

## Republic of Botswana

Telephone: (267) 3902050
Fax: (267) 3902051/ 3914687
Email: envirobotswana@gov.bw

# Department of Environmental Affairs

Private Bag 0068 Gaborone Botswana

# Ministry of Environment, Wildlife and Tourism

All Correspondence to be addressed to the Director

REF: DEA/ENV 8/2 XIX (7)

17th February 2010

Chemicals Branch
11-13 chemin des Anemones,
CH – 121 Chatelaine
Geneva
Switzerland

Dear Sir/Madam

# RE: Call for Information

We refer to your DTIE/PMB/Mercury dated 9th December 2009.

Please receive the attached document which provides information that will be used to facilitate the discussions of the Intergovernmental Negotiating Committee on Mercury.

Thank you,

S.C. Monna / Director

## MERCURY INFORMATION IN BOTSWANA

#### 1.0 INTRODUCTION

Mercury is a liquid metal that is environmentally persistent and bio accumulates in the food chain. Mercury is both present in organic and inorganic forms. Inorganic form of mercury can be divided into elemental mercury and mercuric salts. Elemental mercury when released in to the environment may form methyl mercury, which may accumulate in aquatic fauna and consequently a high fish diet may contribute to the mercury body burden. Mercury is most commonly identified with diagnostic equipments such as thermometers and sphygmomanometers (blood pressure devices). When mercury becomes waste, like broken thermometers, the health facility must be able to demonstrate that there is an adequate protocol for the proper management of this waste.

#### 1.1 HEALTH SECTOR

In the recent years Botswana has been faced by the HIV/AIDS problem. The government had to come up with mitigation measures which included a crash program of upgrading and building new clinics and hospitals. The upgrading and building of healthcare facilities was also necessary to accommodate population growth subsequent to economic diversification, the expanding manufacturing sector. As a consequence of the growing healthcare sector, there is an increase in the amount of healthcare waste generated (including mercury). Consequently, healthcare waste management in Botswana has become a serious issue which requires interventions from the government at both policy level and at the project or implementation stage to ensure that the waste generated is dealt with in a sustainable integrated approach.

# 1.2 ENERGY SECTOR

The energy sector is also an area where mercury is used in cumulatively increasing quantities. Botswana Power Corporation (BPC) found that all fluorescent tubes (the regular long fluorescent tube light normally found in kitchens, offices etc) including the compact fluorescent light (CFL); contain small amounts of mercury (in the form of vapour) as a catalyst to generate visible light. Currently domestic, commercial and industrial users of electricity have already been using the regular long tube for many years as they are more efficient than incandescent light bulbs. These however, have not been disposed off correctly. The SADC region continues to be plagued by power shortages due to increased demand which cannot be met by most Power Corporations due to inadequate investment in new generation coupled with in some cases, ageing infrastructure amongst other things. It is against this background that

Power Corporations Utilities identified and adopted the use of Compact Fluorescent Lamps (CFLs) which can save 75% of electricity compared to incandescent bulbs and last 10 times longer. Botswana Power Corporation is a member of Southern African Power Pool (SAPP) and was requested to submit their CFL requirements for the next three years. BPC will be receiving the 1billon bulbs during February 2010 and expects to distribute them to consumers by end of May 2010. CFLs mercury content is 4 to 6 times less than that contained in the common "long" fluorescent light bulbs. The CFL contains less than 1/100 of the mercury contained in a regular thermometer.

# 2.0 POLICIES AND REGULATIONS OF HANDLING MERCURY IN BOTSWANA

In an effort to assess the status of mercury in Botswana the Department of Health, through Environmental and Occupational Health Division carries out training and audits periodically in public health facilities. During these audits the following were observed:

- > That mercury based equipment is still being used in most health facilities.
- > That the health facility personnel are not well informed on the handling and disposal of mercury waste from broken thermometers.
- > That some mercury waste may end up in landfills and in the incinerators and sewerage systems because of lack of information.
- > That some health facilities had Standard operation Procedures on mercury spill management.
- ➤ That some facilities had replaced some mercury containing equipment with non-mercury containing equipment (digital and alcohol based equipment).
- ➤ That there is a lack of equipment for spillage management and capacity to assess the release of the mercury into the environment.
- ➤ That there are no mercury storage kits available at the health facilities.
- ➤ There is currently no induction training on healthcare waste management for new workers. Only few facilities train their workers on the management of such waste.
- ➤ Poor waste management practices at the facility level, including failures in segregation and errors in colour coding, may result with hazardous waste not only being disposed of inappropriately, but also with members of the community gaining access to such waste.
- In recent training session of healthcare workers in Lobatse and Kgatleng District Council municipalities, health workers indicated that some members of the community use some of the waste receptacles, such as sharps containers to store food commodities

- while others, including healthcare workers, use red waste bags for other purposes other than for storage of infectious waste.
- ➤ Incinerators in Botswana are located within the hospitals therefore exposing not only the hospital communities, but also communities living near or around the hospital.

However in a bid to address the issue of hazardous waste, Botswana developed a **Clinical Waste Management Code of Practice in 1996**. The Code of Practice is an important document in the management of healthcare waste in Botswana. However, it has been suggested that most healthcare workers are not familiar with this Code of Practice. In a recent assessment of two districts in Botswana, many healthcare workers reported that they had never seen or used that Code of Practice. Not only does the Code define what clinical waste is, it also describes the types and classifications of such waste, the associated risks and hazards, handling and segregation, as well as colour coding for the different types of waste. A small proportion of healthcare workers in the Local authorities indicated that they had heard about the Code but never seen it.

Mercury waste being an example of a sub-category of hazardous waste is often encountered and not properly handled by healthcare workers. The Government of Botswana currently supplies all government healthcare facilities with mercury thermometers and the requirement is that when a mercury thermometer breaks, the mercury should be collected and returned to the Central Medical Stores (CMS). This however does not happen, largely due to lack of knowledge of such a requirement by healthcare workers.

While mercury waste is not mostly singled out but is dealt with under other categories of waste, the **Waste Management Strategy of 1998** provides a framework under which mercury could be managed. The lack of appropriate hazardous waste disposal facilities in Botswana, largely due to limited financial resources, leads to the persistence of hazardous practices such as the disposal of chemical residues into the sewerage systems. It is common practice for chemical waste in the form of pharmaceutical wastes (e.g. antibiotics and other drugs), heavy metal such as mercury, phenols and other chemicals used in hospital laboratories to be disposed of into sewerage systems. These chemicals may end up in natural ecosystems and waste cause toxic effects.

# PLANNED ACTIVITIES

- 1. The Department of Waste Management and Pollution Control (DWMPC) has assigned a team to look into ways of tackling the mercury question in the country. There are plans to set up a 'working group on mercury' whose primary objectives will be to compile an inventory of mercury and also increase the level of mercury awareness in the country.
- 2. Ministry of Health, through the Department of Public Health wrote to all health facilities and the local authorities to request an update on the status of the replacement strategies for all the mercury containing equipments.
- 3. The Central Medical Stores (CMS) have stopped the supply of mercury containing devices and it is in the transition period of phasing out old gargets. During this process the following controls have been planned in the interim:
  - ➤ To undertake visits to all health facilities to evaluate the situation from mid-February until end of March.
  - ➤ To discuss with the DWMPC disposal of the current stock of broken thermometers and the replaced ones.
- 4. Botswana Power Corporation as a member of Southern African Power Pool (SAPP) has developed guidelines for the safe handling and disposal of the CFLs. The intention is to communicate these to the end users of CFLs prior to their distribution.

## RECOMMENDATIONS

- 1. It is important that the Code of Practice is revised, marketed and put to full use. This will facilitate action in the different areas of concern such as health and safety, minimising waste from the facilities, and minimising risks to communities and to the environment.
- 2. It is important that information in Botswana on all the sources of mercury be generated as its use is not confined to the health and energy sector usage only.
- 3. Regular monitoring of the emissions from the incinerators will generate the necessary data that will enable the government of Botswana to accurately estimate the impact of healthcare waste on the environment.