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TABLE OF CONTENTS

1.	INTRODUCTION	5
1.1.	Goals and Objectives of WP 4	5
1.2.	Statement of Need for the ISWM Action Plan	6
1.3.	Aims and Objectives of an ISWM Action Plan (Identifying the underlying principles)	6
2.	POLICY BRIEF FOR TARGET COUNTRIES.....	8
2.1.	Policy Brief for Nigeria	8
2.1.1	Executive Summary	8
2.1.2	Background	8
2.1.3	Statement of Need	9
2.1.4	Proposed Policy Options.....	9
2.2.	Policy Brief for Ghana	12
2.2.1	Executive Summary	12
2.2.2	Background	12
2.2.3	Statement of Need	13
2.2.4	Proposed policy options.....	14
2.3.	Policy Brief for Senegal	18
2.3.1.	Executive Summary	18
2.3.2	Background.....	18
2.3.3	Statement of Need	18
2.3.4	Proposed Policy Options.....	19
2.4.	Policy Brief for Cote D'Ivoire	20
2.4.1.	Executive Summary	20
2.4.2.	Background.....	20
2.4.3.	Statement of Need	21
2.4.4.	Proposed policy options	22
2.5.	Summary of the Policy options for target countries	26
3.	ROLE OF STAKEHOLDERS IN THE IMPLEMENTATION	29
3.1.	Role of Government CBOs,NGOs and Private Sector	29
3.1.1.	Community Based Organizations (CBOs).....	29
3.1.2.	Non-Governmental Organizations (NGOs)	30
3.1.3.	The private sector.....	30
3.2.	Communication Plan	30

3.2.1.	Content of a communication plan.....	31
4.	CAPACITY NEEDS OF STAKEHOLDERS FOR ISWM POLICY IMPLEMENTATION	34
4.1.	Rationale for capacity building.....	34
5.	RECOMMENDATIONS & STRATEGIES FOR IMPLEMENTATION OF ISWM POLICIES AND MEASURES	38
5.1	Discussion of Alternative Approaches for Implementation of Policy Options/ Measures.....	38
5.2	Nigeria	40
5.2.1	Legal Framework	40
5.2.2	Economic Instruments.....	40
5.2.3	Enforcement.....	41
5.2.4	Institutions.....	41
5.2.5	Technical Issues	41
5.2.6	Capacity Building	41
5.2.7	Public Participation.....	42
5.2.8	Monitoring and Evaluation	42
5.2.9	Logistics	42
5.3	Ghana	42
5.3.1	Recommendation for Implementation of ISWM Policy and Measures for in Ghana.....	42
5.3.2	Source Reduction.....	42
5.3.3	Storage.....	42
5.3.4	Source separation.....	42
5.3.5	Collection.....	43
5.3.6	Treatment.....	43
5.3.7	Disposal Sites	43
5.3.8	Financial Economics.....	43
5.3.9	Institutional Capacity and Coordination.....	44
5.3.10	Enforcement of Legislation.....	44
5.3.11	Stakeholders	44
5.3.12	Political/Legal Aspect.....	45
5.3.13	Education and Consultation	45
5.3.14	Capacity Development	45
5.3.15	Contracting to Collect, Haul or Transport.	45
5.4	Senegal	45
5.4.1	Recommendation for Implementation of ISWM Policy and Measures for in Senegal.....	45

5.4.2	Legal and regulatory framework	46
5.4.3	Institutional aspects	46
5.4.4	Economic and financial aspects.....	46
5.4.5	Technical and organizational aspects.....	46
5.4.6	Monitoring and evaluation mechanism	47
5.5	Cote D'Ivoire	47
5.5.1	Recommendation for Implementation of ISWM Policy and Measures for Cote D'Ivoire.....	47
5.5.2	Institutional, regulatory and legal framework	47
5.5.3	Organizational framework.....	47
5.5.4	Financial Framework	48
5.5.5	Socio-cultural Framework	48
6.	SUMMARY AND CONCLUSION.....	49
7.	REFERENCES.....	50

List of Tables:

Table 1: Environmental policy instruments according to Jänicke et.al cited by Schlösser.....	39
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1. INTRODUCTION

A Policy brief is the impetus of an action, i.e., it exposes perspectives on certain problems, why changes are needed, their potential solutions, the rationale for choosing a particular policy and its implementation process. What is seen to be most relevant in the West African context is the process to reduce inappropriate disposal of waste and increase recycling and energy recovery. As the experiences in the European Members States have shown, it is a long-term process to abolish dumping of wastes in landfills and disposing of mixed MSW (e.g. more than 20 years in Sweden, D3.1). From the experience acquired from developed countries, it is possible for faster changes in the SWM framework of the target regions to take place.

Outcomes of the reports from the target countries reveal that solid waste management (SWM) constitutes a serious problem. Results show that most of the cities do not collect the totality of wastes generated, and of the wastes collected, only a fraction receives proper disposal. In Nigeria, as has been found in the other target African countries, items that are no longer needed or that have no further use ultimately fall into the category of waste and are thrown away. It is worthy to note that this state of affairs has not always been so. In early days disposal was not a big problem because of availability of space and the utilisation of natural materials. Today, however, the nature of waste has changed. The increase in population and more complex goods making up a significant component of the waste stream have increased its volume and complexity to a point where the capacity of the authorities to manage the waste is adversely affected.

At the core of waste management problems in the target countries are the absence of adequate policies, enabling legislation, and an environmentally stimulated and enlightened public. Most of the regulations and or legislation are either ad hoc (or piecemeal where they exist) and poorly implemented. As shown from previous reports, aside from Senegal and Ghana, public enlightenment programs lacked the needed coverage, intensity and continuity to correct the apathetic public attitude towards the environment. Therefore, a successful solid waste management system in the target countries will require an integrated approach that will comprise a holistic program that incorporates all the technical, economic, social, cultural, and psychological factors that are often ignored in solid waste programs. In other words, what is needed is an Integrated Solid Waste Management (ISWM) plan for the sustained management of solid waste. Such a plan will have a comprehensive integrated format, drawn up consultatively, which reflects the complementary use of a variety of practices to handle solid waste in a safe and effective manner. The ISWM Plan adopts the comprehensive approach across all the waste streams that has been discussed in the course of this research and has been incorporated into a policy brief prepared by the target countries.

In this document, Chapter I introduces the aims and objectives of the ISWM action plans that will implement the policy briefs for the target countries. The policy briefs are outlined in Chapter 2 and are based on the barriers identified from previous reports (D2.1 and D4.1). These policy briefs are meant to address the ISWM needs of the target regions and establish policy options that are applicable. Chapter 3 focuses on the stakeholders' roles throughout the implementation of the applicable policies and proper coordination amongst them. Chapter 4 addresses the capacity needs of the stakeholders, while Chapter 5 further expands on recommendations for policies and measures that need to be implemented.

1.1. Goals and Objectives of WP 4

The outcome of Deliverable 4.1 was to establish recommendations for policy measures in the target countries, while 4.2 outlined the plan for the future implementation of the policy strategies. The aim of this current report (Deliverable 4.3) will be to outline the policy briefs for the development of

National and Regional ISWM Action Plans for the target countries based on the analysis of the EU policy options discussed in Chapters 2 and 3. The outlined policy briefs are meant to address the peculiar ISWM needs of the target regions and establish measures for institutional support, coordination amongst key role-players, emphasise stakeholder participation and also address the capacity needs of the stakeholders.

The overall goal of Work Package 4 is to contribute to the improvement of solid waste management (SWM) systems in the target countries, to promote appropriate management policies on national, regional, local and sectoral levels thus enabling the integration of suitable management practices, and guiding government authorities and other stakeholders to plan appropriately for addressing waste management issues in the target countries and across the African region..

1.2. Statement of Need for the ISWM Action Plan

Reports from the study on target countries have shown that the complexity and costs of Solid Waste Management constitute a heavy burden on their respective governments. Nigeria, Ghana, Senegal and Cote D'Ivoire for example do not have efficient or effective solid waste management systems or strategies in place. It therefore appears that current efforts at managing solid waste, particularly in Nigeria and Cote D'Ivoire, have not been successful. This is partly due to inadequate resources and stakeholder involvement. The current methods of SWM in the target countries are fragmented and are therefore inadequate to meet the changing global trends and changing waste constituents. It is now necessary to have a holistic approach to SWM which involves multi-stakeholder participation at every stage of the waste management cycle and an integrated approach that will sustain a successful SWM system.

The proposed ISWM Plans ideally should be holistic and applicable to all solid waste types. They should take into consideration treatment for different classes of solid waste, and should address the concerns and views of all stakeholders while also empowering them on the effective implementation of the ISWM. In addition, the ISWM Plans should maximize the opportunity to recover resources and prevent environmental pollution from different stages of the solid waste management cycle by integrating and improving existing technical, financial, institutional and policy frameworks, while introducing new concepts in solid waste management, where necessary.

1.3. Aims and Objectives of an ISWM Action Plan (Identifying the underlying principles)

The overall aims and objectives of an ISWM action plan are to promote the adoption of sustainable ISWM principles in the targeted West African countries. More specifically an ISWM action plan should aim to provide the necessary framework to the benefiting countries for designing, developing and implementing the main elements of integrated solid waste management and promote the exchange of information and experiences within the country, as well as across all its local regions (from rural to urban) and organisational structures (across all spheres of government) in the field of solid waste management.

A comprehensive and integrated management approach needs to extend over the entire waste system from cradle to grave, and must cover the prevention, generation, collection, transportation, treatment and final disposal of waste. Integrated waste management needs to represent a paradigm shift in the target country's approach to waste management, by moving away from "end of pipe" mitigation-based and crisis management to a waste management policy which focuses its efforts on the development of pro-active waste prevention and waste minimisation strategic tools.

Further aspects that need to be addressed when defining the aims and objectives of an ISWM policy include the:

- Assurance that any suggested strategic elements are carried by on-going political will and cooperative governance;
- Identification of all the roles and responsibilities of each stakeholder involved in and affected by the ISWM policy;
- Assurance to develop a legal framework that reflects the existing environmental, social and economic challenges and limitations while offering triple bottom line practical approaches that result in "outcome-based" action in the form of Integrated Waste Management Planning;
- Incorporation and support of tools, technologies and programmes that match the integrated waste management challenges at hand (e.g. the promotion of Cleaner Production principles and programmes to effectively address waste avoidance and waste minimisation at the traditional industry based source of waste generation);
- Assurance that the ISWM policy is designed to optimise available resources (both financial and human);
- Assurance that the ISWM policy is designed to provide on-going integrated waste management education, awareness raising and related practical activities to both the private and public sector;
- Implementation of a regional Waste Information System that can capture all key waste generators and the generation sources as well as volumes and types of waste generated so that priority wastes can be identified which need to be fast-tracked for ISW management.

2. POLICY BRIEF FOR TARGET COUNTRIES

The proposed policy briefs are intended to highlight the target countries' action plan for the implementation of the ISWM systems.

2.1. Policy Brief for Nigeria

2.1.1 Executive Summary

The waste situation in Nigeria amongst other things is influenced by population growth, rapid urbanisation, and poor socio-economic conditions. This is further aggravated by lack of funding, inadequate technical know-how or expertise, application of unsuitable technologies; low work ethics, and ineffective service delivery in the management of solid waste.

Often a fragmented ad hoc approach is paid to waste management in Nigeria especially with respect to institutions and legislation. The lack of coherent policies on waste management by the Federal Government leaves State governments to handle the SWM situation without any guide or support from the Federal Government. Other factors that impact the waste management situation is the lack of awareness (and participation) of relevant stakeholders especially the commercial and industrial sector and the general public of waste management issues which often affects expected best SWM practices.

2.1.2 Background

With a population of 140 million growing at 2.9% per annum, Nigeria generates about 25 million tonnes of municipal solid waste annually. This does not include industrial, electrical and other types of waste streams. With the attendant increase in population, and rapid urbanisation, the figure of annual solid waste generated is expected to rise. The current approach to waste management in Nigeria was adopted from developed countries without factoring in the nation's socio-cultural, technical and economic peculiarities. Regulations on waste management are not coherent because they do not stem from a uniform, identified national policy that is specific on waste management. Among the problems faced are inadequate financing, low collection frequency and efficiency, lack of adequate capacity to plan and execute waste management policies and identified gaps in the legislation that govern waste management in Nigeria.

The current legal framework for the management of waste in Nigeria is based on the provisions of the Constitution of the Federal Republic of Nigeria, 1999. **Section 20 of the 1999 Constitution of the Federal Republic of Nigeria** provides for the protection improvement of the environment, safeguarding the water, air, land, forest and wildlife in Nigeria. In addition, the **Fourth Schedule to the Constitution, Section 1, paragraph (h)** states the "*provision and maintenance of public conveniences, sewage and refuse disposal*" as one of the functions of a local government council. In 1989, **the National Policy on the Environment** was launched for the purpose of achieving the goal of Sustainable Development. This policy however did not effectively make adequate provisions for the management of waste. Building on reports from D.4.1 , this brief focuses on providing a guide for development of an action plan for waste management that reflects local waste variations and socio-cultural attitudes, harnesses the resource potentials in waste and embraces the participation of all relevant stakeholders, as well as emphasising on effective and sustainable management component in the waste management chain.

2.1.3 Statement of Need

At the moment, the country does not have a general National Policy on Waste Management, however, there are regulations guiding waste in the country. This includes:

- National Environmental (Sanitation and Waste Control) Regulations 2009. S. I. 28 of 2009.
- National Environmental Electrical and Electronic Sector Regulations 2009.
- National Policy Guidelines on Solid Waste Management.
- National Environmental (Textile, Wearing Apparel, Leather and Footwear Industry) Regulations S. I. 34 of 2009.
- National Environmental (Chemicals, Pharmaceuticals, Soap and Detergents Manufacturing Industries) Regulations S. I. 36 of 2009.

It is pertinent to state first, that there exists at present no comprehensive policy on waste management at the national level in Nigeria. The existing National Policy on the Environment falls short of articulating a guideline for the implementation of an integrated waste management system. Laws and regulations on waste are disjointed and are not gravitating towards any clear identified objective. There cannot be an integrated waste management plan or system without a defined, coherent national policy that guides the actions of other constituent units towards its mutual objective. Hence, addressing this policy gap is the first step to implementing any strategy for sustainable waste management. The problems to be addressed include unsustainable management of waste streams; and institutional and legislative gaps as regards treatment, recycling and final disposal of wastes in Nigeria. Thus, the development of an ISWM National Action Plan will provide guidance on the implementation of waste management policy and help establish a system for the management of solid waste. More so, the National Waste Action plan will be pivotal in the implementation of approved strategies to avoid the generation of waste; reduce the amount of waste (including hazardous waste) for disposal, manage waste as a resource and ensure that waste treatment, disposal, recovery and re-use is undertaken in a safe, scientific and environmentally-sound manner.

The following recommendations would be specifically applicable to Nigeria but adaptable regionally in West Africa and the Sub Sahara.

2.1.4 Proposed Policy Options

The first step to implementing an integrated waste management system in Nigeria is the drafting of a national policy on waste management hinged on the internationally recognised 4Rs-system. On the whole, it should clearly articulate a national objective for waste management with an emphasis on the utilization of waste as a tool for economic development. This suggests a policy that:

1. underscores the minimisation of what is put out as waste from source i.e. homes, school, industries, businesses, etc.;
2. lays emphasis on the re-use of things (that might have ended up as waste) for other purposes; and the recycling of waste on a large scale. This goes beyond just removing waste it's from primary source.

This means that in drafting such a policy, all relevant stakeholders must be involved. This would include in particular the formal and informal private sector; schools, churches, NGOs and the media for the purpose of public sensitization.

The policy must highlight the practice of continuous waste education for all waste generators so that waste minimisation can be achievable and the collection and segregation stages can be more participatory and efficient.

Specifically;

Producer Responsibility

- It should introduce the producer responsibility system and polluter pay system. This means that industries and all waste generators will bear the costs for the management of their waste. Also the national waste policy should aim at minimizing wastes from source as much as possible. In such a plan, producers must be able to finance their obligations via advanced disposal fees or they pay directly for its disposal. This interesting approach was very effective in the Netherlands;
- It is highly important that Nigeria's national waste policy should ensure industrial wastes are managed by the producers of the waste rather than governmental bodies because lessons learnt in Switzerland show that the producers are better managers of such wastes;
- The Nigerian retail industry will be a key-player in the successful implementation of the national waste plan. A take-back system which would enhance waste minimization through the strict enforcement of extended producer responsibility principle would be required. Voluntary private sector retail initiatives which emerged in South Africa assisted immensely in waste recovery process;

Stakeholder Participation & Public Private Partnership (PPP)

- encourage greater public-private sector partnership (this would involve structuring the informal sector) to improve service access and quality with subsidised costs in relative areas; this is to move the system from being budget-reliant to being self-sufficient and self-reliant;
- The national waste policy plan must address issues of lack of coordination within and amongst stakeholders and with other development and government organisations within Nigeria to enhance successful implementation.

Professionalism (amongst stakeholders/waste managers)/Innovative technologies

- minimise the use of sophisticated, difficult-to-maintain technologies, encourage the use of indigenous technologies that are sustainable and effective; and make the system more labour intensive;
- The waste industry should be professionalized, with better working conditions and remuneration packages for waste jobs to bolster confidence and respect in the waste management system;
- Waste prevention and minimization should be fundamental to the national waste plan. This is because, the further down the waste hierarchy, the more practical the

technological solutions, which would ensure successful implementation, needs to be found. For instance, energy recovery is a good example of how new and innovative technologies are transforming waste materials into usable resources;

- In acknowledgement of the potential to achieve wider community objectives, the National Waste Policy should also aim to help reduce greenhouse gas emissions, improve energy conservation, raise water efficiency and enhance productivity of the land.

Legal/Legislative Framework

- Nigeria's waste policy should have a framework which would provide a waste hierarchy which must emphasize on waste prevention, recycling and disposal mechanism like the 'Eletro- und Elektronikgerategesetz' (Electrical Equipment Act – ElektroG);
- To enhance an efficient and effective implementation of the national solid waste plan for Nigeria, it is advised ISWM may be indirectly included as part of policies addressing broader issues in various economic sectors, like industries agriculture, healthcare facilities, construction and demolition activities, etc;

Institutional Framework

- recognize the need for delineation of roles clearly among the levels of government, and the need for the capacity building of the LGAs to reach the people;
- A successful implementation of ISWM requires strengthening of institutions that regulate all aspects of waste management. Hence, adequate staffing of local authorities, regulatory bodies and other institutions would guarantee effective implementation of the national waste policy;
- Development of clear-cut functions among institutions involved in ISWM in Nigeria, strengthening of environmental protection regulatory bodies, strengthening of traditional authorities and local councils, strengthening of institutions involved in the enforcement of bye-laws on waste management and proper management of dumping grounds and landfill sites would ensure successful implementation of the Nigerian national waste policy;
- Daily data collection on the situation report of the proposed Nigerian national waste policy would be an effective tool in its implementation;
- The degree to which the waste management officials and staff of the government are held responsible for their decisions, actions and performance would ensure successful implementation of the national waste plan. Therefore, state officials, public employees and private sector should be made answerable for policies, actions and use of funds. This could be done through identification of persons/groups responsible for particular actions and decisions in plan documents; performance monitoring and evaluation procedures; recognition of good performance/observance of procedures and clear sanctions for violations of standards and procedures;

Funding

Funding is vital in order for waste to be effectively managed but there are limited or no funding for solid waste management in Nigeria. The local agencies do not have adequate capacity and resources to handle the amount of waste being generated. In some urban areas, the collection

activities (wastes and fees) are contracted to private companies (an example is that practiced by most states of the federation under the PSP programs). This is more efficient than through the government agencies. Utilization of private companies however, has some setbacks. There is little or no profit by the private companies due to inefficiency and late payment of fees and the failure of the government to regulate solid waste management in Nigeria. One of the ways to secure funding maybe for:

- The Federal government to increase its budgetary allocation to waste management;
- The policy to emphasise on recycling and insist on strict compliance of the producer pays principle;
- The development of a service cost burden system that will gradually shift from Government to waste generator.
- The waste management or environmental sanitation agencies as the case may be, to adopt the pay as you dump approach; and
- The transfer of service delivery to the private sector who will gradually assume the responsibility of cost recovery.

Education & Awareness

- Successful implementation of the national waste policy can be achieved through growing environmental awareness. In Netherlands, environmental education was embedded in their school curricula which led to a huge success in the implementation of the national waste policy. It is highly recommended that such efforts should be replicated to achieve similar implementation result;
- It is suggested that the national waste management plan deals simultaneously with the 4Rs levels as well as create an awareness within society about what is being done and how to improve it in the future;
- Recycling policies such as adopted by Germany can be replicated in Nigeria. Central collection points are appropriate for wastes such as paper, glass and plastic. Separate waste incineration plants would also help in disposing larger quantity of wastes, particularly municipal wastes.

2.2. Policy Brief for Ghana

2.2.1 Executive Summary

Solid waste management in Ghana is faced with a myriad of problems. Among these problems are inadequate financing, low collection frequency and efficiency, lack of adequate capacity to plan and execute waste management policies and identified gaps in the legislation that govern waste management in Ghana.

2.2.2 Background

Ghana's population is currently estimated at over 24 million. Coupled with the growth of cities and towns, waste generation is increasingly at a fast rate. The fraction of waste collected is small in most peri-urban communities but has increased in major cities such as Accra (70%), Kumasi (75%), Secondi-Takoradi (60%), and Tamale (55%). Well engineered waste disposal sites are absent in all the cities except Kumasi and Tamale. Waste treatment facilities for both solid and liquid waste are

woefully inadequate leading to open dumping of waste and discharge of faecal sludge in water bodies. A staggering 57.6 % of all waste generated ends up at public dumping grounds untreated and in unhygienic conditions. Burning contributes 7.9 % while 25 % of the waste is dumped elsewhere and 3.9 % are buried. Moreover, close to 76 % of households still rely on improper waste collection and disposal methods, and only 5 % rely on house-to-house collection, according to the baseline environmental sanitation data gathered in 2007/8. Such trends lead to instances of cholera, respiratory diseases and other sicknesses amongst human beings. In some cases, rivers, which are a source of drinking water for many people also become contaminated from careless dumping of waste. Such practices have caused marine pollution and the contamination of marine life such as fishes, which are a source of livelihood for many sectors of the populace.

2.2.3 Statement of Need

Waste management in Ghana has been and is still faced with numerous problems. Collection frequency and efficiency is very low leading to the piling up of garbage in public places in cities and towns. Non-existent landfills and the inability of waste management firms to secure land for use as disposal sites is a major problem facing sound management of waste. Aside these problems mentioned above, the inability of government to introduce and enforce sorting of waste at source has hampered recycling and resource recovery activities as the waste comes in a mingled form. Financing of waste management is also a major problem facing the nation. Metropolitan, Municipal and District Assemblies (MMDAs) find it difficult to fully pay for the services of waste management companies. The situation where MMDAs bear the cost of collection and dumping of household waste is clearly unsustainable given the huge debt stock of these agencies.

Ghana has an Environmental Sanitation Policy that dates back to 1999. This policy was recently revised in 2010. The 2010 policy outlines strategies and actions for seven focus areas, namely: capacity development; information, education and communication; legislation and regulation; levels of service; sustainable financing and cost recovery; research and development; and monitoring and evaluation. However, the revised policy does not prioritize the 4Rs strategy (reduce, reuse, recycle and recovery), but rather lays more emphasis on the collection and dumping or landfilling of waste as is the current practice. A bottom up approach that makes collection and dumping its central focal point rather than the 4Rs is certainly not sustainable especially when more communities are kicking against the location of landfills in their neighbourhoods. A complete paradigm shift that lays emphasis on the 4Rs envisaged is being proposed here.

The four Rs –Reduce, Reuse, Recycle, and Recovery is a waste management strategy that outlines four means of dealing with waste in a preferential order, from the most useful (Reduce) to the least favoured (Recover). The concept of the 4Rs aims at reducing to the barest minimum the quantum of waste generation while realizing the maximum practical benefits from products. Though disposal has a place in an integrated waste management system, it is usually the last option on the table.

The numerous problems facing the sector thus require a realistic strategy that tackles the problem right from the source. While it is understood that the fraction of waste collected and disposed appropriately is woefully poor, prioritizing the 4R concepts will lead to reduced waste reduction in the first place, a situation that will put less constraints on waste collection companies and local authorities as there will be less waste to collect and dispose.

The following policy options are being proposed to address the identified problems;

- (i) Government should introduce and enforce sorting at source

- (ii) The polluter pays principle must be backed with punitive measures to deter people from non-compliance and dumping their waste at unapproved centres;
- (iii) Waste management firms must be mandated to generate a percentage of their revenue through recycling of waste or resource recovery measures;
- (iv) The country should move away from the system where waste management firms are allotted places to work in and take advantage of market forces to determine the best waste management firm with the best team and technology to manage the waste; and not just collect and dump the waste as is happening now;
- (v) Waste management laws in the country should be harmonised into one policy document called the Waste Policy of Ghana and put under one ministry say the Ministry of Environment Science and Technology. This will facilitate effective dissemination and implementation of the policy and also monitoring and evaluation of the goals and deliverables
- (vi) All stakeholders in the waste management business must be involved in planning and executing any waste management policy;
- (vii) Ownership of waste must change with immediate effect. District Assemblies should cede ownership of the waste collected to waste management firms that collect the waste so that they can recycle it or turn it into useful marketable products;
- (viii) Effective education should be carried out to inform all stakeholders of new policy directions and programmes to enhance effective solid waste management systems in the country. Reporting and follow-up systems must be put in place to monitor the extent to which such education is effective;

It is envisaged that when these measures are put in place, solid waste can be managed in a more sustainable way than what obtains now in most cities, towns and villages in the country.

2.2.4 Proposed policy options

Collection of waste

All types of waste are mixed together during collection. Some of the waste streams which are mixed together include organic, plastic, wood, glass, toxic and hazardous waste, and e-waste. Because of this, recycling and resource recovery becomes very difficult and virtually impossible in most cases. To derive the full benefit of integrated waste management, Government should look at enforcing sorting of waste at source. The policy should institutionalize waste sorting at source and back it with punitive measures that will discourage and also punish offenders. Sorting of waste at source will make recycling possible, and at a lower cost. Such a policy should be mindful of the willingness-to-pay or ability to pay.

Financing of waste management

The sanitation policy which captures solid waste management sort to address the issue of inadequate funding by instituting the polluter pays principle (PPP). The polluter pays principle is not an entirely new policy because it was included in the 1999 policy document as a result Accra and Kumasi Metropolitan Assemblies started charging collection fees from waste generators. The revised policy seeks to project the PPP as the solution to waste management financing in the

Ghana. Through this policy, waste generators will be tasked to pay for the collection and processing of the waste they generate.

This is a good policy and will address the problem of inadequate funding to some extent; however, there are issues that need to be considered. First of all, what becomes of the person who chooses not to pay? Will the waste collection fees be left to market forces or will the prevailing situation where the price is set and controlled by the Assembly still continue? Lastly, questions of affordability have been raised and how we can ensure that the people are not overburdened as this can also be a disincentive for many. One of the major risks associated with this policy is the lack of political will due to the following reasons:

- (i) It may not be in an election year;
- (ii) It may not be the government's term of office;
- (iii) There may be the lack of a long-term strategy to sustain a plan;
- (iv) Politically faithful parties to the government in power will be affected.

To ensure the success of this policy the following are being proposed:

1. Laws should be enacted to penalize those who would not want to join waste collection and recycling schemes – in other words every household must partake in these initiatives. If a household is not registered with a particular waste management firm then it means they are dumping their waste illegally and as such need to be punished. Also, when a household refuses or defaults in payment, that person should be liable to prosecution to serve as a deterrent to potential defaulters. In addition to the punitive measures, education on good waste management must be carried out concurrently to inform people on the benefits of good waste management. Such activities could help raise awareness amongst the populace on the benefits of sound waste management and recycling, thereby, enabling them to promote compliant practices in this regard.
2. Market forces are good and most often bring about efficiency especially when there is a strong regulatory mechanism which will discourage the formation of cartels. Waste management in Ghana has been privatised with a lot of private entities collecting waste on behalf of the Municipal Assembly. Instead of the assembly contracting waste management firms or allotting areas to waste management firms, the Assemblies can open a bid for waste management firms to submit proposals on how they intend to manage the district, municipal or metropolitan waste. Together with stakeholders, the best proposal which gives value for money is then selected.
3. Questions of affordability always come up. Can people afford to pay for continuous collection of waste? This is a legitimate concern that needs to be addressed. One way of addressing this is to explore innovative ways of diversifying the sources of income of waste management firms. Government institutions should guarantee off-take of saleable materials from waste (Metals, paper, Plastics, Compost, and Glass). It will be an effective means of creating a dynamic market. This will ease the burden on waste generators by bringing down the collection fee they may have to pay.
4. Utility bills are major issues in Ghana. Politicians take undue advantage of hikes in utility bills to win elections or score political points. As a result of this sitting government usually do not want to be seen as overburdening individuals or better still want to appear as humane as possible and are thus very reluctant to introduce new bills or increase bills for fear that the opposing party will take advantage of the situation to whip up public sentiment against it. Electricity, petroleum and water prices are classic examples where successive governments have failed to

allow people pay the market price, preferring rather to subsidize. Judging from the trend, it will not be surprising at all to see the same problem cropping up in waste management. There have been instances where in some strongholds of some political parties, waste collection fees have been reluctantly introduced and even where introduced, fees charged are very low. To overcome this potent treat;

- NGOs and CBOs must be assertive and take politicians to task when they seek to take undue advantage of price hikes and introduce fees to boost their political chances since they will be faced with the reality and will seek to do same when they come to power
- Placing emphasis on the 4Rs will reduce the quantity of waste collected and thus may not reduce the amount of money paid by waste generators.

Solid waste management legal reforms

Legislation on solid waste streams in the country is scattered in many ministries with little or no coordination. For instance, household waste management falls directly under the Ministry of Local Government and Rural Development. The National Environmental Sanitation Policy for instance, only talks about household waste at the detriment of industrial and hazardous waste streams. On the other hand legislations governing hazardous waste are all coming from the Ministry of Environment Science and Technology. There are also pockets of laws on mining that touch on hazardous waste management. There is a need to harmonize all the laws into one policy document under one ministry.

The harmonized waste law should contain provision that addresses the following:

- Substance ban: In terms of solid waste management, substance ban in terms of solid waste management are defined as restrictions imposed on disposal, transfer for disposal and contracting for disposal of certain hazardous and recyclable solid waste items by a national or regional/international legislation. In this regard, it is recommended that government of Ghana as a matter of urgency includes in its waste management policy, legal provisions which conform to the ideals of the OAU/AUBamako Convention on Waste Management (1991). Ghana has signed and ratified this treaty. This African regional treaty bans the export, import, transfer and dumping of certain kinds of solid wastes from other countries into Africa.
- The polluter pays principle must be clearly enshrined in the waste law.
- The new waste law must have provisions for extended producers' and retroactive liability. This is necessary to address the challenges of E – Waste and other forms of hazardous wastes.

Ownership of waste

Who owns waste in Ghana? This might look like it a trivial question but it is very important. In Ghana, the Assembly owns the waste collected. The Waste management firms collect and dump the waste on behalf of the Assembly. This needs to be changed. The Assembly should no longer own the waste collected. Once it is collected by company "A", that company must be allowed to take full ownership of the waste and be allowed to turn the waste into useful products that are sellable.

Stakeholders' involvement

Management of solid waste in Ghana involves so many actors with different levels of expertise, roles and responsibilities. It is important that for effective management of solid waste in Ghana,

these actors are clearly identified with roles and responsibilities properly defined. The Local Government Act, Act 462 mandates District/Municipal/Metropolitans Assemblies as well as the Ministry of Local Government and Rural Development to be at the forefront in managing solid, liquid wastes as well as the sanitation issues in the district/municipality or the metropolis including construction of landfill sites or final disposal sites. They may provide the services either directly or indirectly through private contractors or franchisees. This provision in the Local Government Act draws its strength from article 41 (k) of the fourth Republican Constitution which states; “it is the responsibility of every citizen of Ghana to safeguard and protect the environment”. However, in most districts/municipalities/metropolis in Ghana, due to other bureaucratic bottlenecks or lack of clearly laid policy, how the district/municipal/metropolitan assemblies should engage with other relevant stakeholders in the management of solid waste is missing. This has led to the non – involvement of relevant stakeholders such as waste sorters at dump sites, chief/opinion leaders, and community based organisations/civil society organisations, etc. in the management of solid waste in the country.

Education and awareness on solid waste laws and regulations

Information forms the basis of any policy development, and without adequate information policy alternatives cannot be adequately considered. Sharing of information is a requirement, especially when all stakeholders including the private sector are becoming involved in this new type of business. The cost of implementing this policy can be rather long-term as the impacts of awareness campaigns are not immediately noticeable. NGOs and CBOs must be empowered to educate and create awareness on new solid waste management laws and regulations.

Research and Development

This is neither a cost-effective nor efficient policy, but is needed to ensure long-term involvement of stakeholders in maintaining the solid waste management system. Whilst the initial stage of a management system may include collection of wastes in a mixed state, later developments in the service would require the public to start sorting their waste into plastic, paper and glass. Without good research findings, this is unlikely to be successful. For example, in Ghana, individual waste sorting schemes can be pilot tested in one small village before the initiative is launched nationwide. Lessons from ZOOMLION’s source separation of waste at their head office and a similar one at the Environmental Protection Agency can be useful. Piloting will allow room for research and development. Results obtained can then be factored into national policy programmes.

Informal Sector

The informal sector plays a very important role in waste management in Ghana. Lately informal waste collectors having been combing the entire country in search of scrap metal because of the high price associated with selling the products. Once again people have shown how rational they can be provided there is an economic benefit. In as much as this is good, challenges remain in some aspects. One such challenge is the unapproved methods of recycling some types of waste, e.g. electronic waste which releases toxic materials into the atmosphere and in some cases pollute water bodies. Completely banning their activities may not be a good enough option since the people involved derive their livelihood from it. Until they find more economically challenging alternatives they are not likely to quit and even when they quit, their place will be taken over by some other poorer people. In the light of these challenges, the following policy options are being proposed;

1. Assemblies must register all informal waste collectors in their jurisdiction
2. Research institutions in the country must be tasked to come out with less capital intensive but environmentally friendly and safer means of recycling some of the waste materials. The research finding should not be left to rot on shelves but rather the

people involved in the business should be equipped with the adequate skill to enhance their work

3. EPA should take keen interest in monitoring the activities of these people
4. Private sectors with the capacity to integrate the informal sector should be encouraged to do so. ZOOMLION for example, has supplied 'Bola taxis', a motorized tricycle with tipping, and manual tricycles to some informal waste collectors and NGOs. This initiative is towards fashioning a model to integrate the informal sector through the private sector.

2.3. Policy Brief for Senegal

2.3.1. Executive Summary

In Senegal, the solid waste management suffers from numerous deficiencies related to: i) inadequate financial resources, ii) inadequate technical means, iii) and lack of proper infrastructure for the collection, transport, treatment and disposal of municipal waste.

In addition to these technical and financial problems, there is considerable institutional instability in the waste management sector with the involvement of many actors, a variety of laws and regulations, and permanent institutional changes, particularly in the Region of Dakar.

The government of Senegal has set up a new law (Law No. 2011-17 of August 30, 2011), authorizing the creation of a new company with public participation to manage solid waste in the whole country. This company called **Société pour la Propreté du Senegal** (SOPROSEN), is responsible for the specific treatment of refuse according to its type and of the establishment of efficient patterns of recycling and recovery of solid waste.

This company replaces the **Agence pour la Propreté du Sénégal** (APROSEN) which was in charge of developing the national strategy for waste management, and supports local communities in carrying out their duties relating to waste.

2.3.2 Background

With an area of 196,722 km², Senegal had a population of over 12 million people in 2009 (National Agency of Statistics, 2010), meaning an average population density of 65 inhabitants per km². The population is unevenly distributed with a concentration on the coast (the density of the Dakar region exceeds 4000 people per km²). Linked to constraints related to natural and historical factors, these contrasts have been accentuated in recent decades by the rural exodus.

The problem of solid waste management is particularly acute in urban areas of Senegal. Currently, there are few data on waste generation and characterization with the exception of the Region of Dakar where waste production is estimated at 475,000 tons per year (IAGU and APROSEN, 2008). Waste generation increases considerably in the main cities of the country, due to the high growth rate of the population and the high rate of urbanization in recent years.

2.3.3 Statement of Need

In Senegal, the existing legal framework on waste management consists mainly in several laws and codes. From these, the most important are:

- The Environment Code: The provisions of Law No. 2001-01 of January 15, 2001 and its implementing decree No. 2001-282 of 12 April 2001 are the basic legislative and regulatory framework governing the activities of waste management with its environmental implications. It emphasizes the obligation of the environmentally sound management of waste, empowering individuals and legal entities, and finally strengthening the control of toxic waste.
- The Decree No. 74-338 related to household garbage: the Decree 74-338 of 10 April 1974 regulates the removal and deposit of garbage. This text focuses on the definition of household waste collection and disposal. In addition to the identification of waste called household garbage, the decree states the processes by which local governments must eliminate waste and the requirements for the implementation of sanitary landfills, taking into account the topography context and temperature.

At the political level, the letter of the environmental policy adopted in 2004 has the overall objective of ensuring the sustainability of economic and social development in a growth perspective which is consistent with the preservation of natural resources and the environment. Its specific objectives are, amongst others, to reduce resource degradation by developing an effective institutional and regulatory framework based on international conventions, to improve capacity planning and coordination of environmental protection in a context of greater accountability of the actors; to increase the coverage of populations in self-regulated wastewater collection, to regulate the management of municipal solid waste, to develop regional management plans for waste management and for strengthening equipment collection and cleaning, etc.

2.3.4 Proposed Policy Options

The numerous institutional changes make difficult the establishment of a sustainable and integrated solid waste management system, which establishment requires the development and implementation of a number of policies that should:

Integrate factors of urbanization in developing and implementing management systems of municipal solid waste

At this level, the question is to take into account housing factors that affect positively and negatively the organization of systems for managing solid waste such as the type of housing, the accessibility to neighborhoods, the concentration of people and the socioeconomic activities, the consumption patterns and the trends in the planning and development of management systems of municipal solid waste. As such it is necessary to reorganize the collection and cleaning by incorporating pre-collection, segregation points and by adapting the system to the socio-cultural practices of households.

Redefine the roles and responsibilities of various institutional actors

This is to make a precise definition of tasks and responsibilities of different actors by assigning to each one specific powers and their applicability in relation to the management of municipal solid waste, in order to avoid confusion and duplication of roles, sources of ineffectiveness and inefficiency.

For example, the national Government should develop a framework with laws on waste management that ensure that its implementation is effective.

Reinforce the capacities of actors involved in waste management

The point is to build human, material, technical and financial capacities of the stakeholders involved in the system of waste management, including institutions, cleaning staff, service providers, local communities and populations.

Strengthen the financing of waste management

Recovery of tax for garbage collection (TEOM) is low. It is so necessary to reform the way of local taxation and of the funding system for waste management including the promotion of own resources and private sector involvement in the sector.

Develop communication and awareness policies on the issues and perspectives in the management of municipal solid waste

This is one of the main strategies for a better organization of the system. Indeed, the development and implementation of a strategic plan for integrated and sustainable management of municipal solid waste cannot be done without a good communication and awareness policy of all actors in the system. This must be done not only through the media (radio, television, press, etc.), but also and particularly through awareness campaigns in local neighborhoods because poor management of waste is a public health problem.

Create a synergy of actions

Moreover, the involvement of other institutional actors, especially those in charge of urban planning can lead, jointly with the municipalities, the CADAK-CAR structure, the Department of Environment and Classified Establishments, etc., the evaluation approaches to find the sites ecologically, economically and socially viable to receive the necessary infrastructure for the processing and recovery of municipal solid waste. It is necessary to remember at this level that the multiplicity of actors in the system is not in itself a constraint, but rather the coordination of their activities which is a problem.

2.4. Policy Brief for Cote D'Ivoire

2.4.1. Executive Summary

Management of waste in Côte d'Ivoire was initially conducted in three phases within the periods of 1960 to 1980. There was no established framework; as such management of salubrity in the cities was entrusted to Prefects and deputy Prefects. In an effort to give the local authorities some sort of legitimacy, between that period and 2007, the management shifted to the responsibility of the districts (Yamoussoukro and Abidjan) and municipalities. And since 2007, waste management has been the responsibility of the ANASUR which is gradually taking root in cities across the country. Regardless of the shift in administration, the waste management was still saddled with a lot of challenges ranging from; low coverage, delay in collection, inadequate technology, poor institutional administration as the result of the poor contractual relationship existing between the waste management authorities and other industry players, weak and ineffective legislations, rivalry, unemployment amongst other factors.

As a result of these difficulties, very few cities in Ivory Coast have functional and appropriate areas of transshipment thereby impacting on the waste management system.

2.4.2. Background

Côte d'Ivoire has an area of 322 462 km². The Ivorian population is growing rapidly. During the last census in 1975, 1988 and 1998, it is estimated at 6 709 600, 10 815 694 and 15 366 672

inhabitants respectively. This population was later estimated at 21 506 017 in 2010. This rapid increase is partly attributable to the immigration of foreign populations. The population is on the rise and very unevenly distributed with high density in the District of Abidjan (7693 inhabitants per km²).

In Côte d'Ivoire, the solid waste management is a major concern despite three consecutive years of operation "Clean City" funded by the World Bank. This situation has worsened with the post-election crisis in January 2011 especially in the District of Abidjan, where the daily production of solid waste is estimated at 3000 tons. In 2009, the District of Abidjan alone produced 1 740 335 tons of municipal solid waste to a collection rate of 68.68% (District of Abidjan & ANASUR, 2009). In secondary cities, the situation is equally disturbing with a collection rate of less than 50% due largely to a lack of funding, logistics and road conditions. There is no landfill site for proper disposal of solid waste in Côte d'Ivoire. The only method of treatment is still used in uncontrolled landfill dumps such as the District of Abidjan (Akouedo dump). The recovery and recycling of solid waste is not practiced.

2.4.3. Statement of Need

Côte d'Ivoire has a legislative and regulatory framework reflecting the State's interest to solve the problem of waste disposal. Thus, they have operated several pieces of legislation since 1996, including:

- Law 96-766 of 03/10/1996 on the Code of the Environment;
- Act 2003-208 of 07.07.2003 on the transfer and distribution of powers of the Government to local governments;
- Ordinance 2007-586 of 04/10/2007 to repeal certain provisions of law 2003-2008 of 07.07.2003 on the transfer and distribution of powers of the Government to local governments;
- Decree 2007-587 of 04/10/2007, on the establishment, responsibilities, organization and operation of a public industrial and commercial agency called the "National Agency for Urban Safety"(ANASUR in French);
- Decree 2007-588 of 04/10/2007, Fund of Support for Urban Safety Programs (FSPSU in French);
- Decree 2009-328 of 08/10/2009, on the responsibilities, organization and functioning of a public administrative procedure known as Fund financing programs Urban Safety (FFPSU) and repealing Decree 2007-588 of 04/10/2007, Fund of Support for Urban Safety Programs (FSPSU).

This profusion of texts around a common theme, despite their high quality, is likely to lead to confusion and misunderstandings amongst the various actors involved. It is especially important that certain laws that repeal or amend others are not known by all stakeholders. This results in the participation through intervention of several actors, who may not have the skills required in this area. In addition, some laws and decrees, lack precision, and do not compel producers such as traders and industries to get involved directly in the process of eliminating waste.

There are no pieces of legislation on the regulation and classification of solid waste in Côte d'Ivoire. The waste exchange, under the Code of the Environment in Article 74 has not yet being established and its implementing decree has not yet being effective.

At the institutional level, the multitude of stakeholders (Ministries, ANASUR, FSPSU, BNEDT, MACOM, Consultants) in the management of solid waste is all the more damaging because it does not allow the competent authorities of the texts fully exercise their duties efficiently.

There is no formal framework or support of the state in the organization of recycling and recovery. The recycling is practiced in the informal sector. There is no database of solid waste generated over the entire country. Often the only information available concerns the District of Abidjan while there are many secondary cities. As to information relating to industrial waste, they are sometimes non-existent or inaccessible.

Moreover, the main source of funding is the Tax Collection of household waste (TEOM in French) levied on KW/H by the Ivorian Electricity Company, and the latter has not been effective in eliciting compliance from the waste generators as a result of non-payment of electricity consumed by the local authorities. Aside from funds received from the World Bank, there is currently no system for additional resources for financing the waste.

2.4.4. Proposed policy options

The implementation of the policy of solid waste requires action of several stakeholders including accountability beyond the line of responsibility of a single government institution. For a better policy on ISWM in Côte d'Ivoire, policy options in the following aspects of waste management are proposed:

Legislative and institutional frameworks

Legislative Framework

Côte d'Ivoire has a legislative and regulatory framework. However, some laws and decrees lack precision and incitation, nor oblige producers such as traders and industries to get involved directly in the processes of waste disposal. One of the guidelines in the short term for an integrated management which involves all stakeholders will refer to the control and strengthen the current legal framework at national level (laws, rules, incentives, etc.) and local (municipal circulars, provisions, agreements, etc.)

The Ivorian authorities in charge of waste management should work to adopt framework legislation establishing:

- the overall role of the National Agency for Urban Sanitation (ANASUR) in the area of waste management;
- provisions of the classification of waste and pollution and nuisances;
- new public-private partnerships in which importers, distributors and manufacturers are involved in the management of their products when they become waste;
- the principles of "polluter pays" and the "user pays" in relation to solid waste management;
- legal basis for an efficient recovery of the tax (Tax for domestic waste disposal);
- Waste exchange in accordance with the Code of the Environment
- Provisions on the method of waste disposal in accordance with international obligations (Conventions, Protocol, etc.).
- Provisions for liability in cases where individuals or organizations contravene the legislative requirements;

The priority of legislation will be developed under the authority of the framework that will identify the standards of waste management in Côte d'Ivoire, and the financial contributions of industrial organizations whose products become waste and the institutional framework through which they participate in the management of these funds.

Institutional Framework

In Côte d'Ivoire, the multiplicity of actors (Ministries, ANASUR, FSPSU, BNEDT, MACOM, Consultants) causes an overlapping of roles and missions. This does not allow the competent authorities to fully exercise their duties efficiently. For a strategic ISWM, it is essential to make a clarification of the position of all the institutional actors and their links with other stakeholders including:

- through writing a text amending all existing texts and pre-existing skills and showing the responsibilities of each while defining the notions and concepts, specifying the limits of performance from each actor and each phase of the pipeline (pre- collection, management of intermediate centers, collection, transport, landfill);
- the outright repeal of all existing texts relating to the allocation (or non-distribution) of responsibilities in waste disposal (sweeping, cleaning, pre-collection, collection, transportation, landfill, landfill management, financing of the sector, waste recycling, etc.) and the writing of a single text.

The establishment of management arrangements between local waste management authorities under the decentralization policy is a policy option that will restore the operational competence (project management) to local authorities (communes, districts) in Côte d'Ivoire. In this perspective, considering the strategic role of the National Agency of the Urban Sanitation (ANASUR) is essential to create a public inter-municipal cooperation (EPCI) body which will benefit from a transfer of jurisdiction from the ANASUR or at least, a delegation of authority. This has the advantage of being part of the decentralization process and helps to involve the municipalities in the daily management of waste. In addition, to promote harmonization between the implementation of the national waste management and implementation of treatment facilities and disposal measures such an inter-regionalization should be promoted. This contributes to the consideration of the specificities and realities of secondary cities in the policies of integrated solid waste management. For the implementation of these policy options, it must first adopt new regulations on waste management.

Technologies and Systems

In Côte d'Ivoire, technologies and systems will be used to recover economic value of waste and to manage residual waste in ways that are protective of human health and the environment. The following systems and technologies should be adopted, according to reliability, and should be applied in accordance with the requirements of the population living in Côte d'Ivoire:

Storage and collection

Waste storage and waste removal in cities are a central objective of any system of waste management. The ANASUR should work with other industry players to expand, as necessary, and maintain the services of waste collection and regular practices throughout the District of Abidjan and the secondary cities according to the needs of the population. The success of this initiative is to be achieved through a policy that would encourage professionalism in the waste management sector through strengthening the capacity of pre-collectors and private enterprises in collecting and organizing their operations in areas of specific intervention. ANASUR must adopt standards to ensure that waste is properly contained before they are collected, and that the waste does not escape vehicles or equipment for waste collection after they are collected. The construction of the transfer sites should be based on accessibility in any season, the production of waste and the extent of the intervention area of pre-collectors. This helps to reduce illegal dumping and transportation costs of waste to landfills.

Reuse and Recycle

The reuse and recycling activities in the SWM cycle creates jobs, provides resources to local industry and reduces the volume of waste requiring disposal. The ANASUR should work with other stakeholders, in order to strengthen the activities of the reuse and recycling of solid waste. This improves the process through measures such as the introduction of structured organizational forms of informal recyclers. This will consist in analyzing the existing system and implementation of organizational forms (cooperatives, associations, small and medium enterprises, etc.) to improve waste sorting. The success of this policy of ISWM must be done through the integration of a component for training and education into the system. Thus, training of stakeholders on the modalities of management and marketing strategies should be conducted. Information campaigns on health risks related to aspects of business recovery should be undertaken. In addition, ANASUR is to work with importers, distributors and manufacturers to establish systems for the recovery of reusable materials / recycling before they are released for collection of waste.

Composting

In Ivory Coast, organic wastes are not considered as waste objects but are used for private initiatives for valorization which exist informally. About 90% of organic waste products are buried without value. The ANASUR agencies in collaboration with the Ministry of Agriculture department like ANADER and other stakeholders should work, as appropriate, to determine the feasibility of composting organic waste. The Executing Agency shall ensure that all composting initiatives include:

- sorting of organic waste from non-organic waste before composting activity;
- composting technology adapted to the realities of Côte d'Ivoire;

Organic materials that decompose at the landfill of Akouédo emit gases that can have a high energy which can be converted as alternative energy resource. The Ministry of Urban Safety is looking at working with other stakeholders including the Ministry of Energy and Petroleum to estimate the field of biogas and determine the feasibility of creating a unit for commercial purposes.

Elimination

The waste disposal sites properly located and managed are protective of public health and the environment. The ANASUR with the cooperation of municipalities and districts must work towards the closure of non-controlled landfill sites. The ANASUR must develop standard procedures for the location and operation of waste disposal sites. These procedures should include the participation of the public and stakeholders, and Evaluation of Environmental Impact. Procedures implementing the framework of an ISWM ensure the proper management of waste in waste disposal sites including management systems, leachate and gas. The ANASUR must develop operating standards and environmental performance for landfills that will ensure the health and environmental safety and the opportunity for the informal sector to be professionally empowered to recover materials for reuse or recycling.

Financing, Cost Recovery and Private Sector Participation

The long-term viability of all waste management services depends, among other things, on the Company's ability to pay for these services. The National Agency for Urban Safety (ANASUR) should work with other stakeholders and, where appropriate, take action itself to ensure the frameworks of financing and cost recovery appropriate to the long-term waste management system, and support private sector participation in the sector of waste as a tool to achieve this goal.

Financing, Cost Recovery

The achievement of policy objectives for integrated management of solid waste in Côte d'Ivoire requires the allocation and proper management of financial resources. It is necessary to establish sustainable financing costs as accurate as possible, and this, in advance, to cover these costs by specific dedicated revenues, not fiscal adjustments after the fact, as has been the case in the past. The main source of funding is the Tax Collection of household waste (TEOM) lifted the KW / H by the Ivorian Electricity Company, but this has not proved to be effective on the grounds of non-payment of consumption by public lighting local authorities. A policy of adjusting the tax to the current context of Côte d'Ivoire must be conducted so as to determine the amount of the deposit which could be a potential financial source dedicated to the waste stream. One measure would be to transfer funds of TEOM to Fund Programs for Financing Urban Safety (FFPSU) to ensure the payment to private operators and providers in the area of solid waste management. The funds for financing the sector of waste management in Cote d'Ivoire can come from sources such as:

- per capita tax or fee by housing in the area;
- the contribution of importers, distributors and manufacturers of products that become waste;
- providers of private sector waste;
- eco-taxes based on the polluter pays principle with Eco Packaging;
- the international community, through credit or grant

Private Sector Participation

The ANASUR should support private sector participation in waste management in two ways:

- through the participation of importers, distributors and manufacturers of products that become waste;
- through the participation of service providers of waste management in the operation and financing of units and systems of waste management.

The private sector participation in waste management systems must be institutionalized in terms of those whose products are waste when discarded. The growth of the packaging is a major cause of waste in Côte d'Ivoire; ANASUR must engage the packaging sector to participate in the management of packaging waste.

The private sector funding / service delivery should be considered in the context of national policy for ISWM in Côte d'Ivoire.

These frameworks should be reviewed to ensure they provide an adequate basis for private sector participation, and monitoring by the public sector for effective participation of the private sector. The National Agency for Urban Safety should work with other public and private stakeholders to ensure the participation of the private service sector in waste management is undertaken in a context of:

- service organizations in the private sector considered as a tool through which policy objectives can be met;

- legislative, institutional and financial support of the participation of the private service sector waste management;
- open competition, transparency and accountability;
- equitable application of contractual obligations;

Community participation and public awareness

The waste management systems should be devoted to serve the communities. To ensure that systems are appropriate to the needs of people living in Côte d'Ivoire, it is necessary to engage the public in a dialogue on the objectives of the waste management system, how to improve the services and the costs of running such services. In this context, the Ministry of Urban Safety through the Executing Agency (ANASUR) should work with non-governmental organizations, community organizations and other stakeholders as appropriate to understand and respond to community priorities for solid waste management. This reinforces rather than diminishes the role of ANASUR, as it roots the perspective of policymakers in the needs of the population. In this context, ANASUR, should work to ensure:

- a participatory approach to solid waste management, in which all affected stakeholders have the opportunity to participate in decision-making in order to reach a balanced decision making forum that includes all stakeholders;
- a two-way communication in which information and ideas are exchanged between stakeholders in government and communities on both national and local levels. In this way, communication with target audience can be achieved using communication tools appropriate to public hearings;
- public awareness programs that communicate effectively on issues and waste management initiatives; and
- the implications of gender initiatives in waste management are to be taken into account.

2.5. Summary of the Policy options for target countries

Based on the lessons learnt from the approaches adopted by the EU, South African and Mediterranean Partners described and analysed in Workpackage 3, general recommendations on policy options for the four target countries Senegal, Côte d'Ivoire, Ghana and Nigeria are outlined below.

Reduce, reuse, and recycle

The SWM in target countries should pursue coordinated nationwide waste reduction, reuse and recycling policies. To this effect, the management system should follow the approach known as The Waste Management Hierarchy within the ultimate goal of waste minimization. These policies prioritize waste reduction, reuse and recycling accordingly. Landfill is the last option for wastes that cannot be reduced, reused or recycled. (See D 4.1 section 2.8.1)

In the context of the target countries, recycling of all waste types including Municipal, Electronic and Industrial Waste is currently mainly carried out by the informal sector. There is a need to incorporate this sector into the planning, policy formulation and implementation of the formal waste management system. Adopting new legal framework provides the informal sector with the rights to access, sort and recycle waste and legitimize its participation in waste recycling business. These measures will serve as one step ahead to the formalization and integration of the informal sector

into the formal waste management system. According to the UN Habitat (2010) there is a strong need to integrate the formal and informal sector for the benefit of both.

Waste collection

The waste collection system is another key area that needs change. The system has a number of components that needs to improve, integrate and function effectively for an efficient collection and transportation. These components include choice of companies, hours of collection, collection vehicles, collection equipment, conditions of roads and access areas. (See D 4.1 section 2.8.1)

Recycling and source separation should be favoured by the collection system. Therefore, SWM policies should establish rules and regulations that ensure source-separated or co-mingled collection programs. In addition, it will be important to incorporate manual or mechanical separation to recycle (e.g. metals, papers, plastics, organic waste) and remove hazardous wastes (e.g. batteries, paints and solvents).

Designing a contracting system with clear and transparent selection procedures to contract waste collection companies is vital (see D 4.1 section 2.8). This facilitates the selection of companies with the appropriate logistics (e.g. appropriate vehicles) and capacity to collect and transport. Informal collection is common in areas that are inaccessible to motorized collection and also in areas where the formal collection is irregular. This necessitates the use of informal / manual collection in combination with the motorized system in the current context of the target countries. In line with these improvements, there is also a need to improve the situation of other components (such as improving the condition of infrastructures) of the collection and transportation system.

Final disposal

Developing systems and facilities to recover resources and reduce the amount of waste generated should be the main focus of the SWM in target countries. Waste disposal facilities such as landfills should be the last resort for the removal of hazardous wastes. As landfills are inevitable, there is also a need to select landfill sites considering the environment, economic and health impacts. Therefore, town planning should consider the allocation of sites for landfills following an established guideline. In general, the sites should be controlled, well operated and engineered as sanitary landfills.

Financing

There is a need for sufficient and sustainable financing to implement the proposed waste management practices which are capital intensive. New economic instruments should be introduced to generate additional income besides the budget allocated by the government and international donors (such as the World Bank). As stated in D 4.2 these economic instruments include Polluter Pays Principle (PPP), Pay as you dump Economic incentives to source-separate and Deposit-refund system for bottles and other recyclables. PPP holds polluters responsible to cover the cost in relation to the waste generated based on their ability to pay. On the other hand, according to D 2.1, section 2.2 the pay as you dump principle encourages households and businesses to pay fees charged at communal collection points. The third instrument, economic incentives to source separate, imposes higher waste collection fees on waste generators that do not sort their wastes than those that practise waste re-use / recycling. These instruments fill the gaps created by enabling waste management firms to fully recover operational costs and investment on new infrastructure. In addition, waste management firms should be encouraged to divert from collecting and dumping waste into waste utilization by turning the waste into a useful product for the market. For example recycling organic wastes into compost (see D 2.1 section 2.2)

Moreover, a clear focus on choosing technologies and management systems that are cost-effective in providing services is important for financing waste management.

Inclusion and innovation

Stakeholders' involvement is vital for the development and implementation of ISWM. All waste management actors and the public at large should be given opportunity to participate in policy making processes at different levels. Strengthening information dissemination, education, demonstration and research activities are important areas to focus on. Investment in knowledge infrastructure is just as important as investment in technical infrastructure. There is a need for positive change of beliefs, attitudes and behaviour among the society towards waste and its management. This will result in motivating the public to demand ISWM, and for all parts of society to contribute to the implementation of ISWM in a sustainable way.

Legal and organizational framework for ISWM

There is a need for good governance to implement ISWM in target countries. The legal framework to implement ISWM should be coherent with the concepts and principles of ISWM. New legal instruments such as Substance ban legal instruments, voluntary agreements by multinational companies and extended producer responsibility (EPR) should be considered (see D 4.2 section 2.1).

In addition, there is a need to establish coherent organizational structure to alleviate coordination problems, overlapping in terms of responsibilities and distribution of accountability among institutions. Municipalities should play an important role by creating a conducive atmosphere for all local actors, including the informal sector and local SMEs that play a central role in SWM. Strategic activities should be left for the different concerned central government bodies of target countries.

3. ROLE OF STAKEHOLDERS IN THE IMPLEMENTATION

3.1. Role of Government CBOs, NGOs and Private Sector

In the implementation of an ISWM policy, the country's, region's or municipal policymakers must liaise with all relevant NGOs (Non-Government Organisations), CBOs (Community Based Organisations) and the private waste management sector to ensure the development of a sound and feasible solid waste system that is based on representative and relevant stakeholder input. The private sector needs to be consulted in order to ascertain which elements of an ISWM action plan they can undertake. NGOs and CBOs need to work in conjunction with each other and the private sector to agree on a strategic approach to ISWM planning that would also benefit the informal sector e.g. by setting up systems that are based on providing entry-level low investment and technology entrepreneurship opportunities while strengthening the formal SME sector at large.

What needs to emerge is a solid waste management plan for eventual implementation that will be an amalgamation of corporate interest and community needs. In other words, the waste plan needs to be economically feasible while offering tangible social benefits. The requirements of the community have to be addressed and the waste management solution needs to do not only what is technically required, but also serve as a sustainable and easily accessible form of income and revenue.

Another distinctive role that NGOs and CBOs should be allowed to play in any "corporate governance-driven" ISWM solution is that of being a "watchdog", and, where required, a "whistle-blower". This is very important to ensure both the effective service delivery by policy implementers (e.g. fairly and transparently awarded waste management contracts) as well as the private sector (to ensure technical services are rendered in a safe, socially fair and environmentally acceptable manner).

For better understanding, the role of NGOs and CBOs is next more widely described:

3.1.1. Community Based Organizations (CBOs)

The community and its representatives have a direct interest in solid waste management, as residents, service users and tax payers. These communities will sometimes take the initiative to organize themselves into CBOs, with the direct goal of self-help and improving their living conditions. Such CBOs may receive external assistance in the form of technical and/or financial aid from different agencies. Sometimes these activities may also take the form of direct participation in (their own) solid waste management, such as feeding organic material directly to their stock. Usable materials, like bottles, are often reused by the members of the low-income community themselves.

Groups of citizens, including those from middle and high-income areas, may start CBOs aimed at improving the solid waste situation in their neighbourhood: they may hire (informal or formal) solid waste collectors; make arrangements with local politicians for waste transfer points; start solid waste separation experiments, etc. CBOs should mainly participate in primary waste collection systems, separation at source experiments and implementation.

CBOs could also take a role in the provision of services, including operations and maintenance, and even in the construction of facilities. Thus CBOs play an important role in solid waste management system development processes. Organized communities have a stronger voice than individuals and bring about improvements more easily.

3.1.2. Non-Governmental Organizations (NGOs)

NGOs use is to be involved in awareness-raising, support, and decision-making. NGOs can act as intermediaries between grassroots initiatives (CBOs) and municipal governments, or serve the ideological, political, or altruistic interests of international organizations. They can support interests on a larger scale than the single community and provide assistance and advice to CBOs, but also to marginal groups in the society, such as waste pickers at dump sites and street children.

The role of NGOs as partner organizations in solid waste management systems ranges from serving as the umbrella organization under which CBOs operate, to providing a channel for donor financing. As partners, they can sometimes confer a degree of credibility and perspective on the informal sector in the eyes of the municipality.

3.1.3. The private sector

In order to describe the role of the private sector, this must be divided into formal and informal.

The formal private sector is understood to refer to private sector corporations, institutions, firms and individuals. Formal private companies should be involved in wide-ranging activities in solid waste management systems, varying from solid waste collection, resource recovery, incineration and landfill operation. They may participate in the solid waste management system as follows:

- Participating in possible contracts financed by the municipality to perform collection, processing, disposal or cleaning services.
- Promoting contracts with individuals or businesses for solid waste collection services.
- Working as a purchaser of recovered materials from the municipality or the collector.

Informal private sector performs activities which provide them with subsistence, and small businesses, operating in much the same way as their larger, registered counterparts, but without the benefit of official registration. The organization and structure of these recovery activities is generally opaque to outsiders. This is true not only for waste pickers and itinerant waste buyers, but also for other groups such as small enterprises recycling metals or plastics.

While informal-sector activities vary according to socio-cultural, religious and economic circumstances, some generalizations about gender roles are possible. The least sophisticated forms of work includes, collection of solid waste from the streets and dumps and primary sorting of the material from home (by doing any handling or sorting in their homes or yards). After that, they should also be involved in the processing or manufacturing of products, together with the selling of recovered pieces and materials.

3.2. Communication Plan

Aside from the recommendations and alternative measures for adaptation that has been suggested by the target countries some other factors are identified as critical to the successful implementation of this Action Plan. They include a communication plan that will outline the strategy for passing on information on the ISWM action plan to stakeholders and general public so as to get their inputs and build the capacity of relevant stakeholders on its implementation.

In line with the above the following principles would give an outline of the communication plan.

In general, communication planning is the art and science of reaching target audiences using marketing communication channels such as advertising, public relations, education, etc. (Wikipedia 2011). In SWM, a communication plan is the necessary planning document to achieve the proper communication with key stakeholders in order to inform them, and ideally involve them too, in the planning and/or implementation process. Organizations need to communicate for one or all of the following reasons:

To inform: You may need to let interested parties know who you are, what you can do for them, what they can do to help you, or even just how to get in touch.

To build understanding or change behavior: You may want to encourage others to think, act or feel in a certain way.

To prevent misunderstandings: Even a small misunderstanding can create large problems for an organization. You can ensure good communication by putting yourself in your audience's position, paying attention to their needs and getting to know them.

To present a point of view: Often, this is all you need to do to accomplish your goal.

To lower barriers between groups and individuals: These barriers may range from information overload to suspicion and prejudice (Inett 2011).

A communication plan describes how you intend to communicate the right messages to the right people at the right time. Within a communication plan, the communication goals, stakeholders and strategies, activities and timeframes are described. A communication plan helps you keep everyone informed so that you can communicate a consistent message to your target audience (Method 123 2011).

A communication plan in the implementation phase of ISWM and its related policies is vital due to the variety of stakeholders that should be addressed and communicated with. All stakeholders should be informed about their responsibilities towards improvement of the waste management services and should be encouraged to public participation.

3.2.1. Content of a communication plan

A communication plan is a written document which should comprise the following sections:

- **Definition of the objectives:** A clear description of the aims to be accomplished implies to define objectives with stated goals, considering available human and financial resources as well as the context in which the communication will take place. Some typical objectives in a SWM communication plan are the following:
 - To inform and educate specific stakeholders (e.g. end users or informal sector).
 - To build support or create demand.
 - To change negative behaviours, beliefs and attitudes.
 - To defuse a conflictive situation when different interests are opposed between stakeholders.
 - To obtain information from key stakeholders.
 - To build confidence in the SWM responsible planner/service provider.

▪ **Stakeholders analysis and identification of the target audience:**

This section aims to describe the different interests of the stakeholders involved and relevant aspects for the communication with them, to identify potential negative reactions (foresee how stakeholders feel about what you plan to do), to decide which channels are more appropriate in each case, and finally to identify the key actors to target.

▪ **Definition of the communication strategy:**

The strategy defines how to achieve the objectives identified. The strategy is just a general frame to support future decisions and build the work programme ensuring all actions are oriented to the fulfilment of the objectives. Some questions the strategy should answer could be the following:

- Will you reach out to as many stakeholders as possible or just to the key ones?
- Will you communicate with them directly, or use other channels (e.g. media or website)?
- Do you want to generate the maximum coverage possible or are you trying to minimize it?

▪ **Identification of communication channels:**

The objective of this section is to decide what tools will be used to accomplish the stated goals. Here, it is crucial to consider the previous steps such as the stakeholder analysis as well as the context of the communication. Important communication channels in ISWM are public education campaigns using the media or education in schools in order to raise awareness and inform end-users on important ecological and solid waste management concepts and to motivate them to implement ISWM systems which suit their needs in a sustainable way. Identifying and developing traditional and indigenous channels of communication will be helpful to access rural communities. Furthermore, ISWM forums, workshops or platforms with the participation of the civil society and regional and national authorities are useful means to bring together stakeholders for information and communication. It is also vital to include the informal sector in the communication plan in order to ensure their position within the process of implementation of ISWM and the enhancement of their working conditions. Further information and examples on public participation is described in IWWA Deliverable 4.1 (section 2.4.1., page 13). Some examples of specific communication tools are the following:

- Periodic print publications;
- Online communication tools (e.g. e-mail newsletter, ISWM blogs, social networks such as Facebook or twitter, etc.);
- Meetings and conferences with stakeholders.
- Corporate identity materials, including letterhead, logo, and envelopes.
- Surveys;
- Certificates and awards;
- Annual reports;

- Announcements in the media particularly use of radio and television as media communication tools;
- Brochures, fliers or fact sheets.

▪ **Description of the work program:**

It is necessary to clearly define tasks, assign responsible personnel for each task, allocate financial resources (i.e. detailed budget) and define the timetable to perform the communication strategy. The work program tasks must cover all the objectives proposed.

▪ **Monitoring and evaluation:**

The evaluation assesses to which extent the intended objectives have been achieved. Lessons learnt from the communication experience can be used for the planning of future communications in similar contexts. Continuous monitoring will permit to adapt the defined strategy and the work programme to the specific circumstances found in the implementation of the plan and the unexpected situations which can arise. An objective evaluation includes the use of indicators such as:

- Increase in the knowledge of target stakeholders about a certain topic.
- Higher levels of satisfaction about the SWM services provided (satisfaction surveys can be applied during the workshops).
- Changes in behaviours and attitudes (e.g. increase in the recycling of certain materials or correct disposal of waste).
- Number of people informed during the campaign.
- Agreements between different stakeholder groups to improve solid waste management

The evaluation might take the form of:

- a monthly report on work in progress,
- formalized department reports for presentation at staff meetings,
- periodic briefings of the chief staff executive and the department heads, and
- a year-end summary for the annual report.

4. CAPACITY NEEDS OF STAKEHOLDERS FOR ISWM POLICY IMPLEMENTATION

Given the challenge of ecologically sound ISWM and the local constraints, all stakeholders are in need of capacity building. The goal of capacity building is to strengthen and improve the management in terms of building technical, financial and managerial capabilities. It upgrades institutional and technical capacities of the key actors to help identify, understand and evaluate complex urban environmental problems such as solid waste management. Hence, capacity building in Integrated Solid Waste Management is ideally essential to strengthen capacity of the local organisations and individuals by providing them the right type of conditions for carrying/performing their duties. These conditions could only be right through a gradual process which will involve:

- Documentation and sharing of information;
- Developing and testing appropriate tools;
- Training and workshops;
- Developing sustainable systems of resources;
- Some of the common capacity building tools that will assist in achieving this are:
- Research, publication and dissemination;
- Training and workshops;
- Literature Review;
- Networking; and
- Education and awareness raising.

4.1. Rationale for capacity building

One of the key issues that have consistently been raised in the previous chapters of this study is the lack of capacity in Africa to successfully implement ISWM. The key driver to the success of this project is the human resource. Thus, the capacity building needs for the different groups of stakeholders are identified as follows:

Government and policy makers

Government and policy makers, are the foundation of a successful ISWM, therefore capacity building for this group is very important. The key areas of capacity needs are in the area of development and implementation of appropriate policies and legislation on integrated solid waste management; on the establishment and maintenance of a national data bank on solid waste management and its usefulness for planning and development. The trainings should :

- equip government officials with basic knowledge, tools and skills necessary for formulating a responsive ISWM Plan using participatory planning process and tools;
- tackle the issue of enhanced efficiency in solid waste collection and transportation management; sanitary landfill construction, operation and management; appropriate operation and maintenance of vehicles used in solid waste management;

- give practical tools for enhanced public participation in solid waste management;
- provide information financing options for the scheme such as the Clean Development Mechanism (CDM).

Waste producers/ generators

Capacity building need for this group, composed both of companies, institutions, and households, should include:

- training in source segregation of waste and the need to keep toxic and hazardous waste separate. The training should also include the benefit of proper waste segregation and sorting as well as their disposal at designated sites or disposal by contractors or waste management. To be efficient, waste separation at the source should be simplified as much as possible. 3 bins are enough : 1 for hazardous waste, 1 for organic waste, 1 for non-organic waste, non-hazardous waste (this last category would be easily sortable by waste pickers or waste recyclers in established companies). After being trained, waste producers should be immediately able to put the knowledge into practice, i.e. they should be equipped with 3 bins of different color, 1 for hazardous waste (made of a strong material), 1 with a lid for organic waste so as to limit the proliferation of flies and other animals, 1 for non-organic, non-hazardous waste, and both with holes in the bottom so as to avoid households using them to store water.
- training on the role that citizens can play in primary collection of waste from the household and handing over of the waste materials to waste pickers or waste collectors, the need to pay for waste collection and disposal services, the need to use litter bins on the roads and public places sensibly and sensitively and the impact of solid waste on public health and the environment.
- training on environmentally friendly habits and practices; education and enlightenment on the existing legislation on solid waste management; provision of the policy guidelines to ensure sustainable waste management system; benefits of recycled and biodegradable goods; benefit and advantages of prompt payment of solid waste management services.

Waste Pickers

Why build the capacities of popular waste pickers and recyclers as a priority group?

Popular waste pickers and recyclers are numerous and the current evolution of national and local legislations in Western Africa can be a threat to them: privatization can leave them behind and give benefits mainly to major, formal companies; modernization and mechanization of SWM can mean loss of jobs for them.

Popular waste pickers and recyclers carry out an “informal public service” of waste management which should be recognized as such by the local authorities.

The main objectives of capacity building of popular waste pickers and recyclers are:

- Reinforce their organizational capacities: as individuals they are not really efficient, but as organizations, a dialogue can be established with the local authorities, agreements can be signed, service can be delivered and followed up in a professional way
- Improve their working conditions and status (ecologically sound waste processing techniques, occupational safety and health...)
- Enable them to train households on how to separate waste properly or on hazardous waste, which will improve the efficiency of subsequent awareness-raising campaigns.

Content of the capacity building for popular waste pickers and recyclers

Module 1: occupational safety and health

Popular waste pickers and recyclers are very affected by health problems and do not spontaneously save money to invest in their own health.

The module should tackle the issue of occupational safety and health, how to improve their working conditions and how to prevent hazards related to health.

- Safety working conditions: industrial safety, how to use compacting machines, how to drive a truck safely, how to identify hazardous waste and toxic components in waste
- First Aid practices, in particular health cares for men and women: gender issues & action against domestic violence.

Workers should also be encouraged to subscribe to social protection mechanisms especially health insurance (it can be community based schemes).

The module should also offer in parallel:

- Vaccinations campaigns especially on Tetanus Toxoid (TT) and Hepatitis B.
- Occupational Safety and health Devices such as gloves, boots, masks, overall, first aid kit.

Module 2: organizational capacities

The specific objective here is to put popular waste pickers and recyclers' organizations in a position to compete with more formal actors on the market of environmental services delivery.

Specific topics to be covered:

- SWM legislation and its impacts on popular waste pickers and recyclers,
- labour code, regulations on cooperatives or small businesses
- business management skills
- public procurement, how to present an offer, how to negotiate with the municipalities, best practices in terms of SWM services (from pre-collection to final disposal).

Note: helping individual waste pickers and recyclers to get access to citizenship (identity card) is as important as helping their organizations to get access to an appropriate legal status (cooperative, small business, association, etc.).

Module 3: technical capacities

This module should focus on:

- knowledge of recyclable materials, especially plastics and metals. How to identify the various types of plastics and metals.
- how to separate recyclable materials, how to dismantle equipment safely (e-waste).

- knowledge of the market for recyclable materials: business opportunities in the local recycling sector (the objective here is to encourage local recycling circuits and not just selling valuable metals to Asia).

In parallel to the capacity building, popular waste pickers and recyclers' organizations should be helped to get access to:

- appropriate technologies to collect, transport, weight, compact and pre-process recyclable materials,
- adequate warehouses to store recyclable materials safely and be able to sell them in bigger quantities to the local industry and negotiate better prices.

Waste managers

This group includes the waste collectors and waste recyclers. Trainings directed to them should include :

- public enlightenment and education on the proper waste management in a sustainable and environmentally sound manner that will not have any negative impact on the environment;
- partnership with relevant authority for better service delivery; educating them on the management of waste on cost recovery basis;
- design of waste services, recruitment of workers, setting rates for user charges, cost-minimisation, cost-recovery practices, efficient collection of waste and transportation management;
- sanitary landfill, operation and management, appropriate operation & maintenance of vehicles used in solid waste management.

Waste dealers

Waste dealers sell and buy waste materials, therefore it is important for them to know the potential hazards of their trade i.e. the materials they handle. Their capacity building should therefore focus on :

- environmentally sound manner of handling waste materials and the importance of, and appropriate personal protective equipment (PPE) they require;
- the economic potentials of their trade, so that they could get good prices for their products in the national and international market.

NGO's

NGOs play a crucial role in awareness campaigns and training to concerned stakeholders and are an important link for public participation in ISWM. They should be included in the trainings conducted for other groups of stakeholders because of the important role they play.

5. RECOMMENDATIONS & STRATEGIES FOR IMPLEMENTATION OF ISWM POLICIES AND MEASURES

5.1 Discussion of Alternative Approaches for Implementation of Policy Options/ Measures

Deliverable 3.1, chapter 4 gave an overview of several existing alternative approaches and also a first evaluation of the suitability of the different approaches in target countries. This chapter aims to be more detailed on the implementation of the reviewed approaches for the target countries.

The compared approaches to reduce the environmental impacts of products are:

- Law
- Eco-Lables
- Green public procurement (GPP)
- Individual manufacturer policies
- Third party assessment on toxicity and live cycle impacts
- Voluntary agreements

Fehler! Verweisquelle konnte nicht gefunden werden. shows a systematization of environmental policy instruments in five different instrument groups. Suitable aforementioned topics are marked in bold font. The alternative approaches integrate in the lower part of the table, which means that most of the measurements have a low or medium degree of government influence.

Regulatory and planning instruments such as directives and bans are essential tools for environmental protection. But the use of such measurements causes negative attitudes from citizens and stakeholder groups. In developing countries and also in the targeted countries, administrative structures necessary for the implementation of complex laws and planning instruments are not in force. It is a promising approach to start with basic issues such as information and cooperation projects. Market-based instruments like environmentally sensitive procurement set a positive sign for environmental consciousness. Financing of market-based instruments is challenging but promises effective results.

Table 1: Environmental policy instruments according to Jänicke et.al¹ cited by Schlösser²

Instrument group	Instruments	Degree of government influence
Regulatory instruments	directives and bans permissions legal limits product standards process standards environmental criminal law	high
planning instruments	territorial plans urban land use plans landscape plans air quality management waste management plans water balance plans	high to medium

¹ Jänicke, M., Kunig, P. and Stitzel, M., 2000. Lern- und Arbeitsbuch Umweltpolitik, Bundeszentrale für politische Bildung, Bonn, p. 100.

² Schlösser, A., 2009. Umweltpolitik für Elektronik / Green IT; Eine Betrachtung umweltpolitischer Gesetze in der V.R. China und Deutschland anhand ausgewählter Beispiele, Magisterarbeit, TU Berlin, Germany, p. 18.

Market-based instruments	<ul style="list-style-type: none"> • Public revenues • environmental taxes and fees • licenses, certificates • public expenditure • tax concessions • subsidies • environmentally sensitive procurement <p>others are user advantages and environmental liability</p>	medium
Cooperation	<ul style="list-style-type: none"> • negotiations • networking • formal or informal agreements • sectoral trade agreements • voluntary commitment 	medium to low
Information	<ul style="list-style-type: none"> • Information and education by governmental institutions • standardized, private report forms • Eco-Labels • environmental education 	low

Environmental issues have many different aspects and a single policy instrument cannot address each one. A mixture of several policy instruments is needed. On the other hand, overlapping instruments cause unnecessary effort and costs. Influencing factors for the successful implementation are:

- complexity of the measure,
- costs for implementation,
- expected impacts, and
- risk of failure.

As discussed in deliverable 3.1, none of the approaches can fulfill all desirable factors.³ The expected impact of laws is high and the risk of failure low. On the other hand, law involves high complexity and costs for development, implementation and control. Necessary new technical solutions require high investment costs. Voluntary agreements risks ineffectiveness as there are no consequences in the event of failure to comply. Eco-labels have similar problems in risk and impact. Referring to deliverable 3.1, the following alternative approaches are recommendable: green public procurement, individual manufactures policies and third party assessment.

One important recommendation for the implementation of policy measures is to set clear, verifiable, justifiable and ambitious environmental criteria for products and services, based on a life-cycle approach and scientific base. The European Environment Agency has commissioned a study which

³ See deliverable 3.1, chapter 4.6, Table 12, page 88

collects data on the efficiency of the environmental instruments governments. One main finding on the case studies will be outlined here:

“Future implementation of EAs should take into account key requirements for the improvement of their effectiveness, most importantly the establishment of reliable and verifiable monitoring and reporting mechanisms and the setting of clear targets.”⁴

Depending on the product group, there are several existing documents, e.g. published by the European Commission, with well-founded criteria.

5.2 Nigeria

Recommendation for Implementation of ISWM Policy and Measures for in Nigeria

From developing and implementing ISWM requires well mapped out strategies. These strategies are achievable with the sincere efforts from all relevant stakeholders, supportive policy frameworks, knowledge and capacity to develop plans/systems, proper use of environmentally sound technologies, and appropriate financial instruments to support its implementation. Below are suggested guidelines and strategies for the implementation of policies and measures essential for a successful implementation of Integrated Solid Waste Management policy in Nigeria. An important element of the integrated waste management action plan therefore includes the following:

5.2.1 Legal Framework

Firstly, a national policy on waste management must be in place and all other existing legislation must be revised to tally with its objectives. This would involve the promulgation and or harmonisation of all existing legislation to incorporate the concepts of waste reduction; reuse and recycling. The proposed legislation should also take into consideration the producer responsibility principle, incorporate the participation of all relevant stakeholders, encourage co-operation from companies with the inclusion of voluntary agreements to ameliorate the harshness of sanctions.

5.2.2 Economic Instruments

Financial incentives (in the form of charges, levies, fines and penalty for waste generators) and Economic incentives (such as subsidies or payback for recycling) have proven to be common economic measures adopted in achieving effective implementation. The rapid increase in waste generation rates and awareness for effective and efficient ISWM practices to protect public health and environment is both financially and logistically tasking and as such requires funding. As such in order to boost fund of ISWM systems, it is suggested that a cost recovery system be incorporated that would assist in financing the system by way of the following:

- Pay as you dump
- Polluter pays principle
- Franchise

In this way, producers of producers will be made to bear the cost of the management of wastes; and issuance of waste franchise or permits would allow for minimal waste disposal and effective regulation of waste dumping vis-à-vis the principles outlined above.

⁴ EEA (European Environment Agency), 1997, Environmental Agreements - Environmental Effectiveness - Volume I, Environmental issue report No 3, Copenhagen, ISBN: 92-9167-052-9, p. 15

5.2.3 Enforcement

Enforcement measures should be the top and the crucial aspect of effective ISWM policies as they could only make a difference if these are properly enforced at all levels. Therefore, an assessment of the level of enforcement is vital. Hence, it is highly recommended that the opinions of all the major stakeholders should be sought to get a comparatively appropriate assessment. It should be noted that the emphasis here should not be placed on just sanctions but also on sustaining public awareness initiatives. The key strategies here include:

- Categorizing the waste producers (carpenters, cereal sellers, etc) rather than operating without control
- Disciplining while aiming towards a gradual change of attitude
- Looking at the current by-laws and filling in the gaps
- Creation of awareness on SWM regulations
- Harmonization of all activities involving laws on SWM at the local level
- Monitoring committees drawn from different stakeholders

5.2.4 Institutions

Several SWM institutions exist in Nigeria and the primary challenge has always been the lack of coherence of their functions. There is indeed an urgent need to build their capacity for effective implementation of the ISWM management policies. It is highly recommended that various institutions should get involved into one or more aspects of integrated solid waste management chain particularly from all stakeholders in areas of institutional support for implementation, coordination, evaluation and accountability. There is also a need to address issues of lack of coordination within and amongst stakeholders and with other development and government organisations within Nigeria to enhance successful implementation. A successful implementation of ISWM requires the strengthening of institutions that regulate all aspects of waste management- local authorities, regulatory bodies, traditional authorities and local councils, environmental protection regulatory bodies; with adequate staffing, clear delineation of their roles and continuous provision infrastructurally and mentally for optimal performance. This would mean that political institutions and their will must be further strengthened to follow through their obligations on addressing waste management issues.

5.2.5 Technical Issues

Issues as it relates to the processing and treatment, reuse and recycling and final disposal of waste must be handled by competent persons adequately trained in such areas. This part of the chain must be fed constantly by the institutional and capacity building parts with relevant information from research work on new, relevant and applicable technologies. More so, final disposal i.e. landfilling in this case, should be engineered to be sanitary, taking into consideration its proximity and consequent health implications for residents.

5.2.6 Capacity Building

There are institutions already in place but there is need to build their capacity in areas of auditing, monitoring of waste producing facilities and provision of training activities to those responsible. This should be further speeded up and both the number of the personnel and the institutional capacities of the relevant stakeholders should be increased through professionalizing waste management. The key strategies would be to conduct Trainings on new SWM technologies and conduct workshops for stakeholders.

5.2.7 Public Participation

Without the public's involvement in the waste management chain, the policy is doomed to be sterile. The use of communication tools and channels (e.g. the media, social networks, NGOs, schools, etc) would be effective in reaching the public. Education on the importance of waste management, how to identify and sort different types of waste, including simple ways to reuse products that would ordinarily have been thrown out, are ways that would contribute to the actualisation of the 4Rs system. This will be a gradual thing; hence such sensitization must be a continuous exercise. In addition, some incentives in the form of bonanzas or promos would popularise this new system.

5.2.8 Monitoring and Evaluation

Performance monitoring and evaluation should be the responsibility of those who are most closely involved in the implementation of the annual waste management plans. In this respect, the head of the relevant agencies would be made to carry out continuous performance self-assessment, with an independent assessor to whom they are to be accountable.

5.2.9 Logistics

There is an obvious need for waste logistics as a strategy for proper implementation of ISWM measures. This would provide waste management solutions that rise to a higher standard. Waste Logistics would offer the expertise and the dedication to consistently outperform.

5.3 Ghana

5.3.1 Recommendation for Implementation of ISWM Policy and Measures for in Ghana

Implementation of ISWM Policy requires a careful consideration of appropriate strategy that will address the existing situation which confronts the setting up of ISWM system in the country. The measure needs to outline the various systems from generation to disposal. This could ensure given them a sustainable thought, incorporation of techniques, environmental consideration, financial economics, socio-cultural consideration, institutional strengthening, supportive policy framework, legal backing, political obligations and inclusion of the relevant stakeholders in ensuring that the strategy works.

5.3.2 Source Reduction

In Ghana there is no clear policy on reduction of waste at source. It is worth considering placing a high cost on plastic or non-degradable package materials which are often of problematic management in the environment. This will discourage the rampant use of such materials and will encourage the use of durable bags which can re-use several times for shopping. The use of disposable materials such as plastic cups and sachets must be discouraged by slumming high prices on them.

5.3.3 Storage

The current practice where waste management companies provide waste bins to house-holds is a welcoming policy which needs to be monitored to ensure that all households are covered. This will ensure proper storage of waste and will improve environmental conditions.

5.3.4 Source separation

Already, the franchising system seems to be working quite well in cities in Ghana. To minimize the quantity of waste to be collected, sorting of waste at source has been proposed as a policy option for government to pursue. Changing habits is usually not easy in that most adults are not

susceptible to change. An effective way of dealing with this situation is to introduce waste sorting at source in schools. First and foremost, teachers across the country must be given orientation on the benefits of sorting waste at source. These teachers will in turn train the children in their respective schools and ensure that wastes they generate are sorted at source. This training should start from primary schools right through secondary schools to the tertiary level. Students could in turn spread lessons in ecologically sound management of waste to other sectors of their communities. When this is done, a new generation of conscious people will be trained who will understand and appreciate the benefits of proper waste management to their livelihood and sustainability. Also, MMDAs can adopt a suburb where waste sorting can be piloted for approximately two years. Lessons learned from the pilot programme will then inform planners about the long term adoption and implementation of this policy.

5.3.5 Collection

The franchise system introduced seems to be working well, but needs to extend to all urban areas and semi-urban areas. It is recommended that close to 90% of the collection is handed over to the private sector (5% to informal and 85% to the formal) whereas the public sector plays monitoring and auditing role to ensure efficiency. Contracts should be given to only companies who have the full capacity to operate. Where contracts have already been given to under resourced companies, government should make an effort to equip the respective companies.

5.3.6 Treatment

Transfer stations are not pronounced and need to be introduced to allow for further separation and encourage recycling and reuse of materials. Plastic, metals and paper producing companies should be asked to use not less than 30% of their raw materials from these recyclables once the raw materials are available. Backyard composting should be encouraged in homes while community based composting should be introduced to assembly areas under the care of assembly members in the communities.

5.3.7 Disposal Sites

The use of old quarry sites for dumping of waste needs to be discouraged and plans should be advanced to build at least engineered landfills in every metropolitan or municipal area to help avoid leachate pollution. The landfill guide lines must be strictly adhered to by the land fill operators and monitored by EPA. Monthly monitored reports on each landfill should be published in simple format for public consumption. Such reports should include pertinent details such as successes accomplished and challenges being encountered.

Land Availability and Acquisition:

There is a real need for long-term spatial planning and adhering to best practices with land selection for final disposal sites.

- Government sector land search and acquisition: taking measures to secure strategic (producing settlements plans or schemes lands) for waste treatment or final disposal
- Private sector land research: taking measures to acquire lands and process the necessary permits (EPA, Fire, Building, etc) for waste treatment or final disposal

5.3.8 Financial Economics

The polluter-pays-principle is enshrined in the new environmental sanitation policy (2010). However, MMDAs are not mandated to implement it. One strategy that has been proven to work is the collection of fees at communal dumping grounds in some cities. This can be extended to cover the entire nation. Most people have shown that they are more comfortable with paying a token for

dumping waste than a lump sum even though the former might turn out to be more expensive in the long term. This can only be effective after the MMDAs, especially the District Assemblies, have carried out effective education to conscientize the people on the benefit of proper waste management as well as the health risk associated with the improper dumping of waste.

Though some cost recovery principles have been introduced and are working well, there is also the need to expand the cost centres and introduce other principles such as:

- (i) Incentive to cover source reduction, source sorting;
- (ii) Exclusive Producers Responsibility – This allows the producers to contribute to taking care of the management of the waste from their products.
- (iii) Private-Public-Partnership Principle;
- (iv) Polluter-City/District-Pays-Principle or Landfill levy (for districts accommodating Landfills or Treatments facilities).
- (v) Private-Private Partnership Principles (this may be applicable where Multinational groups with special requirement for their solid waste management and willing to support a local assembly to implement a related project could partner with a local contractors

5.3.9 Institutional Capacity and Coordination

In Ghana, the local government under the Ministry of Local Government and Rural Development (MLGRD) is responsible for waste management whereas the EPA does the regulation. However other institutions have roles to play depending on the source where the waste is coming from. There is the need to build the capacity of these set of institutions and resource them.

These institutions or actors are mainly operating on sectoral levels and intra-sectoral. There is the need to integrate the activities of all these institution to make it easier for planning, implementation of policies or programmes.

5.3.10 Enforcement of Legislation

The most lacking instrument in Ghana is how to enforce the existing policies. The country has a set of excellent policies which are only theoretical thus far, but have not yet been put into practice. The institutional divisions due to the sectoral approach adopted make it difficult for one actor to enforce any policy since the roles of the institutions overlap.

The new environmental sanitation policy (2010) must be reviewed and revised immediately. Furthermore, the Ministry of Environment Science and Technology should be made the only ministry in charge of policy formulation and enforcement through the EPA, environmental sanitation inspectors and the Judiciary or Traditional Authorities. This will enable the harmonisation and effective monitoring of policies. The present situation where the other ministry thinks the other one is responsible for M and E while the latter also thinks otherwise will then be a thing of the past.

5.3.11 Stakeholders

Local authorities, NGOs/CBOs, Service users, formal, private sectors, informal private sectors, public sector actors, donor agencies and their relevant players in the industry must be identified. Their workings must be documented and made known to the general public. This will help inclusion in waste management, facilitation of activities, co-ordination, networking and contacts.

5.3.12 Political/Legal Aspect

There is the need to prioritize waste management above the political considerations of Ghana. No matter the political affiliations, Ghanaians need to address the boundary conditions in which the waste management systems exist: Setting goals, determining roles and jurisdiction, planned legal and regulatory framework and basic decision –making process.

New politicians need not reverse or abandon any existing workable or sustainable plan which has short or long term solution.

5.3.13 Education and Consultation

To effectively carry out education of all stakeholders, environmental sanitation should be made a core subject in all schools, colleges and universities. The enormous nature of the problem requires that drastic action is taken. The present situation where environmental sanitation is a topic must give way to a new paradigm shift where environmental sanitation becomes a subject or a course on its own. New textbooks, training and reading materials should be developed for the various sections of the educational ladder – primary, secondary and tertiary.

5.3.14 Capacity Development

There is serious lack of capacity to manage waste at the district level in Ghana. Waste management departments in the districts are manned by sanitary inspectors who clearly lack the training and competence in handling waste management. The resultant scenario is a clear lack of understanding of the issues. This thus leads to confusion which finally ends up in improper management of waste. One strategy to forestall this development is to re-train all the waste management officials in various Ghanaian districts on proper solid waste management. Such training programmes could include those of the Basel Convention Training Programmes, Clean Development Mechanism, Life Cycle Assessment, and other similar initiatives which are implemented globally, regionally, sub-regionally and nationally, throughout the world. Finally, waste management professionals must be given incentives to take up jobs at the district level. Government must also task public and private tertiary institutions to design programmes in solid waste management. In this regard, ZOOMLION's quest to set up a waste management institute must be encouraged and supported.

5.3.15 Contracting to Collect, Haul or Transport.

There is a need for governments through its local governments to Grade contractor in the Waste Management Sector (based on their capacity: Capital, investment potential, operation in the value chain, Years of experience in similar operational areas, Past record from monitoring by the local assembly(ies) or the Environmental Protection Agency (EPA) or Civil Societies. This grading system should be able to necessitate contracting contractor to enable them make significant long-term investments on a sustainable basis. Contracting could range from 2years, 5years, 7years and 10years. This will afford the private sector to be more competitive and increase their potential of attracting flexible funding.

5.4 Senegal

5.4.1 Recommendation for Implementation of ISWM Policy and Measures for in Senegal

The implementation of an integrated solid waste management in local communities of Senegal is based on the development and implementation of certain institutional reforms and on the capacity building of actors involved.

5.4.2 Legal and regulatory framework

In Senegal, there are many laws and regulations on waste management. However, this legal framework should be reviewed and harmonized to integrate aspects related to the recycling and the recovery of solid waste.

5.4.3 Institutional aspects

Many actors are involved in the sector of solid waste management (ministries, agencies, local communities, technical staff, private sector, CBOs, NGOs). The roles and responsibilities of each stakeholder should be defined in line with the legal and regulatory framework.

The establishment of a framework for linking all these key actors will help to develop synergy between the programs and projects. The roles and responsibilities of different actors should be defined.

5.4.4 Economic and financial aspects

Currently, the Tax for garbage collection (TEOM) from the Law Act No. 72-52 from 12th June 1972 is the main resource for local communities to fund waste collection and disposal. The TEOM is on "all property subject to land tax on private houses, with the exception for private houses located in municipalities or parts of municipalities where the service for garbage collection does not work. The same law, mentioned above, also gives to local governments the ability to establish and collect a cleaning tax on their territory.

Local governments of Senegal are facing the weakness of this amount related to this basic tax, and the difficulties of tax recovery. For example, amounts recoverable under the TEOM are low, of about 1,500 CFA Francs per year and per house in the communes of Senegal with the exception of the Region of Dakar.

In addition to the low amount of the TEOM, the recovery rate is low and would be about 23% for the City of Saint-Louis for example. It is then necessary to conduct an analysis of the system of tax collection TEOM collection, highlighting the actual level of TEOM, the personnel involved, and the means at their disposal, the legal system in case of nonpayment, and the base of taxpayers.

At the State level, the principle of "**who pollutes, must pay**" should be applied at the level of big producers of waste including industries. For reduced costs of waste disposal and for the creation of new resources, waste recovery processes should be developed.

Moreover, the development of public / private partnerships could help to finance waste management.

5.4.5 Technical and organizational aspects

At local government level, what is needed is the establishment of a sustainable solid waste management scheme, the definition of a collection tailored to the type of housing and urban structure, the availability of qualified and motivated personal, and finally an effective system of financing of the management system.

Technical services of municipalities should be strengthened in terms of human resources as well as technical, logistical and financial means. A program of capacity building of personnel engaged in waste management should be developed and implemented. It is also necessary to define a scheme of collection including pre-collection adapted to the peculiarities of each city. To reduce costs linked to waste disposal, local governments should promote waste recycling and recovery (reuse).

5.4.6 Monitoring and evaluation mechanism

A mechanism for monitoring and evaluation should be defined and implemented. At local government level, it is proposed to define mechanisms of control, supervision and monitoring to ensure continuous monitoring of the functioning of municipal technical services and their performance. In addition to monitoring, a communication and awareness plan could be defined and implemented for good community involvement in waste management.

5.5 Cote D'Ivoire

5.5.1 Recommendation for Implementation of ISWM Policy and Measures for Cote D'Ivoire

In Côte d'Ivoire, as stated in the previous pages, solid waste industry faces many challenges related to deficiencies in regulatory, institutional and financial support. This is also due to a lack of environmental education and awareness building for population, specifically in cities. For a sustainable and efficient management of solid waste, it is necessary to correct or address these gaps in the implementation of policy options and measures in ISWM.

5.5.2 Institutional, regulatory and legal framework

There is a need to:

- harmonize the institutional framework by putting the management of waste in a single structure, as required under a decree of the order of October 4, 2007 and clarify the responsibilities of communities and restore operational competence to local authorities in waste management solid;
- strengthen collaboration between the structures in charge of sanitation, environment and solid waste management;
- strengthen collaboration between the National Agency for Urban Safety and decentralization through the creation and enforcing of local committees of safety, extended to civil society;
- involve local communities in the process of bidding in their areas of expertise;
- strengthen monitoring and control of industrial waste, agricultural waste , toxic or dangerous waste;
- adopt regulations of the waste classification in Côte d'Ivoire;
- strengthen enforcement of liabilities and fines relating to sanitation and environment.

5.5.3 Organizational framework

- implement the resolutions of the "National Plan for Urban Safety" adopted in July 2011;
- establish a method of packaging, source separation and waste collection centers;
- organize and encourage the promotion of all forms of value;
- professionalize the management channels of all waste;

- set up a coordinating committee for technical equipment and infrastructure of the waste streams;
- create a database on solid waste;
- strengthen the capacity of stakeholders in the sector;

5.5.4 Financial Framework

- keep the land taxes;
- redevelop the current Tax Collection of household waste (TEOM);
- establish a fee for garbage collection (Reoma);
- create new tax on sales of businesses of printing;
- establish a tax package or eco-tax on packaging (plastic, cardboard, glass, etc.).
- determine the share of tax revenues for the slaughter of animals to be repaid to Fund Financing Urban Safety Programs (FFPSU);
- implement pollution tax on industrial waste;
- create urgently a committee of experts working under the authority of FFPSU to establish the mechanism for collection of taxes recommended;
- establish fees as part of the service under the collection, transport and landfilling of household waste;
- introduce the system of environmental taxes (environmental taxes) on the basis of the polluter-pays principle;
- create a scholarship for waste field in Abidjan and San Pedro.

5.5.5 Socio-cultural Framework

- revitalize National Brigade for Urban Sanitation;
- strengthen the capacity of staff of the Ministry for Urban safety
- establish a monitoring committee composed of representatives of the press for implementation of awareness campaigns through the media;
- implement effective communication on actions aimed at promoting safety;
- integrating other technical ministries for the implementation of basic education on sanitation; and
- involve NGOs in environmental protection in the implementation of safety actions.

6. SUMMARY AND CONCLUSION

Solid waste management poses a crucial challenge for the four target countries and most of them are faced with limited options to address it even though there are mandatory provisions in existing legislations spelling out what they have to do. This is particularly true of Nigeria. It is no gainsaying to state that part of the challenge has been to come up with effective and sustainable solid waste management systems that would reduce the waste released into the environment.

From the foregoing recommendations, the target countries can start to develop an action plan for the adoption and implementation of national and or regional integrated solid waste management plan, which would culminate in a waste management policy for the each country. Thus the target countries have an increasingly important role to play in waste and resource management. Planning for waste at the regional level will be a new chance to ensure that waste management in the target countries and West Africa will be both strategic and sustainable. Waste management must meet the new and stringent requirements to deliver sustainable development contained in MEAs and the MDG Sustainable Development Strategy. The recommendations that are proffered move away from strategies of 'predict and provide' approach to reflect a true resource management approach and aim towards zero waste production.

This plan is not intended to provide an exhaustive list of everything that should be done in the target countries towards producing less waste for disposal or managing waste as a resource to deliver economic, environmental and social benefits. It focuses on those strategies and priority initiatives that require a national approach and those that involve collaboration amongst jurisdictions. Individual jurisdictions will continue to manage waste in line with their strategic objectives and constitutional responsibilities. It is intended that this implementation plan be a living document that is regularly updated as initiatives are scoped, consultation occurs, details on timing and nature of initiatives are developed, initiatives are completed and new work is agreed on.

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