



## **The International POPs Elimination Project (IPEP)**

*Fostering Active and Effective Civil Society Participation in Preparations for Implementation of the Stockholm Convention*

### **The waste management issue in Senegal: Outlining solutions to waste incineration in Thies**



**Association pour la Défense de l'Environnement  
et des Consommateurs (ADEC)**

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## About the International POPs Elimination Project

On May 1, 2004, the International POPs Elimination Network (IPEN <http://www.ipen.org>) began a global NGO project called the International POPs Elimination Project (IPEP) in partnership with the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Program (UNEP). The Global Environment Facility (GEF) provided core funding for the project.

IPEP has three principal objectives:

- Encourage and enable NGOs in 40 developing and transitional countries to engage in activities that provide concrete and immediate contributions to country efforts in preparing for the implementation of the Stockholm Convention;
- Enhance the skills and knowledge of NGOs to help build their capacity as effective stakeholders in the Convention implementation process;
- Help establish regional and national NGO coordination and capacity in all regions of the world in support of longer term efforts to achieve chemical safety.

IPEP will support preparation of reports on country situation, hotspots, policy briefs, and regional activities. Three principal types of activities will be supported by IPEP: participation in the National Implementation Plan, training and awareness workshops, and public information and awareness campaigns.

For more information, please see <http://www.ipen.org>

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The views expressed in this report are those of the authors and not necessarily the views of the institutions providing management and/or financial support.

This report is available in the following languages: summary in English and integral report in French

# **The waste management issue in Senegal: the example of Thies: outlining solutions to the waste incineration**

## **Justification of project**

Thies is a region with 1.348.637 inhabitants and it is the third largest region of Senegal in terms of population. The city currently is experiencing a very interesting economic development with the creation new industrial, hotel and trade infrastructures. Thus, around 50 tons of wastes are collected daily and stocked in a dump which is a former quarry. Wastes are dumped there to fill in holes. This operation aims to generate plots for sales and to build houses. Wastes mostly found are plastic wastes (bags, containers, and bottles), tins, food residues, cardboards, tyres, sponges. Besides these solid wastes, we can equally see liquid wastes such as motor oil. Populations living in and near the site complain about the smoke and stinking smells coming from the dump. Indeed, the dump regularly releases smoke that can be perceived 2 km away from the dump according to people living in this area. Populations claim to have many problems inhaling because of the smoke and smells coming from the dump. The people in charge of the local technical services claim that wastes are not incinerated on the spot and that smoke is generated by some spontaneous fires lit in the dump. However, the local population accuses the dump keeper of burning wastes in order to have more places because the dump is full and can no longer contain the daily influx of wastes.

Knowing that the incineration of local wastes, moreover mostly made of plastics, ligneous or ligneous based-products can lead to a production of dioxins, furans and other noxious products, we can easily understand how serious the situation is. This situation is more and more serious given that there are many villages located not far from the dump and that new houses are being built near this dump.

Thus, it is high time we found a solution to this situation and thought of a new strategy to manage local wastes in the city of Thies. That is the purpose of this present project.

## **Aims and objectives of project**

This project aims to propose a waste management strategy and to contribute to implementing the Stockholm Convention in Senegal. Therefore, this project set itself the following objectives:

- Describing the current waste management situation in the city of Thies, rate of waste collection in this city, how are managed wastes collected? How are wastes not collected by the city managed by their owners?
- Assessing socio-economic, environmental and health impacts and risks of the current waste management in the district of Thies
- Describing and assessing strategies scheduled in the country (or by the district) to solve these impacts
- Proposing a strategy of local wastes management in the city of Thies going by conclusive experiences led in other counties
- Assessing obstacles and opportunities of this strategy for the city of Thies

- Proposing solutions to lift obstacles and build capacities

## **Methodology**

The project implementation was carried out through these following activities:

- Bibliographical review on this issue: the inventory report on POPs in Senegal; information materials on the Stockholm Convention; materials on the POPs formation processes (dioxins and furans) from wastes; materials on environmental and health risks linked to POPs generated by wastes incineration; ecologically rational waste management strategies successfully used in other countries etc.
- Visiting sites that stock and manage these wastes to have an insight of the situation (pictures, description of the situation)
- Interviewing people living in or near these sites, the local authorities, people in charge of the waste management, health structures to see how they perceive this situation and its socio-economic impacts
- Interviewing stakeholders: experts of the Direction de l'Environnement; members of the POPs committee, technicians and people in charge of waste management in the city of Thies and in other Senegalese regions, other experts on the issue in order to discuss the country's situation, risks, measures currently taken or under way, solutions available in the country
- Proposing a waste management strategy in the city of Thies
- Organising a restitution and validation workshop of the strategy proposed
- Submitting to the central unit of the project management the project's final report
- Disseminating the strategy proposed through national and regional press and distributing the project report to the national authorities and other CSO of the country

## **Organising the collection and management system of municipal wastes in the city of Thies**

### ***Characterisation of wastes***

Wastes mainly come from households. Economic activities (markets), health districts, construction sites, public places among others are equally sources of wastes.

The amount of wastes generated yearly by the city of Thies is estimated at around 110,000 m<sup>3</sup>. The region is capable of transporting only up to 88,000 m<sup>3</sup> and that is only 80% of wastes. These wastes are composed of:

- Materials that can be recycled, including clothes and rags,
- Rubble and debris from civil engineering
- Plastic wastes of all kinds, toys and rubber
- Residues from cleaning, debris from markets and places meant for public celebrations
- Household waste: pneumatics, televisions, car shell
- Mattresses, household appliances
- Branches and leaves from public and private gardens
- Common industrial, commercial, office and administrative wastes, etc

## ***Institutional framework of the waste management***

Among institutional actors involved in municipal waste management in the city of Thies, we can cite the following:

- The Division Régionale de l'Environnement et des Etablissements Classées in charge of executing the governmental policy relating to environmental protection and to the fight against pollution and nuisances at the regional level
- The Service Régional de l'Hygiène in charge of following up the implementation of the national policy on hygiene and public health at the regional level
- The local authorities (districts and rural communes of Thies) through competences attributed to them. Communes and districts are in charge of countrywide waste management, including collection, transport and treatment.

## ***Legislative and regulatory framework of municipal waste management in the city of Thies***

The legislative and regulatory framework of municipal waste management in the city of Thies can be analysed through the Environmental Code whose law has been promulgated in January 2001 and its implementing decree n° 282 signed in April 2001 and sectoral codes, standards and decrees competing this legal mechanism.

### **The law on the Environmental Code: Law n°2001-01 of January 15<sup>th</sup> on the Environmental Code**

The Environmental Code controls waste management through its chapters 3 and 5 of its Title 2 termed: "Preventing and combating pollutions and nuisances", Title 3 on the protection and implementation of receptors and its Title 4 dealing with diverse sanctions and provisions.

The Code stipulates through its article L30 that wastes should be disposed of or recycled in a rational and environmentally safe way. It equally specifies responsibilities in terms of waste management through its article L31 stipulating that "Any person generating or holding wastes should eliminate or recycle them or should send them to companies approved by the Ministry of the Environment for their disposal or recycling. Otherwise, this person should send these wastes to local authorities or any waste management company approved by the State." The article L32 equally states that local authorities and associations should dispose of household and non-household wastes in liaison with regional and national services of the state, according to the regulation into force. Moreover, the Code includes among others, conditions and modalities in which wastes should be treated or recycled through its articles L 33, L34, L36, L37, L41 and L42 that ban dumpsites, immersion, incineration, no matter the process, of wastes in continental waters, seas, or rivers under Senegalese jurisdiction. Besides, landfills can be constructed and operated only after the Ministry of the Environment provides an authorisation along with technical instructions and specific regulations to be observed. As well, the Title 3 on the protection and implementation of receptors also regulates the waste management on the national territory (see annex). This Title includes four chapters on water and air pollution, foul-smelling odours, the pollution and degradation of soils and the subsoil. It is a benchmark to sectoral legislations and regulations being currently reviewed.

## **Other safety measures**

Environmental Impacts Assessment: The implementing decree of the Environmental Code (decree 2001-282 –April 12<sup>th</sup> 2001) through its Title 2 renders mandatory the prior study on the impact on the environment (EIE) of a certain number of projects and programs among which is the project on waste disposal and management.

Relevant sectoral standards and codes: Many sectoral standards and codes deal with waste management in Senegal. We can cite among others, Standards on wastewater emissions, Standards on emissions, the Hygiene Code, the Labour code, the Code of Local authorities, the Decree regulating the discharge of household wastes, the Code of water and mines and the Forestry Code.

## ***Current waste management system in the city of Thies***

The current waste management system includes collection, transport and uncontrolled dumping. These uncontrolled dumpsites are numerous and cause serious problems linked to public health and the environmental protection for no preventive measure has been taken to waterproof the subsoil and cover wastes. Besides, these dumpsites are not fenced and are exploited by salvage dealers seeking what can be reused or resold. Animals (cows, sheep, and pigs) roam around in the dumpsite seeking something to eat. Wastes are carried away by the wind and enter the houses of people living nearby.

It has to be noted that there is no efficient system of waste collection and selective treatment, neither in households, nor in the industrial sector or other economic activities. Thus, all these wastes are dumped at the same time without any particular caution. From time to time, various amounts of wastes are incinerated to gain space and welcome new amounts. Sometimes, due to the calorific value of wastes, auto-incineration can occur.

## ***Strategy planned by authorities to improve waste management in the city of Thies: the engineered waste landfill of MontRolland***

In view of the numerous problems posed by the waste management in the city of Thies and in the Senegalese districts, the government decided to put in place C.E.T (waste engineered landfill)

A C.E.T is a controlled dumpsite to enable disposal of waste without polluting the environment, more particularly the soils. Wastes are put in cavities covered with a thick black plastic material to prevent the waste liquid (leachates) according to the category of wastes from seeping through the soils. C.E.T landfills are classified in three categories according to the nature of wastes dumped:

- 1<sup>st</sup> class C.E.T (high risks)
- 2<sup>nd</sup> class C.E.T : (medium risks)
- 3<sup>rd</sup> class C.E.T: (low risks)

For the region of Thies, the CET will be located in the rural district of Montrolland. This C.E.T will be capable of containing up to 110 000 tons of wastes yearly and will strictly be

meant for household and related wastes. With this C.E.T, wastes are no longer put in uncontrolled dumpsites, scattered all around the city. This unit will belong to the 2<sup>nd</sup> class according to the French Nomenclature on wastes.

## **Proposing waste management strategies in the city of Thies**

Waste management is efficient, rational and environmentally sound if based on a holistic approach. It is about putting in place an integrated waste management strategy to strengthen the C.E.T. Such a strategy will include many complementary methods from import/production methods to disposal techniques including modes of consumption. This strategy will mainly aim to prevent the production of wastes through the generalisation of the three Rs: the minimization of waste production, recycling and salvaging of wastes before their disposal by rational and environmentally sound methods. Indeed, C.E.Ts have a limited capacity and cannot indefinitely welcome wastes, hence the need to bury the smallest amount possible of wastes generated in the city (the C.E.T for Thies will welcome only 110 000 tons yearly)

### ***Constraints in enforcing a policy to prevent waste production***

Strategies to prevent the production of wastes often come up against constraints and obstacles. Effectiveness of these strategies might be affected if these constraints are not lifted. Among these obstacles and constraints, we can cite the following:

- Prevention should be based on an effective participation of populations and on the will of institutions of the district through actions in their own establishments. Therefore, there is a need to inform and raise awareness among these populations
- Results of such an approach might not be immediately perceptible because it is long-term work leading to behavioural change and sustainable development. Meanwhile, populations can be discouraged. Besides, political authorities in search of votes will carry out more spectacular actions but less sustainable;
- The success of the prevention approach in the district will depend on the participation of a third party notably industrials generating wastes stemming from packaging and included in household wastes and all stakeholders involved in distribution chains of products consumed within the city.

### ***Regulatory system to reduce waste production***

To promote the generalisation of the enforcement of the 3 R-V principle by all the economic stakeholders within the city of Thies, it is first necessary to put in place a regulatory system that will assure its enforcement.

**Regulation of “household containers”** binding any packager to participate in the elimination of wastes stemming from these products either by deposit, a selective collection, or an entrance in an approved company of container collection and management. Indeed, the inclusion of these costs in the product price will surely push the industrial sector to use less toxic chemicals, manufacture more sustainable products that can be recycled and reduce packaging.

**Regulation on the selection of wastes:** It is necessary to put in place a regulation binding consumers and industrials to select wastes they produce. The 3RV principle is unfortunately

limited by the selection stage. Companies involved in recycling are aware that the selection should be done the closest way possible to the producer, which gives birth to selective collections.

**Regulating the waste dumping:** Only ultimate wastes, notably those that can not be recycled or for which it is impossible to reduce the toxicity potential following current technical and economic conditions should be accepted in dumpsites and thousands of non-authorized dumpsites;

### ***Using economic instruments***

These economic instruments aim to soften behaviours through a modification of prices in the sense that they push economic stakeholders to prevent wastes from being generated. Among these instruments, we can cite:

- Differentiated taxation of packaging: Such a measure resides in the fact that the price of the product includes the packaging cost. This measure aims to give “over packaged” products their real prices (including the real cost of the packaging) in order to lead consumers not to buy products which are not or poorly packaged.
- Differentiated taxation of products in favour of sustainable, recyclable and reusable goods: It is about imposing taxes on unsustainable products in order to promote their alternatives that are sustainable. For instance, currently there is a proliferation of plastic containers used to package drinks in place of former safe glass-made bottles. A differentiated taxation of plastic packaging might discourage their use by manufacturers or importers of drinks and their consumption by consumers in favour of glass-made bottles which can be recycled with pre-existing infrastructure.

The taxation on products at the manufacturer level and the incentive price setting at consumer level are complementary and well-coordinated instruments applied simultaneously to prevent overtaxing

### ***Awareness raising and information***

Households are the main stakeholders in the reduction of household wastes generated. Their involvement in strategies to reduce waste production is indispensable for their success. Therefore, it is crucial to show them how relevant these measures are and to raise awareness of the following:

- Problems posed by wastes
- Promotion of preventive activities carried out by the district
- Results of strategies meant to minimise waste production
- Awareness-raising of methods leading to waste reduction; reparation and reuse, use of sustainable products to replace non-recyclable products (cardboard-made dishes for instance), the use of unpackaged products rather than products in containers
- Rational use of plastic bags...
- Promotion of less or non-toxic alternatives benefiting from an eco-label or eco-products such as paints or amendments for soils, etc...
- Dissemination of the information on the possible fates of certain chemicals: sometimes, local initiatives carried out by distributors and associations recycle wastes in order to repair or resell them.



## ***Actions to carry out among distributors***

Distributors are responsible for the influx of additional wastes that can be minimised, even disposed of. Authorities, along with distributors can seek how to reduce these wastes: using reusable or biodegradable bags, promoting products that generate less wastes, (rechargeable for example), recycling already-used products. Authorities can equally seek a partnership with distributors to help consumers have information on environmentally-friendly products, including those benefiting from an eco-label.

## ***Help put in place grassroots initiatives for the recycling of wastes***

Huge amounts of wastes that are currently dumped can be recycled. The grassroots initiatives for the recycling of wastes have two advantages. First, it solves an environmental problem and contributes to employment generation. Many similar initiatives are proving to be effective around the world and it would be judicious to assess feasibility in the city of Thies to solve the waste problem and as well generate employment for the youth and women. To facilitate the putting in place of such initiatives, authorities could for example grant fiscal or financial facilitation for their achievement.

## **Recommendations**

To have an effective, rational and environmentally sound management of wastes in the city of Thies, it is necessary to carry out the following actions:

- Creating a mixed structure in charge of strategic and political orientations for an integrated waste management system that will gather representatives of the different stakeholders involved in production and waste management: districts, consumers, industrials, NGOs, other economic operators
- Putting in place a waste management system for the cleaning of roads and public places and the collection and disposal of wastes.
- Putting in place an effective system to collect and transport wastes to existing units specialized in treating wastes
- Providing shovels in households within the framework of a global program of people information and awareness-raising
- Setting up waste reception centres in districts and neighbourhoods within the framework of a concerted approach with populations
- Putting in place a C.E.T including a waste development unit
- Promoting cleaning activities involving populations and the private sector within the framework of a concerted approach for the environmental management (cleaning committee)
- Prioritizing grassroots initiatives for the promotion of waste recycling through small units.
- Raising awareness of the need to pay TEOM (Tax for the removal of household wastes) to recover waste management costs