

**DEPARTMENT OF ENVIRONMENT**

**POLICY PAPER**

**ON THE**

**ENVIRONMENTALLY SOUND  
MANAGEMENT OF  
ASBESTOS WASTE IN MAURITIUS**

**SEPTEMBER 2002**

## **1.0 INTRODUCTION**

Following concern raised by different stakeholders, the Ministry of Health & Quality of life commissioned a study to assess the impacts of the presence of asbestos in Mauritius and to make recommendations thereon. The study was carried out by Mr. John Addison from the United Kingdom. He made a series of recommendations regarding handling and disposal among others.

Consequently, a Technical Committee, comprising of various authorities, including Ministry of Environment was set up at Ministry of Health and Quality of Life to discuss on the contents of Addison's report so as to devise an action plan for the implementation of the recommendations of the expert report for the short, medium and long terms period. The Ministry of Agriculture & Natural Resources has also set up a sub-committee to look into the problem of asbestos in the sugar sector.

As asbestos is widely applied in the local context, it has been found imperative to develop a policy on the issue. In light of the recommendations of the Addison's report, Ministry of Environment was entrusted the task of preparing a policy regarding the management of asbestos and asbestos-containing wastes in a manner, which will safeguard human health and the environment. The draft of this policy paper was circulated to Ministry of Local Government & Rodrigues, Ministry of Health & Quality of life and Ministry of Labour & Industrial Relations for comments. Relevant comments have been incorporated in this Final Policy Paper.

## **2.0 GENERAL BACKGROUND**

Asbestos is not harmful to the environment per se, but nonetheless represents a major threat. Asbestos is listed in the hazardous waste regulations 2001, in force since April 2002, and is consequently a hazardous waste. As per the Environment Protection Act 2002, the Ministry of Local Government & Rodrigues has the responsibility of Enforcing Agency for all types of wastes, including hazardous wastes.

Being a health hazard, asbestos-containing materials and asbestos have to be disposed of with care after its removal so as to avoid exposure to it. It is to be noted that it is the handling of asbestos, which represents the most risks, not so much its disposal.

There is a risk hazard only if asbestos is inhaled/breathed by a person. Exposure to asbestos dust may lead to health consequences such as asbestosis, lung cancer and mesothelioma. Hence, in the wet form, asbestos does not constitute a hazard. Asbestos fibers do not evaporate into air or dissolve in water. Asbestos fibers are generally not broken down to other compounds and will remain virtually unchanged over long periods. Asbestos fibers are not able to move through soil.

Asbestos is known to be resistant to heat and chemicals and provides excellent insulation properties. Because of the above-mentioned characteristics, asbestos has been used for a wide range of manufactured goods, mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products), friction products (automobile

clutch, brake, and transmission parts), heat-resistant fabrics, water pipes, gaskets, and coatings. It has extensively been used as insulation material in the sugar industry and is also present in EDC houses, built in the 1960's. Many houses, schools and other buildings containing asbestos are presently undergoing renovation works throughout the island. Several sugar factories have been demolished and other are on the way of being dismantled as a result of centralization.

The import of asbestos as a dangerous chemical is controlled under the Consumers Protection (control of imports) Regulations, 1999 by the Ministry responsible for the subject of Commerce and the Ministry of Health & QL. The importation of crocidolite (Blue Asbestos) and its products is prohibited under the same regulations. However, no regulation has so far been made to provide for products containing asbestos to bear a label accordingly.

## **3.0 PRESENT SITUATION**

### **3.1 Sugar Industry**

According to a survey carried out in June 2002 by the Mauritius Sugar Authority, it was revealed that almost all sugar factories contain asbestos in varying amounts ranging from negligible to as much as 5 000 kg per factory. According to Mr. Addison, asbestos used in the sugar factories as insulation materials gives the greatest concern. The irrigation networks of the sugar estates also contain asbestos-cement pipes, buried underground. Sugar factories have traditionally been disposing of their asbestos waste by burial within their estate boundaries, but since recently, a few have, in consultation with Ministry of Environment and Ministry of Local Government, been disposing of asbestos at Mare Chicose landfill. Several sugar factories have already been demolished and other are expected in the future.

### **3.2 EDC Housing Estates**

According to a list submitted by the Ministry of Housing & Lands, out of the 3113 houses built in the EDC housing estates over 69 sites in the 1960's, 263 have been pulled down and new houses rebuilt on the sites. Therefore, it is estimated that 2850 houses are still in place, whether in the original state or extended, each containing about one tonnes of asbestos. It is assumed that about 275 tons demolition debris is presently lying in the premises of the residents in those housing estates.

### **3.3 Central Water Authority**

The Central Water Authority (CWA) has several kilometres of asbestos-cement (AC) pipes stacked at La Cure storage facility. The CWA has announced that the use of AC pipes has been discontinued following a policy adopted by the authority. Many of the pipes have been stored for periods excess of 25 years, pending a suitable mode of disposal is identified. Given the bulky nature of these pipes, they are not accepted for disposal at Mare Chicose landfill.

## **4.0 Management of asbestos waste**

### **4.1 Waste minimisation**

Government policy is to promote waste reduction and minimize its generation, and wherever possible promote the adoption of environmentally sound methods of resource recovery by direct use, alternative use, reclamation or recycling, reuse and recycling of wastes. However, reuse and recycling of asbestos of waste is not recommended due to the inherent problems linked to the handling of asbestos and asbestos – containing materials. Nevertheless, where practicable, economically feasible and environmentally sounded, every effort should be done to avoid or minimize the generation of such wastes. It is recognized that removal of asbestos is one of the operations posing the greatest risk to workers and people around, and also release of asbestos fibres in the environment. Therefore, undamaged asbestos should not be removed as the operation may be more hazardous than leaving the asbestos in place. As recommended by Mr. Addison, maintaining asbestos-containing structures would contribute significantly to reduce exposure of people to asbestos, towards waste minimisation and problems with disposal.

### **4.2 The Precautionary Principle**

If there is a doubt about the presence of asbestos in a waste, the procedure for management of asbestos should be followed.

### **4.3 Duty Of Care**

The concept of duty of care request all parties involved in the asbestos waste management chain to have regard for the proper observance of good waste management practice throughout the chain.

### **4.4 Collection, storage and transport**

Collection, storage and transport of asbestos wastes shall be in accordance with the provisions of the Environment Protection (Standards for Hazardous Wastes) Regulations 2001. Workers who are exposed to asbestos should be provided with training and informed about handling asbestos as well as its disposal. Asbestos waste must be collected in suitable sealed packaging (e.g. heavy-duty plastic bags) with labels indicating that it contains asbestos, and removed from the place of generation as soon as possible, and stored safely. For large items, e.g asbestos sheets and boards, these should be wrapped and sealed in polypropylene, if necessary, with precautions to prevent any damage by sharp edges of the contents. Transport of asbestos waste should be done in a secure manner and in compliance with provisions concerning the transport of dangerous goods and hazardous wastes. Necessary measures should be taken in the course of transport so as no asbestos fibres or dust are released into the air and no liquids which may contain asbestos are spilled.

## **4.5 Disposal of asbestos waste**

### **4.5.1 Present Status**

#### **(a) *Small generators***

Asbestos waste is presently generated in small quantities and generators are advised to contain the asbestos waste securely in either doubled lined high density polyethylene bags or polypropylene bags lined with low density polyethylene bags of thickness not less than 70 microns. These bagged wastes are presently being accepted at Mare Chicose Landfill where they are disposed of in specially identified cells alongside municipal solid waste. Large items, e.g. asbestos sheets and boards, should be wrapped and sealed in polyethene with precautions to prevent any damage by sharp edges of the contents. A protocol for disposal of asbestos waste at Mare Chicose landfill has already been established and is being followed. Provisions laid down in the hazardous waste regulations, including transport, waste manifest system and record keeping should strictly be adhered to.

Mr. J. Addison views that the mode of disposal currently practiced meets most of the requirements for the safe disposal of asbestos. He further indicated that asbestos is not mobile in ground water, the asbestos materials leach chemicals only very slowly from their structure, and they are not reactive with normal domestic waste or indeed with any normal chemicals.

#### **(b) *Big generators***

For big stocks of asbestos wastes, for instance, Asbestos Cement pipes from the Central Water Authority, these should be safely stored until a sustainable mode of disposal is identified and put in place. The Consultant, Mr. J. Addison has recommended that Asbestos Containing Materials in storage be appropriately sprayed with Poly Vinyl Acetate (PVA) /water solution to mitigate the release of asbestos dust to the ambient air.

### **4.5.2 Immediate/Short Term Measures (disposal and storage)**

Being the only landfill in Mauritius, Mare Chicose will continue to accept asbestos only in discrete quantities. With the present quantity of solid waste being disposed of at Mare Chicose, the landfill is expected to reach saturation by the end of 2005.

## **5.0 Future options for asbestos disposal**

### **5.1 OPTION I : Disposal at sanitary landfill**

Landfilling asbestos and asbestos containing waste, being an acceptable mode of disposal can be pursued, depending on the capacity of the receiving landfill. It is understood the provisions of the hazardous waste regulations have to be followed.

### **5.2 Option II : A Central Disposal Site for Asbestos Waste**

In view of the possible generation of large quantities of asbestos requiring disposal in the future, the possibility of looking into a central asbestos disposal site has been considered. This site could receive asbestos waste from all sectors, including sugar factories, CWA, EDC houses, etc. for disposal. Once the site is identified, a feasibility study for its suitability followed by an Environmental Impact Assessment should have to be carried out. The modality of operation of the site needs to be worked out by Ministry responsible for the subject of Local Government.

### **5.3 Option III : Sugar Estates disposal site for asbestos**

#### **waste**

A high percentage of asbestos and asbestos-containing materials are located in the sugar estates (factories and irrigation pipes), for which there is a need for safe disposal in case of their removal. Asbestos in the sugar factories is used mainly in side boilers and for insulation purposes. These sugar factories have generated substantial amount of asbestos wastes, for which there is a need for safe disposal. In the context of the sugar sector reform, a number of sugar factories have closed down and been dismantled, and in many cases asbestos waste has been disposed of by burial in the estate land. Several other sugar factories are on the way of being dismantled /demolished.

The asbestos expert has advised that consideration should be given to the possibility of allowing Sugar Estates to operate asbestos waste disposal sites on their property. Therefore, this Ministry suggests that this option needs consideration. However, the possibility of disposal of Asbestos cement irrigation pipes in the high seas could be considered.

The sites would be limited to asbestos waste and it is understood that after their lifetime, these sites would become contaminated land with no after use. Such a policy would relieve the Mare Chicose Landfill and future landfill sites from accommodating bulky asbestos wastes and thus increase their operation life time. Sugar factories may be requested to cater for the disposal of asbestos waste from other sources apart from the factory itself. It is to be noted that some sugar factories have private dumps on their property which are used for asbestos waste disposal, among others.

## **5.4 Option IV : Disposal of asbestos waste at High Seas**

Being inert, insoluble in water and harmless when wet, the disposal of asbestos in the high sea is viewed as a viable option. In the wet state, asbestos waste does not present any danger to human health and the environment.

The ocean surrounding Mauritius and the outer islands is very deep. The possibility of disposing of asbestos in the high sea looks very appealing and warrants serious consideration. Moreover, this practice could also provide another way of creating artificial reefs. This Ministry views that the possibility of dumping asbestos waste in the sea as an alternative to land disposal should also be given due consideration. This may relieve from the necessity and constraints in looking for land as disposal sites, which would become permanently contaminated sites and also the pressure on Mare Chicose landfill and future landfill sites would be significantly relieved.

However, dumping at sea must be in accordance with the requirements of the London Convention (Convention on the prevention of marine pollution by dumping of wastes and other matter). Although, Mauritius has signed various ocean-related conventions, we are still not a party to the London Convention. However, to preserve our image on the international arena, provisions of the London Convention should, as far as practicable, be adhered to. The views of the International Maritime Organization (IMO) have been sought on the matter and it was given to be understood that although Mauritius is not a Contracting Party to the London Convention 1972, we are Party to the UN Convention on the Law of the Sea since November 1994, and Article 210(6) of that Convention concerning "Pollution by Dumping" provides that: "National Laws, regulations and measures shall be no less effective in preventing, reducing and controlling such pollution than the global rules and standards." These global rules and standards are those established under the London Convention 1972 and, when it enters into force, those of the 1996 Protocol thereto. In other words, Mauritius is indirectly bound by the London Convention 1972. As per the provisions of the London Convention, the dumping of asbestos in the sea, under certain conditions, could be considered. This Ministry views that, the Asbestos Cement pipes, e.g. those of the CWA could be disposed of at high seas.

## 6.0 Recommendations

**6.1 OPTION II :** This option, i.e. a central disposal site for asbestos waste, is *not attractive* in view of land shortage. In addition, securing land for such purpose and the ‘NOT In My Back Yard’ (NIMBY) attitude may pose problems.

### 6.2 Options I, III and IV to be implemented.

**OPTION I :** Asbestos and asbestos containing wastes ( except those from the sugar industry as well as bulky items) should continue to be disposed of alongside municipal solid waste by landfilling, as is currently the case, and in accordance with existing regulations.

**Option III:** The sugar factories would have to undertake a survey of their existing dump sites and map their locations. The capacity of the existing sites needs to be assessed. Based on the amount of asbestos present in their estates, the sugar estate owners should determine whether the existing capacity is sufficient to accommodate the remaining asbestos present on their estates. Alternatively, additional land, preferably adjacent to the existing sites, should be earmarked for this purpose. As per section 15(2)(a) of the Environment Protection Act 2002, the disposal sites require an Environment Impact Assessment (EIA) licence, and a clearance from the Ministry of Local Government & Rodrigues.

**Option IV :** The option of disposal at high sea can be used strictly for bulky asbestos containing materials, that would sink to the sea bed , e.g. Asbestos Cement water pipes. The wastes should be properly contained as recommended in section 4.4. Each operation should be strictly controlled and monitored, in accordance with the hazardous waste regulations. However, disposal in the sea should be done without the plastic bags or wrappings, which should be brought back inland for disposal as non-bulky wastes.