

## **AIR MONITORING PROJECT FOR PERSISTENT ORGANIC POLLUTANTS**

Mauritius is party to the Stockholm convention on Persistent Organic Pollutants (POPs). The Stockholm Convention was adopted as an international legally binding instrument and entered into force in May 2004. Its objective is to protect human health and the environment from the adverse effects of POPs.

POPs are a group of organo-chlorine compounds which include the pesticides; DDT, endrin, dieldrin, aldrin, chlordane, toxaphene, heptachlor, mirex, hexachlorobenzene; and the industrial chemicals and by-products; PCBs, dioxins and furans. POPs are of concern to the international community because they are highly toxic to humans and the environment, persistent in the environment, resisting biodegradation; taken up and bioaccumulated in terrestrial and aquatic ecosystems and, capable of long-range trans-boundary atmospheric transport and deposition.

The Convention requires that Parties phase out or ban the production, use and import and export of the intentionally produced POPs, with the exception of DDT, which will be allowed to be used for vector control according to WHO guidelines until feasible alternatives have been found.

The Convention has a provision that it should evaluate its effectiveness commencing four years after the date of its entry into force. Effectiveness assessment aims to document efficacy and efficiency in correcting environmental concerns, and looks into whether the agreement is being implemented, how it is being implemented by specific Parties, and impact of the implementation on environment and human. The Convention has therefore established the global monitoring plan (GMP) on POPs and is being implemented in all five United Nations Regions.

In the context of the GMP, the Ministry of Environment & NDU, with the collaboration of the United Nations Environment Programme (UNEP), has undertaken an air monitoring project for all POPs mentioned the first paragraph. 15 other African countries also simultaneously participated in an air monitoring exercise for POPs. The project aims to obtain information on POP levels in ambient air in the African continent. Sampling activities were executed between January and July 2008

The Research Centre for Environmental Chemistry and Ecotoxicology (RECETOX) of the Masaryk University of the Czech Republic was the facilitator for this activity. The above Centre provided the sampling equipment and also undertook to analyse the samples collected. Local meteorological information during the sampling period was kindly provided by the meteorological services.

The sampling site selected was the premises of the National Environmental Laboratory (NEL) in Reduit as the latter is an appropriate site for background value as there are no industries in the surrounding area. (*See photos*).



The report of the activities has been received in January 2009 and presents the results of the analysis of the samples, in nanograms ( $10^{-9}$  g) of pollutants per filter, in the individual countries and comments on them as well as suggests the possible sources of the POPs.

The report also reveals that that the level of POPs in the ambient air in Mauritius was low and similar to other background sites in Africa. POPs detected are, Polychlorinated biphenyls (PCB), Hexachlorobenzene (HCB), Dieldrin, dioxins & furans (PCDD/F), and DDT.

Polycyclic Aromatic Hydrocarbons (PAH) which are not POPs, but have the potential for long-range transport, have also been analysed. The PAH levels were typical for rural sites not affected by heavy transport or industry.

**A summary of the findings are as follows:**

- The PCB level measured,  $17 \text{ pg/M}^3$ , is among the lowest level compared to other African countries (Senegal -  $1036 \text{ pg/M}^3$  and Egypt -  $416 \text{ pg/M}^3$ ).
- The level of **dioxins and furans** (PCDD/Fs) was around  $3.96 \text{ pg/M}^3$ , which is **among the lowest** in Africa.
- **DDT** concentrations,  $78 \text{ pg/M}^3$ , were 3-5 times higher than those typical for the other background sites in Africa.
- Traces of **Dieldrin** ( $5.61 \text{ pg/M}^3$ ) and **Mirex** ( $6.6 \text{ pg/M}^3$ ) were also detected
- The PAH levels,  $2503 \text{ ng/M}^3$ , were typical for rural sites not affected by heavy transport or industry.

## **Conclusion**

PCB was present in some electrical transformers brought in the country in the 80's. HCB and dieldrin and Hexachlorobenzene were used as pesticides in agriculture, and which is no more the case now. These have been identified and would soon be disposed of.

All the above POPs are now banned from import and use in Mauritius, except DDT, which is still being strictly used by Ministry of Health & Quality of Life for malaria vector control.

The POPs detected during the exercise confirm the findings of the inventory carried out during the development of the National Implementation Plan (NIP) of the Stockholm Convention for Mauritius, and the levels of POPs in ambient air in Mauritius is low.

**Department of Environment  
Ministry of Environment & NDU**

**JULY 2009**