

Case Study 2:

Activities of Internal Atomic Energy Agency Environmental (IAEA) Laboratories that support the Stockholm convention implementation

The Environmental Laboratories of the IAEA have collaborated for decades with the UNEP Regional Seas Programmes providing assistance to Member States on the application of analytical methods for monitoring and assessing marine pollution, and providing capacity building services for strengthening data quality assurance and QA/QC in the analysis of organic contaminants including those regulated by the Stockholm Convention, by organizing Proficiency Test and targeted Training Courses, as well as by producing marine matrix Certified Reference Materials. Successful collaborations on these issues have already been established with several of the eighteen Regional Seas, such as the Mediterranean (UNEP/Mediterranean Action Plan), the Gulf (Regional Organisation for the protection of the Marine Environment - ROPME), the Black Sea (Black Sea Commission), the Red Sea - Gulf of Aden (Regional Organization for the Conservation of the Environment of the Red Sea and the Gulf of Aden - PERSGA), the South Asia Co-operative Environment Programme (SACEP) and the Pacific Region (Secretariat of the Pacific Regional Environmental Programme - SPREP).

Within the framework of the Stockholm Convention on POPs and under its Articles 11 (research, development and monitoring) and 12 (technical assistance), the IAEA can assist parties, particularly from developing countries, to develop their analytical methodologies for monitoring POPs in the environment through technical assistance for capacity-building and providing technical advice and training activities on the analysis of POPs in marine samples. The list of POP compounds currently analyzed and implemented in the Environmental Laboratories of the IAEA are listed in Annex I. Also, under Article 16 of the Stockholm Convention, world-wide interlaboratory comparison exercises can be organized and implemented to assess the effectiveness of QA/QC practices among the laboratories providing monitoring data used for the evaluation of the effectiveness of the SC regulations.

In summary, the following activities can be provided to support the implementation of the Stockholm Convention:

- Training of individual scientists and/or organization of training courses for groups of scientists, on the analysis of POPs in environmental matrices (typically sediments and biota, but can be extended to other matrices).
- Assist with capacity building (technology transfer) using the IAEA Technical Collaboration framework.
- Organization of proficiency tests and world-wide inter-laboratory comparison exercises to assess the performance of analytical laboratories in measuring POPs in marine samples.

All these activities should provide the required knowledge/technology transfer and training on methods to analyze POPs in environmental samples enabling the developing countries to perform

their own monitoring programs and evaluate accurately the effectiveness of the SC regulations. Additional funding may be required if activities are over and above our regular budget activities of the IAEA.

ANNEX 1**LIST OF POPs COMPOUNDS (STOCKHOLM CONVENTION) ANALYSIS IMPLEMENTED IN IAEA-NAEL LABORATORY**

Compounds	Category (P,IC, ByP)*	Methods	Feasibility in MESL*	Implemented in MESL
12 POPS				
Aldrin	P	GC-ECD, GC-MS/MS	Yes	Yes
Chlordane	P	GC-ECD, GC-MS/MS	Yes	Yes
DDT	P	GC-ECD, GC-MS/MS	Yes	Yes
Dieldrin	P	GC-ECD, GC-MS/MS	Yes	Yes
Endrin	P	GC-ECD, GC-MS/MS	Yes	Yes
Heptachlor	P	GC-ECD, GC-MS/MS	Yes	Yes
Hexachlorobenzene	P, IC,ByP	GC-ECD, GC-MS/MS	Yes	Yes
Mirex	P	GC-ECD, GC-MS/MS	Yes	No
Toxaphene	P	GC-ECD, GC-MS/MS	Yes	No
PCB	IC	GC-ECD, GC-MS/MS	Yes	Yes
PCDD	ByP	GC-ECD, GC-MS/MS	Non	No
PCDF	ByP	GC-ECD, GC-MS/MS	Non	No

*Marine Environment Studies Laboratory

Meeting Documents

Compounds	Category (P,IC,ByP)*	Methods	Feasibility in MESL	Implemented in MESL
New POPs				
α -hexachlorocyclohexane	P,ByP	GC-ECD, GC-MS/MS	Yes	Yes
β -hexachlorocyclohexane	P,ByP	GC-ECD, GC-MS/MS	Yes	Yes
chlordecone	P	GC-ECD, GC-MS/MS	Yes	No
Decabromodiphenylether	IC	GC-ECD, GC-MS/MS	Yes	Yes
Hexabromobiphenyl	IC	GC-ECD, GC-MS/MS	Yes	No
Hexabromocyclodecane	IC	LC-MS/MS	Yes	Yes
commercial octabromodiphenylether(Hexa+hepta)	IC	GC-ECD, GC-MS/MS	Yes	Yes
Hexachlorobutadiene	IC	GC-ECD, GC-MS/MS	Yes	No
Lindane	P	GC-ECD, GC-MS/MS	Yes	Yes
Pentachlorobenzene	P,IC,ByP	GC-ECD, GC-MS/MS	Yes	No
Pentachlorophenol and its salts/esters	P, IC	GC-ECD, GC-MS/MS	Yes	No
Perfluorooctane sulfonic acid (PFOS), salts and PFOS-F	IC	LC-MS/MS	Yes	Yes
Polychlorinated naphthalenes	IC,ByP	GC-ECD, GC-MS/MS	Yes	No
Short-chained chlorinated paraffins	IC	GC-ECD, GC-MS/MS	Yes	No
Endosulfan and related isomers	P	GC-ECD, GC-MS/MS	Yes	Yes

Meeting Documents

Tetrabromodiphenylether and Pentabromodiphenyl ether (commercial Pentabromodiphenyl ether)	IC	GC-ECD, GC-MS/MS	Yes	Yes
Proposed for listing				
Dicofol	ByP, P	GC-ECD, GC-MS/MS	Yes	No
Perfluorooctanoic acid (PFOA), its salts	IC	LC-MS/MS	Yes	Yes
Perfluorohexane sulfonic acid (PFHxS),	IC	LC-MS/MS	Yes	No

* P: pesticide, IC: industrial chemical, ByP: By-products.