is classified as hazardous waste. The average amount generated exceeds 5 million tons per year, and the responsibility for the management of this product is within the competence of Tunisian Chemical Group (GCT).

3.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Hazardous industrial waste as by its legal definition is governed by the law 1996-41 of 10/06/1996 on waste and control of their management and disposal, highlighting the polluter-pays principle, and the decree 2000-2339 of 10/10/2000 establishing a list of hazardous waste.

Institutionally, the different actors involved in the management of hazardous industrial waste are: ANGEd which is responsible for implementing the national strategy in the field and operation of treatment facilities, ANPE which is responsible for monitoring the application of the regulations, producers of hazardous industrial waste (industrial and private companies) providing operating facilities on behalf of ANGEd.

The Tunisian Chemical Group is responsible for the management of phosphogypsum.

3.2. STRATEGIES AND PLANNING

The strategy set out a few years ago in the management of hazardous industrial waste was to build four treatment centers. The first center was built at Jradou and was put into operation in 2009. Its presence in the region is disputed by the local population; it is currently at a stand still pending the court's decision. Three other centers are spread across the regions. One is at Bizerte to treat waste from the northern region, the other in Sfax to serve industries in central Tunisia, and the third is located in southern Tunisia at Gabes to receive hazardous industrial waste from the southern region.

Given this situation, the priority is to re-open these treatment centres, which are able to offer a treatment capacity of 150.000 t/year.

3.3. FINANCING

For the management of hazardous industrial waste, the state fully supports investment for the construction of treatment facilities, while operating costs are assumed equally by the waste producers (50%) and the state (50% from environmental taxes). Treatment costs are 24 TND/ton for landfilling, 42 TND/ton for solidification and 25-55 TND/ton for physico-chemical treatment (price valid until 2012).

3.4. COLLECTION, TREATMENT AND DISPOSAL

The collection of hazardous industrial waste is provided by specialized companies and approved by the Ministry of Environment in accordance with a work procedure for efficient traceability of waste through an agreement between the producer and the waste carrier. Treatment and disposal are provided by the company responsible for the operation of facilities in accordance with a contractual document. Several techniques for treatment and disposal were performed in the center of Jradou:

- Waste disposal;
- Stabilization and solidification;
- Physicochemical treatment;
- Storage of waste that can not be treated on site in a purpose to be treated in licensed facilities.

Note: Except for the physico-chemical treatment, the other three TSRI Bizerte, Sfax and Gabes provide the same benefits of treatment than Jradou.

There is no treatment strategy for the phosphogypsum. Chemical Group in charge of the management of this product currently just stores it in sites adjacent to the processing units where it is discharged into the sea (which is what happens at Ghannouch).

3.5. PRIVATE SECTOR INVOLVEMENT

This sector is completely dominated by the private sector, both in the collection and transportation operations than at the level of treatment centers.

3.6. CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

Despite the cessation of the Jradou installation, the implementation of national program for the management of the hazardous industrial waste with all its components (transport organization, process tracking and tracing, waste treatment by type of waste) is considered a success story, because it had come to treat 12.000 tons of hazardous industrial waste according to the contractual technical standards within 15 months prior to its closure.

3.7. INITIATIVES AND PERSPECTIVES

Priority will be given to reach a consensus with the local population through the implementation of accompanying measures to mitigate the negative impacts generated by the operation of facilities, and the opening of the Jradou treatment centre and of the other three TSRI and boost the hazardous industrial waste chain management in the country.

4. MEDICAL WASTE MANAGEMENT

The deposit of waste from health care activities is estimated at 16.000 tons/year, of which 7.000 tons are hazardous waste, and 40% are generated in Greater Tunis. A project was set up for their treatment, funded by the World Bank.

4.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Legally, medical waste management activities are governed by two main pieces of legislation:

- Law 1996-41 of 10.06.1996 relating to waste and the control of their management and disposal emphasizing the polluter-pays principle;
- Decree 2008 – 2745 of 27/8/2008 establishing the terms and conditions of sanitary waste management activities;
- The order of the Ministries of Environment and Health of 23 July 2012 relating to the Procedural Manual of the management of hazardous medical waste.

Institutionally, the medical waste management is supervised by the ANGEd, the Ministry of Health and the Ministry of the Interior.

The producers of medical waste are the structures and institutions of public and private health care under tutorships of the Ministries of Health and Interior.

4.2. STRATEGIES AND PLANNING

The national strategy for the management of medical waste is established in accordance with the international convention in the field of hygiene and environmental protection. For this, a project with several components has been established (launch seminar held on 7/8 mai 2013); the project components are:

- (i) strengthening the institutional and regulatory framework and capacity for medical waste management at national, regional and local level;
- (ii) Improving the management and final disposal of medical waste;
- (iii) UGP project management.

4.3. FINANCING

The project management of medical waste (presented in Section 4.2) is funded by the World Bank, while the operating costs will be funded by the waste producers, including EPS and private clinics.

4.4. COLLECTION, TREATMENT AND DISPOSAL

The diagnosis of the current situation of medical waste management is characterized by the following facts: (i) no sorting at source, (ii) lack of supplies, (iii) inappropriate packaging of hazardous waste, (iv) several incinerators do not comply with environmental standards, (v) 24 specialized companies are approved by the Ministry of the Environment to collect and treat medical waste.

4.5. PRIVATE SECTOR INVOLVEMENT

The private sector is a major player in the project, as he will be responsible for the collection, transportation, treatment and disposal of medical waste.

4.6. CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

ANGed developed this project in several stages:

- Diagnosis of medical waste management in the pilot areas: generation rate, evaluation of operational incinerators and mitigation measures (work performed in 2006/2008);
- Development of a strategy of medical waste management in Tunisia;
- Feasibility study to improve the management of medical waste;
- Study of environmental and social impact of the project;
- Seminar to launch the project on 7/8 May 2013.

The situation of instability that characterizes the political and institutional scene is responsible for the delay which is observed in the implementation of the project.

4.7. INITIATIVES AND PERSPECTIVES

It is important to enable the realization of this project, because several hospitals make no efforts to sort and treat hazardous waste according to the regulations in force. Such waste is disposed of with waste similar to household waste and put in landfills that are themselves chaotic and accessible to scavengers and stray animals causing potential contamination and disease.

The goal of the development project is the reduction of dioxins and furans in the country by the institutional and regulatory strengthening and implementation of a program of rational and sustainable management to improve the management and final disposal of waste from medical care.

The project seeks to promote a stewardship program to solve considerable problems both sanitary and environmental as well as social and economic, resulting from current practices in the management of healthcare waste.

This can be done by improving the technical means used for waste management, strengthening the institutional and regulatory framework, awareness raising, training and capacity building.

5. GREEN AND AGRICULTURAL WASTE

It is important to note the lack of reliable and timely information in this area. The only data available are those of the study initiated by ANGed and realized by Gerep-environnement in 2004. According to these data, the deposit of agricultural waste is 4 million tons/year, whereas the greenwaste from parks in urban areas is estimated at 33.000 tons/year, and 10 composting units have produced an average of 50.000 tons of compost in 2004.

5.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Legally, the law 1996-41 of 10/06/1996 on waste and control of their use and disposal is the main text regulating this category of green waste.

At the institutional level, the actors who are responsible for the management are ANGed, the Ministry of Agriculture, municipalities, the private sector and the private and state-owned firms providing composting for their own accounts.

5.2. STRATEGIES AND PLANNING

After this unreliable and unstable period at all levels, it is recommended to define a national strategy for the management of green waste. In order to achieve this, a study of the inventory would be needed to determine the bearing, the operating facilities and their capacity for composting.

5.3. FINANCING

Collection of green waste in communal areas is provided by the municipalities, the producer participates in removal costs (5-15 TND/m³), the public, i.e. the state, assumes all costs when the waste is unknown.

The compost is sold at 250 TND/ton and it is relatively expensive compared to animal manure that is 40 to 50 TND/ton.

5.4. COLLECTION, TREATMENT AND ELIMINATION

Agricultural waste is recovered and reused as food retail and food preparation and heating, while green waste from urban parks and green spaces is collected by municipalities and disposed in composting facilities that are not numerous, or in landfills to be buried with other categories of waste. Composting has not experienced the expected development.

5.5. PRIVATE SECTOR INVOLVEMENT

Municipalities ensure the collection and transportation of green waste, while the private sector is involved in composting.

5.6. ÉTUDES DE CAS, BONNES PRATIQUES ET LEÇONS APPRISSES

Technology, after a long experience in composting, is well controlled and the sector is capable of producing high quality compost, but the cost of the product is a disadvantage that hinders the development of this sector.

5.7. INITIATIVES ET PERSPECTIVES

The national strategy must take into account the difficulties impeding the development of the field of composting green and agricultural waste. The valorization of this category of waste mixed with other types of organic waste by bio-methanization could be a solution for this sector.

6. PACKAGING WASTE

Packaging waste collected per year consists a total of 55.000 tons of plastic (the part collected by Ecolef is 12.000 tons), 44.000 tons of paper/cardboard and 100 tons of food cartons.

6.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Two main texts govern the management of this sector: Law 1996-41 of 10/06/1996 on waste and control of their management and disposal, and the decree 97-1105 of 06/02/1997 laying down the conditions and arrangements for recovery and management of packaging bags and used packaging.

Institutionally, ANGEd has the mission to implement the national strategy in this area and the private sector provides the collection, transportation and recycling.

6.2. STRATEGIES AND PLANNING

The next step in planning for this sector is to launch a study to make the inventory for the management of packaging waste, identify development measures (collection, storage, processing) in this sector and set up an information and process periodic updating information system. (Meaning unclear!) The promotion of this sector will focus on plastics, paper/cardboard and packaging of liquid foods (bricks).

6.3. FINANCING

Ecolef had the merit of establishing a process that can function on its own and generates jobs. Selling prices in the local market of packaging waste are as follows:

- For plastics: 500 TND/ton when the product is sold at ECO-LEF center and 700 TND when the product is sold to private recyclers;
- For cardboard 120 TND/ton when the product is packed and delivered to the recycling plant;
- There is no industry set up for liquid food packaging.

The financing of the sector is supported in part by the private sector and in part by the state (FODEP), ANGEd currently is responsible for operating several Ecolef centers and subsidizes plastics collection and transportation.

6.4. COLLECTION, TREATMENT AND DISPOSAL

350 companies have been authorized by ANGEd to perform the collection, transportation and recycling of plastics, the development of this sector generated 18.000 jobs. The collection, transportation and recycling are provided by the private sector.

Although the paper and cardboard industry remained an informal sector, it offered at least 5.000 jobs throughout the country.

A small informal sector for recovering food waste bricks is currently being set in place.

6.5. PRIVATE SECTOR PARTICIPATION

Concerning the management, the sector is very involved in the whole management chain, from collection to recycling through the waste transport and storage.

6.6. CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

The Ecolef experience established in Tunisia for several years has been productive. Indeed, the plastic collection/transportation/recycling network has become an economically viable sector, given the attractive price of sale of products on both local and international market and the fact that the state can be gradually disengaged. ANGED will continue to monitor the sector.

The lessons learned and the experiences gained in the sector by Ecolef encourage competent authorities to launch other channels.

6.7. INITIATIVES AND PERSPECTIVES

It is important for the future strategy to provide for the organization of the sector, for the recovery of paper/cardboard and for the launch of a formal sector for collecting and recycling bricks.

7. CONSTRUCTION AND DEMOLITION WASTE

This area cannot be developed due to lack of statistics on deposits, the origin of the waste and the annual growth rate. Based on a 2004 study by ANGed, the average production of demolition waste in the three major cities Tunis, Sousse and Sfax is 0,700 ton/capita. The waste generated during a year can be estimated at 4 million tons.

7.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Legal demolition waste is regulated by at least the following two texts:

- Law 1996-41 of 10/06/1996 on the control, management and disposal of waste;
- The law 75-33 of 14/05/1975 on the organic law of commons entrusting waste collection in communal areas to municipalities.

The producer is responsible for the disposal of demolition waste. Waste of unknown origin, found on the street, is disposed of by the municipality.

7.2. STRATEGIES AND PLANNING

The next step in this area is to develop a national plan for demolition waste management applicable at the community level. The success of such a plan is determined by the following support measures:

- Identify one or more landfills to dispose waste;
- Provide communities with appropriate vehicles and equipment in sufficient number;
- Provide financial support to municipalities to implement the plan in a continuous way and not as a one-off campaign;
- Find a way to involve the waste generator to support the financing of disposal costs, even partially;
- Operationalize and strengthen the system of monitoring violations;
- Develop an outreach program dedicated to this area targeting the citizen, the transporters and the contractors.

7.3. FINANCING

Local communities bear the costs of disposal of demolition waste, as the waste is usually discharged by the citizen or transporters in public places, in vacant lots, on road sides, or in waterways.

7.4. COLLECTION, TREATMENT AND DISPOSAL

Generally, the removal of demolition waste is done in two ways, either the producer discharges its waste into the street or he entrusts this service to a private carrier that gets rid of this charge to the first turn.

In this case, the town mobilizes its logistics to evacuate waste dumped in public areas. Citizens rarely address to the common request for the removal of waste and the community often does not have the means to do so.

7.5. PRIVATE SECTOR INVOLVEMENT

Much of the household waste disposal is taken care of by small private carriers.

7.6. CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

In the management of this waste category, good practice is not prevalent. The current poor management should stimulate the competent authorities to establish a sustainable organization for the management of waste.

7.7. INITIATIVES AND PERSPECTIVES

The most important and urgent initiative is to develop a sustainable management plan of demolition waste, with all the necessary ingredients for success (see chapter on 'Strategy').

8. WASTE TYRES

The deposit of waste tyres is 15.000 tons/year (about a million units). Five private companies of collection and recycling are authorized by the Ministry of the Environment to perform the trade.

8.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Legally, the law 1996-41 of 10/6/1996, on waste and control of their use and disposal, is the main legislation governing this category of waste tyres.

Institutionally, ANGEd is responsible for implementing the strategy and the private sector is responsible for the collection, transport and recovery.

8.2. STRATEGIES AND PLANNING

The future strategy in this area will focus on the following aspects:

- Make an inventory of the waste tyres;
- Strengthening the regulatory framework of the industry including the use of waste like AFR in its cement kiln;
- Identify potential recovery, including energy recovery of waste like AFR in cement kilns.

8.3. FINANCING

The private sector supports all costs of collection, transportation, storage and treatment of waste. ANGEd launched a study on the feasibility of setting up an Eco-tyre industry and the introduction of an environmental tax (eco-tax).

8.4. COLLECTION, TREATMENT AND DISPOSAL

The collection is provided by the private sector. The end of these products is not well known and we must await the results of the ongoing ANGEd study.

8.5. PRIVATE SECTOR INVOLVEMENT

For the management of this sector, which has remained to this day informal, the private sector is involved. It is important to sensitize energy-intensive industries on the benefits of energy recovery of waste from scrap tires.

8.6.CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

The tyres have a high calorific value and can potentially be used as RDF in the cement kiln. These wastes partially replace fossil fuels in the cement industry (a process that is widely used in Europe, Asia and Morocco), with the objective to economize energy and to reduce greenhouse gases.

8.7. INITIATIVES AND PERSPECTIVES

The deposit of tyres, their calorific value in this matter and the existence of an informal collection sector encourage the government to put in place a transparent national strategy for the collection and recycling of this product.

9. OIL AND LUBRICANTS WASTE

In July 2004, a public system of recovery and regeneration of used lubricating oils has been established. The lubricating oils generated in the country are estimated at 20.000 tons/year, of which 12.105 tons were collected in 2012 by 11 companies authorized by the Ministry of the Interior. The collected oil, pass through 11 collection centers before moving to SOTULUB, the only company authorized by ANGEd to regenerate waste oils and lubricants.

9.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Legally, lubricating oils are governed by two main legal texts:

- Law 1996-41 of 10/06/1996 on waste control, use and disposal;
- Decree 2002 – 693 of 1/4/2002 concerning the terms and conditions of recovery of lubricating oil and used oil filters and their management (sector Ecozit);
- Decree 2008-2565 of 7/7/2008 amending and supplementing the above mentioned decree 2002-693;
- Decree 2000 – 2339 of 10/10/2000 establishing a list of hazardous waste.

The responsibility of this public processs is ensured by ANGEd that monitors, controls and implements the national strategy, by the Tunisian lubricants society SOTULUB that ensures the collection, transport, storage and regeneration of oils, and by private collectors working on behalf of SOTULUB.

9.2. STRATEGIES AND PLANNING

The future strategy is to strengthen this sector through the operationalization of the control system after the release observed during the post-revolutionary transitional period.

9.3. FINANCING

Like in other sectors, the financing of this sector is provided by Ecotaxes on imported oil. Indeed, there is a grab on importers of 5% on the import value of oils, plastics and other products.

9.4. COLLECTION, TREATMENT AND DISPOSAL

Private collectors provide the collection and transport; storage and regeneration are insured by SOTULUB.

9.5. PRIVATE SECTOR INVOLVEMENT

17 private companies are authorized by the Ministry of Tutelage for the collection and transportation of used lubricating oils.

9.6. CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

The public collection and regeneration system of lubricating oils works properly. This successful experience could be replicated in other dangerous and valuable products which are currently dumped into the environment.

9.7. INITIATIVES AND PERSPECTIVES

ANGed has set a goal to improve the collection rate to 80% of generated lubricating oils, that is to say 18.000 tons/year.

10. E-WASTE

The deposit of e-waste generated is estimated at 90.000 tons/year, of which 22.500 tons are collected. Seven facilities are authorized by ANGEd to perform the trade with a processing capacity of 18.500 tons/year. Another unit with a capacity of 24.000 tons/year, which will be managed by ANGEd, will come into operation in 2014.

10.1. LEGAL AND INSTITUTIONAL FRAMEWORK

Legally, e-waste is governed by the following general legislation:

- Law 1996-41 of 10.06.1996 on waste control, use and disposal.

ANGEd that monitors, controls and implements the national strategy ensures the responsibility of this public process. The private sector provides the collection, transport and treatment of waste.

10.2. STRATEGIES AND PLANNING

Given the importance of the deposit, ANGEd planned the construction of an e-waste treatment facility with a capacity of 24.000 tons/year. ANGEd launched a feasibility study for the establishment of an e-waste sector management after the introduction of an environmental tax for the e-waste under the Finance Act 2013 and the implementing decree that was consequently promulgated.

10.3. FINANCING

This chapter is awaiting the new regulations.

10.4. COLLECTION, TREATMENT AND DISPOSAL

The collection and treatment of e-waste is provided by private operators.

10.5. PRIVATE SECTOR INVOLVEMENT

The private sector is fully involved in this process, from collection to treatment and transport.

10.6. CASE STUDIES, BEST PRACTICES AND LESSONS LEARNED

Collection of 25% of e-waste generated is a commendable first effort to develop and strengthen and replicate in other areas.

10.7. INITIATIVES AND PERSPECTIVES

The ANGed initiative to establish an environmental tax will enable the development of this sector. The objective is to establish a viable and sustainable process that covers the entire deposit generated in the country.

11. INTERNATIONAL FINANCIAL ASSISTANCE PROGRAMS

Five major donor organizations came out to support waste transfer, landfill and recovery projects in the country: KfW, the European Investment Bank, the Italian Cooperation, the World Bank and the French Development Agency. Funded projects are summarized in the following table:

Table 2: : International Financial Assistance Programs

Donors	Description of projects funded
KfW	Construction of regional landfill and transfer centers in Kairouan, Sousse, and Bizerte
	Construction of regional landfills and transfer related centers in Gafsa, Kasserine and Sidi Bouzid
	Construction of a second landfill in Greater Tunis (Kabouti), and related transfer centers
	Construction of regional landfills and related transfer: centers in
	Jendouba/Beja and Kef/ Siliana
	Construction of the industrial and special waste processing center in Jradou
BEI :	Construction of IRST for industrial and special waste in Bizerte, Sfax and Gabes
	Construction of regional landfills and transfer related centers in Nabeul,
European Investment Bank	Construction of regional landfills and transfer related centers in Gabes, Medenine and Djerba
Italian Cooperation	Construction of regional landfills and transfer related centers in Mahdia Zaghouan, Kerkennah and Tozeur
World Bank	Biogas recovery in 10 landfills
	Medical waste management
French Development Agency	Demonstration and promotion project of good practices and technologies for managing medical waste and PCBs in Tunisia
Korean Cooperation	A development project for e-waste
	A project for energy recovery of organic waste

During 2012, the financial investments from international programs were divided between the collection/ transportation on the one hand to the communes and the transfer/disposal/recovery of waste to ANGEd on the other hand:

- The international investment at the level of ANGEd is 26.5 million TND, 63% of which was loans and grants, 37% was funded by the state budget;
- The international investment at municipal level was 25 million TND as a grant (FADES and Turkish Cooperation).

12. INTERNATIONAL TECHNICAL ASSISTANCE PROGRAMS

- In terms of international technical assistance, Tunisia has benefited from several programs via ANGEd. The main ones are: Tunisian-German program PPE (GIZ funding) for the environment with its component of integrated and sustainable solid waste management. Beneficiary of the program: national and local communities' program for sustainable management of municipal waste (funded by the World Bank), with two components: Support the Tunisian Government in strengthening key elements of sustainability in the management of municipal solid waste, and enable the Government to put in the market emerging carbon credits through the Clean Development Mechanism (CDM) introduced by the Kyoto Protocol.
- Establishment of Sweep-Net network (GIZ funding): The overall objective of SWEEP-Net is to provide a common interface for regional technical assistance, capacity building and the consolidation of a regional network for the exchange of experience in the waste sector among member countries of the network.

13. NEEDS ASSESSMENT FOR CAPACITY DEVELOPMENT UNTIL 2015

Failures that are detected at all levels of the chain of waste management in all sectors require a national strategy for upgrading the waste management process. Future directions will treat the following aspects:

- Strengthen the financial capacity of municipalities and rural councils to “correct” the current situation;
- Enable the reopening of the facilities dedicated to treat waste, complete ongoing projects and implement planned projects;
- Improve the productivity of the staff responsible for the waste collection and optimize the waste collection equipment;
- Implement an information/ awareness plan adapted to the crisis;
- Restructure and operationalize the monitoring system of offenses;
- Launch a true national dialogue on the issues of waste management involving all stakeholders: administrations, contractors, experts, local elected officials and civil society to assess the experiences and propose scenarios for strategic directions adapted to the specificities of the country;
- There is a need to develop and coordinate a national strategy for future waste management for the next 10 years (2015-2025): collection, transportation, disposal, recovery, recycling, the degree of private sector involvement, communication, monitoring violations;
- Design and implement a dynamic information system covering all the categories of waste - an indispensable tool for monitoring, decision support and planning;
- From a social point of view, it is important to discuss the situation of agents currently working in the area of waste management, both in public and in private companies. Two objectives are expected here: improving the material and social conditions of employees and mitigate the impact of discouragement and unwillingness among private operators to continue to invest in waste management, following social unrest and claims recorded after the advent of 14 January 2011. Since the revolution of 14 January 2011, union bodies of the country continue to demand the inclusion of agents on the staff of private enterprises in the state sector, particularly those companies with contracts for subcontracting waste management with municipalities and ANGEd, and clearly reject the option of delegation of the services in waste management to the private sector;
- Develop a municipal waste management plan for each municipality, and provide the necessary financial support for its implementation;
- Strengthen the regulatory framework for management and waste recovery technologies, with the objective to develop and encourage the private sector to invest in the area and involve the university in the research;

- Strengthen local and regional governance on the operational management of waste. The strategy will always be national, but must be participatory and should meet the expectations of local stakeholders. Discuss the issue of dual responsibility in the management of municipal waste. The municipality is responsible for the collection and transport, and ANGED ensures the transfer and disposal at the landfill;
- Restructure the sector by establishing an entity (inter-municipal or other structure) that will be responsible for solid waste management and it will have as duties: (i) the operational management at the regional level of the entire waste management chain: collection, transport, transfer, disposal, recovery, (ii) it will be responsible for waste management in urban and rural areas, (iii) the management will either be governmental or will be delegated to private agents and (iv) it will also have a response speed and behaviour similar to that of the private sector, and will not be politically influenced by the council;
- Involvement of the private sector: make an inventory and identify incentives and mechanisms to boost its involvement in the SWM.

14. CONCLUSION AND RECOMMENDATION FOR SWEEP-NET ASSISTANCE

There are many aspects that have generated new problems to SWM in Tunisia. Among them are the diversity of economic activity in the country (industry, commerce, agriculture, services), the accelerated process of urbanization (uncontrolled construction, ..), the degradation of infrastructure in residential areas and the evolution of consumption pattern of the population in both urban and rural areas. This is complemented by the change in the behavior of the waste producer (citizen, industrial, commercial, farmer, ...) especially in this post-revolutionary period (ignorance, incivility, indiscipline, rural exodus, insecurity), the difficulty of communicating (inform and educate) with stakeholders, the limited financial capacity of Commons, and the absence of monitoring violations. All these aspects pose challenges to master the flow of waste generated, and to the technical management of the different sectors (collection, transportation, disposal, treatment, recovery). Recognizing the seriousness of the deterioration of living conditions of citizens, the objective is to redress this situation by establishing a sustainable and innovative waste management strategy. Waste management should be preventive, comprehensive, sustainable and participatory.

The SWEEP-Net network can help to provide the countries participating in the network with the best practices presented in this report, to discuss and enrich the experiences. The following case studies can be used for the exchange of experiences between countries in the network:

- The municipal waste management plan is developed for 13 towns in Tunisia, other applications are in progress (case of 3 towns Marsa, Sidi Bou Said and Carthage);
- The collection of municipal or industrial waste in underground containers has many advantages compared to the collection method of wheeled containers placed in public roads (refer to the evaluation report by SWEEP-Net in June 2013);
- The program for hazardous waste management in Tunisia, based on the establishment of a formalized working procedure and the construction of four reception, storage and treatment centers for hazardous industrial waste, is a very successful experience despite its closure for reasons other than technical ones;
- Management projects of medical waste have followed all the usual steps, from the diagnosis of the situation through the impact study, up to the launching seminar held on 7/8 May 2013;
- The collection system of plastic (Ecolef) has the potential to set up a chain for collection and recycling, which functions alone without intervention by ANGEd, the instigator of the industry;
- The establishment of a channel for the collection of used tyres could be interesting, as they are of large quantity and the ragged tyres could be used as alternative fuels and raw materials in cement kilns for their high calorific value;
- The recovery and regeneration system for 65% of lubricating oils generated, established in 2004, with the objective to improve the collection rate to 80% and cover the entire national territory, is a good lesson learned;

- Although the chain of e-waste collected only 20% of the generated deposit, it is a very successful and exciting experience. The proof is that ANGed planned the construction of a treatment plant with a capacity of 24.000 tons/year, which is scheduled to start in 2014.

ANNEX I: CASE STUDIES 1

MSW COLLECTION IN UNDERGROUND CONTAINERS

Country: Tunisia

Town: Tunis (Charles Nicole Hospital)

Implementation Date: 2010

Main Focus

Before setting up the current system for the collection in underground containers, to dispose of its ordinary waste (identified as municipal waste), the Charles Nicole hospital used to mobilize a tractor-trailer, and the collected waste was sent to the controlled landfill of Tunis.

Presentation of the project:

- The Charles Nicole hospital project to collect ordinary waste in underground containers started in 2010,
- The partners who contributed to achieve this project are: (i) the Ministry for the Environment, which funded 50% of the project cost, (ii) the Charles Nicole hospital, which had also funded 50 % of the project cost, (iii) AMSE adapted a truck with a hook loader to this mode of collection, and took charge of the regular emptying of the containers twice a week, (iv) the supplier of the equipment made up of 16 metal containers of 5m³ each, provided technical assistance at the beginning of the project.
- Selective sorting at the source: one of the project components was the development of the selective collection of recyclable waste. To this end, the 16 containers installed in the hospital were divided into the three basic categories of waste: household waste, plastic waste and cardboard and paper waste.

Expected Results

- Modernize the collection process of waste similar to household waste
- Improve the working conditions of the workers by avoiding skin contact with the waste
- Improve waste storage conditions while waiting for the collection vehicle, in fact waste stored underground is more resistant to biodegradation than those exposed to the sun, in particular during the warm season in the MENA countries,
- Prevent the access of waste pickers and stray animals to the landfill
- Mastering and reduce costs by reducing the frequency of waste collection

ACTIVITY DESCRIPTION

- The Ministry of the Environment is the initiator and the coordinator of this project;
- An agreement was signed between the Ministry of Environment, the project beneficiary Charles Nicole Hospital, AMSE, and a component of sorting at the different hospital departments to separate paper, plastics from other waste household type has been selected;
- The hospital is responsible for purchasing containers, identifying the sites for the installation of the containers and launching an awareness campaign to inform the staff for the selective sorting of waste: paper/plastics and other waste;
- The AMSE is responsible for adapting a vehicle for collecting and emptying this type of container at a rate of 2 times per week. The hospital will cover evacuation costs;
- The project, started in 2010, is still running and many lessons have been learned.

REGULATORY, INSTITUTIONAL AND POLICY CONTEXTS

Legal context:

- The organic law No 95-68 of 24th July 1995 concerning communities in the article 129 gives to “the local authorities the responsibility for the collection, sorting, treatment, disposal, burying of the waste in controlled landfills”;
- The law n° 96-41 of the 10th June 1996 concerning waste and its controlled management and disposal, modified and completed by the law n°2001-14 of the 30th January 2001, in order to establish the appropriate framework in the field of waste management.

Institutional context:

- At national level, the main managers responsible for the waste management are the Ministry of Interior and the Department of the Environment;
- At the local level, waste management is primarily the responsibility of the municipalities with the administrative support of the Governorates. The Ministry of Interior is responsible for the development of municipal policies on waste management;
- The waste producer (in this case it is the hospital) is responsible for the collection, transport and disposal of waste.

Political context:

The general policy of the government strongly supports such projects.

FINANCIAL CONTEXT, RECURRING COSTS AND COST RECOVERY

- The cost of buying 16 containers and the site development is 80,000 TND, funded equally by the Ministry of Environment and the Hospital;
- ESA takes over the work for amendments to the vehicle collection;
- Hospital supports the costs of providing waste and pay the bills of the AMSE.

ACTUAL RESULTS ACHIEVED

- Strikes and social movements that followed the advent of January 14 in the country have caused disturbances on the frequency of emptying containers;

- The component of waste sorting does not work well for lack of discipline and irresponsibility;
- In the opinion of the leaders of the two actors (Hospital / AMSE) the project is a success, however it requires some improvements.
- The lessons learned are very useful for duplicating the project in other places.

COMMUNICATION AND COMMUNITY PARTICIPATION

A communication plan focusing on all hospital staff (about 3.000 agents) to meet the sorting process at the source of paper and plastics.

PUBLIC/PRIVATE PARTNERSHIP

This project is rather a semi-public/semi-public partnership (Hospital and AMSE).

LESSONS LEARNED

- When the collection method for buried container is correctly used, that could solve all the defects of the collecting system by traditional container applied in several countries without success;
- At least two major exogenous reasons argue for the use of buried containers: (i) The strong presence of putrescible waste in addition to a fairly high humidity, (ii) The warm climate in these countries, is likely to enhance the biodegradation of waste exposed to direct sunlight all day, turning the container on wheels in a source of pollution;
- Through the use of buried container, waste is sored away from stray animals and informal collectors, and the container is less vulnerable to vandalism;
- This collection method significantly reduces odors generated by the degradation of waste and improves urban aesthetics in the city;
- In addition to other benefits, collecting waste in buried containers is cheaper by 20 to 30% compared to the conventional method;
- Any project for the establishment of underground containers must be based on the technical feasibility and optimization of the use of equipment. The main elements to consider are: (i) Inventory of underground pipes and cables, soil type and overhead obstacles, the community support is crucial at this stage, (ii) definition of the appropriate vehicle type, capacity, and average container handling, (iii) specification of the number of containers so as to monetize the collection vehicle;
- An information and awareness plan (for a period of a year or two), dedicated to the different actors involved in the project;
- Support and financial assistance of the competent authorities is a prerequisite for the success of the project;
- Such a collection mode, once approved by the competent authorities, may be part of the national strategy for waste collection in urban areas, and planners will integrate this collection mode from the study phase.

OPPORTUNITIES FOR THE EXCHANGE OF EXPERIENCE (WITHIN SWEEP-NET)

This experience could be an exchange of experience and information between all partner countries of SWEEP-Net, given the advantages of this collection mode.

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Collecte des déchets par conteneurs enterrés à l'Hôpital Charles Nicolle Tunis	
<p>Projet de Charles Nicolle</p> <ul style="list-style-type: none"> ▪ 16 conteneurs enterrés ▪ Tri sélectif instauré ▪ Conteneurs pour déchets type ménagers ▪ Conteneurs pour plastiques ▪ Conteneurs pour papiers / cartons 	<p>Camion Ampli roll, modifié pour l'adapter au mode de collecte par conteneur enterré, pour la rentabilité du projet, la benne tasseuse équipée de grue est le véhicule le mieux adapté</p>
	

ANNEX I: CASE STUDY 2

THE MUNICIPAL WASTE MANAGEMENT PLAN (PCGD)

Country: Tunisia**Town:** Sfax**Implementation Date:** June 2013**Main Focus**

The Municipal Waste Management Plan (PCGD) is a framework for thought and action that defines the set of programs and projects needed to improve and develop the collection and transportation of waste in the municipality. It is closely aligned with national, regional and local guidance, specifying the purpose, objectives, strategies and results to be achieved in a given time as well as the human, material and financial resources to implement. The PCGD is a strategic framework, a planning tool, a process, a reference document and a communication tool.

Four main themes are treated with PCGD:

- Organization of a department responsible for the cleanliness of the city and aspects of human resources management;
- The technical aspects of collection and transportation of waste material/ maintenance and disposal system for municipal waste;
- The aspects of information and communication within the town and with the external environment;
- The computational aspects of the costs of collection and transportation of waste and the potential for improvement of municipal revenue.

Results expected

- Upgrade the technical aspects of the collection and transportation of municipal solid waste;
- Master the costs of collection and transportation of municipal solid waste and the potential to improve revenue;
- Develop a program of information and communication targeting all those involved in the management of municipal waste;
- Provide the town with a rational organization for service and staff management of cleanliness.

ACTIVITY DESCRIPTION

The development of a municipal waste management plan follows the following methodology:

- **Phase I prior to the Municipal Waste Management Plan:** formation of the steering committee of the project and the technical thematic task forces (i.e. 4 working groups) and public launch of the project;
- **Phase II:** a qualitative, quantitative and participatory diagnosis of the current situation of waste management in the four areas listed above, analysis of information collected by the SWOT (strengths, weaknesses, opportunities, threats), synthesis of strategic directions and expected impacts;
- **Phase III (development of the Municipal Waste Management Plan):** Plan/ Programme the workshop, define the future vision and strategic direction for the management of municipal waste, identify actions develop action sheets, define the general implementation schedule of the Municipal Waste Management Plan, the total cost estimate, identify possible accompanying measures, and then identify the potential sources of funding for each share held by the plan. The Municipal Waste Management Plan will include: an overview, a summary of the results of the diagnosis, the future vision and strategic direction, the action plan, action cards, the financing plan, an implementation plan, the arrangements for monitoring and evaluation, accompanying and support measures and possibly annexes;
- **Phase IV (implementation and monitoring):** establish a monitoring committee, define monitoring indicators, begin implementation of the plan, make periodic progress reports;
- **Phase V (evaluation):** Define the evaluation criteria, conduct evaluation by the target population (public satisfaction survey) and the change of behavior of citizens in relation to their environment, particularly in the field of waste management.

REGULATORY, INSTITUTIONAL AND POLICY CONTEXTS

Legal framework:

- The Organic Law No. 95-68 of 07/24/1995 in Article 129 on Commons, gives responsibility «for the collection, sorting, treatment, removal and underground storage of waste in controlled landfills» to local communities.
- Law No. 96-41 of 10 June 1996 on waste and control of management and disposal, as amended and supplemented by Law No. 2001-14 of 30 January 2001, was enacted to establish the appropriate framework in the field of waste and their management.

Institutional framework:

- At the national level, the Ministry of the Interior, the Secretariat of the Environment and ANGEd are primarily responsible for waste management;
- The Secretariat for the Environment is responsible for the implementation and development of the regulatory framework, the strategies, policies and programs that enable the appropriate and sustainable waste management, in coordination with the concerned ministries and institutions.

Political context:

The development of a Municipal Waste Management Plan, funded by the German Cooperation (GIZ) and developed for the benefit of municipalities falls within the framework of the general policy of the country to strengthen the capacity of communities in the field of planning and management of waste.

FINANCIAL CONTEXT, RECURRING COSTS AND COST RECOVERY

- The development of the Municipal Waste Management Plan is funded by the Tunisian-German Environment Programme (as part of GIZ);
- Funding for actions that were adopted by the Municipal Waste Management Plan can be achieved in several ways: by communal self-financing, by loans from the credit union of loans and support to local authorities (CPSCL), by foreign donors, and by local businesses.

ACTUAL RESULTS ACHIEVED

With a population of 300.000 inhabitants, Sfax is the second largest city after Tunis. It generates 74.500 tonnes of waste/ year, the provision of waste collection is delegated to private operators in two districts out of 7 (15% of the deposited waste was collected).

34 relevant actions have been retained by the Municipal Waste Management Plan of Sfax, the cost of collection of Municipal Solid Waste calculated is 75 TND/ ton, the implementation of the plan is estimated at a total cost of 6.8 million TND. The horizon of implementation is 5 years from 2013, and several innovative actions have been identified: the biomethanation of organic waste, waste collection in buried containers in the old city center. The selected actions are spread across four themes as follows:

- 4 actions will deal with aspects of organization and human resources management;
- 11 actions concern the technical aspects of collection and transportation of MSW;
- 7 actions are dedicated to aspects of costing and improve municipal revenue;
- 12 actions are in the field of internal and external communication.

The town of Sfax joined the research phase to finance the developed plan. Several requests were sent to national institutions and foreign organizations to solicit funding for the adopted projects. Costs to be financed by the municipality will be programmed in the 2014 budget.

COMMUNICATION AND COMMUNITY PARTICIPATION

The methodology for developing the Municipal Waste Management Plan is based on community participation. The results of each phase have been the subject of a transparent community consultation. Successful results are validated by the steering committee; this condition is necessary to move to the next phase.

PUBLIC/PRIVATE PARTNERSHIP

A public-private partnership aspect was included in several activities including the collection and transportation of waste and bio-methanation project.

LESSONS LEARNED

The Municipal Waste Management Plan is a tool for organizing the evacuation process for Municipal Solid Waste, and planning the strategic guidelines for the collection, recycling and recovery of waste.

OPPORTUNITIES FOR THE EXCHANGE OF EXPERIENCE (WITHIN SWEEP-NET)

The Municipal Waste Management Plan developed in the city of Sfax can be considered as a reference for an exchange of experience between countries of SWEEP-Net.

For more information

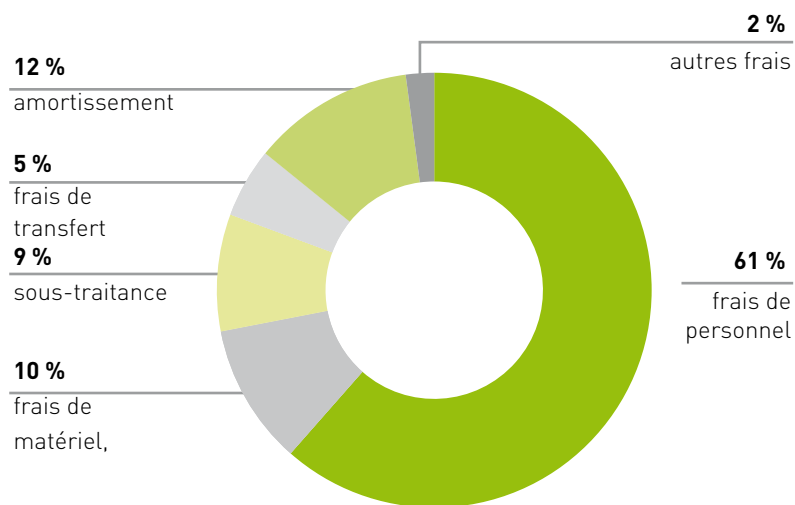
Mr RiadhHaj Taieb, General Manager of the Technical Services of the Municipality of Sfax,
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References

GIZ program PPE, Tunisian-German Cooperation, Tunis, Tunisia

Figure 1: MUNICIPAL WASTE MANAGEMENT PLAN FOR THE COMMUNITY OF SFAX

The collection cost of waste in the community of Sfax is 75 TND /ton



ANNEX II: DOCUMENT FACTSHEETS

INITIATIVE CONCERNING DIALOGUE WITH LOCAL COMMUNITIES – MY NEIGHBORHOOD IS GREAT

Country: Tunisia

Date: June 2013

Partner Organization: Anged

Support Partner: German Agency Of International Cooperation (Giz)

Other Partners: Sweep-Net, Communities And Associations

Language: English

Key Words: Neighborhood, Great, Environmental Action

Sector: Household Waste Collection

SUMMARY

The waste management national agency (ANGed) launched in June 2013, an environmental action called 'My neighborhood is great' in partnership with the German agency of international cooperation (GIZ) and SWEEP-Net. The principal aim of this dialogue initiative between citizens and communities is the respect of the household waste collection regulations in the neighborhoods. 'My neighborhood' involves three steps:

- A pilot phase from June to September 2013, during which period 'My neighborhood is great' will be tested in a dozen neighborhoods
- An evaluation phase will take place from October to December 2013, and the action will be evaluated by the beneficiaries and stakeholders in the dialogue
- A deployment phase at national level, from January 2014, where the action will be deployed in all municipalities in partnership with associations

MAIN THEME AND EXPECTED OUTCOMES

Main theme

During the national consensus meeting of July 31, 2012, organized by ANGed on communication in waste management, it was decided that a national dialogue initiative taking into account the local aspect through support in the development of messages and information materials had to be set up.

A study by ANGed in partnership with GIZ in the development of PCGD in pilot municipalities showed a common observation, which is the non-compliance of collection regulations by the citizens as well as by the municipalities.

Thus the main and common message to all areas is to respect the rules of municipal waste collection.

Expected outcomes:

- Municipality: on-time passage of the municipal vehicle;
- Citizens: respect the schedule of taking the waste containers out to be collected by the municipal waste collection vehicle;
- Citizens: respect the type of container defined by the community.

LESSONS LEARNED

- The success of any initiative on municipal waste management is dependent on the commitment of all stakeholders: Ministry for the Environment, ANGEd, municipalities, international funding partners and associations;
- The rules of waste collection can only be achieved if they are set by consensus between citizens and municipalities through associations.

EXCHANGE AND EXPERTISE OPPORTUNITIES BETWEEN COUNTRIES MEMBERS OF SWEEP-NET

- This innovative initiative in Tunisia is based on a logical methodology (diagnosis, evaluation, deployment) and could be included in the exchange of experience and information between the partner countries of SWEEP-Net.

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ANNEX III: LEGAL FRAMEWORK

LEGAL FRAMEWORK OF SOLID WASTE MANAGEMENT

- Law 1996-41 of 10/6/1996 on waste control, management and disposal.
- Law 2001-14 of 30/1/2011 on the simplification of administrative procedures relating to release this authorization by the Ministry of Environment and regional planning in the areas of its competence
- Law 92-122 of 29/12/1992 on the Finance Act 1993 for the management, and in particular Articles 35-37 for the creation of FODEP (FODEP is also governed by its implementing Decree No. 2120 of 25 October 1993, modified and completed by Decree No. 2005-2636 of 24 September 2005)
- Law 19975 - 33 of 14/05/1975: Organic Law of Commons (the town is responsible for waste collection, transportation and disposal).
- Law 2002-101 of 17-12-2002: institution of the Environmental Protection Tax (EPT)
- Law 2003-80 of 29-12-2003 on creation of a fund for a clean environment and aesthetics of cities.
- Law n° 97-11 of 3 February 1997, promulgating the code of local taxation, and all the texts that have amended or supplemented this law.
- Law 37-1997 of 2 June 1997 on the transport of hazardous materials by road.
- Law 16-1994 of 31/11/1994 relating to the development and maintenance of industrial areas (Article 8: GMG is responsible for the collection of household and industrial non-hazardous waste)
- Law n° 2001-14 of 30 January 2001, on the simplification of administrative procedures relating to permits issued by the Ministry of environment and spatial planning in the areas of its competence.
- Law n° 93 – 120 of 27/12/1993, promulgating the investment incentives code (Title VI of the fight against pollution and environmental protection)
- Decree N° 2317-2005 of 22/8/2005: Establishing a national agency for waste management and establishing its mission, administrative and financial organization, as well as the modalities of its operation.
- Decree 2001-843 of 14/4/2001: amending Decree No. 97-1102 of 2 June 1997 on the conditions and procedures for recovery and management of packaging bags and used packaging.
- Decree N° 97-1102 of 2/6/1997: Establishing the conditions and arrangements for recovery and management of packaging bags and used packaging (Ecolef).
- Decree 2000-2339 of 10/10/2000: establishing the list of hazardous waste.
- Decree 2007-13 of 3/1/2007: setting the conditions and arrangements for management of sludge from treatment works for waste water use in agriculture.
- Decree 2005-3395 of 26/12/2005: fixing the conditions and procedures for collecting used batteries and accumulators (Eco-batteries).

- Decree N°2002-693 of 1/4/2002: On terms and conditions of recovery of lubricating oil and used oil filters and their management (Ecozit and Eco-filter).
- Decree 2008-2565 of 7/7/2009: amending and supplementing Decree No. 2002-693 of 1st April 2002 on the conditions and modalities of recovery of lubricating oil and used oil filters and their management.
- Decree 2008-2745 of 28/7/2008: establishing the conditions and arrangements for waste management of medical activities.
- Decree 726-1989 of 10/6/1989: on rural councils (in charge of waste management within the territorial limits).
- Decree 2009-73 of 13/1/2009: setting the conditions and industrial participations at the expense of maintaining the industrial area (including cleanliness).
- Decree 1993-1429 of 23/6/1993: suspending customs duties and value added tax due to the importation and the internal system of materials and equipment on waste collection acquired by companies operating on behalf of local communities.
- Decree 1993-1614 of 2/8/1993: on the suspension of the value added tax due to the admission procedure in landfills, treatment and disposal of household waste.
- Decree 2005-1156 of 12/4/2005: modifying the decree N°2004-1191 of 25 May 2004 laying down the list of products exempt from tax for the protection of the environment.
- Decree n° 2007-1866 of 23 July 2007, establishing the list of contraventions of hygiene regulations and the fines incurred in areas covered by local authorities.
- Decree n° 98-1428 of 13 July 1998 fixing the amount to fees charged by the local public authorities.
- Decree n° 88-2011 of 24/09/2011 on associations in Tunisia.
- Decree n° 99 – 1164 of 24 May 1999, establishing the list of materials and equipment that can be imported or purchased locally by communities which are exempt from customs duties and VAT.
- Order of the Minister of the Environment of 23/3/2006: establishing a unit of hazardous waste treatment and reception, storage and transfer center.
- Order of the Minister of the Environment of 17/01/2007: on the approval of specifications setting the conditions and procedures for exercising the collection, transport, storage, treatment, recycling and recovery of non-hazardous waste.
- Joint Ministers of Environment, Finance and Trade Order of 23/4/2008: sets the terms and the amount of the compulsory deposit of recovery of old batteries that were used in the means of transport and various industrial purposes.
- Practical Guide for local authority investment projects established by the Fund for Loans and Support to Local Communities (version 2003).
- The work schedules for the impact studies of projects: managing household waste and industrial waste (available on-site ANPE).

Table 3: National Strategy For Waste Management: 2007/2016

Axe	Domaines d'intervention
Direction 1 : Consultation, information systems, communication, awareness and education on waste Management	Design and implementation of an information system
	Strengthening the dialogue between the actors of waste Management
	Development of the communication tools between stakeholders
	Awareness and education on waste
Direction 2 : Institutional and Legal Framework	Improving the legal framework for waste management
	Improving the implementation of laws
	Strengthening the institutional aspect
Direction 3 : Enhancing human and material capacities	Strengthening the capacity of local public authorities
	Strengthening the capacity of public actors
	Building capacity of the private sector
	Building capacity of NGOs
Direction 4 : Financing and cost recovery	Conception of a training system
	Strengthening the financial capacity of the waste management
	Control and optimization of costs of waste management
	Evolution of funding for waste management
Direction 5 : Technical and organizational aspects	Adaptation of the collection means to the local realities
	Strengthening intercommunality in waste management
	Improve the suitability of treatment patterns to local realities
	Planning, monitoring and evaluation of sectors

Table 4: Décentralisation of Cpscl : Loan Banks and Support to Local Collectives

Regional Direction	Responsible Governorates
Tunis	Tunis, Ben Arous, Manouba, Ariana, Nabeul, Zaghouan, Bizerte.
Béja	Béja, Kef, Siliana, Jendouba.
Sousse	Sousse, Mahdia, Manastir, Kairouan.
Gafsa	Gafsa, SidiBouazid, Kasserine, Tozeur, Kébili.
Sfax	Sfax, Gabès, Médenine, Tataouine.

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The regional solid waste exchange of information
and expertise network in Mashreq and Maghreb countries

April 2014

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