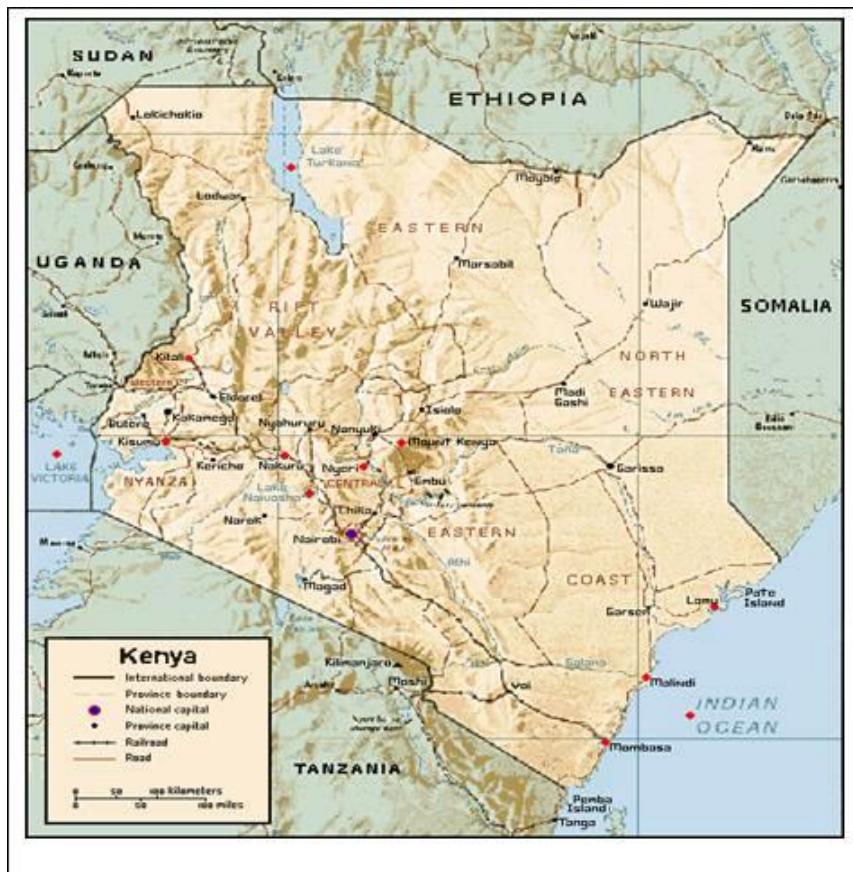


REPUBLIC OF KENYA



MINISTRY OF ENVIRONMENT AND MINERAL RESOURCES

INVENTORY OF MERCURY RELEASES IN KENYA



July 2012

INVENTORY OF MERCURY RELEASES IN KENYA

Contact point responsible for this inventory	
Full name of institution	Ministry of Environment and Mineral Resource
Contact person	Mr Francis Kihumba
E-mail address	kihumban@environment.go.ke
Telephone number	24522730808 Ext 1305
Fax number	
Website of institution	www.environment.go.ke
Report issuing date	22 nd February, 2012

Acknowledgements

The Ministry of Environment and Mineral resources wishes to thank all those who first developed the inventory have contributed to this inventory. Special thanks go to member son the interministerial team that keep on improving the inventory. Special thanks go to Jacoob Maag of UNEP who has continuously advised on the inventory on its quality and accuracy. The following contributed., Richard Mwendandu, Director Multi Mr Calorine Wamai senior Chemist , Government Chemist Department, Dr. S M. Irungu , Chief Dental Officer, Ministry of Medical Services, Millicent Kabaara Ministry Of Environment And Mineral Resources. The Kenya Government appreciates the financial support extended to it by Groundwork of South Africa

ACRONYM

GDP	Gross Domestic Product
Hg	Mercury
KRA	Kenya Revenue Authority
N	No
THg	Total Mercury
UNEP	United Nations Environment Program
VCM	Vinyl Chloride Monomer
Y	Yes

Contents

Acknowledgements	3
ACRONYM	4
1.0 Executive summary	8
2.0 Mercury release source types present in Kenya	12
2.1.1 Mercury problem	13
2.1.2 Mercury releases in general. Error! Bookmark not defined.	
2.2 Sources of releases to the environment	14
3.0 Summary of Mercury inputs to society	17
3.1.1 Energy consumption and Fuel Production	17
3.1.2 Primary metal production	17
3.1.3 Other materials production	17
3.1.4 Production with mercury	18
3.1.5 Production of recycled metals.	18
3.1.6 Waste	18
3.1.7 General Consumption of mercury in products, as metal mercury and as mercury containing substances.	19
3.2 Cemeteries and crematoria	19
4.0 Summary of Mercury Releases	21
5.0 DATA AND INVENTORY ON ENERGY CONSUMPTION AND FUEL PRODUCTION.	28
5.1 Data Description	28
5.1.1 Coal combustion	29
5.1.2 Combustion of petroleum coke and heavy oil	29
5.1.3 Combustion/use of diesel, gasoil, petroleum kerosene	29
5.1.4 Use of raw or pre-cleaned natural gas.	30
5.1.5 Fuel production:	30
5.1.6 Oil extraction	30
5.2 Background calculations and approximations	31
5.2.1 Releases	33
5.3 Data gaps and Priorities for potential follow up.	35

6.0	DOMESTIC PRODUCTION OF METALS AND RAW MATERIALS	36
6.1	Data description	36
6.1.1	Primary metal Production	36
6.1.2	Other materials Production	38
6.2	Background calculations and approximations.	39
6.3	Data gaps and priorities for potential follow-up	42
7.0	DATA AND INVENTORY ON DOMESTIC PRODUCTION AND PROCESSING WITH INTENTIONAL MERCURY USES	43
7.1	Data description	43
7.2	Data Description	45
7.2.1	Chlor Alkali Production	45
7.2.2	Skin Lightening Creams	45
7.2.3	Background Calculations and approximations	45
8.0	DATA AND INVENTORY ON WASTE HANDLING AND RECYCLING	49
8.1	Data Description	49
8.1.1	Production of recycled ferrous metals (Iron and steel)	49
8.1.2	Waste incineration	49
8.1.3	Landfills	49
8.1.4	Wastewater and sludge	50
8.1.5	Production of recycled mercury ("secondary production")	50
8.1.6	Medical Waste Incineration	50
8.1.7	Uncontrolled Domestic Waste Burning	Error! Bookmark not defined.
8.1.8	Landfills and Waste Dumps.	51
8.1.9	Sewage Treatment.	52
8.1.10	Data gaps and priorities for potential follow up	52
8.2	Releases	52
9.0	DATA AND INVENTORY ON GENERAL CONSUMPTION OF MERCURY IN PRODUCTS, AS METAL MERCURY AND AS MERCURY CONTAINING SUBSTANCES	54
9.1	Data description	54
9.1.1	Dental Almagams	54
9.1.2	Thermometers	54
9.1.3	Switches	54
9.1.4	Batteries	55
9.1.5	Light sources with mercury	55
9.1.6	Electrical and electronics	55
9.1.7	Dental mercury-amalgam fillings	55
9.1.8	Laboratory chemicals and equipment	56
9.2	Data gaps and priorities for potential follow up	57
9.3	Data gaps and priorities for follow up	57

9.3.1	Background calculations and approximations	59
10.0	Inventory on crematoria and cemeteries	62
10.1	Data description	62
10.2	Background calculations and approximations	64
10.3	Data gaps and priorities for potential follow up	64
11.0	List of major data gaps	65
11.1.1	Data Sources	65
12.0	Conclusion:	66
	Recommendations:	67
12.1.1		67
References		68
Tables:		
Table 2.1.	Mercury release sources.....	8
Table 2.2	Miscellaneous potential mercury sources	9
Table 3.1	Summary Mercury inputs	13
Table 3.2	Description of the type of results	16
Table 3.3	Total summary releases	
Table 4.1	Energy consumption and fuel products	
Table 4.2	Use of Diesel, petroleum, kerosene	23
Table 4.3	Refined petroleum products	24
Table 5.1	Aluminium production	28
Table 5.2	National Cement production	30
Table 5.3	Paper Factories in Kenya	30
Table 6.1	Domestic production and processing with Mercury uses	32
Table 6.2	Production and consumption of batteries in Kenya	34
Table 7.1	General waste management	
Table 7.2	Production of recycled ferrous metals	42
Table 7.3	Waste generation levels at selected hospitals in Nairobi	43
Table 7.4	Production for international sources	
Table 9.1	Production from cemetery and crematoria	
Figures		
Fig 1	Source category estimated Hg input Kg/Hg	5
Fig 2	Share of petroleum consumption by fuel category	22
Fig 3	Estimated Hg input from Energy	23
Fig 4	Releases attributed to energy	26
Fig 5	Gold Ore	
Fig 6	Production with international mercury uses	
Fig 7	Recycling Waste in a dump	38
Fig 8	Open burning of waste	
Fig 9.	Nakuru Waste dumpsite	
Fig 10	Emissions from international uses of mercury	
Fig 11	Emissions for international uses of mercury	

1.0 Executive summary

Mercury and its compounds are highly toxic to humans especially to the developing nervous system. They are also harmful to ecosystems and wildlife populations. Releases to the environment and products have raised global concern and that is why the 24th session of the UNEP Governing Council decided that further international action was required to reduce the risks posed by mercury to human health and the environment. This action is to address atmospheric emission; releases to land, water, soil find environmentally sound solutions for waste containing mercury, reducing its demand in products, supply, and storage, rehabilitation of contaminated sites and to increase pollution knowledge through inventories, research and monitoring nationally. Currently, the discussions on the internationally binding legal instrument are going on and countries need to carry out an inventory of mercury production, import, use and releases to be able to assess how future actions will affect them

This inventory is prepared by an interministerial team under the Ministry of Environment and Mineral Resources as part of the preparations for national actions to address the growing emissions of mercury, in November 2011 as part of the preparations for Kenya's participation in the negotiations for a legally binding mechanism for mercury emission. Action is required to focus of reasons of emission, identify the key sources of the emissions and take the appropriate control measures.

This mercury release inventory was made with the use of the "Toolkit for identification and quantification of mercury releases" made available by the United Nations Environment Programme's Chemicals division (UNEP Chemicals)¹..

It was developed on the Toolkits Inventory Level 1 which is based on mass balances for each mercury release source type. Inventory Level 1 works with pre-determined factors used in the calculation of mercury inputs to society and releases, the so-called default input factors and default output distribution factors. These factors were derived from data on mercury inputs and releases from such mercury source types from available literature and other relevant data sources such as research and policy documents. The Toolkit is still being refined to remove gaps. For the following mercury source sub-categories, input and releases estimates were made:

- Coal combustion in large power plants
- Combustion of petroleum
- Fuel production
- Metals and raw materials
- Domestic Production and processing with intentional mercury uses
- Waste handling and recycling
- General consumption of mercury in products as metal mercury and mercury containing substance, and

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_15287

