

**Regional workshop for UPOPs  
UNEP Gigiri ,16<sup>th</sup> June, 2009**

BAT&BEP examples applied to source categories  
listed in Section V of the guidelines:

**Open burning of waste  
OBW**

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**Nairobi at the dawn of NO  
UPOPs**



**Open burning Definition**

An environmentally unacceptable process that generates chemicals listed in Annex C of the Stockholm Convention and numerous other pollutant products of incomplete combustion.

It contributes about 70% of UPOPs in many African States ( From some NIPs)

**Open burning of waste(OBW),  
including burning of landfill sites**

General burning types/process considerations

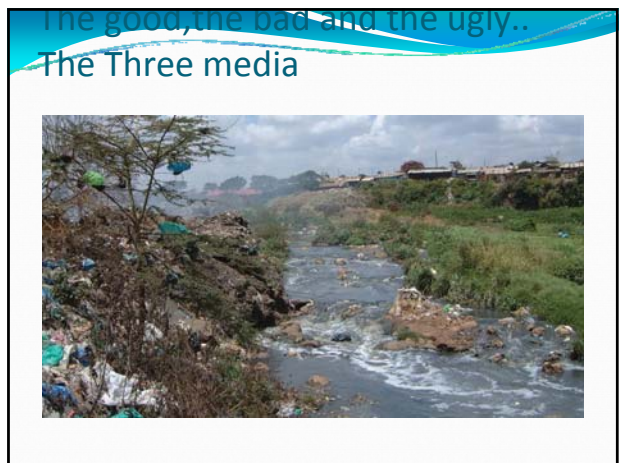
- Intentional biomass burning
- Agricultural/crop residue and land clearing debris
- Mixed consumer waste
- Other categories(accidents, refinery fires)

**Conditions contributing to  
generation of Dioxins and furans in  
OBW**

UPOPS generation is accelerated by presence of:

- chlorine,
- Metals,
- wetness of the material being burnt
- or low oxygen conditions during combustion process.





## Impacts

- Aesthetics
- Unpleasant Smells many gases besides UPOS are emitted
- Human Health Impacts
- livestock deaths near places with OBW
- Wildlife deaths

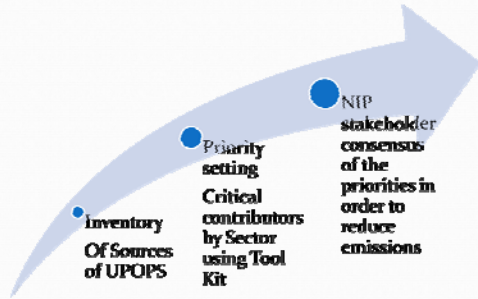


## How Much UPOPs

Sources of Information

- UPOPs Inventory
- Scientific Papers e.g the Egg Report
- BAT/BEP Guideline and Guidance

## Is OBW an issue to ones country?



## Inventory of UPOPS For Kenya

Calculated using the UNEP dioxin/Furan Toolkit

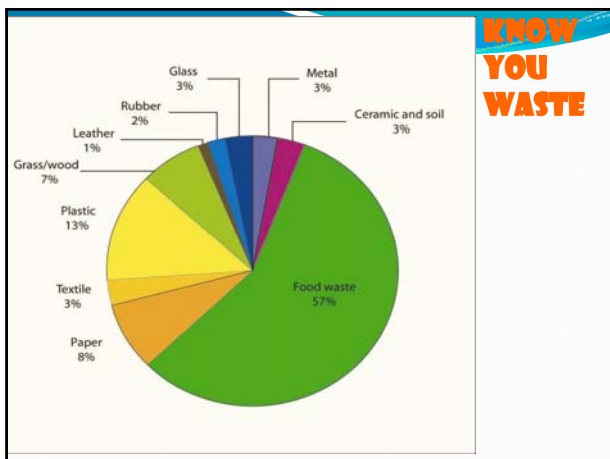
- The total PCDD/PCDF releases -3472gTEQ per annum
- Uncontrolled combustion generates 1,810g or 53% of total and land disposal contributes 1,335TEQ or 38% of total releases

## How widespread is the problem?

- Each one of 172 local authorities has a designated dumping site which are erroneously called a landfills.
- Many primary schools, universities, colleges, clinics, factories and households use -all practice open burning as a way of volume reduction. i.e Millions of point sources
- The worst are factories because of their hazardous nature

## Where to intervene

- Industrial Areas - 21%
- Residential Areas - 61%
- Agricultural Waste - 10%
- Clinical Waste - 8%
- Services(not quantified)
- The informal business sector(not quantified)



## Possible Intervention on waste

- Direct reuse
- Recycling
- Recovery of useful components Land filling followed by burning
- Landfilling and covering with cotton possibly a Cleaner Development Mechanism Proposal
- Incineration(depend on sources) using BAT with BEP

## Residential waste /Plastic wastes A key culprit

Most conspicuous indicator of serious solid waste mismanagement

- Raw material input of 239,602 t/yr.
- 49,022 t/yr (25%) comprises of plastic carrier bags.
- Of the total plastic carrier bags produced, 50% (24, 511 t/yr) are less than 15 micron thickness and are primarily used for carrying consumer products. Are difficult to recycle, responsible for most pollution.

## Applying BATBEP

- Keeping and maintaining records of waste generated, treatment and disposal modes
- Health and safety for workers in potentially high emission facilities
- Medical waste Segregation
- Development and Enforcement of legislation banning OBW
- enacting local authority By- laws and practices of handling waste

## Typical Requirements which can achieve BEP

- Cessation of OBW in all activities except agricultural in line with EMCA
- Local authorities to restrict and regulate open burning
- Enforce regulations that ensure that hazardous waste is not burnt in the open

## Introducing BAT where possible



## Other Possibilities

- Understanding and appreciating the BAT/BEP guidelines
- Prevent approaches that prevent formation and release of unintentional POPs
- Ensuring local authorities appreciate it is a bad practice
- Emphasizing to practitioners of EIAs EA

## What Did Kenya Do?

1. Policy makers understand that UPOPS affect all
2. Ten point plan for plastics
3. Medical waste must be segregated at the hospital or clinic
4. All district Hospitals have De Mosfort Incinerators
5. Phase use of lead in petrol
6. Made it legal through EMCA Waste Regulations, 2006
7. Are Enforcing it through regular inspections
8. Are starting to provide alternatives and efficient ESM of municipal waste

## Waste Burning Advisory

With respect to the materials burned:

- Avoid including non-combustible materials, such as glass and bulk metals, wet waste and materials
- Avoid waste loads containing high chlorine content, whether inorganic chloride such as salt, or chlorinated organics such as PVC;
- Waste should be dry always

## Waste Burning Advisory(cont...)

Avoid:

- Metals such as copper, iron, chromium and aluminum, even in small amounts. Materials to be
- Material which are not dry, homogeneous or well blended, and of low density

## Initial Actions

- Study the guideline and guidance
- Make sure your colleagues study it
- Create awareness of other Hazards of OBW smell, pollution, aesthetics etc

## target-NO OBW



No OBW at Household, Street, company or local authority Level

Ensure it is included in EIRs and annual EA

Include OBW considerations in Waste regulations

Include elements of 4R in national development Plans, policies and legislation

Thank You