



FOOD AND AGRICULTURE
ORGANIZATION OF THE
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SECRETARIAT OF THE BASEL
CONVENTION



NZODA



SOUTH PACIFIC REGIONAL
ENVIRONMENT PROGRAMME

PROCEEDINGS

Sub-Regional Awareness Raising Workshop on the Prior Informed Consent Procedure, Persistent Organic Pollutants and the Basel and Waigani Conventions

2-6 April, 2001, CAIRNS, Australia



Prepared by UNEP Chemicals

IOMC

INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS
A cooperative agreement among UNEP, ILO, FAO, WHO, UNIDO, UNITAR and OECD

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This publication is produced within the framework of the Inter-Organization Programme for the Sound Management of Chemicals (IOMC)

The Inter-Organization Programme for the Sound Management of Chemicals (IOMC), was established in 1995 by UNEP, ILO, FAO, WHO, UNIDO and OECD (Participating Organizations), following recommendations made by the 1992 UN Conference on Environment and Development to strengthen cooperation and increase coordination in the field of chemical safety. In January 1998, UNITAR formally joined the IOMC as a Participating Organization. The purpose of the IOMC is to promote coordination of the policies and activities pursued by the Participating Organizations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

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TABLE OF CONTENTS

1. Introduction.....	5
2. Workshop Programme	5
3. Opening Session.....	6
4. POPs Convention	6
5. Rotterdam Convention	8
6. Basel and Waigani Conventions	11
7. Workshop Conclusion.....	13
Annex 1: List of Participants	17
Annex 2: Workshop Programme	23
Annex 3: Overview of Chemical Management Activities in the Pacific Region	29
Annex 4: Country Presentations	37
Annex 5: Copies of the POPs Presentations	75
Annex 6 : Copies of the Rotterdam Convention Presentations.....	221
Annex 7: Copies of the Basel/Waigani Presentations.....	267
Annex 8: Activity Plan for the Basel and Waigani Conventions.....	341

1. Introduction

A Subregional Awareness Raising Workshop on the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for certain hazardous chemicals and pesticides in international trade, Persistent Organic Pollutants (POPs) and the Basel/Waigani Conventions was organised by UNEP Chemicals, Geneva, Switzerland, in collaboration with the South Pacific Regional Environment Programme (SPREP), Apia, Samoa. The workshop was held in Cairns Australia, from 2-6 April, 2001. It replaced a workshop originally scheduled for Nadi, Fiji, in May 2000.

The meeting was organised within the framework of the UNEP Chemicals capacity building programme aimed at providing assistance to developing countries and countries with economies in transition, in strengthening their national chemical management programmes. Financial support for the meeting was provided by UNEP Chemicals and the Governments of Australia and New Zealand. The Food and Agriculture Organisation (FAO), and the Secretariat of the Basel Convention (SBC) provided contributions in-kind.

The meeting was designed for senior government experts and decision-makers from environment, agriculture, health and other government agencies of countries of the South Pacific, as well as for representatives from industry, academia and NGOs. The Pacific Island countries represented were Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Experts from UNEP, SBC, FAO, and Australia also attended.

A full list of the workshop participants is given in Annex 1.

2. Workshop Programme

A copy of the workshop programme is given in Annex 2. The meeting was divided up into 5 discrete parts, as follows:

- An Opening Session, including the official opening, and country presentations
- Three sections covering 1 to 1.5 days each on the POPs, PIC and Basel/Waigani Conventions
- A final wrap-up session which included discussions of possible future actions, the workshop evaluation and concluding remarks.

The sections on each of the Conventions were based around formal presentations, working group discussions, and a feed-back and planning session

3. Opening Session

The meeting was opened by Mr John Whitelaw, Deputy Director, UNEP Chemicals, who welcomed the participants and outlined the purpose and goals of the meeting. This was followed by a round-table introduction of all the participants.

Dr Bruce Graham from SPREP then gave an overview of chemical management activities in the Pacific region. A copy of this presentation is given in Annex 3.

The Pacific delegates then gave short presentations on the status of chemical management activities in each of their Countries. Copies of most of these presentations are given in Annex 4.

4. POPs Convention

A number of formal presentations were given in this part of the programme to provide background information on POPs chemicals and the POPs Convention, and to set the scene for discussions in the working groups. The organisation of the POPs sessions and the specific presentations are detailed below.

Copies of all of the presentations from the POPs sessions are given in Annex 5. Two other documents are also given in this Annex: (i) a 2-page summary of the key provisions of the Convention, and (ii) a longer summary of the major provisions of the Convention. These were produced during the workshop in response to participant requests.

4.1 Introduction to and Description of the POPs Convention

These presentations were intended to provide delegates with an overview of the POPs convention and possible POPs issues in the region. This included descriptions of the process for international negotiations, key elements of the Convention, and UNEP's immediate actions under GC decision 19/13C. The session concluded with an open discussion of possible barriers to signing the POPs convention.

The presentations given in this session were as follows:

- John Whitelaw, UNEP Chemicals: The International Negotiating Committee Process - "The Road to Stockholm"
- Alwin Kool, UNEP Chemicals: UNEP's Immediate Actions to Reduce/Eliminate Releases of POPs
- Bruce Graham; SPREP: GEF Projects on Persistent Toxic Substances
- Bill Aalbersberg, University of the South Pacific: Survey of Publications on POPs Occurrence in the Pacific Region.

4.2 POPs Pesticides and Alternatives

An introductory presentation on current uses of POPs pesticides and alternatives to POPs pesticides set the scene for this session, and was followed by a series of expert presentations on relevant topics. The presentations are listed below:

- Alwin Kool, UNEP Chemicals: Uses of and Alternatives to POPs Pesticides & Activities Aiming at the Promotion of Alternatives to POPs Pesticides.
- Bruno Pinese, Queensland Horticulture Institute: Integrated Pest Management
- Scott Ritchie, Queensland Health: Integrated Vector Management (copy not available)
- Peter Meadows, Peter Meadows Consulting Ltd: Termites – a Quick Guide to Control Options
- Bill Murray, FAO: Management of POPs Stockpiles

4.3 POPs By-products and Industrial Chemicals

This session started with three presentations, as follows:

- John Whitelaw, UNEP Chemicals: Dioxins and Furans – Overall Status
- Bruce Graham, SPREP: Dioxin/Furan Emission Inventories and Management Plans
- Boyne Drummond, Tredi New Zealand Ltd: Polychlorinated Biphenyls

These presentations were intended to highlight specific examples of industrial and by-product POPs in the region and to provide delegates with information on the general concepts of environmentally sound management.

4.4 POPs Feed-back and Planning Session

Four break out groups were formed after each of the two main POPs sessions, to discuss country and regional issues. These discussions were then used to identify country needs related to: the use of POPs pesticides and identification of alternatives relevant to Pacific Island Countries; and the management and control of industrial POPs and POPs by-products.

A final POPs session was held in plenary to consider the Working Group reports, followed by further discussion of national and regional needs. This resulted in the following list, which is presented in priority order, as determined by the Pacific Islands delegates, ie. the first being identified as the greatest need.

Needs	Comments
Monitoring, survey and inventories (baseline information)	Monitoring in humans (blood and milk) as well as for food (local and imported), water and the environment. Also a need was identified for having standard test methods and criteria for a consistent interpretation, and access to research and laboratory facilities.
Legislation framework and enforcement	It was noted that the legislation framework would be ineffective without enforcement. There is also a direct link to the need for adequate resources.
Awareness	Public Awareness as well as Political Awareness should be given priority
Human resource management	Emphasis was given to training and succession planning
Resources	Both the cost of meeting priority needs and the human resource aspects were highlighted
Stockpiles and on site remediation	Management, i.e. prevention, safe storage and environmental sound disposal,
Information management & sharing	Information on Hazards, information on alternatives to POPs pesticides (including cost effectiveness aspects), information on best available technologies (BAT). Sharing information within the regions, including Australia and New Zealand.

The highest importance was given to the need for baseline information on the occurrence of POPs in the Pacific. This information is needed to assist governments to make sound decisions for chemical management. It was also noted that without a sound legislation and enforcement framework the other priorities are difficult to implement. In addition, however, many of the high priority needs are inextricably linked to others that were given lower priority. For example, legislation and enforcement are difficult to implement without adequate resources and a well-designed awareness-raising programme. There is an overall need for an integrated process rather than a step by step activity.

5. Rotterdam Convention

This section of the programme followed a similar format to that for POPs, with introductory presentations by the Rotterdam Convention Secretariat, expert presentations and group discussions. At least eight of the participating countries (*Australia, Cook Islands, Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu*) have nominated Designated National Authorities (DNAs) and were therefore expected to be in a position to contribute directly to the discussions. These participants were also distributed around the Working Groups, so as to ensure a balance of inputs from those with and without experience.

Copies of all of the presentations are given in Annex 6. Also included is a 2-page summary of the key provisions of the Rotterdam Convention. This was produced during the meeting by the Interim Secretariat to the Rotterdam Convention, in response to participant requests.

5.1 Introduction to and Description of the Rotterdam Convention and the Interim PIC Procedure

This session was lead by the representative from the Interim Secretariat to the Rotterdam Convention (Mr Bill Murray) who gave two presentations as follows:

- an overview of the Rotterdam Convention, the purpose and key features a description of the Interim PIC Procedure and an outline of the potential benefits
- the type of information available under the Convention and the documentation associated with its operation with particular attention to the PIC Circular, Decision Guidance Documents (DGDs) and the Importing Country Response form.

Both presentations were followed by discussion sessions, to provide an opportunity for participants to ask questions, and to identify concerns and/or issues.

5.2 The Interim PIC Procedure at the Country Level

This session had the following objectives:

- To inform delegates of the role of the DNA, and of the status of implementation of the Rotterdam Convention and Interim PIC Procedure in the Region
- To set the stage for an initial discussion of issues concerning the management of chemical imports and implementation of the Interim PIC Procedure in the region.

There were two formal presentations as follows:

Bill Cable, Samoa: The Role and Functions of Designated National Authorities (DNAs) in the Operation of the PIC Procedure

- Ian Coleman, Australia: Status of Implementation of the Interim PIC Procedure in the South West Pacific Region.

The presentations were followed by an open discussion in which participants were asked to provide initial comments from their national perspective, on the challenges they face in ratifying the Rotterdam Convention or fully participating in the Interim PIC Procedure, as well as issues relating to control of imports of chemicals.

5.3 Implementation of the Interim PIC Procedure, Part 1

This session was intended to identify the challenges countries faced regarding the management of chemical imports, and implementation of the Interim PIC procedure. The following presentations were used as a starting point for discussions:

- Ian Coleman, Australia: National Perspective/Experience and Challenges regarding The Implementation of Prior Informed Consent (PIC)
- Moti Lal Autar, Fiji: Persistent Organic Pollutants and their Management in Fiji
- Bill Cable, Samoa: Samoa Perspective and Challenges of Rotterdam Convention

The presentations were followed by a panel discussion, which provided a further opportunity to explore the issues of particular relevance to the South Pacific region.

5.4 Implementation of the Interim PIC Procedure, Part 2

This was a Breakout Group session for discussion of the issues identified previously, with a view to:

- Possible identification of national and regional goals and needs
- Improving the status of implementation in the region
- Identification of the steps that might be needed to move countries towards ratification.

5.5 Implementation of the Interim PIC Procedure, Part 3

The presentations and ensuing discussion during Sessions 2 and 3 provided an opportunity to identify issues of concern by participants of the meeting. Four break out groups were formed to discuss the issues raised and to further consider the needs and challenges at the national and regional level.

These groups reported back in plenary during the final session on the Rotterdam Convention. The outcomes of their discussions are summarised below according to the main issues identified.

Identification of a Designated National Authority (DNA)

1. The meeting recognised the important role of the DNA in the operation of the interim PIC Procedure and the Rotterdam Convention.
2. The DNA should be at a sufficiently senior level so as to have the authority to make decisions regarding the import of chemicals. The need for one or more DNAs (one for chemicals and one for pesticides or one for both) as well as their location, was a function of the needs of individual governments.

3. Those countries that had not yet nominated a DNA were encouraged to do so. It was noted that in some countries there could be a need to amend existing legislation or develop new legislation in order to ensure that the DNA has the appropriate authority.
4. In order to facilitate the nomination of DNAs the Interim Secretariat to the Rotterdam Convention was requested to formally invite governments to do so. In order to facilitate this process a simple information document on the operation of the interim PIC Procedure/Rotterdam Convention should be developed.
5. The Secretariat and countries should make every effort to ensure that the information regarding the individual DNAs was kept up to date.

Management of Chemical Imports

6. Countries noted that while in many cases processes were in place to manage the import of pesticides, there was little infrastructure to ensure their safe use, the management of pesticide stores or where necessary their disposal.
7. In the case of industrial chemicals there was little or no infrastructure in place in any of the countries to manage their import or use.
8. The development and use of harmonised customs codes for chemicals subject to the Rotterdam Convention would facilitate the management of imports of both pesticides and industrial chemicals at the national level. Similarly there was a need for countries to ensure that Customs Officials are aware of the obligations of the interim PIC Procedure and the Rotterdam Convention and for coordination between Customs Officials and regulatory authorities. These needs could be addressed by including Customs Officials in the regulatory decision making process (e.g. membership of the Pesticide Registration Committee) and through training.

Implementation of the Interim PIC Procedure

9. It was noted that in many countries, including those already implementing the interim PIC Procedure, there was a need to improve or establish a national infrastructure for the management of industrial chemicals.
10. Those countries that were participating in the interim PIC Procedure were encouraged to share their experience in the implementation of the Procedure with those countries who had yet to nominate a DNA.
11. In many countries there was need for training/capacity building in chemical management in order for countries to make the best use of information available through the interim PIC Procedure/Rotterdam Convention.

Ratification of the Rotterdam Convention

12. The process for deciding whether or not to ratify an international legally binding agreement such as the Rotterdam Convention is complex. This process would be facilitated within the region if a document were available which provided a concise overview of the Rotterdam Convention including the relevant obligations and potential benefits to Parties.
13. Several countries raised concerns regarding their possible financial obligations as a result of ratifying the Convention. It was noted that this had not yet been finalised but it was anticipated that these obligations would be voluntary and follow the established United Nations scale of assessments.
14. A further concern was the limited human and financial resources available in many countries to implement/administer the Convention.
15. Countries noted the importance of ensuring the participation of countries in the sub-region at the first meeting of the Conference of Parties in order to maintain a distinct South West Pacific region under the Convention. In order to do so countries should give consideration to ratification of the Convention sooner rather than later.

Opportunities for Regional Cooperation

16. The Designated National Authorities in the countries of the sub-region could form a network for the exchange of information and to facilitate decision making at the national level. It was also noted that the access to DNAs in other countries with similar conditions was a further source of information regarding the operation of the interim PIC Procedure/Rotterdam Convention.

17. It was suggested that SPREP should review its role in the sub-region and give consideration to operating a clearinghouse for information on the Rotterdam Convention. This could include preparing information for distribution in the region for meetings related to the Rotterdam Convention such as the Conference of Parties and the Chemical Review Committee.

18. Similarly further consideration might be given to the possible role of Australia, the University of the South Pacific and the FAO, in the implementation of the Convention in the region.

6. Basel and Waigani Conventions

This part of the programme was divided into six separate sessions. The first four of these were based around formal presentations followed by round-table discussions. These were used to identify key issues for the region in terms of implementation of the Basel and Waigani Conventions, and hazardous waste management generally. The fifth session involved working group discussions, which were focussed specifically on a proposed strategy document for the region. This had been drafted prior to the meeting by one of the SPREP participants. This sixth session was then used to obtain final agreement on the content on this document in plenary.

Copies of the papers presented in this part of the workshop are given in Annex 7.

6.1 Basel Session 1: Introduction to the Conventions

This session was intended to assist the delegates in their understanding of the Basel and Waigani Conventions. The initial presentation was given by Mr Jacques Mougeot of SPREP, who described the general provisions of the Waigani Convention. Mr Ibrahim Shafii of the Secretariat of the Basel Convention (SBC) then spoke on the general obligations of Parties and recent developments under the Basel Convention.

The session concluded with a round table discussion, in which delegates were asked to speak on their experiences in moving towards ratifying the two Conventions, including identifying obstacles that may prevent ratification (eg resource limitations), possible solutions to these, and any other relevant issues.

6.2 Environmentally Sound Management of Hazardous Wastes under the Basel/Waigani Conventions

Two presentations were given in this session:

- Ibrahim Shafii, Secretariat of the Basel Convention: General Requirements for the Environmentally Sound Management of Hazardous Wastes under the Basel Convention
- Greg Rippon, Environment Australia: Requirements for the Environmentally Sound Management of Hazardous Wastes – An Australian Perspective.

- These were followed by a general discussion on issues relating to the practical management of hazardous wastes in the region.

6.3 The Transboundary Movement of Hazardous Wastes under the Basel/Waigani Conventions

This session was intended to provide an overview of the processes involved in the movement of hazardous wastes, and to raise awareness of the potential for illegal traffic and options for prevention. The discussion was based around the following three presentations:

- Ibrahim Shafii, SBC: Control Systems under the Basel Convention
- Greg Rippon, Environment Australia: Transboundary Movement of Hazardous Waste – Processes and Controls
- Boyne Drummond, Tredi New Zealand Ltd: Industry Experience in Transboundary Shipments

6.4 Waste Issues in the Region

Two talks were given by the Secretariat of the Basel Convention for this session:

- A general outline of the activities of the Regional Centres for Training and Technology Transfer to build the capacity of countries for the implementation of the Basel and Waigani Conventions.
- And a more specific discussion on how the centre might assist in addressing some of the specific South Pacific Country needs previously identified in earlier sessions (training; technology transfer; waste minimisation; information dissemination (eg NETLAP); promotion of awareness; establishment of a network within the region.

6.5 Country Needs for Ratification and Implementation

Sessions 5 and 6 were focused on a proposed activity plan for ratification and implementation of the Conventions within the region. This plan was initially discussed in working groups, on the basis of the issues identified in previous sessions. It was then finalised in a plenary session.

The final version of the activity plan is given in Annex 8. Several aspects of this plan could not be finalised at the meeting because they involve significant commitments of resources from Governments, from SPREP, and from the Basel Secretariat. It was agreed that SPREP would initiate further discussions on this document, and it would be submitted for final acceptance at a regional level, during the 12th SPREP Meeting, in September 2001.

7. Workshop Conclusion

The final wrap-up session of the workshop was aimed at identifying specific actions that needed to be taken by the participants and/or the various Secretariats, to further assist in-country promotion, and ultimately implementation, of the four Conventions within the South Pacific region.

As a starting point for discussion, three 1-page documents were produced, which summarised the key benefits of each of the Conventions, and indicated what actions should be taken next at a country level. These documents were discussed and modified in plenary, and a list of additional actions was also produced, mainly for activities required at the Secretariat level. This list is shown below and **should be seen as additional to those actions already identified in previous sections**. The 1-page summary sheets are given on the final three pages of this report.

Recommended Additional Actions

Action	Who
Report back to governments, with recommendations on ratification	Country delegates
Review regional role of SPREP in supporting country participation in international conventions (including during negotiations) and in facilitating communications between countries and the convention Secretariats (including regional network SIDS/SPC?).	SPREP plus member countries
Review distribution systems for convention information, etc (eg. CDROM vs internet)	Convention Secretariats
Consider development of a regional chemical safety information service and POPs monitoring capability.	SPREP/USP
Assistance with laws and regulations to implement conventions (as required)	SPREP, Secretariats
Prepare Desk File or Handbook for DNAs and Competent Authorities	Rotterdam and Basel Secretariats
Legal consultancy to review and advise on requirements for ratification	Secretariats ?
Letter to countries who do not have DNAs inviting them to nominate somebody, and letters to other countries requesting them to review and update DNA contact details	Rotterdam Secretariat
Look at training needs and modalities of the region	SPREP/USP/all

What will the POPs (Stockholm) Convention do for My Country?

- Reduce the levels of highly toxic and persistent chemicals which are currently entering our country through imported food, and in air and water (“international travellers without passports”)
- Completely remove some highly toxic POPs pesticides from local and international markets
- Reduce the current levels of unintentional POPs releases within the country (dioxins and furans, etc)
- Provide access to technical assistance which will upgrade our ability to manage POPs chemicals specifically, and hazardous chemicals generally
- Provide assistance for dealing with current stockpiles
- Place obligations on other countries to also take action on the management of these chemicals, which may be currently affecting us (through food, air, water).

Long Term Outcome

Reduced health and environmental risks from POPs chemicals through reductions of in-country discharges and reduced “global” exposures

What does my country need to do next?

- Consider high-level attendance at DipCon in May, and signing of the convention (Please respond formally to the invitation **soon!**)
- Assess what is needed to ratify and implement the convention
- Identify a lead agency for on-going participation in the POPs process and ensure appropriate resource allocations
- Seek assistance through UNEP Chemicals and GEF for capacity building and development of national implementation plans (including baseline assessment and inventories of sources), as appropriate

(Note: formal participation in POPs over the next 5 years will help to ensure that the Pacific region continues to receive appropriate recognition in the future operation of the convention).

Resource Requirements

Personnel: Legal/policy 0.1 FTE, Environmental Management 0.2 FTE ?

(FTE = Full-time equivalents)

Fees: not yet determined but probably similar to Basel

What will the PIC (Rotterdam) Convention do for My Country?

- Stops other (signatory) countries from exporting certain hazardous chemicals and severely hazardous pesticide formulations to my country
- Requires other (signatory) countries to advise us of exports of potentially hazardous chemicals, those that they have banned or severely restricted within their countries
- Provides information about hazardous chemicals and severely hazardous pesticide formulations that are causing concern in other countries
- Enforces 'safe-use' labelling requirements on imports of the above chemicals.
- Provides access to technical assistance from other Parties and the PIC Secretariat
- Prevents future stockpile problems (export controls on chemicals which are likely to be banned in future)
- Allows my country to share concerns that it may have about specific chemicals and severely hazardous pesticide formulations, ultimately leading to restrictions on the international trade of these chemicals, if those concerns are justified
- Requires developed countries to assist developing countries in aspects of chemical management
- Generally strengthens chemical management capabilities within the country

(**Note:** PIC currently deals with 26 pesticides (including 5 severely hazardous pesticide formulations) and 5 industrial chemicals. It is anticipated that there will be hundreds of chemicals subject to the Rotterdam Convention once the operational procedures are fully implemented.)

Long Term Outcome

Reduced health and environmental risks from hazardous chemicals through improved management systems and information flows and import restrictions/prohibitions on the most hazardous chemicals and severely hazardous pesticide formulations.

What does my country need to do next?

- Confirm or nominate a DNA and **formally** advise the Interim Secretariat
- Consider ratification of the convention
- Determine need for any legislation changes (eg. modification to the Pesticides Act), and request assistance from the Interim Secretariat or SPREP if necessary
- Draw up a list of duties for the DNA, with assistance from the Interim Secretariat or other PIC DNAs, as necessary
- Identify ways to improve inter-departmental cooperation in chemical management activities
- Investigate need for further training of DNA and other staff in chemicals management, including toxicology, risk assessments, etc, and identify funding sources
- Seek assistance through the Interim Secretariat for training of Customs Officers

(**Note:** formal participation in PIC over the next 1-3 years will help to ensure that the Pacific region continues to receive appropriate recognition in the future operation of the convention).

Resource Requirements

Personnel: Legal (2 months?), Administration (3 months to set up admin systems and then 0.2 FTE to operate?), education/awareness raising (0.2 FTE but reducing over time?)

(FTE = Full-time equivalents)

Fees: not yet determined but probably similar to Basel

What will the Basel/Waigani Conventions do for My Country?

- Prevent others from bringing hazardous waste into the country
- Facilitate the shipping of hazardous waste out of the country, and ensure that shipping and disposal are done properly (safely, no environmental effects)

Upgrade our management of hazardous waste through:

- Providing access to information and guidelines on best management and treatment/disposal practices
- Requiring proper waste management procedures (documentation, packaging, storage and disposal) both within the country and overseas
- Providing access to technical assistance and information from the convention Secretariats
- Provide access to liability/compensation provisions in the event of hazardous waste incidents (eg. spillages during shipping).
- Provides a global system of "Rules" for us to work to in managing waste
- Reduces the risk of mis-management of wastes by others

Long Term Outcome

Reduced waste production and reduced health and environmental risks from unsafe handling and disposal of hazardous wastes within my country.

Basel versus Waigani

- **Waigani includes radioactive wastes**
- Waigani will help to provide a regional "voice" within Basel
- Waigani provides proxy membership of Basel
- Membership of Basel should ensure greater access to Basel support services
- Resource requirements for two conventions will be much the same as one (two for the price of one)
- Waigani covers EEZ while Basel covers territorial waters

What does my country need to do next?

- Consider ratification of one or both conventions
- Determine need for any legislation (new or changes to existing), and obtain copies of model legislation from Secretariat to the Basel Convention
- Identify a Focal Point and Competent Authority, and formally notify the Secretariat.
- Competent Authority to work through the process of ratification and implementation. Seek training and other support from the Basel Secretariats, as required.

Resource Requirements

Personnel: Legal (3 months?), Administration (6 months to set up admin systems and then 0.2 FTE to operate?), education/awareness raising (0.2 FTE but reducing over time?)

Fees: Basel annual fees should be very small (US\$350) or zero. Waigani fees not yet decided by the Parties.

Annex 1: List of Participants

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Annex 2: Workshop Programme

Sub-regional Awareness Raising Workshop on the Prior Informed Consent (PIC) Procedure,
Persistent Organic Pollutants (POPs) and the Basel and Waigani Conventions
Cairns, Australia, 2-6 April 2001

Monday 2 April

08.00-9.00	Registration	
	OPENING SESSION	
09.00-10.30	Official opening of the meeting	Australia & UNEP
	Round table introduction of participants	
	Brief overview of chemical management activities in the Pacific region and the relevance of this workshop	Bruce W Graham, SPREP
10.30-11.00	Coffee	
11.00-12.30	Country presentations Status of chemical management activities – followed by open discussion – identification of issues	Bruce W Graham, SPREP
12.30-13.30	Lunch	
13.30-14.30	<u>POPs Session 1</u>	
	The International Negotiating Committee Process: “the road to Stockholm”	John Whitelaw, UNEP Chemicals
	UNEPs Immediate Actions to reduce/ eliminate release of POPs	Alwin Kool, UNEP Chemicals
	Survey of Publications on POPs occurrence in the Pacific region	Bill Aarlbersberg, USP, Suva
14.30. 15.00	<u>POPs Session 2</u> POPs Pesticides and Alternatives Presentation on current uses of POPs Pesticides, alternatives to POPs Pesticides and activities aiming at promoting alternatives to POPs Pesticides	Alwin Kool, UNEP Chemicals
15.00-15.30	Tea	
15.30-17.30	<u>Continuation POPs Session 2</u>	
	Panel presentations on Alternatives to POPs Pesticides and Obsolete Stockpiles of POPs, followed by open-floor discussions:	Facilitator: Bill Aarlbersberg, USP Suva, Fiji
	• IPM • Stockpiles • Termite control • IVM/ Malaria control	Bruno Pinese, Queensland Horticulture Institute Bill Murray, FAO Peter Meadows, Consultant Scott Ritchie, Tropical Public Health Unit
18.30-20.00	Welcome function	

Tuesday 3 April

9.00-10.30	POPs Session 3: Break-out groups on POPs Pesticides Break-out group discussions on country needs regarding POPs pesticides – each group to be facilitated by one of the experts from the above panel	Working groups
10.30-11.00	Coffee	
11.00-12.45	POPs Session 4: POPs By-products and Industrial Chemicals Presentation on activities aimed at the reduction of releases and use of Dioxins/Furans and PCBs Panel presentations on aspects of Dioxin/Furans and PCBs management and control, followed by open-floor discussions: • Dioxin/Furans emissions inventory & Dioxin/Furans management plans • PCB replacement and disposal	John Whitelaw, UNEP Chemicals Facilitator: Bill Aarlbjerg, USP Suva, Fiji Bruce W Graham, SPREP Boyne Drummond, TREDI New Zealand Ltd
12.45-13.45	Lunch	
13.45-15.00	POPs Session 5: Break-out groups on By-products and Industrial Chemicals Break-out group discussions on country needs regarding POPs by-products and Industrial chemicals – each group to be facilitated by one of the experts from the above panel	Working groups
15.00-15.30	Tea	
15.30-17.00	POPs Session 6: Feed back and Planning Session Working groups reporting back to plenary: • POPs pesticides, dioxins & furans and PCBs • Followed by an Open discussion – review of POPs sessions, identification of issues, and where to go from now, with a view to preparing a consolidated report for this section of the workshop and contribution to concluding session on Regional and National Action Plans for moving towards implementation of the Stockholm Convention • Possible identification of National and Regional goals and needs • Inventories, national plans and what assistance will be given in preparing for these • What steps might be needed to move countries towards ratification	Working group chairs Facilitator: Bruce W Graham, SPREP

Wednesday 4 April**9.00-10.30****PIC Session 1**

Introduction and description of the Rotterdam Convention

- Operation of the Interim PIC procedure

Bill Murray, Interim Secretariat for the Rotterdam Convention

Overview of the information available and documentation for the operation of the PIC Procedure

10.30-11.00

Coffee

11.30-12.30**PIC Session 2:****The Interim PIC Procedure at the Country level**

Role/functions of designated national authorities (DNAs) in the operation of the PIC Procedure.

Introduction: Bill Murray:
Bill Cable, Samoa

Status of Implementation in the Region

Ian Coleman, Department of Health & Aged Care, Australia

Open discussion/round table.

- Initial comments/national perspectives on managing imports of chemicals and implementing the Interim PIC Procedure.

Brief review/summary of issues raised

Facilitator: Lesley Dowling,
Environment Australia

12.30-13.30

Lunch

13.30-15.00**PIC Session 3****Implementation of the Interim PIC Procedure Part 1 -Experience in the Region**

Country presentations:

National perspectives/experience and challenges regarding the Implementation of the Interim PIC Procedure

Introduction: Bill Murray

Australia, Fiji, Samoa

Panel discussion:

Australia, Fiji, Samoa, SPREP, PIC, Secretariat

Brief review/summary of issues raised regarding managing chemical imports and implementation of the Interim PIC Procedure.

Facilitator: Lesley Dowling,
Environment Australia

15.00-15.30

Tea

15.30-17.00

PIC Session 4:

Implementation of the Interim PIC Procedure Part 2

Facilitator: Bill Murray

- Identification of country needs

Brief introduction/overview of issues

Breakout group discussion of issues with a view to:

- possible identification of national and regional goals and needs
- improving status of implementation in the region
- what steps might be needed to move countries towards ratification
- Each group to be facilitated by a DNA or ICRC expert

Breakout Groups

Thursday 5 April

19.00-10.30

PIC Session 5:

Implementation of the Interim PIC Procedure Part 3

Facilitator: Bill Murray

Where to go from here

Breakout Group facilitators report back to plenary

Breakout Group Facilitators

Open discussion – consideration of Breakout Group reports with a view to preparing a consolidated report for this section of the workshop and contribution to concluding session on Regional and national action plans for moving towards implementation of the Rotterdam convention.

10.30-11.00

Coffee

11.00-12.30

Basel Session 1

Introduction to and description of the Waigani Convention

Jacques Mougeot, SPREP

Introduction to and description of the Basel Convention

Ibrahim Shafii, Secretariat for the
Basel Convention

Round table discussion on:

Problems in the South Pacific and progress to date in addressing them. (Delegates will be asked to provide comments from their national perspective, on problems with ratification and implementation).

Jacques Mougeot, SPREP

12.30-13.30

Lunch

13,30,15,00

Basel Session 2

Environmentally Sound Management of Hazardous Wastes under the Basel/Waigani Conventions

Facilitator: Jacques Mougeot, SPRE

- General requirements for the Environmentally Sound Management under the Basel Convention
- Australian experience

Ibrahim Shafii, Basel Convention
Secretariat
Greg Rippon, Environment Australia

15.00-15.30	Followed by general discussion on issues relating to the practical management of hazardous wastes Tea	Open round table
15.30-17.00	<u>Basel Session 3</u> The Transboundary Movement of Hazardous Wastes under the Basel/Waigani Conventions - Control system under the Basel Convention - Australian experience - Waste disposal operator - Followed by general discussion	Facilitator: Ibrahim Shafii, Basel Convention Secretariat Ibrahim Shafii, Basel Convention Greg Rippon, Environment Australia Boyne Drummond, TREDI Open round table
Friday 6 April		
9.00-10.00	<u>Basel Session 4</u> Waste issues in the Region Review of issues raised and how the Secretariat to the Basel Convention might assist (eg through the Regional Centres for Training and Technology Transfer)	Ibrahim Shafii, Basel Convention Secretariat
10.00-10.30	<u>Basel Session 5</u> Country needs for Ratification and Implementation Break out groups to discuss possible actions and identification of country needs in moving towards ratification and then implementation of the Basel and Waigani conventions	Facilitator: Greg Rippon, Environment Australia
10.30-11.00	Coffee	
11.00-12.30	<u>Continuation of Basel Session 5</u>	
12.30-13.30	Lunch	
13.30-13.45	<u>Basel Session 6</u> Break-out group report back Session	Facilitator: Jacques Mougeot, SPREP
13.45-16.30	<u>Workshop Conclusion- Action Plans</u> Regional and national action plans for moving towards implementation of the Basel, Waigani, Rotterdam and POPs conventions	Facilitator: Bruce W Graham, SPREP
16.30-17.00	<u>Concluding remarks and Closure</u> Procedure for completing the meeting report and Evaluation of the Workshop	John Whitelaw, UNEP Chemicals

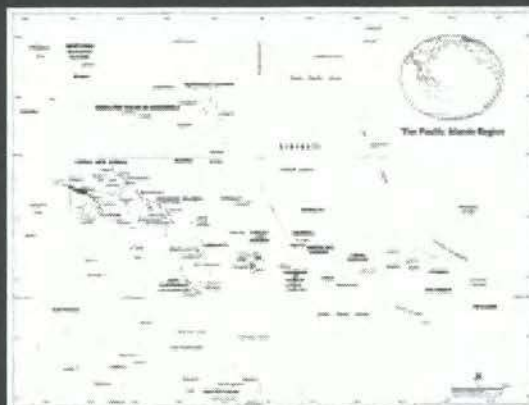
Annex 3: Overview of Chemical Management Activities in the Pacific Region

Chemical Management Activities in the South Pacific

Dr Bruce W Graham

Coordinator - Waste Management & Pollution
Prevention, SPREP

South Pacific Regional Environment Programme



14 Independent States
3 US territories
3 French territories
+ Tokelau, Pitcairn Is

Regional Activities in Chemical Management

- National Chemical Profiles
- Persistent Organic Pollutants in Pacific Island Countries (POPs in PICs) Project
- HazWaste (hazardous waste management strategies)
- Persistent Toxic Substances (PTS), assessment and management (2 GEF projects)

National Chemical Profile - Purpose

- Assess the current state of knowledge and information about chemical use
- Review current management systems
- Identify current information and management gaps, and actions to address these

Key Contents of a National Profile

- General country information
- Chemical production, import, export & use
- Legal/regulatory infrastructure
- Responsible agencies
- Technical infrastructure
- Current issues and proposed actions

Progress on National Profiles

- Completed Profiles:

Vanuatu, Kiribati

Tonga, Papua New Guinea

- Partial:

Cook Islands, Samoa

Issues for Chemical Management

- Chemical management has been a low priority for most PICs, but there is increasing awareness of the need for action
- Poor coverage by laws and regulations
- Mixed and/or uncertain responsibilities amongst government agencies

POPs in PICs Project

- Funded by AusAID, for 13 PICs
- Phase I: Inventory of stockpiles and contaminated sites (1997-1999)
In-country training in chemical & waste management (2000-2001)
- Phase II: PCB and POPs disposal
(start date: June 2001, 3 yrs)

PIC Stockpiles (1998)

- Transformer oil (PCBs), 130 tonnes
- Mixed pesticides, 53 tonnes
- DDT, 10 tonnes
- Timber treatment chemicals, 11 tonnes
- Old bitumen, 330 tonnes

Contaminated Sites

- PCB contamination - 3
- Buried pesticides - 5
- Pesticide storage sites - 13
- Timber treatment sites - 4
- Oil contamination - 30

PCB Disposal Operation

(POPs in PICs, phase II, 2001-2004)

- 12 Pacific island countries
- 130 tonnes of oil, 500 transformers, plus site clean-ups
- Government agreements required under Basel Convention
- Disposal in Australia (plasma burner)
- Start date - June 2001 ?

Other Stockpiles and Sites

Non-POPs Pesticides

Timber treatment sites

Oil contaminated sites

Waste Bitumen

Funding still required for all of the above

Training Courses

- In-country workshops on management of hazardous materials and hazardous wastes
- 13 PICS, Oct 2000 - March 2001
- Presented by Golder Associates under contract to SPREP

Common Issues/Actions Identified in the Workshops

- Need for more specific laws/regulation, and to address overlapping responsibilities
- Systems for import controls, chemical register
- Improve monitoring and enforcement
- Improved access to hazard information
- More training plus public awareness activities
- Need to ratify Basel/Waigani Conventions

Hazardous Waste Strategies

- Oct 1999 Workshop (Apia)
- Issues
 - lack of information on waste production
 - lack of expertise
 - lack of treatment facilities

Relevance of the Conventions

- **POPs** Capacity building for POPs management
Eventual elimination of POPs
- **PIC** Systems for chemical import control and
management, hazard assessments
- **Basel** Ratification will facilitate waste export
for disposal
Access to training and technical support

Annex 4: Country Presentations

Cook Islands

Introduction

This report is an update to the SPREP Report on the Management of POPs in the Pacific Island Countries.

Chemical Management in the Cook Islands

1.0 Legislations

Rarotonga Environment Act 1994-95 – Restricted to the capital only, Rarotonga - has a provision on the Prevention of Pollution including chemical pollution. This provision only applies to the end of the life cycle of pollutants or chemicals.

Environment Act 2000 – the above bill has been reviewed and public consultations undertaken and anticipated to be passed through Parliament in its next session, this April 2001 or at least before the end of this financial year. There is an opportunity for the Management of Chemicals, Hazardous Materials and wastes to be regulated under this national act. The jurisdiction of this Act shall extend to the rest of the Cook Islands.

Pesticides Act 1987 – administered by the Ministry of Agriculture and requires the establishment of a Board to register and manage the importation of Pesticides. The Board has not been operating since the Cook Islands went through economic reform in 1996. It is still a valid mechanism for monitoring imports of pesticides.

2.0 Waigani Convention

The Cook Islands ratified the Waigani Convention in 2000 and the Environment Service (National Focal Point) have begun preparing for the implementation of some of the obligations under this Convention, while awaiting for its entering into force.

3.0 Current Activities

February 2001 – National Workshop on the “Effective Management of Hazardous Materials, Hazardous Wastes and Contaminated Sites”

ADB Infrastructure Project: Landfill for Rarotonga and Aitutaki – Almost signed and ready to begin by August 2001 but there is no particular attention to the disposal of Hazardous Wastes.

Stockpile – The Environment Service is still continuing with its stockpiling of chemicals and batteries. Need more storage areas or containers. Stockpile of phostoxin and other pesticides with the Agriculture Research Centre requires urgent attention as storage space is being considered for other uses.

Education & Awareness – an ongoing program for the Environment Service for awareness on proper disposal, while Ministry of Agriculture through its extension program works with the farmers on the proper use of chemicals and pesticides. The Environment Service in conjunction with the Ministry of Education has declared year 2001 as the “Year of Waste”. This is aimed at raising awareness on waste minimisation and in preparation for the full operation of the ADB Landfill.

Organic Farming – an emerging trend that the Ministry of Agriculture is now supporting thus reducing the use of chemicals

Composting – Ministry of Agriculture has a program to encourage composting for home gardens

Integrated Pest Management – The Ministry of Agriculture carried out training last year in this area and to assist organic farmers.

Oil Recycling – as a result of the National Workshop the Mobil Company has agreed to collect and recycle waste oil.

4.0 Outstanding Issues

Stockpile – The stockpiles have been there since 1996-97 and there is concern for the space and management of those stockpiles. There is always the need to 'get rid' of it and the sooner the better.

Household Chemicals – there is no emphasis placed on the concerns of household chemical wastes, and for the normal households, this area is more significant; ie. head lice cure fumes very toxic and could be harmful to children.

Public Awareness – this need to be carried out continuously and funding is usually a concern.

Conclusion

The Cook Islands look forward to Phase 2 of the POPs in PICs program and would be grateful for any earlier assistance especially in the removal of pesticides, fertilisers and batteries stockpiles.

Introduction

In 1992, the State of Environmental Report revealed that industrial pollution was an emerging issue for Fiji. Fiji like other Pacific Island countries is facing difficulty in managing its industrial chemicals and pesticides. There are stockpiles of obsolete pesticides, waste oil, industrial chemicals and heavy metals accumulated over the years which pose serious health and ecological threats, ground water contamination, leaching and other types of pollution. These pesticides were received as part of the aid designed to improve agricultural productivity particularly for banana and rice sector. These agencies had good intentions and supplied large amounts of pesticides with little regard for actual need. In some cases the stockpiles increased when the agricultural projects were abandoned leaving behind large quantities of pesticides. Fiji neither has the capacity nor the capability to dispose these hazardous wastes in an environmentally sound manner.

Sources of Information on chemical wastes

There are several sources that indicate the seriousness of the problem in Fiji. These are:

- SPREP Pre-feasibility Report on the management of POPs.
- Compiled inventory of obsolete pesticides from the various Agricultural Research Station around Fiji that awaits disposal
- Industries contacting the Department of Environment on the disposal of chemical
- Media reports on contamination and fish kills
- Research undertaken by the University of the South Pacific.
- Direct discharge of industrial waste in the waterways eg. CCA from the timber treatment plants.

Seeking Solutions

- The roles and responsibilities of different ministries in chemical management was analysed and it was evident that no single institution is responsible for chemical management. A four member committee made up of Ministry of Labour, Ministry of Agriculture, Ministry of Health and the Department of Environment is established to discuss pertinent issues in regards to chemical management in a holistic manner and to pool resources .
- A database on different types of industries operating in Fiji is complete and a sum of \$10,000 was received from the BP Oil to further complete the database by including information such as chemicals used, nature of wastes or by-products produced by each industry. The idea is to develop a national chemical profile for Fiji.
- Fiji participated in the INC 5 meeting on POPs in Johannesburg to understand the scope of the convention, Fiji's obligations under this Convention and types of technical and financial assistance to meet the obligation.
- A Cabinet paper on signing the Stockholm Convention was circulated to the relevant ministries for their comments as part of the consultative process before it goes to the cabinet.
- Fiji has signed and ratified Waigani Convention in 1996 and it is still waiting for the regional treaty to come into force. Should there be further delays then Fiji will consider signing Basel Convention.

Challenges

The regulatory control on pesticides are in place, however the same cannot be said for the industrial chemicals. The challenge now for Fiji is to establish a management system for all chemicals that are imported. It also has to ensure that in future there is no build up of the stockpiles, however for now the biggest challenge is to dispose stockpiles of obsolete pesticides safely.

Conclusion

From Fiji's perspective it is not easy to clean up the contaminated sites nor to dispose obsolete chemicals. We need financial and technical assistance to dispose these chemicals safely. At this stage all efforts are being directed towards solving this problem. It is however felt that there is a need to have an access to an alternative chemical waste disposal systems in the region.

Federated States of Micronesia

Introduction

The Federated States of Micronesia (FSM) is an independent nation, created from part of the former United Nations Trust Territory of the Pacific Islands (TTPI), and became self-governing in 1986, following the signing of the Compact of Free Association with the United States. There are four federated states within the FSM: Yap, Chuuk, Pohnpei and Kosrae with a population of approximately 107,000. FSM consists of 607 high volcanic islands, low-lying coral islands and atolls with a total land area of 270.9 square miles, extending over more than one million square miles of the Pacific Ocean. The climate is tropical with relatively uniform temperatures throughout the year (average 80 °F or 25 °C). Most islands have pronounced wet and dry seasons with an average rainfall varying from 110 inches (2,794 mm) in Yap to 180-330 inches (4,572- 8,382 mm) in Pohnpei.

Rotterdam Convention

FSM is currently not a party to the Rotterdam Convention, which was established to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment. FSM also does not have a Designated Competent Authority yet to facilitate information exchange, notifications, etc in relation to trade in certain hazardous chemicals. Thus, we have no experience with implementation of obligations set out by the convention. However, FSM recognizes the Prior Informed Consent Procedure as a very important tool for the prevention of importation of hazardous chemicals that are severely restricted or banned in international trade or in the exporting country.

Persistent Organic Pollutants

The recent assessment by SPREP indicated that FSM has stockpile of persistent organic pollutants. It includes PCBs and pesticides- DDT, chlordane, strychnine, carbamates and many unknowns- generated by the energy, agriculture and health sectors. The PCBs were used as dielectric fluids in transformers. The pesticides were mainly used for controlling of pests and unwanted species of plants and animals, including vectors of human or animal disease.

FSM currently does not have a system in place for the management of persistent organic pollutants or chemicals in general, however, several states have taken steps in minimizing their generation by banning their usage. Also, FSM has been participating in the negotiations of the INC for a legally binding instrument for certain persistent organic pollutants.

Basel Convention

FSM ratified the Basel Convention in 1996, however, it has not ratified the Ban Amendment and the Protocol on Liability and Compensation in the case of an accident. FSM has not implemented its obligations as set out by the convention, except for reporting of information in accordance with Articles 13 and 16.

The absence of legislation coupled with lack of capacity and frequent changes of both legal and technical staff continue to setback implementation of obligations set out by the convention.

Chemicals Management Situation in FSM

Chemicals delivered to retailers or end users are almost exclusively brought into the four ports of the FSM by cargo vessel. There is no chemical manufacturing industry and no research facilities in the country. Given the size of its chemicals inventory and the manner in which they arrive in the country, FSM should be able to manage its chemical imports closely, manage how they are stored properly and report reliably on their consumption, management and disposal of regulated chemicals.

However, the FSM currently has no mandatory or voluntary reporting of chemicals used, or produced annually, no consistent labeling requirements for imported pesticides and other chemicals and no established procedures for the safe storage or handling of chemicals. Because the law does not require inspections of incoming vessels, or contain sufficient administrative mechanisms to ensure that prohibited substances do not enter the FSM, the FSM has found itself a dumping ground for pesticides and other substances that have been banned or severely restricted from usage in more developed countries. Efforts that have been made to report on the presence or usage of certain chemicals have been ad hoc and made largely in response to external pressures. Similarly, efforts that have been made to correct unsafe chemical storage and handling practices have occurred with the motivation of individuals within the FSM who are concerned with chemicals safety.

There are also barriers to the development of an adequate chemicals management system in the FSM. FSM currently has no framework chemicals legislation. As a result, there is no legislative structure on which to append schedules of newly regulated chemicals or safety regulations as the FSM becomes party to international conventions that require legislative action for implementation. There is also no enforcement mechanism in place to require importers or end users to report their usage of regulated substances, and no authority under which to conduct inspections.

The only formal regulations that address chemicals management at the national level are pesticides regulations, which exist as subsidiary to the FSM Environmental Protection Act, enacted in 1984. These regulations were carried over from the TTPI Administration and are rarely enforced due to the difficulty in applying their cumbersome and outdated provisions, and they have not been tailored for application in the FSM.

A fragmentation of jurisdiction and responsibility exists between national and state entities over environment and health issues. Although ultimate responsibility for ensuring compliance with national standards and international conventions rests with the National Government, each of the four states of the FSM has a great deal of autonomy in developing legislation and programs in these areas. Increasing disharmony among developing State regulatory regimes, and between State and National laws, is likely to make compliance with international obligations increasingly difficult, as national legislation evolves to reflect international consensus.

Lack of communication between national governmental agencies that control potentially useful information for the regulation of chemical imports and appropriate chemicals management authorities; lack of sophistication in the private and public sectors with respect to the need for sound management of chemicals; lack of public awareness campaigns complicated by the number of languages in use across the FSM and the absence of a technical vocabulary in these languages; lack of trained capacity; and funding constraints contribute to inadequate management of chemicals in the FSM.

The fact that FSM's chemical inventory is small may pose some difficulty to generate enthusiasm for chemical safety issues among the public and in the private sector, and to gather the political will to support the drafting and passage of necessary legislation if such legislation will impose more burdens without visible results. On the other hand, increasing concerns on poorly managed stockpiles of chemicals in the FSM may enable a way forward on chemicals management, especially with being involved in the SPREP POPs Project and with the hope of being a pilot country for the GEF Project to Develop National Plans for the Management of POPs. Both projects are envisioned to assist FSM move forward on chemicals safety issues.

Kiribati

The Republic of Kiribati has very limited infrastructure and also lacks human resources for the control and management of hazardous chemicals. Chemicals management does not fall under one single body but rest under different Ministries and NGOs. The Ministry of Environment and Social Development in particular the Environment & Conservation Division is usually consulted for environmentally sound disposal methods or advisory directives for hazardous materials but due to lack of expertise in the field with resources being unavailable such materials are left unattended.

Fortunately Kiribati does not produce a great amount of chemicals or variety of hazardous materials and chemical waste due to the lack of industry. However there are still pollution problems with waste petroleum products from power plants, automobile shops, school laboratories, printeries and other chemicals.

The Environment Act 1999, which had recently been passed by Government, does not specifically deals with proper disposal of hazardous chemicals nor incorporate control measures on importation and exportation of chemicals. There are some existing regulatory frameworks (Ordinance Acts), which are generally public health and quarantine related rather than hazardous related.

Given the Environment and Conservation Division as an implementing body under the Act, development of regulations are currently underway with the assistance provided by Consultants under the Sanitation, Public Health & Environment Improvement Project (SAPHE). However, there are some difficulties now encountered with the implementation and enforcement of the Act particularly with the Pollution Control component.

Identifications of Issues:

- Lack of understanding of the effects of hazardous materials
- Lack of effective legislation to control the importation of toxic materials
- Uncertainty of responsibilities
- Unavailability of data for chemicals management
- No specific legislation refers to chemicals management and occupational and health safety
- Lack of trained personnel in Hazardous Waste Management
- Lack of protective/safety equipment
- Lack of appropriate technical expertise
- Lack of national capacity and infrastructure
- No method for sound disposal of hazardous materials

Possible Impediments to Improve Chemicals Management.

- Become party to the Waigani/PIC/Stockholm Conventions
- Government reliance on aid for environmental projects
- Hazardous Waste Management Legislation be developed
- Customs Act be reviewed to align with conventions related to chemicals management
- Infrastructure/equipment employed must be low technology due to maintenance problems
- Costs of training personnel in Hazardous materials/waste management

Recommendation

Having explained the above, Kiribati would like to request SPREP or other similar regional organisations and perhaps international bodies to assist with the implementation of recommendations derived from numerous previous reports and studies conducted in Kiribati related to hazardous chemicals, removal of obsolete stockpiles of chemicals and the development of a national hazardous waste management plan.

A lot of workshops/meetings have been conducted in the past with action plans and recommendations identified but the problems still exist. It is now time for action and we need to implement such action plans immediately without repeating what has been done.

Marshall Islands

Introduction

RMI is under the Compact of Free Association with the United States which is ending this year. The Government is in the process of re-negotiating its political status with the United States.

The population of the Marshall Islands is about 70, 000 with about two thirds reside in two of the urban centers of the country, Majuro and Ebeye. There are no or limited land based economic resource except for its marine resources.

There are no major industries except for the Tobolar Copra Processing Plant – it produces coconut oil, soaps and shampoos. Other plants responsible for chemical wastes include Tuna Packaging Plant and the Power Plant.

Environmental issues and concerns are prioritized topics in the renegotiation.

The issues of hazardous materials and wastes are undoubtedly one the major concerns of the islands in the region.

The remaining country report is an executive summary of the workshop that was conducted in the Marshalls during the week of April 19-26, 2001. Under SPREP contract, the Australian Golders Associates designed and delivered the workshop.

Three major Objectives:

1. To upgrade the RMI capacity for effective management of hazardous materials and hazardous wastes
2. To upgrade the RMI capacity for effective management of contaminated sites
3. To raise awareness in RMI communities of issues associated with the generation and management of hazardous wastes.

For the pre-workshop – no responses to the questionnaires distributed.

Participants identified were from government departments and agencies, 5 atoll local governments, private sectors and the college of the Marshall Islands.

The Ministry of Public Works and the Customs and Quarantine and the Fire Department were not represented.

Major Issues Identified:

- Bilge water discharge in the lagoon is uncontrolled.
- The status of the Basel and Waigani Conventions were not known.
- Car batteries disposed in an uncontrolled manner.
- Waste stream going into the landfill is unknown in terms of composition and volume.
- Plastic bags disposal is still uncontrolled and unmonitored.
- The proximity of the Uliga Elementary school to Mobil Terminal is a health hazard.
- Autoclaves at hospitals are inadequate and incinerator is not functional.
- Fire services are adequate

Updates from participants:

- Quantities of cyanide seized by sea patrol are stored in container.
- There are large quantities of old fertilizers stored at the Laura Agricultural Research Station.
- There is a large American bunker of unexploded ordinance located near the Majuro water reservoir that needs decommissioning.
- The discharge of bilge water is uncontrolled – there are no resources to enforce and control on discharges.
- There was a sludge stored at Mobil Terminal –has been removed but not know site of disposal.
- RMIEPA stockpiles car batteries and store in containers.
- RMIEPA needs assistance in identifying suitable disposal sources.

Evaluation Issues:

- Standards and Codes of practices not part of the RMI legislation.
- More details required on the status of the RMI in SPREP overall plan.
- Importation control on hazardous materials is difficult to execute as there are no or limited resources and legislation that enforceable.
- The status of hazardous wastes on Ebeye is not known and does not appear in the country report.

The following two tables (Table 1 & Table 2) summarizes major action plans and recommendations as reported by the working participants respectively.

Table 1.0 - Action Plan

Actions Identified	Ministry Responsible	Timeline	Status
Initiation of Bilge water disposal program	MOHE	Aug 2001	
Establish statutes of Basel and Waigani Convention	MOHE & MOFA	April, 01	
Initiate water recycling/collection program for car batteries	Public Works, MALGOV, & MOHE	Aug. 01	
Undertake a waste audit of Majuro	PW, MALGOV, and MOHE	Sept. 01	
Investigate options and prepare funding proposal for an incinerator of Majuro	MOHE & PW	Feb. 2002	
Initiate Plastic Bag Education Program	MOE & MOHE	May, 01	
Relocate Ulgia Elem. School and surrounding residents	MOE, MOHE, & Mobil	May, 01	
Prepare funding proposal for 2 large autoclaves for	Paul Lalita,	June, 01	

Majuro Hospital Medical wastes	MOHE		
Accept external expertise to remedy stock piling of wastes on Majuro	SPREP, others		

Table 2.0 - Recommendations:

RECOMMENDATION	MINISTRY RESPONSIBLE
Funding be provided for an in-country incinerator for municipal wastes	AusAid, Golder Associates and SPREP
The Basel and Waigani Signatures states should be procured from RMI government	RMI
Upgrade hospital medical waste management facilities (autoclaves)	SPREP
Relocate current hospital incinerator practices from hospital grounds	MOHE
Upgrade environmental legislation via amendment to current Acts to include adopted standards and codes of practices	MOHE
Reuse in-country survey to include Outer Islands especially Ebeye atoll responsibility.	MOHE, and Golders Associates

Additional Issues:

- Toxin or by-product produced by Copra processing oil need to be monitored; oils sold within the country must label the content and the amount of toxin produced.
- Roofing materials ordered into the country needs to be inspected for safety for use to collect rainwater.
- There needs to be continued monitoring of pesticides in the groundwater at Laura and at Delap Lenses.
- There also is a need to monitor for water collection at the runway for hydrocarbon residual from jet fuels after constant use of the runway.
- Allow the installation of an incineration plant owned by the Electric Company to allow incineration of used oil piling up on Majuro.

Conclusion

The RMI sees the attendance of the workshop as an opportunity to learn, probably for the first time, what are the Prior Informed Consent Procedure, the POPs, the Basel and the Waigani Convention. It will help give us a chance to update our country's commitment to our regional and international partnerships and relationships.

Nauru

National Profile:

Population – 9,919 (1992 Census)
Estimated current population of – 11,200.

GDP - \$4,500 AUD per capita (1996 figure)

Main Economic Activity – Phosphate Mining and Export.

Main Industries – Phosphate Mining and Private Business.

Government/Administration – The safe guard for environmental impact lies with the Department of Island Development and Industry (IDI). The Department has an environment officer who monitors and reports on any matters relating to environmental impact to the IDI Secretariat.

Technical Services – Technical services related to the management of primarily domestic waste is handled by the Nauru Phosphate Corporation, the Department of Works and previously the Nauru Island Council.

Environment – Nauru is an island 21 square kilometres or 8 square miles. It is situated 42 kilometres south of the equator and has a current population estimate at 11,200 people. The majority of the population is found to reside along the coastal fringe of the island, while the interior is uninhabitable land as a result of the phosphate mining. Due to the state of the interior of the island, it has become the dumping ground for many hazardous wastes, chemicals, domestic waste, and surgical waste from the hospitals.

Industry Profile:

Sectors - Nauru Phosphate Corporation

Location - Aiwo District.

Output - Total estimates of the Corporation's output were unavailable during the collation of this report.

Employment - Nauru Phosphate Corporation has local and specialised expatriate personnel who are on contract to work for the Corporation for the duration of usually two years, which is subject to renewal there after.

Negative Environmental Factors experienced due to Hazardous Waste Dumping and Disposal.

The hazardous waste that exists on Nauru is mainly a result of the being the primary products or by – products of Nauru's island industries. Cause for concern is warranted due to its improper disposal and storage.

Nauru has approximately 10 old transformers which have been dumped in the mined out phosphate areas in the central plateau also estimated to have at least 5000 litres of PCB each. The dumping of these transformers in such a place, though far from the densely populated areas, is still subject to human exposure due to Nauruans regularly venturing to the central plateau in search of "local" food such as noddy birds, mangoes, beans and almonds. Another concern is seepage of PCBs into groundwater lens which is a relied upon water source for domestic purposes.

The contamination of the sea as a result of hazardous waste dumping is also evident due to sewage pipes being built to discharge directly into the sea. Damage to the reef is also evident as a result of spillages and run –off from the various oil storage areas and vehicle workshops allowing their waste oil to discharge on the surrounding land or into the sea.

Medical waste from the hospitals also poses a threat to Nauruans as a result of its improper disposal. Waste from the hospitals is simply dumped at the tip site and incinerated. Once burned the remaining waste is buried regardless of its state of incineration. i.e. fully incinerated or not.

More detail of storage and management of hazardous waste practices in Nauru is covered under section 4.

Main Types and Quantities of Important Hazardous Waste in the Country:

There are 4 main oil products used on Nauru which are imported through the Nauru Phosphate Corporation bulk oil facility. Their approximate usage is as follows:

Petrol	8 tonnes/day
Avgas	8 tonnes/day
Diesel	35 tonnes/day
Heavy Fuel Oil	50 – 100 tonnes/day.

Lubrication oils and transformer oils are imported in drums. Their consumption is approximately 200 drums/month and 2 drums/year, respectively.

PCB's are no longer imported or used in Nauru. Though this may be the case, the 1998 POP's in PIC's survey showed that there are PCB's present in some of the old transformers stored in the No.2 Bin, and elsewhere around the island.

The main sources of waste oil on the island, and current disposal practices are as follows:

Power station engine oil (100 drums/month) – mixed with HFO and burned in the N.P.C. dryers.

Power station cooling water – no oil discharge.

N.P.C. workshops – collected in drums and disposed of at the dump.

Ships and boats – unknown.

Spillages and run – off (power station, oil storage areas, vehicle workshops) – some collected but most is allowed to discharge on the surrounding land.

Bulk oil terminal – tank drainage is passed through interceptors, with the recovered oil being collected and burned in the N.P.C. dryers.

Domestic sources – unknown.

Ship ballast water (may be contaminated with oil) – harbour discharge.

Medical waste – taken to dump where it is incinerated and buried.

Sewage – a pipe runs directly out to the sea, which pumps the raw sewage into the ocean. All houses have sewage pits, which are regularly emptied by sewage tankers.

There is also known to be a significant area of below – ground oil contamination in Aiwo District, in the area used for oil storage during the war.

(Figures taken from Survey done on the 1st September , 1999 by Dr B.Graham)

Extent of Current Treatment, Recycling or Disposal Facilities:

Current disposal method is by burning in the N.P.C. dryers. Domestic waste is either incinerated or buried on site at the dump. To date, no treatment facility exists on the island for its hazardous waste. The recycle of rubbish such as aluminum cans was previously undertaken by the Nauru Island Council. Since its dissolution by the Nauru Government, no one has taken the initiative to continue the Council's work.

Extent of Infrastructure and Services Already Available

The Nauru Phosphate Corporation's fire department in conjunction with their tank farm storage personnel are the only service to deal with hazardous chemical leaks and emergency clean ups, should the situation arise.

Current Systems of Policies, Laws and Regulations to Reduce and Control Pollution, Solid Waste Disposal , and Hazardous Waste Chemicals

To date, there is no legislation or law to regulate and police the storage, treatment or disposal of hazardous waste on Nauru. The only form of legislation that exists is the 1983 litter act, which prohibits the dumping of rubbish in public areas, answerable to a fine of \$300 AUD. The secretary for Justice is in the process of drafting an environment bill which will for the first time, give Nauru some guide lines and regulations to enforce in relation to the preservation of its remaining environment.

Which Organisations Have the Responsibility for:

Pollution: **IED**

Solid Waste: **IED & NPC**

Hazardous Waste: **IED & NPC**

Toxic Chemicals: **IED & NPC**

Industry Permits: **IED and Department of Justice.**

Auto shops/Paint shops: **NPC, Works Department and IED**

Export/Import of Waste and Chemical Pesticides: **NPC & IED**

Environmental Monitoring: **IED**

Industrial Training: **NPC & IED**

Clean Technologies: **NON - EXISTANT**

Hazardous Materials Emergency Response: **NPC**

Assistance is Needed to Upgrade or Improve your Hazardous Waste Management System:

Though a system already exists for bulk oil collection. Better education and training programmes need to be provided for better treatment and storage. Private sector business and industry need to be targeted also. Vehicle workshops need to create some form of catchment system for their oil run off and spillages.

Public awareness of the dangers and risks of hazardous waste needs to be increased. Media campaigns via print and television need to be adopted in helping to achieve this.

Assistance in relation to viable options available for dealing with medical waste on Nauru due to the lack of an adequate treatment facility. E.g. Autoclave.

Rather than burning the waste, maybe assistance could be given in providing a tanker to actually transport the oil to a treatment facility where it can be recycled and shipped back for re – use. In the case of medical waste, shipped off and disposed of appropriately.

Political awareness of hazardous waste – without endorsement from government, any project related to the management and disposal of hazardous waste will be fighting an “up – hill” battle. Assistance also needs to be rendered in relation to looking at feasible options for sewage treatment and disposal. Due to the lack of qualified personnel in the various fields stated above. Nauru would be most grateful and very appreciative of SPREP’s assistance in providing a resolution to our hazardous waste problems for the betterment of the nation and the region also.

Further recommendations derived from In-Country Hazardous Waste Workshop 2001

Major Issues identified

Inadequate environmental, occupational health and safety and regulated waste legislation and regulations;

Inadequate training of specialized personnel in hazardous material and waste management handling/storage;

A **lack of public awareness** of environmental issues;

A **lack of public awareness** of hazardous waste, domestic waste and imported materials that may be detrimental to the environment;

A **lack of internal and external funding** for waste management initiatives and training;

A lack of funding for **youth education initiatives** and programs regarding environmental and waste management issues;

Inadequate internal and external funding for **technical equipment and training**;

The need for a detailed hazard **assessment of cadmium slimes**

Investigation of a possible **historical diesel spill under the old fuel stores**.

Niue

As of the period of 2000-2001 Niue has developed a National Waste Management Plan with the assistance of a Waste Management Advisor from Australia working with the Waste Management Committee. In this Plan Hazardous Waste Management activities were identified; waste audit, waste oil (includes oil filters), vehicle batteries (other batteries- dry cell in torches), Agricultural chemicals, other chemicals, hospital waste and asbestos waste.

This report will focus specifically on the current status of chemical management in the areas of Agricultural, Health and other users of chemicals.

Agricultural chemicals

In the Past there was a common practice to stockpile agricultural chemicals such as fertilizers and pesticides. This practice has resulted in old stockpiles remaining in poor storage facilities with no immediate plan as to what action to take next. Presumably, we are awaiting assistance from SPREP for disposal.

Other users of chemicals

This refers to the High School laboratory chemicals and photographic chemicals. The activity involved collection, storage and disposal of small quantities. This activity was carried out just recently.

Health wastes

This specifically focused on the expired drugs and chemicals as covered by SPREP's POP's in PIC's program in 1998. It was decided that instead of waiting for action from SPREP, these drugs and chemicals would be disposed of. The chemicals have now been disposed and in a short time the drugs will proceed the same way.

Other chemicals that need disposal will remain in storage till more is known from SPREP.

Other activities

Other activities include action plan developed from the hazardous substances workshop. Part of this action plan was to hold a meeting addressing the need for the Pesticide Committee to be revived. This meeting resolved to disbanding the Pesticide Committee and forming a new Committee to be known as the Pesticide and Hazardous Substances Committee. A discussion paper has been sent to cabinet for consideration of formation of this Committee. Niue is now in the final stages of ratifying the Waigani convention.

PAPUA NEW GUINEA

CASE STUDY

BY

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PAPUA NEW GUINEA

Sub regional awareness raising workshop on Rotterdam, Persistent Organic Pollutants,
Basel and Waigani Conventions, Cairns, Australia, 02-06 April 2001

BACKGROUND

- PNG situated between latitudes 0-11° South of the Equator
- occupies the eastern half of the island of New Guinea together with the greater islands of the Bismack Archipelago and 600 smaller islands
- total land area is approx. 464,000 km²
- varying landforms
- two distinct seasons (wet/dry) - Northwest monsoons (December-March) and Southeastern monsoon (May-October)

2

- Max. temperature 30-32 °C, Min. temp 23°C but decreases with altitude (1500-2000m Max. 22-25°C and Min. 11-15°C and seasonal variations over the year)
- rainfall ranges from 2500 mm-4000 mm per annum
- high biodiversity
- natural resources include precious metals, natural gas, mineral oil, forest resources, agricultural crops and marine resources
- population approximately 4.6m people based on 1990 census and growth rate of 2.3%
- >80% of the population -rural dwelling
- >800 unique languages/cultures - English Official Language, Pidgin and Motu languages of communication

3

INSTITUTIONAL FRAMEWORK

PREVIOUS LEGISLATION (TRANSITIONAL STAGE)

- Environmental Planning Act 1978 (Chapter 360) (Repealed)
- Environmental Contaminants Act 1978 (as amended in 1994) (Chapter 368) (Repealed)
- Water Resources Act 1982 (Chapter 205) (Repealed)
- * The Environmental Contaminants Act-Principle Act for Environment Protection and Control of Hazardous Substances

4

THE NEW ENVIRONMENT REGULATORY FRAMEWORK

- The Environment Bill passed through parliament in November 2000
- NEW Environment Act -integrated the three former Acts
- an enabling Act
 - 3-tiered system for controlling projects - Level 1, 2 & 3
 - Catchment Management Concept
 - has provisions for the development of policies and regulations

5

THE NEW LEGISLATIVE FRAMEWORK (CONT'D)

- Some devolution of responsibilities to the Provinces

6

INTERNATIONAL CONVENTIONS/TREATIES

- PNG is party to a number of international environmental conventions/treaties

7

CURRENT SITUATION

BASEL CONVENTION

- PNG became Party to the Basel Convention
- Acceded in 1995
- Yet to domesticate into national law
- In 1997 applications for export of certain hazardous wastes were received by OEC but exportation did not proceed
- Between 1999-2001 more applications were received by OEC for the export of hazardous wastes (e.g waste batteries)

8

BASEL CONVENTION (CONT'D)

- No permitting system
- no database of hazardous waste/sources
- no monitoring/surveillance

9

WAIGANI CONVENTION

- PNG Party to the Waigani Convention
 - ratified convention
 - Request for exportation of radionuclides from tobacco processing factory
 - one incident - shipment of radioactive substances through the Pacific and PNG notified but no details of route, date or ship given
- (PNG aware that more countries need to become Parties for it's entry into force)

10

WAIGANI CONVENTION (cont'd)

- no Permitting system
- no database/inventory on radioactive materials in country
- no monitoring/surveillance
- NEC Policy submission drafted

11

ROTTERDAM CONVENTION

- PNG not yet a party to this convention
- PNG did not participate in the development (negotiation process) of the convention
- Not fully conversant with PIC procedures in the new arrangement
- PNG has implemented the Prior Informed Consent procedure on voluntary basis based on the previous arrangement

12

ROTTERDAM CONVENTION (CONT'D)

- PNG needs to study the Convention-lack of knowledge on process
- A number of notifications received from overseas organizations but no details are given as to the importers, dates or destinations. Therefore difficult to track down
- permitting system only for pesticides, none for industrial chemicals-currently facilitation in notification process
- no database/inventory
- no monitoring/surveillance
- lack information exchange mechanisms

13

PROPOSED CONVENTION ON PERSISTENT ORGANIC POLLUTANTS

- PNG involved to some extent in the negotiation process
- Participated in three Intergovernmental Negotiating Committee (INC) meetings so far
- This is the first subregional awareness workshop PNG has attended
- Preparations for NEC endorsement for Minister's signature in Stockholm, May 2001

14

POPS CONVENTION (cont'd)

- POPs use started since the 1950's/60's indiscriminately in agriculture, health, construction industry and for general pest control purposes
- DDT, heptachlor, chlordane (possibly others)
- 1990 Pesticide Committee banned the use of organochlorine pesticides in agriculture. DDT for vector control in the health sector and heptachlor for subterranean treatment of termites
- chemicals and their by-products in the environment and in human blood and tissues in the country

15

POPS CONVENTION (CONT'D)

- Current use of DDT in health for the control of malaria in the highlands region (highlands region accounts for most of PNG's population. People have no immunity against the disease)
- recent importation by WHO/Health Department for the importation of 20 tonnes of DDT for a 3-year programme in the highlands
- no proper mechanisms for monitoring of POPs chemicals from import to disposal
- no capacity for monitoring or analysing POPs

16

POPS CONVENTION (CONT'D)

- Alternatives available and used in other parts of the country but costly, low residual effect, etc
- Some stockpiles of obsolete PCB containing electrical equipment parts, PCB contaminated oils in the power industry and obsolete DDT stockpiles present in various locations
- a number of plastic manufacturers and PVC pipe manufacturers operating
- a number of landfill sites in the country where open burning is the common practice for waste destruction /backyard burning of all rubbish

17

POPS CONVENTION cont'd

- PNG does not have an inventory of all the POPs chemicals in the country (Recent survey by WHO consultant on DDT)
- PNG is yet to formulate a National Implementation Plan
- Preliminary surveys (1999/2000) in the major centres indicate that a lot of work is needed to establish an inventory and to formulate a National Implementation Plan

18

COUNTRY EFFORTS

- Submission to UNEP for GEF PTS project - Papua New Guinea selected as one of 12 pilot countries
- interagency technical working group for assessing country situation/needs (working towards establishing interstakeholder committee at higher level)
- Papua New Guinea's participation at IFCS (joint membership to Forum Steering Committee with Korea)
- DDT survey by WHO-request by OEC through Health Dept

19

EFFORTS CONT'D

- Environmental Steering Committee on Litter free Papua New Guinea (interstakeholder -Co chair OEC and Industry)

20

PROBLEMS ENCOUNTERED

- Lack of trained manpower/resources to undertake a full inventory of the hazardous chemicals in the country
- Industry slow to respond
- Information not readily available or not in usable forms
- Time limitation
- Financial limitations
- lack of knowledge/understanding by all stakeholders of chemical issues/risks/hazards
- lack infrastructure for destruction/testing

21

COUNTRY NEEDS

- Capacity Building/training in all areas of chemical management
- Signing/ratification of conventions
- Financial and Technical Assistance for
 1. Country needs assessment
 2. Inventory
 3. National Action/Implementation Plans
 4. Ready availability of cheap alternatives to POPs

22

NEEDS CONT'D

- Legislation in place but need review of Pesticides Regulation (1988) and draft Hazardous Substances Regulation under old act (to be consistent with new Act and relevant conventions)
- need registration system (s) for chemicals and waste exportation (Basel/Waigani)
- information exchange mechanisms need strengthening
- Public awareness and education

23

Chemical Management Activities

Identification of Issues in Samoa

- 12/95 IRPTC Workshop paper; later “Mini-profile to UNEP”
- 09/96 Waste Management Policy submitted to Hon. Minister of Lands, Surveys & Environment
- 96/97 UNITAR/IOMC National Profile Programme (NPP) request by PTC
 - SPREP presentation; DLSE Cabinet submission did not eventuate
- 10/00 IFCS Forum III Brazil participation by RoP
- 12/00 PTC again requests SPREP presentation on Profile
 - decides itself as focal point with RoP Coordinator
- 02/01 Effective Management of Hazardous Materials, H/Wastes & Contaminated Sites Training Workshop:
 - Waste Management Policy to Cabinet ca. 04/01
 - Working Group proposed – NPP?

Tuvalu

Brief Report on the Status of Chemical Management in Tuvalu.

Introduction

Tuvalu is not exceptional from the rest of the world in trying to find ways and solutions to solve the waste Problem. Tuvalu Waste Management Project, which is jointly funded by the Government of Tuvalu and AUSAID was set up late 1999 is now operating with the intension of solving most of the Waste problems that currently exist within the Country. One of its 5 components is the Management of Hazardous and Special Waste, which include POP's.

Objective

Safe Storage of Hazardous Chemicals until, they could be transported and Disposed safely.

Outputs & Activities

Output 1.

Designed and equipped a safe storage facility for Hazardous Waste.

Activities:

1. Construct a storage facility that complies with the following safety requirements.
 - a. Located in an area that is far and safe from cyclones or any other Natural Disasters.
 - b. Facility should be fenced and bunds be constructed to contain spills of stored Waste.
 - c. These waste will be stored until they could be safely disposed, therefore this area should be restricted to unauthorized personnel.
2. The above facility has been constructed, but could not meet the first safety requirement because there is no such area available on an Atoll Island. Cyclones will definitely affect all parts of the Island.
3. Collection and storage of these wastes by the project staffs with assistance from the public. The facility is operating at the moment, where the public got to bring all their chemical waste to the site. Project staffs will handle these wastes on site.

Output 2.

Raise public awareness and participation on the Management of these Hazardous wastes.

Activities:

1. Workshops targeting the public at large. E.g. SPREP Workshop on the Effective Management of Hazardous Materials, Hazardous Waste and Contaminated Sites in the Pacific Region.
2. Newsletters and brochures distribution. 2 Newsletters produced by the project, which includes the importance of storing these wastes safely.

Output 3.

Legislation Review/draft.

Activities:

1. This is one of the problem faced by the Project as there is very little or no regulations in place.
2. The project is working on this output now.

Problems

1. Piling-up of these POP's in Tuvalu with very little chance of transporting and disposing overseas.
2. Storage area is quite small to absorb all the POP's from all the Islands, land is very critical if expansion is necessary.
3. Some chemicals are in large quantities and very expensive to collect and store. E.g. the 60,000 liter of bitumen that was left behind after the airstrip construction work completes.
4. We could not locate the 8,000 liters of PCB's that was reported in the SPREP Report on POP's in PICS.
5. POP's is also found in dumping sites.

Conclusion

The project has been under operation for at least 1 year, and we are looking at almost 1 1/2 year to completion. It is a very short time to encounter the above problems, however the project can help to eradicate some of these problems.

Recommendations

1. Project to work closely with all Agencies that could assist in formulating National legislations that coincide with Regional and International Conventions.
2. Regional Agencies (if possible) to assist in the transportation and Disposal of POP's while we work on the Harmonization of National Legislations, and the Signing/Ratification of the respectful Conventions that deals specifically in this area.

Vanuatu

Introduction

Vanuatu is comprised of some 80 volcanic active volcanic islands with a total area of 12, 200 km². Vanuatu has a total of 710,000 EEZ.

The topography of the country ranges from the very low coastal plains to rough, mountainous and heavily forested interiors.

Vanuatu has an estimated population of 186,678 people of which only 1.2 % are expatriate. The country is mainly dependent on subsistence agriculture for its food supply. In terms of development, Vanuatu's is a least develop country (LDC).

There is very little data / information on hazardous and potentially hazardous chemicals used in the country as stated in the POPs in PICs chemical inventory project done in 1998. Most POPs identified fall under the following categories, Agricultural chemicals, wood preservation chemicals, industrial effluents (heavy metal residues, oil wastes, ink acids and alkalines, solvents etc), substances used in medical treatment and clinical wastes, and explosives. It is expected that such substances will continue to be imported into the country.

At present only certain agricultural chemicals such as Pesticides are regulated for their importation and use. Vanuatu does have some other legal instrument in place to control the importation, use and disposal of POPs and PICS but are scattered and are not being enforced effectively. The enforcement of existing legislations dealing with hazardous waste / chemicals is a priority action item for Vanuatu.

According to the POPs (Phase I) inventory project carried in Vanuatu, there were a few stockpiles of unused hazardous chemicals that cannot be disposed of in a proper and safe manner. We are looking forward for the second phase of this POPs in PICs project and recommend that random samplings checks be done for pesticide residues in foodstuffs and the environmental samples in areas where stockpiles were found, to ensure there are no associated health and environmental risks. However lack of expertise in sound environmental management of chemicals in Vanuatu, thus the country seeking assistance from the Secretariat of Pacific Community, SPREP to provide funds and expertise for the establishment of facilities and infrastructure to carry out this second phase. We also required their assistance in funding the registration and labeling of the approved pesticides into its three recognized languages i.e. bislama or pitjin English, English and French.

Chemical Manufacturing, Exports and Imports

No chemical is manufactured in Vanuatu, however there are small quantities being formulated.. Most of the chemicals used are imported from countries like Australia, New Zealand, Singapore and New Caledonia. The chemicals imported are categorized as Pesticides which include for agricultural chemicals and Fertilisers, Pesticides which includes Malathion, Permethrin, Permethin (aqua), (public health use); Petroleum Products; Industrial (used in manufacturing / processing facilities); Consumer chemicals, other chemicals (unknown / others i.e. Miscellaneous chemical products) ; wood and resin-based chemical products; artificial and prepared waxes, mixed alylbenzens, alkyl naphthalenes, chemical elements adopted for the use of electronics, organic chemical products, catalyst and catalytic preparation and chemical products.

Table 1. - Chemical Production and Trade

Chemical Type	Production/ Manufacturing (tons / year)	Imports (kilos / year	Formulation / Packaging (tons / year	Exports (tons / year)
Pesticides and Fertilisers (agricultural & consumer use)	0	360,613 kg	0	0
Pesticides (Public health e.g.	0	400 – 500 litres	0	0
Malathion	0	500 – 600 Lites	0	0
Permethrin	0	500 – 600 litres	0	0
Permethrin (Aqua)				
Petroleum Products	0	32,681 kg	0	0
Industrial (used in manufacturing / processing facilities	0	32,681,170 kg		
Consumer chemicals	0			
Others chemicals (unkown / mired use)	0	30,083 kg		

Major sites where stockpiles are found:

According to the POPs in PICs inventory survey project done which was done in 1998, Vanuatu also had a few stockpiles of some of these hazardous and potentially hazardous chemicals still lying around which cannot be disposed. The finding are as follows:

- ✕ Agricultural chemicals (excluding DDT), Espiritu Santo.
- ✕ DDT, Luganville hospital, Santo, Lenakel, Tanna, Norsup, Malekula.
- ✕ Potentially PCB contaminated transformer oil, UNELCO.
- ✕ Laboratory chemicals, secondary school and colleges.
- ✕ Timber treatment wastes, santo vaneer and Espiritu santo timber mills.
- ✕ Waste oil, various locations.
- ✕ Pesticides, chapius agricultural research site.
- ✕ CCA contamination, melcoffe timber and Santo Veneer timber site
- ✕ Ex- squash plantation, Teouma Efate (not included in the inventory of the POPs in PICs Phase I.

SIGNIFICANT STOCKPILES AND CONTAMINATED SITES:

Sites	Contaminant	Quantity
Tagabe Quarantine storage shed	Waste chemicals	22 kg
Luganville Quarantine Store	Methyl Bromide	900 kg
Chapius agricultural site, Santo, store No.1.	Residual Waste chemicals	Unknown
Chapius agricultural site, Santo, old store	Waste chemicals	40 kg
Santo veneer and timber, Luganville	Waste treatment solution	1200 litres
Environmental Health store, Luganville	DDT	900 kg
Illegal bush preservation plant	CCA contamination	6000 litres
Buried Pit, Santo	Arsenic Pentoxide	2 drums
Secondary schools and collages, Vanuatu	Laboratory chemicals	100 litres
UNELCO	Potentially PCB contaminated transformer	13000 litres
Lanfills (Municipal waste disposal	Various wastes and leachate	unknown
Ex – Sqash Plantation, Teouma, Efate (not included in the inventory of POPs in PICs Phase 1.	Various chemicals (insecticides, Herbicides, fungicides, etc.	2 container load (32 m ³) Quantity Unknown

LEGAL INSTRUMENTS FOR THE MANAGEMENT OF HAZARDOUS AND POTENTIALLY HAZARDOUS CHEMICALS.

There is a wide range of hazardous and potentially hazardous chemicals used in Vanuatu as mentioned earlier. There is neither legislation nor guidelines that adequately provide for the management of hazardous and potentially hazardous chemicals in Vanuatu.

References of Existing National Legal Instruments which address the Management of Chemicals (*Laws (L), Regulations (R), Standards (S), Decrees (D)*).

Legal instruments (type, Reference, Year)	Responsible Ministries or bodies	Chemical Category	Objective of Legislation	Enforcement
Pesticides (Control) Act of 1993	MAQFF Department of Agriculture & Quarantine.	Pesticides	An Act to make provision for the regulation and control of the important, manufacture, sale distribution and use of pesticides.	Weak

Legal instruments (type, Reference, Year)	Responsible Ministries or bodies	Chemical Category	Objective of Legislation	Enforcement
Public Health Act 1994	Ministry of health Department of health	Insecticides	An Act to provide for public health with provisions for the prevention and suppression of notifiable diseases	Under full Review
Import Duties (Consolidation) Act, Cap 91 1998	Department of Customs	Chemical substances (fertilizers)	An Act to consolidate the provisions relating to custom imports and duties.	Weak
Health and Safety Act 1997	Ministry of internal Affairs & Department Labour	Chemical Substances Accidents, etc.	Safety at work place	Weak

CONSTRAINTS FACED WITH PROPER MANAGEMENT OF CHEMICALS/ PESTICIDES IN VANUATU.

- ✕ Lack of proper education and awareness
- ✕ Poor implementation of existing legislations e.g. Pesticides Act.
- ✕ Existing legislations do not directly address proper management of POPs and PICs.
- ✕ No registration of chemicals / pesticides coming into the country.
- ✕ No clear responsibilities between inter-governmental departments and NGOs regarding management of POPs and PICs.
- ✕ No leading agency to coordinate waste programs in Vanuatu.
- ✕ Lack of proper disposal facilities and management.

In a recent Vanuatu workshop (6th – 9th March, 2000) on hazardous wastes and contaminated sites, the above constraints were encountered and below is the plan of action for Vanuatu.

ACTION ITEMS	BY WHOM	WHEN
Develop effective education and awareness campaign on hazardous materials targeted on decision makers and the public	Environment Unit Port Vila Municipality Public Health	April, 2001
Enforce all existing legislations e.g. Pesticides Act.	Environment Unit All other Government Departments	December, 2001
Implement National Waste Policy	Environment Unit All other Government Departments.	April, 2001
Use multi lingual signage & labeling for hazardous materials & site storing and handling chemicals.	Labour Department	August, 2001
Prepare & maintain a contaminated land register for use in planning.	Lands Department	July, 2001
Provide further training in hazardous materials, hazardous wastes management, for key personnel.	Environment Unit	May, 2001
Transfer of knowledge & procedures from private sector to government sector.	Government training center.	August, 2001
Update information (data base) on chemical stored by industry for fire use.	Fire service Department & Environment Unit	April, 2001
Upgrade facilities for hazardous waste disposal at Bouffa landfill & address existing site management practices.	Port Vila Municipality & Environment Unit.	July 2001
Consider ratifying Waigani & POPs Convention.	State Law Office	December, 2001

CONCLUSION

Vanuatu's Action plan for the effective management of hazardous materials, hazardous wastes and contaminated sites is seen nationally as another millstone after the preparation of it. Generally the action plan would seek to:

- ✕ Develop a pool of human resources (Hazmat Technical Group)
- ✕ Improve coordination and consultation
- ✕ Improve awareness on chemical, hazardous materials, waste and their management
- ✕ Improve training
- ✕ Improve existing disposal sites, facilities and other infrastructure
- ✕ Register all chemicals

Annex 5: Copies of the POPs Presentations

Global Action on POPs - the road to Stockholm and beyond

Cairns 2-6 April 2001

Background: What are POPs?

- organic (carbon-based) compounds
- natural or anthropogenic origin
- resist degradation in environment
- low water + high fat solubility
 - bioaccumulate in fatty tissues
- semi-volatile + occur in air, water & soil
 - regional and global distribution
- toxic to humans and wildlife

WHY ARE THEY A CONCERN ?

- Toxic
- resist degradation in environment
- low water + high lipid solubility
- bioaccumulate in fatty tissues
- semi-volatile + multi-media
- mobile - regional and global distribution

WHICH POPS ARE INCLUDED?

Aldrin, chlordane, dieldrin, DDT, endrin,
heptachlor, hexachlorobenzene, mirex,
toxaphene, PCBs, dioxins and furans

***UNEP GOVERNING COUNCIL DECISION
19/13C (MAY 1997)***

Three Key Elements:

1. Begin negotiations of a legally binding instrument on POPs to be concluded by year 2001
2. Develop criteria and a process for including possible additional POPs in the convention
3. Undertake “Immediate Actions”

Negotiations: INC Meetings

- INC1 - Montreal (June 29-July 3, 1998)
- INC2 - Nairobi (January 1999)
- INC3 - Geneva (September 1999)
- INC4 - Bonn (March 2000)
- INC5 - Johannesburg (December 2000)
- Diplomatic Conference - Stockholm (May 2001)

MAJOR ISSUES IN POPS NEGOTIATIONS

- measures to reduce or eliminate releases
- process for adding more POPs
- technical and financial assistance

The Present

- A full agreed text is available
- Broad support from governments and NGOs
- Comprehensive approach to POPs, using both reactive and precautionary measures.

Intentionally Produced POPs

- For all intentionally produced POPs
 - **GOAL** - elimination of production and use
 - **MEANS** - production/use either ‘eliminated’ or ‘restricted’

Intentionally Produced POPs - Exemptions

- country specific exemptions have been requested (for 8 of current 10):
 - these will be listed in a publicly available Register
 - they are limited to a maximum of 5 years
 - COP will review requests to extend them, for another 5 years
 - Parties must take measures to prevent or minimize human exposure and releases .
- For ‘restriction’, specify “acceptable purposes”

Intentionally Produced POPs (cont.)

- Trade in intentionally produced POPs will be restricted
- In general, for Parties,
 - imports and exports are limited to shipments:
 - for “environmentally sound disposal”
 - to Parties with ‘specific exemptions’ or ‘acceptable purposes’
- Exports to non-Parties may take place
 - but with conditions and accountability

Intentionally Produced POPs

- For intentionally produced POPs beyond initial 10:
 - countries with regulatory & assessment schemes for industrial chemicals or pesticides shall:
 - take “measures to regulate with the aim of preventing the production and use of” new POPs (N.B. Precautionary measure)
 - consider the screening criteria for candidates for addition to the Convention in conducting assessments of in-use substances.

PCBs

- production: to cease
 - use of in-place equipment exempted for all Parties (subject to conditions and restrictions)
 - no recovery of PCB for reuse, other than for maintenance and servicing operations
 - in-use PCB equipment to be eliminated by 2025
 - no trade in PCB equipment, except for environmentally sound waste management

PCBs

- environmentally sound management of phased-out PCB wastes by 2028 at latest
- Parties to report on PCB elimination programs every 5 years
- COP to review at 5 year intervals

DDT

- special regime included:
 - “Acceptable Purposes” defined to limit production or use of DDT for disease vector control programs (malaria, etc.)
 - specific public register to identify Parties using DDT
 - registered Parties to report every 3 years on use, etc.
 - registered Parties will develop national action plans
 - all Parties committed to seeking alternatives to DDT
 - every 3 years, COP will review need for continued need for DDT

DDT

- 2 ‘specific exemptions’ allowed: these are related to DDT use as intermediate in manufacturing other chemicals

Unintentionally Produced POPs

- goal to reduce the total releases from anthropogenic sources to achieve continuing minimization and, where feasible, ultimate elimination
- Parties to develop action plans within 2 years of entry into force of Convention for them, and implement the plan.
- promote measures to achieve realistic and meaningful level of release reduction or source elimination.

Unintentionally Produced POPs (cont.)

- promote the development and, where appropriate, require the use of substitute or modified materials, products and processes to prevent the formation and release of by-product POPs.
- promote, and as appropriate require, the use of BAT and BEP for a variety of new and existing sources .

Stockpiles and Wastes

- For all POPs, the goal is to ensure the sound management of stockpiles, wastes and products and articles upon becoming wastes that consist of, contain or are contaminated by POPs.
 - develop and implement strategies to identify the stockpiles, products and articles containing POPs and manage stockpiles in a safe, efficient and environmentally sound manner until they are deemed to be wastes

Stockpiles and Wastes (cont)

- not allow recovery, recycle, reclamation, direct reuse or alternative uses of POPs
- handle, collect, transport and store wastes in an ESM, and dispose of in a way that destroys the POP content, or otherwise in an ESM taking into account international rules, standards and guidelines
- not transport wastes across international boundaries without taking into account international rules, etc (e.g. Basel)

Adding New POPs

- provision for addition of new POPs through application of scientific criteria and an agreed process for evaluation of candidates nominated by Parties in the future.
- process and criteria incorporate precaution in a number of ways to ensure that all candidates are thoroughly considered and evaluated on the basis of available scientific data to see if they possess POPs properties.

Adding New POPs (cont.)

- committee to be set up to advise the COP on the application of criteria and process.
- safeguards in the process to ensure that all Parties have the opportunity to get a full hearing on any nominated candidate.

Technical & Financial Assistance

- technical and financial assistance is needed for DCs and EITs to meet their obligations as Parties to the Convention.
- Developed countries have undertaken to provide technical assistance and new and additional financial resources.
- Global Environment Facility designated as an interim financial mechanism to handle funding of capacity building and other related activities.

General Provisions

- Develop an implementation plan within 2 years, endeavor to implement the plan, review and update the plan on a periodic basis , involve stakeholders in all actions.
- Designate a National Focal Point to interact with other Parties and the UNEP secretariat to exchange a broad range of information.
- Promote and facilitate measures relating to public information, awareness and education on POPs and their alternatives.

General Provisions (cont.)

- Encourage and/or undertake research, development, monitoring and cooperation on all aspects of POPs and their alternatives.
- Report to the COP on implementation measures.
- COP must review effectiveness 4 years after e.i.f.

The Future (Next 5 years)

- Stockholm meetings:
 - Conference of Plenipotentiaries (May 22-23)
 - Preparatory Meeting (May 21)
 - only business = incomplete resolutions from INC5
 - decide whether to continue INC meetings to promote actions to reduce and eliminate POPs, and prepare for COP1

The Future (Next 5 years)

Stockholm meetings

- Resolutions on:
 - Interim arrangements
 - Capacity Assistance Network (CAN)
 - liability and compensation
 - continuing INC meetings to promote actions to reduce and eliminate POPs, and prepare for COP1
 - interim financial arrangements
 - cooperation with the Basel Convention
 - UNEP as interim Secretariat

The Future (cont.)

- The ratification process:
 - 50 Parties needed to ratify action already underway!
 - Master List >>> Global POPs Action Plan
 - IPEN now has 300+ ENGOs working on POPs
- Possible interim activities to prepare for COP1 (to be held in a developing country)
- Strong support for UNEP as secretariat to provide a capacity assistance function in the interim to DCs and EITs.

UNEP POPs Negotiations:

- UNEP POPs Home Page
- <http://www.chem.unep.ch/pops>

- MEASURES TO REDUCE OR
- ELIMINATE RELEASES
- Goal for intentionally produced POPs is to eliminate production and use:
- aldrin, endrin, toxaphene - at entry into force of the convention
 - chlordane, dieldrin, heptachlor, mirex, HCB - some critical uses may be permitted, but reviewed at specified dates

- MEASURES TO REDUCE OR ELIMINATE RELEASES

- DDT: elimination of production for all except public health uses (e.g. malaria) but review the need for remaining uses to see when production may be completely halted.

- MEASURES TO REDUCE OR ELIMINATE RELEASES

- PCBs: elimination of production for all new uses but permit continued use of PCBs in equipment, and
 - phase out “as soon as possible”
 - may specify a deadline

- MEASURES TO REDUCE OR ELIMINATE RELEASES

- By-products (dioxins, furans, HCB):

- goal is not yet agreed
- “minimization, elimination”
- agreement on reducing releases

- MEASURES TO REDUCE OR ELIMINATE RELEASES

- By-products:

- Promote use of strategies & measures:
 - to reduce releases and/or eliminate sources by feasible & practical means
 - to prevent formation and release
 - to apply BAT for new & existing sources
 - national and sub/regional action plans

- MEASURES TO REDUCE OR ELIMINATE RELEASES
- POPs wastes:
 - strategies for identification of articles, products & wastes
 - environmentally sound waste destruction
 - concern for dioxin & furan generation and POPs release to environment
 - technical & financial assistance for less developed countries

Convention Provisions

- Will address 4 main areas of Convention:
 - General obligations
 - Control provisions:
 - Intentionally Produced POPs
 - Unintentionally Produced POPs
 - Stockpiles and Wastes
 - Procedure for adding new POPs
 - Financial and technical assistance

General Obligations

- Implementation Plan:
 - develop within 2 years of entry into force of Convention for the Party
 - endeavour to implement the plan
 - review and update on a periodic basis
 - stakeholders should be involved in these actions
- National Focal Point:
 - to be designated to facilitate exchange of information on POPs and alternatives to POPs

General Obligations

- Promote and facilitate the following as they relate to public information, awareness and education on POPs and alternatives to POPs:
 - awareness among policy and decision makers
 - provision of available and up-to-date information to public
 - development and implementation of educational, training and public awareness programs
 - public participation in developing and implementing measures to address POPs

General Obligations

- Research, development, monitoring and cooperation:
- Parties are to encourage and/or undertake these actions on all aspects of POPs and their alternatives, including on:
 - environmental releases
 - trends in levels in the environment and humans
 - transport, fate and transformation
 - effects on humans and the environment
 - socio-economic impacts
 - release reduction and/or elimination

General Obligations

- Report to the COP:
- Parties are to provide information on the following:
 - measures taken by Party to implement the Convention
 - effectiveness of measures taken
 - data or estimates of total quantities of POPs in Annexes A and B that were produced, imported and exported
 - list of States from which it has imported or to which it has exported POPs in Annexes A and B

General Obligations

- Effectiveness Evaluation:
- COP must evaluate effectiveness of Convention in reducing and/or eliminating releases of POPs:
 - this will be done by establishing a mechanism to acquire comparable monitoring data on:
 - presence, levels and trends of POPs in environmental and biological media, and
 - regional and global environmental transport of POPs
 - mechanism will tap into existing national, regional and global networks and sources of information
 - as COP must review first effectiveness report 4 years after Convention enters into force, COP1 must address issue

Intentionally Produced POPs

- Goal of the Convention:
 - elimination of production and use of all intentionally produced POPs (i.e., industrial chemicals and pesticides)
- To achieve this goal, the production and use of an intentionally produced POP will be either eliminated or restricted and, in each case, trade will be restricted
- Annex A lists 9 chemicals slated for “elimination”
 - aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene (HCB), mirex, polychlorinated biphenyls (PCBs), toxaphene
- Annex B lists 1 chemical (DDT) slated for “restriction”, for which there is a specified “Acceptable Purpose”

Intentionally Produced POPs

- Specific Exemptions:
 - For several chemicals in Annex A and B, specific exemptions are identified with regard to production and/or use
 - Several countries have indicated they need to use these:
 - countries that did not identify their needs during the negotiation process may do so by May 21, 2001
 - After May 21, any state on becoming a Party may register for one or more “specific exemptions” listed in Annexes A and B
 - Countries must register by informing the UNEP secretariat who will maintain a publicly available register

Intentionally Produced POPs

- Specific Exemptions:
 - are valid for a period of 5 years after Convention enters into force for a particular chemical, unless a Party specifies an earlier date
 - may be withdrawn by a Party at any time
 - may be extended for 5 years, based on a request from a Party
 - COP will review each request and any information submitted by requesting Party justifying continued need for the exemption
- Parties that intentionally produce or use POPs under the “specific exemptions” or “acceptable purposes” provisions must take measures to prevent or minimize human exposure and releases to the environment

Intentionally Produced POPs

- China's "Specific Exemptions" (Annexes A and B):
 - chlordane:
 - production as a termiticide, and use in buildings & dams
 - hexachlorobenzene (HCB):
 - production and use as an intermediate
 - mirex:
 - production as a termiticide
 - DDT:
 - production and use as an intermediate
- China's "Acceptable Purposes" (Annex B):
 - DDT:
 - production for disease vector control use

Intentionally Produced POPs

For PCBs, all Parties must:

- cease production of new PCBs
- eliminate the use of in-place equipment containing PCBs (transformers, capacitors, etc.) by 2025
 - continued use of this equipment is a "specific exemption" under Annex A for all Parties, subject to:
 - conditions (e.g., use only in intact and non-leaking equipment)
 - restrictions (e.g., not permitted in food & feed processing areas)
 - as all Parties are entitled to this exemption, no Parties will be named in the Register
- make determined efforts to identify, label and remove from use equipment containing more than 0.005% (50ppm) of PCBs, with higher priority given to equipment containing higher levels of PCBs

Intentionally Produced POPs

- For PCBs, all Parties must:
 - not trade in PCB equipment, except for the purpose of environmentally sound waste management
 - not recover liquids with more than 0.005% PCBs for reuse in other equipment, except for maintenance and servicing
 - achieve the environmentally sound management of PCB wastes as soon as possible, but no later than 2028
 - report to the COP every five years on their progress in:
 - eliminating in-use equipment, and
 - the environmentally sound management of wastes
- COP will review progress toward the 2025 and 2028 targets at 5 year intervals, taking into account reports from Parties

Intentionally Produced POPs

- For DDT, all Parties must:
 - eliminate production and use, except Parties that notify the Secretariat of their intention to produce or use DDT in disease vector control programs (an “acceptable purpose” in Annex B)
 - production and/or use must be in accordance with WHO recommendations and guidelines on use of DDT, and only when locally safe, effective and affordable alternatives are not available to the Party
 - these Parties will be included in a special publicly available DDT register maintained by the Secretariat
 - promote research and development to seek alternatives to DDT
- There are two “specific exemptions” allowed for DDT related to its use as an intermediate in manufacturing other chemicals

Intentionally Produced POPs

- Each Party in the DDT register must:
 - report on quantities used, conditions of use, and relevance to the Party's disease management strategy
 - develop national action plans to:
 - confine use of DDT to disease vector management
 - explore alternatives to DDT, and
 - take measures to strengthen health care and reduce incidence of disease
- DDT use will be allowed until technically and economically feasible alternative products, practices or processes are available to countries that are currently reliant on DDT
- COP will review at its first meeting and every 3 years thereafter to see whether DDT continues to be needed for disease vector control

Intentionally Produced POPs

- Trade Issues:
 - Trade will be restricted for all POPs in Annexes A and B
 - Imports and exports are limited to shipments:
 - intended for environmentally sound disposal, or
 - to Parties with “specific exemptions” under Annex A or B, or with “acceptable purposes” under Annex B
 - Exports to non-Parties may take place but there are:
 - conditions on both Non-Party and Party, and
 - accountability requirements for use and disposal of POPs

Intentionally Produced POPs

- Exemptions:
- Chemicals in Annex A or B, in quantities:
 - used for laboratory-scale research or as a reference standard
 - occurring as unintentional trace contaminants in products and articles
 - occurring as constituents of articles manufactured or already in use before or on date of entry into force of an obligation concerning that chemical, provided that Party notifies Secretariat that a particular type of product remains within use within that Party, whereupon Secretariat will make the notification publicly available

Intentionally Produced POPs

Exemptions:

A Party can produce or use HCB or DDT as closed-system site-limited intermediates that are chemically transformed in the manufacture of other chemicals that do not exhibit POPs properties

- Party must notify Secretariat of:
 - total amounts produced or used
 - nature of site-limited process, and
 - amount of HCB or DDT present in final product
- these notifications will be made publicly available
- such production or use is not considered a “specific exemption” and will cease after a period of 10 years unless Party submits a new notification to the Secretariat, in which case the period will be extended for another 10 years, unless COP decides otherwise

Intentionally Produced POPs

- Parties with regulatory and assessment schemes for industrial chemicals and pesticides, shall, in conducting assessments of:
 - new substances, take “measures to regulate with the aim of preventing the production and use of” new POPs
 - in-use substances, consider the screening criteria for candidates for addition to Convention (Annex D)
- These provisions will allow the identification of possible POPs as soon as possible in these assessment programs

Identifying New POPs

- Information for Risk Profile (Annex E):
 - sources (production data, uses, releases, etc.)
 - hazard assessment for endpoint(s) of concern
 - environmental fate (chemical and physical properties, persistence, environmental transport, degradation and transformation, etc.)
 - bioconcentration or bioaccumulation factor
 - monitoring data
 - exposure and bioavailability data
 - national and international risk evaluations, assessments, etc.
 - hazard classification and labeling information
 - status of the chemical under international conventions

Identifying New POPs

- Review Process (Step 2):
- Risk profiles are reviewed by POPS Review Committee
- When Committee agrees that the proposal:
 - should not proceed, proposal is set aside
 - Party can request reconsideration and submit more information within a period of one year
 - should proceed, proposal and committee's report are made public
 - Parties and observers are invited to submit information for development of risk management evaluation (Annex F), including evaluation of possible control measures, including associated socio-economic considerations

Identifying New POPs

Information for Risk Management Evaluation (Annex F):

- efficacy and efficiency of possible control measures in meeting risk reduction goals
- alternative products and processes
- positive and/or negative impacts on society of implementing possible control measures
- waste and disposal implications, especially obsolete stocks of pesticides and clean-up of contaminated sites
- access to information and public education
- status of control and monitoring capacity
- any national or regional control actions taken, including information on alternatives, and other relevant risk management information

Identifying New POPs

- Review Process (Step 3):
- Risk profile and risk management evaluation are reviewed by POPS Review Committee
- Committee recommends to COP whether the chemical should be considered for listing in Annexes A, B and/or C
- COP:
 - will consider:
 - Committee's recommendations, and
 - any scientific uncertainty
 - and shall decide, in a precautionary manner, whether to list the chemical and specify its related control measures in Annexes A, B and/or C

Financial & Technical Assistance

- Developing countries and countries with economies in transition will need technical and financial assistance in order to meet their obligations as Parties to the Convention
- Regional and subregional centres will be established for capacity building and transfer of technology to assist countries in need
- Developed countries have undertaken to provide technical assistance and new and additional financial resources to meet agreed full incremental implementation costs

Financial & Technical Assistance

- Global Environment Facility has been named as an interim financial mechanism to handle funding of capacity building and other related activities
 - Projects are expected to begin immediately after Stockholm conference (May 2001) to enable developing countries to prepare to meet their future convention requirements
-

UNEP's Immediate Actions on POPs

Prepared by Alwin Kool- UNEP Chemicals for the:

***Sub-regional Awareness Raising Workshop
on the Prior Informed Consent (PIC
Procedure), Persistent Organic Pollutants
(POPs) and the Basel/Waigani Conventions***

2- 6 April 2001, Cairns, Australia

UNEP Governing Council Decision 19/13C, 1997

- Begin Negotiations in 1998 of a legally binding instrument on POPs
- Develop Criteria and a process to add further POPs
- Undertake "Immediate Actions"
- *Concluded* in Johannesburg December 2000
- CEG1, Bangkok October 1998, CEG2, *Finalized in 1999*, Vienna Austria
- *started in 1997*

UNEP's Immediate Actions on the 12 POPs

– Activities

- Regional and Sub-regional Workshops
- Information Exchange
- Alternatives to POPs
- PCBs (Identification toolkit)
- Dioxins/Furans (D/F) , inventories
- Obsolete stocks of pesticides and other chemicals

8 Regional / Sub-regional *Awareness Raising* Workshops from mid 1997 to mid 1998

- C/E Europe, Russian Federation, July 1997
- Asia & Pacific, Thailand , November 1997
- W/ Northwest Africa, Mali, December 1997
- Central America/ Caribbean, Colombia, January 1998
- Anglophone Africa, Zambia, March 1998
- South America, Argentina, April 1998
- C/E Europe, Slovenia May 1998
- West Asia, the United Arab Emirates, June 1998

- *Pacific Island Countries*
- *, Australia, April 2001*



Regional Workshops on *the Management of POPs*



PROCEEDINGS
of the Regional Workshop on the Management
of Persistent Organic Pollutants (POPs)
Hanoi, Vietnam, 22-24 March 1999



UNEP

Asia, Vietnam March 1999
SADC (Africa), Zambia,
February 2000

Topics were split:

- PCBs and Dioxins/Furans
- POPs pesticides



PROCEEDINGS
of the Regional Workshop on the Management
of Persistent Organic Pollutants (POPs) in the SADC Region
Lusaka, Zambia, 22-24 February 2000



UNEP

6 Regional Workshops on *Management of PCBs and Dioxins/Furans*

- Africa, Cameroon, April 2000
- C/E Europe, Croatia, May 2000
- West Asia, Iran, June 2000
- Asia & Pacific, Korea, July 2000
- South America, Uruguay, September 2000
- Africa, Tanzania, November 2000
- *to come:* Central America & Caribbean Cuba, April 2001

(Sub-)Regional Workshops on
*sustainable approaches for vector management and
opportunities for collaboration in replacing POPs
pesticides*

- Asia, Bangkok, March 2000
- CIS countries, Russian Federation, July 2000
- Central America, Panama, February 2001
- Asia, Bangkok, March 2001

- To come:
 - West Africa, July/September 2001



Information Exchange

- Information Clearinghouse on POPs since 1997
- *Internet based POPs Homepage since 1997*
- Network of National Focal Points and Experts for POPs
- Database with country specific information on POPs, 1998/2000
- *Databases on Experts & Alternative Approaches to POPs Pesticides, since 1998/2001*
- Case Studies & Action Plans since 1997



Alternatives to POPs

Chemical and non-Chemical Alternatives!!!

- Database on alternatives for existing POPs uses
- Database to expertise on alternative approaches
- Collection of action plans and studies to replace / reduce releases of POPs
- ***Guidance on the selection of replacements for POPs pesticides***
- Training modules for decision making on the replacement and in release reductions of POPs

PCBs

- Compendium on guidance materials for identifying PCBs and PCBs-containing equipment and for building national inventories
- Inventory of Worldwide PCB Destruction Capacity
- Survey of currently Available Non-Incineration PCB Destruction Technologies
- Managing PCBs (soon available)



Dioxins/Furans



- Toolkit identification and quantification of Dioxins and Furans releases
- Regional/Subregional Workshops on the identification of Dioxins/Furans
- Compendium on reduction technologies of Dioxins and Furans

Obsolete Stocks

Building inventories (promoting/sponsoring) of obsolete and unwanted stocks of pesticides and other chemicals, joint efforts with FAO and SBC through extension of their activities: in the African, Caribbean and South American region.

Project in four pilot regions in the Russian Federation

Facilitate disposal (future activity) of these stocks

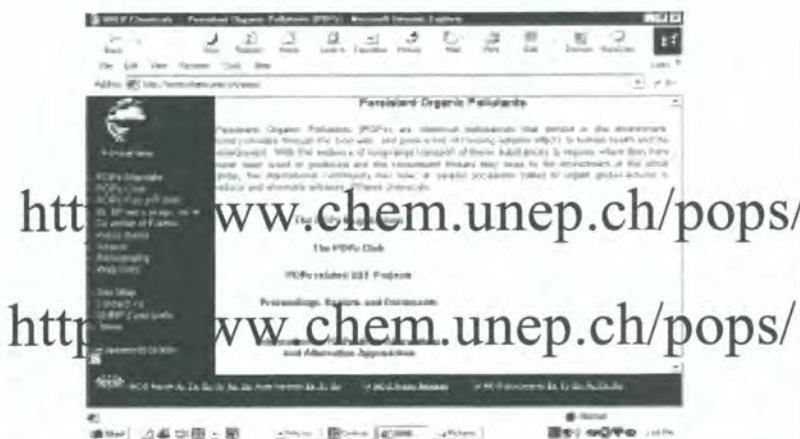


Future Immediate Actions

- Strengthening Regional Co-operation
- Assisting countries with Country Case Studies
- Helping Countries to develop Country Action Plans
- D/F and PCBs inventories and help develop guidance documents on Best environmental practices



The POPs HOMEPAGE:



GEF: Regionally Based Assessment of Persistent Toxic Substances

PTS

- > Persistent
- > Bio-accumulative
- > Toxic
- > Transboundary Movement
- > POPs a sub-group

(POPs, POPs, organochlorine, lead and its compounds, some pesticides, etc.)

2 GEF Projects

- Regionally-based assessment of PTS
(Region IX - Pacific Islands)
- Assessment of National Management Needs
(12 pilot countries, including PNG, FSM)

Both projects lead by UNEP Chemicals

GEF: Regionally Based Assessment of Persistent Toxic Substances

PROJECT OVERVIEW

Objectives

- Measure damages and threats of PTS
- Provide GEF and UNEP resources to design priorities for future action on chemical issues
- To determine differences in priority among regions

GEF: Regionally Based Assessment of Persistent Toxic Substances

PROJECT OVERVIEW cont'd

> Results

- Identification of sources of PTS in the region
- Assessment of impact of PTS on human health and the environment
- Assessment of transboundary transport of PTS
- Assessment of root causes of PTS problems and capacity to manage regionally
- Identification of regional and global priority PTS environmental issues

GEF: Regionally Based Assessment of Persistent Toxic Substances

PROJECT OVERVIEW cont'd

> Outputs

- Establishment of a network of PTS experts
- Establishment of a management and co-ordination structure
- Twelve comprehensive Regional Reports
- One Global Report

GEF: Regionally Based Assessment of Persistent Toxic Substances

PROJECT FORMAT

- Approximately 180 countries shifted into the 12 regions of the globe
- Regional Co-ordinators established for each region
- 3-5 Regional Team Members to assist Co-ordinator
- Project Manager appointed at UNEP Chemicals
- A Steering Group to advise Project Manager



**OECD Regionally Based Assessment
of Persistent Toxic Substances**

PROJECT WORKPLAN cont'd

- Small task force to prepare review paper on alternatives to PTS
- Global Priority Setting Meeting to discuss draft Global Report
- Global Reason developed highlighting major issues
- Global Report provides guidance to the OECD for future action

© UNEP/OECD Joint Programme on Persistent Toxic Substances

 **OECD Regionally Based Assessment of Persistent Toxic Substances** 

GLOBAL NETWORK

- ▶ **IRPA PTS Derby**
- ▶ To stimulate interest in the contribution of data
- ▶ A nerve between regions for contributing data
- ▶ Based on Per Capita Income of each region
- ▶ Regions with lower PCI require less contributions
- ▶ Winning region receives information on Chemicals in the Environment (CIE) Trophy

PERSISTENT ORGANIC POLLUTANTS (POPs) IN PACIFIC ISLAND COUNTRIES (PICs)

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The wide dissemination of POPs in the environment is generating increasing concern worldwide. POPs are synthetic organic chemicals which persist in the environment for many years, bioaccumulate through the food web and pose a risk of causing adverse effects to human health and the environment. Their potential to harm humans and other organisms is high even at low concentrations (Greenpeace 1999a). Although POPs include a wide range of chemicals much of the research revolves around 12 chemicals identified at a meeting of UNEP's governing council in 1995. They are all organochlorines and include chlorinated aromatic hydrocarbons (hexachlorobenzene (HCB) and polychlorinated biphenyls (PCBs)), chlorinated biocides (DDT, chlordane, aldrin, dieldrin, heptachlor, toxaphene, endrin, and mirex), and chlorinated dioxins and furans (Ramamoorthy and Ramamoorthy 1997). Most POPs do not occur in nature but are synthetic chemicals released as a result of anthropogenic activities.

Dioxins and furans are produced as unwanted by-products of several industrial processes including incineration, PCBs and hexachlorobenzene are associated with industrial and commercial processes whilst DDT, aldrin, dieldrin, endrin, chlordane, heptachlor, mirex, and toxaphene are pesticides used in agriculture or public health activities (Allsopp *et al.* 2000). Many have been severely restricted or banned in most countries as a result of the growing concern over their effects on humans and wildlife. Despite local restrictions, many are still manufactured in developed nations for export to and use in developing countries.

POPs are resistant to breakdown by photolytic, chemical, and biological methods. Their volatility allows them to enter the air and travel long distances before settling back to earth, enabling them to concentrate in the polar regions where evaporation is low (Greenpeace 1999a). POPs are highly soluble in fats thus tend to concentrate in the fatty body tissues of living organisms and over time can bioaccumulate to high levels. Biomagnification (increase in levels) occurs as one animal consumes another in the food chain (Allsopp *et al.* 2000). POPs are toxic and some very toxic, for example HCB, endrin, aldrin and dieldrin (Table 1). Although some POPs do metabolize into other compounds some of these metabolites are more toxic than the original chemical. Toxicity is evaluated on the basis of the acute oral and dermal toxicity (LD₅₀) to rats (Harrison 1994).

Table 1. WHO classification for some POP compounds

<i>Name</i>	<i>Classification</i>
DDT	II Moderately Hazardous
Aldrin & Dieldrin	Ib Highly Hazardous
Chlordane	II Moderately Hazardous
Endrin	Ib Highly Hazardous
Heptachlor	II Moderately Hazardous
Hexachlorobenzene	Ia Extremely Hazardous
Toxaphene	II Moderately Hazardous

(Rengam and Snyder 1991)

Because of their high toxicity, persistence in the environment, and ability to be transported long distances, POPs have caused considerable alarm. UNEP has identified POPs as prime candidates for international phaseout and the international community has called for urgent global action to reduce and eliminate releases of these chemicals (UNEP 2000).

Environmental Contamination

Pesticides may enter the environment in a number of ways; direct application to crops and waterway, aerial spraying, discharge from manufacturing plants and accidental spillage. PCBs enter the environment from spillage, leaks from electrical equipment, incineration, or improper disposal (Harrison 1994). POPs may also enter the environment as a result of the incineration of municipal and toxic wastes or via ocean incineration. Ocean incineration is a method to dispose of toxic waste by burning at sea. Waste is burned in shipboard incinerators dispersing residual matter into the atmosphere. Spillage of waste whilst being transported to the ships is also a risk. Moves have been taken by the United States to expand this practice into the South Pacific Ocean (Bunin 1988).

Organochlorine pesticides were introduced in the early 1940s and, some twenty years after, they were reported present in environmental studies and in the tissues of wildlife. The persistence of these chemicals means both people and wildlife in countries where they are banned may still be accumulating these toxins (Greenpeace 1999a).

In addition, due to long-distance transport on air currents, POPs have become a widespread pollutant and now represent a global contamination problem (Allsopp *et al.* 2000). PCBs, DDT and toxaphene have been detected in the atmosphere in a number of different areas (Sodergren *et al.* 1990). This, in addition to their accumulation in the food chain, enables them to poison people and wildlife far from their point of release. POPs have been detected at high levels in living creatures from the Arctic to Antarctic and from deep in the ocean to the stratosphere (Greenpeace 1999a). Organochlorine residues have been found in surface/ocean waters, air, sediments, soil, snow, food, terrestrial and marine organisms and humans (Harrison 1994).

Incineration emissions containing these compounds have also been shown to become deposited onto the surface of water bodies and become enriched in the surface microlayer. They are then taken up by microorganisms in the microlayer resulting in the accumulation of these products of incomplete combustion and PCBs by fish in amounts up to 10^3 - 10^6 times those measured in the water (Sodergren *et al.* 1990).

Exposure Pathways

POPs bioaccumulate in tissues of animals thus as animals or plants are eaten as food, whether by fish, birds, or humans, these chemicals are passed on to accumulate in the higher levels of the food web and pose a risk to humans consuming them. Incidences of animal food contaminated by POPs has resulted in animals and their products (e.g. milk and beef) being contaminated (Allsopp *et al.* 2000).

In humans, the major route of exposure to POPs is through the consumption of contaminated food. Due to POPs being soluble in fat, the highest levels are found in fatty foods such as meat, fish, and dairy products. Some exposure may also occur through inhalation and contact with the skin or eyes (Allsopp *et al.* 2000). In addition, when offspring are nursed, these chemicals are passed on to the baby in the milk. The repeated intake of small quantities of pesticides may lead to 'chronic poisoning' rather than the 'acute poisoning' resulting from a single high dose (Firman 1981).

Health Effects on Humans and Animals

Exposure to POPs has been associated with a range of health effects in humans including many types of cancers and tumours, learning and behaviour disorders, immune system changes, reproductive defects (Greenpeace 1999a), birth defects, effects to the nervous system, skin rash, risk of slow development, and liver, kidney, brain, and reproductive system damage (Rengam & Snyder 1991). When these chemicals are passed to babies via breast milk, they can affect the development of the nervous, reproductive, endocrine and immune systems. PCBs, dioxins and related compounds have caused severe embryo mortality and deformities that have been verified with field and laboratory studies.

Beneficial organisms such as bees and other non-target organisms such as birds, fish and other domestic and wild animals can also be affected by organochlorine compounds. The compounds may enter into non-target organisms directly or through the food chain. Ingestion has resulted in death, reproductive defects, tumours, cancers, and other similar problems in these animals (Harrison 1994).

Pesticides can also affect the marine environment and marine life. Organochlorines disrupt reproduction and cause development defects in marine organisms (Watts 1993). Pollution in the marine environment as a result of pesticides has been responsible for fish kills (Thaman 1984). DDT has been reported to cause widespread reductions of raptors and colonial fish-eating bird populations through adult and embryonic mortality and through eggshell thinning and breakage.

Studies in PICs

There are very little data available on the levels of the twelve UNEP-designated persistent organic pollutants (POPs): (hexachlorobenzene, (HCB), hexachlorocyclohexanes (HCHs), heptachlor, aldrin, chlordanes, DDTs, mirex, dieldrin, endrin, toxaphene, polychlorinated bipenyls (PCBs), dioxins and furans) in the island Pacific. The majority of samples analysed have been environmental samples (air, water, sediment). Hardly any data on levels in humans (plasma, milk, fat) have been published in the last 20 years and only a few food studies have been carried out. Drinking water analyses are also very limited. Some Pacific countries appear to have had no POPs analyses performed.

In considering data on POPs it is important to keep several facts in mind. In the natural environment levels tend to be low and often below the ability of the best machinery to detect. In such situations analytical values are reported as being less than that level of detection. In samples such as sediments and the fat of carnivores high up the food chain, concentrations can be much higher.

It will be disappointing to policy makers to hear that scientific data needs to be viewed carefully. The sampling and analysis of POPs is a demanding task. Reliability of data increases by the use of quality assurance measures which will usually qualify data to be published in refereed scientific journals. Other data, such as that published in reports (the gray literature), may or may not be reliable.

Another consideration is the state of the sample analysed. In sediments and foods, for example, data can be given on either a wet weight or dry weight. A dry weight basis merely means that all the moisture was removed from the sample before analysis. This will concentrate the analyte (such as POPs) present in the sample by several times compared to if the material is analysed "wet". For animal analyses the POP can be reported for the entire sample or only in the fat portion of the sample. The latter value will again be higher as the POP is concentrated in the fat.

Some POPs occur in several forms or are degraded by the environment into other compounds that are also harmful. In these cases (HCHs, DDTs, dioxins, furans, chlordanes) the sum of these different forms is what is reported.

Another point in comparing POPs values is the units. Generally for solid samples parts per billion is used ($1:10^9$). This can be expressed as ng/g (nanograms per gram) or mg/kg (milligrams per kilogram). Other units should be transformed to parts per billion before comparison.

In reviewing available data on POPs in PICs a large number of samples had detectable levels of POPs, owing both to local usage and global transport of POPs especially by air currents. POPs were recorded in samples for which there is no record that that chemical was ever imported into that country.

In general, levels are relatively low for most samples. There are a few samples, however, especially of sediments from urban areas, that would be classed as a contaminated site in a developed country and warrant remediation.

The highest levels tend to be of DDT and its derivatives, especially in Papua New Guinea and Solomon Islands where it is used to control malarial mosquitoes, and PCBs, which have been used as electrical oil insulating material and often disposed of in a haphazard manner. A 1980 study also recorded high levels of lindane (a HCH) in Samoa but the accuracy of the data may be suspect.

An increasing amount of food consumed in the Pacific is imported, largely from Australia. The levels of POPs in these food stuffs will definitely need to be monitored. PCB levels in foods in some parts of Australia are quite high.

An ongoing study of PCBs, furans and dioxins in albatross on Midway Atoll shows that highly migratory fish-eating species, although nesting in one of the most remote areas of the Pacific, had levels of these POPs that were near the level at which the health of the species could be affected. This should serve as a precautionary note also for Pacific birds and marine mammals high in the food chain. One especially thinks of tuna and how, if high levels of POPs were to be present, a huge financial export resource could be seriously affected.

Recommendations

1. A regular program of POPs monitoring is necessary for Pacific Island countries, preferably established at a regional University or Universities.
2. Priority analysis should include:
 - verification of the high levels in certain areas previously reported (as detailed in this report).
 - an emphasis on drinking water, food and human samples to help determine possible human health effects.
 - an emphasis on environmental samples, e.g. tuna, whose pollution by POPs could have drastic economic effects.
 - an emphasis on DDTs and PCBs given their established high levels in many Pacific samples.
 - an emphasis on areas and humans who have likely high levels of POPs from contaminated sites which have been documented by SPREP (e.g. a Solomon Islands shed in which people lived with open DDT containers in which children played and which were reportedly used as fish poisons).

- a survey of samples near major incineration sites, such as those used by hospitals, urban dumps and for airline plastic waste, for the nearby presence of furans and dioxins.
3. Given the data in this report, an aggressive awareness-raising campaign is needed on the presence and dangers of POPs and support given to the efforts of organisations trying to address these problems.

Sediments

It is difficult to determine "permissible" levels for sediment contamination. One guide is the required levels to be achieved in the remediation of contaminated sites. These have been established in the United States (Ramamoorthy and Ramamoorthy, 1997). Except for DDTs, PCBs and dieldrin the values in Pacific island sediments are far below these limits. For one Fiji sample there was an anonymously high dieldrin level (60 ppb) which is above the 30 ppb level for a residential soil. For DDTs the allowed level is 1880 ppb and a few samples (Tonga, Solomon Islands) come close to this. The allowed PCB level is 83 ppb which has also been almost reached by a PNG and Fiji sample and greatly exceeded by a sample from Guam and one from Saipan (although a later study in Saipan failed to confirm this high result). Long et al. (1995) estimated that adverse biological effects occur in biota exposed to sedimentary PCB levels exceeding 180 ng/g.

Sediments (ng/g dry wt)

Location, Year (samples)	HCB	HCHs	Heptachlor	Aldrin	Chlordanes	DDTs	Mirex	Dieldrin	Endrin	PCBs
Vanuatu 1994 (3)	<0.13	<0.10	<0.1-0.6	0.04	<0.1	<0.16-0.40	<0.03	<0.01-0.96	<0.02	<0.88
Tonga 1994 (3)	<0.02	<0.20	0.07	<0.03	<0.1-2.3	0.3-1024	<0.05	<0.09-0.43	<0.34	<0.8-18.3
Solomon Is. 1992 (2)	-	<0.3-2.2	-	-	0.5-3.9	9.3-750	-	-	-	1.1-5.0
PNG 1992 (3)	-	0.2-0.3	-	-	0.8-4.1	4.7-130	-	-	-	3.3-54
Fiji 1994 (23)	<0.01-8.24	<0.06-2.1	<0.03-0.7	<0.01-0.3	<0.06-0.8	<0.12-14	<0.04	<0.01-8.1	<0.03-1.2	<0.45-68.5
Fiji 1991 (7)	<0.02-0.88	<0.26-0.91	<0.13-1.4	<0.05-0.3	<0.09-0.9	0.5-27.5	<0.02-0.6	<0.02-60	<0.02-1.3	-
Guam 1997 (138)	-	-	-	-	-	-	-	-	-	<0.05-549
Samoa 1979 (1)	-	10	0	10	-	0	-	-	-	-
Saipan 1988	-	-	-	-	-	-	-	-	-	0-1529
Saipan 1999 (123)	-	-	-	-	-	-	-	-	-	<1-16.6
Allowed	400	NA	NA	30	500	1,880	NA	30	6,000	83

Air

Occupational Health and Safety laws in several countries have maximum air levels for POPs generally between 100-1000 ng/m³ for POPs described below. Levels are vastly lower in the Pacific. It is nonetheless interesting to note the generally higher levels in the Solomon Islands near continental land masses compared to more isolated islands and the substantially higher values for an isolated Northern hemisphere island compared to a Southern hemisphere one.

Location Year (samples)	Air (ng/m ³)									
	HCB	HCHs	Heptachlor	Aldrin	Chlordanes	DDTs	Mirex	Dieldrin	Endrin	PCBs
Solomon Island 1992 (1)	-	0.26	-	-	0.25	1.3	-	-	-	2.3
Marshall Island 1979 (1)	0.1	0.27	-	-	0.01	0.005	-	0.008	-	0.1
American Samoa 1981 (1)	0.06	0.03	-	-	<0.001	0.002	-	0.001	-	0.01
Allowed	2,000	NA	500	250	500	500	NA	250	100	500

Water

The only reliable water values are from a large-scale Japanese study of Asia and Oceania which analysed six water samples from Solomon Islands. These provide cause for concern as the highest value for HCHs (5.3 ng/L) and PCBs (1.1 ng/L) exceeds Australia, New Zealand (ANZ) standards for water (4 ng/L and 1 ng/L, respectively). The high DDT level of 21 ng/L greatly exceeds the recommended ANZ level of 1 ng/L.

Location Year (samples)	Water (ng/L)									
	HCB	HCHs	Heptachlor	Aldrin	Chlordanes	DDTs	Mirex	Dieldrin	Endrin	PCBs
Solomon Island 1992 (6)	-	0.1-5.3	-	-	<0.002-0.14	0.06-21.0	-	-	-	<0.05-1.1
Samoa* 1979 (17)	-	110-400	0-230	60-130	-	15-100	-	-	-	-
Tahiti 1984 (30)	-	<2000	<2000	<2000	<2000	<2000	-	<2000	<2000	-
Tahiti 1981	-	-	(3-17) x 10 ⁴	-	-	-	-	-	-	-
Tonga 1991 (24)	20	-	-	-	-	40-80	-	-	-	-
Allowed	7	4	10	10	4	1	NA	2	3	1

It is assumed the authors of the Samoan report have erred in the units they reported.

Food

Marine

Levels are quite low. Except for the Samoan values, which may be suspect, all levels are less than 10% of maximum residue levels (MRL) set by WHO. The HCH and heptachlor levels from Samoa, if correct, would exceed the MRL.

Meat

All levels are significantly below MRLs for all POPs except for the uncertain Samoan value of HCHs.

Dairy Products

Again the suspect Samoa values far exceed MRLs (for example 170 and 360 ppb for heptachlor and aldrin respectively compared to their MRLs of 6 ppb) for milk and eggs.

Others (fruits and vegetables)

The only values were from the suspect Samoan study.

Marine Food (ng/g)

Location Food Year (samples)	HCB	HCHs	Heptachlor	Aldrin	Chlordanes	DDTs	Mirex	Dieldrin	Endrin	PCBs
Fiji Shellfish 1994 (2)	<0.1-0.1	<0.3-0.2	<0.4-0.3	<0.13	<0.5	5.0-52	<0.19	0.4-0.7	<0.5	<5.6
Tonga Shellfish 1994 (2)	<0.4	<0.8	1.0-2.3	<0.7	<0.7	2.1-2.2	<0.10	<0.1-0.6	<0.5	<1.1
Solomon Is. Fish 1992 (9)	<0.01-0.05	0.2-1.6	<0.01	<0.1-0.5	<0.01-2.1	0.07-0.83	-	0.1-2.5	-	1.2-11
Solomon Is. Crab/Oyster 1992 (4)	<0.01-0.05	0.3-0.9	0.04-0.15	<0.1-2.1	<0.01-0.8	0.3-1.4	-	0.1-0.7	-	5.9-16
PNG Fish 1992 (10)	0.01-0.1	0.2-1.9	<0.01-0.1	<0.1	0.1-0.9	0.9-24	-	0.1-1.6	-	0.1-15
Guam Mollusc 1997 (36)	-	-	-	-	-	-	-	-	-	1.2-47
Guam Fish 1997 (59)	-	-	-	-	-	-	-	-	-	0.1-85
PNG Marine 1978 (15)	-	0.1-3.0	-	-	-	0.1-40	-	0-0.5	-	0
Samoa Fish 1979 (5)	-	140-320	140-230	0	-	0	-	-	-	-
PNG Oyster 1988 (82)	15	39	29	49	-	491	-	55	-	-
S.I. Fish 1995 (10)	0.01-0.06	0.23-1.9	-	0.1-1.0*	0.11-1.6	0.91-24	-	0.1-1.0*	-	0.66-15
PNG Fish 1995 (13)	<0.01-0.05	0.18-1.6	-	0.1-3.0*	<0.01-2.1	0.07-1.4	-	0.1-3.0*	-	0.8-16
Allowed	NA	NA	100	50	50	200	NA	50	50	200

*Sum of aldrin and dieldrin

Non Marine Food (ng/g)

Location Year (samples)	HCB	HCHs	Heptachlor	Aldrin	Chlordanes	DDTs	Mirex	Dieldrin	Endrin	PCBs
Solomon Is. Meat 1992 (2)	0.2-0.4	7.5-9.8	<0.01-0.02	<0.1-0.3	0.2-6.1	24-29	-	2.2-4.3	-	45-125
PNG Meat 1992 (2)	0.1	0.6-2.2	0.04-0.15	<0.1-1.0	0.3-0.7	4.4-130	-	2.9-3.0	-	5.2-17
Samoa Meat 1979 (5)	-	350-530	0	10-40	-	150-400	-	-	-	-
Solomon Is. Cheese 1992 (1)	0.4	1.1	<0.01	<0.1	1.5	6.2	-	2.2	-	4.4
Samoa Milk 1979 (16)	-	40-100	20-90	30-70	-	90-430	-	-	-	-
Samoa Eggs 1979 (8)	-	400-540	60-170	80-360	-	960-4800	-	-	-	-
Samoa Other 1979 (24)	-	25-100	0-20	10-90	-	0-20	-	-	-	-
PNG Taro 1988	3.7	3.9	7.0	3.7	-	31	-	5.6	-	-
Allowed Meat	NA	NA	100	100	20	1000	NA	100	50	200
Allowed Dairy	NA	NA	6	6	2	20	NA	6	6	200

Humans

No reliable data available and this is a major gap in Pacific POPs research. The most recent data for breast milk shows levels about half that of developed countries.

Humans (ng/g)

Location Year (samples)	HCB	HCHs	Heptachlor	Aldrin	Chlordanes	DDTs	Mirex	Dieldrin	Endrin	PCBs
Samoa Breast Milk 1979 (10)	-	20-90	40-900	60-100	-	-	-	-	-	-
Samoa Fat 1979 (14)	-	-	-	-	-	8,450- 16,900	-	-	-	-
PNG Breast Milk 1971	0	0	0	0-13.2	0	0-884	-	0	-	-
PNG Fat 1973 (69)	0-920	0-50	-	0-130	-	40-58,000	-	0-2,110	-	-
PNG Breast Milk 1993 (41)	0	0	0	0	0	60-3,000	-	0	0	-

REFERENCES

- Allsopp, M., Erry, B., Stringer, R., Johnston, P., and Santillo, D. (2000). Recipe for Disaster. A review of persistent organic pollutants in food. Greenpeace, 65 pp.
- Atlas, E. & Giam, C.S. (1989). Sea-air exchange of high molecular weight synthetic organic compounds: results from the SEAREX Program. In *Chemical Oceanography* (J.P. Riley, R. Chester & R.A. Duce, eds), Vol. 10, pp.340-378. Academic Press, London, UK.
- Bunin, L. (1988). *Ocean Incineration - A case for a global ban*. Stichting Greenpeace Council, Lewes, U.K., 38 pp.
- Denardi, J.L., Raymond, J., Ricard, L. (1983). Etude des Consequences pour le Lagon de Taunua des Travaux d'Extension du Port de papeete. Rapport CEA-R-5222, 108 pp.
- Denton, G.R.W., Wood, H.R., Concepcion, L.P., Wood, V.S., Eflin and G.P. Pangelinan (1999). Heavy Metals PCBs and PAHs in Marine Organisms from Four Harbor Locations on Guam. A Pilot Study. WERI Technical Report No. 87, 155 pp.
- Firman, I.D. (1981). *Pesticide Handbook*. South Pacific Commission, Noumea, 77 pp.
- Fowler, B. (1991). Methods of Trace Chlorinated Pesticide Analysis in Environmental Samples at the Institute of Natural Resources, University of the South Pacific, Laucala Campus, Suva, Fiji, December, 1991.
- Greenpeace (a). (1999). *POPs for beginners - What is a Persistent Organic Pollutant?*. http://www.greenpeace.org.au/info/archives/toxic/dioxin/POPS_what.html (29 May 2000).
- Harrison, N. (1994). Organochlorine compounds in the aquatic environment of Fiji. MSc Thesis, University of the South Pacific, Suva, 155 pp.
- Harrison, N., Gangaiya, P. and Morrison, R.J. (1996). Organochlorines in the Coastal Marine Environment of Vanuatu and Tonga, *Marine Pollution Bulletin*, 32(7), 575-579.
- Iwata, H. et. Al. (1994). Geographical Distribution of Persistent Organochlorines in Air, Water and Sediments from Asia and Oceania, and their Implications for Global Redistribution from Lower Latitudes, *Environmental Pollution*, 85, 15-33.
- Kannan, K., Tanabe, S., Williams, R.J. and Tatsukawa, R. (1994). Persistent Organochlorine Residues in Foodstuffs from Australia, Papua New Guinea and the Solomon Islands: Contamination Level and Human Dietary Exposure, *The Science of the Total Environment*, 153, 29-49.
- Morrison, R.J., Harrison, N. and Gangaiya, P. (1996). Organochlorine Contaminants in the Estuarine and Coastal Marine Environment of the Fiji Islands, *Environmental Pollution*, 93(2), 159-167.
- Ramamoorthy, S. and Ramamoorthy, S. (1997). *Chlorinated organic compounds in the environment: Regulatory and monitoring assessment*. Lewis Publishers, Boca Raton, Florida, 254 pp.
- Rengam, S. and Snyder, K. (eds.) (1991). *The pesticide handbook: Profiles for action*. International Organization of Consumers Unions (IOCU) and Pesticide Action Network (PAN), 137 pp.
- Samoa German Crop Protection Project (1980). Pesticide Use and Regulation in Western Samoa, unpublished report.
- Sodergren, A., Larsson, P., Knulst, J. and Bergqvist, C. (1990). Transport of incinerated organochlorine compounds to air, water, microlayer, and organisms. *Marine Pollution Bulletin* 21 (1): 18-24.
- Thaman, R. (1984). The poisoning of paradise: Pesticides, people, environmental pollution, and increasing dependency in the Pacific Islands. *South Pacific Forum* 1 (2):165-200.
- UNEP. 2000. *Persistent Organic Pollutants*. <http://www.chem.unep.ch/pops/newlayout/aitstdefaultbody.html> (29 May, 2000).
- Watts, M. (1993). Poisons in Paradise: Pesticides in the Pacific. Greenpeace, 110 pp.

**Uses of and Alternatives to
POPs pesticides
&
Activities aiming at the promotion
of alternatives to POPs pesticides**

Alwin Kool, UNEP Chemicals

for:

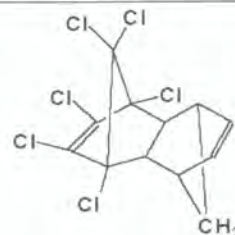
**The Sub-regional awareness raising workshop for
PIC, POPs and the Basel Convention
in Cairns, Australia, from 02-06 April 2001**

Presentation content

- The POPs pesticides
- The current uses
- The alternatives to POPs pesticides
- The activities relevant to the replacement & better management of POPs pesticides

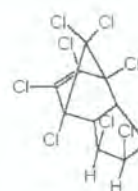
Aldrin

- Aldrin is a pesticide used to control soil insects such as termites, corn rootworm, wireworms, rice water weevil, and grasshoppers

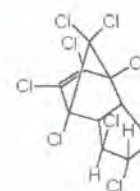


Chlordane

- Chlordane is a broad spectrum contact insecticide that has been used on agricultural crops including vegetables, small grains, maize, other oilseeds, potatoes, sugarcane, sugar beets, fruits, nuts, cotton and jute.
- It has also been used extensively in the control of termites



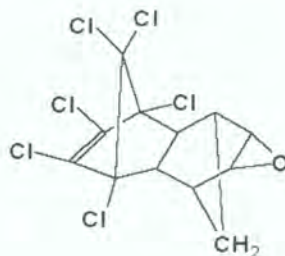
Cis



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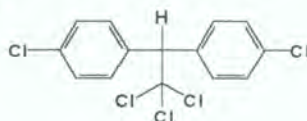
Dieldrin

- Dieldrin has been used in agriculture for the control of soil insects and several insect vectors of disease
- Principle contemporary uses are restricted to control termites and wood borers and against textile pests (WHO, 1989).



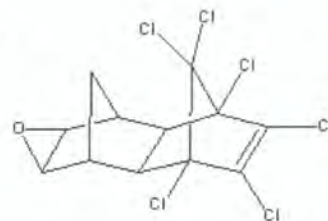
DDT

- DDT was widely used during the Second World War to protect the troops and civilians from the spread of malaria, typhus and other vector borne diseases
- DDT is still used to control mosquito vectors of malaria in numerous countries.



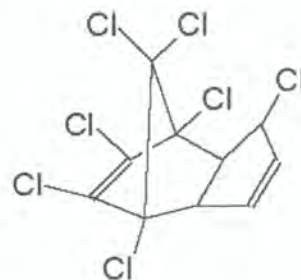
Endrin

- Endrin is a foliar insecticide used mainly on field crops such as cotton and grains. It has also been used as a rodenticide to control mice and voles.



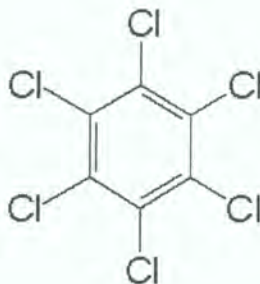
Heptachlor

- Heptachlor is a non-systemic stomach and contact insecticide, used primarily against soil insects and termites.
- It has also been used against cotton insects, grasshoppers, some crop pests and to combat malaria



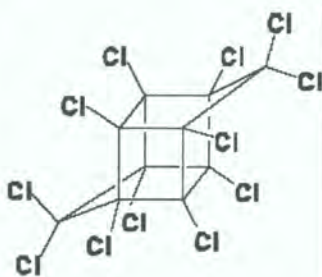
HCB (hexachlorobenzene)

- HCB is a fungicide that was first introduced in 1945 for seed treatment, especially for control of bunt of wheat.



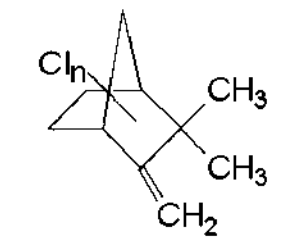
Mirex

- Mirex is a stomach insecticide with little contact activity. It's main use was against fire ants (US)
- but it has also been used to combat leaf cutters in South America, harvester termites in South Africa, Western harvester ants in the US



Toxaphene

- Toxaphene is a non-systemic and contact insecticide that was used primarily on cotton, cereal grains, fruits, nuts and vegetables.
- It has also been used to control ticks and mites in livestock.



Reasons

- The Silver Bullet:
 - Malaria, eradication
 - Crop Protection
- Silent Spring , Rachel Carson (1962)
 - Health/ Environment/ Ecology disruption

Silent Spring 1962, Rachel Carson



Rachel Carson
Photograph by Erich Hartmann,
Magnum Photos

- What Rachel Carson noted over 35 years ago in *Silent Spring* could have been written yesterday:
 - "...we have put poisonous and biologically potent chemicals indiscriminately into the hands of persons largely or wholly ignorant of their potentials for harm. (*Silent Spring*, 1962)

Current uses

- Official use permitted by Authorities
 - e.g. DDT use for the control of Malaria
- Unofficially un-registered uses (Illegal?)
 - sometimes Stockpiles are used for other purposes
- Illegal uses

Sectors of use of present POPs

- Agriculture sector
- Public Health sector
- Construction and Habitation

ALDRIN

- Probably not Produced anymore
- Possible “residual” Uses through Stockpiles
- Reported uses include:
 - termite control in tree nurseries and buildings
 - insect control in Grain Storage
 - soil pests in Maize
 - possibly control of tsetse flies
 - Ectoparasites on Cattle

CHLORDANE

- Probably not Produced anymore (last manufacturer stopped production in 1997)
- Possible “residual” Uses through Stockpiles
- Reported uses include:
 - Termite and ant control in buildings, crops, nurseries and forest plantations
 - control of *Rhinoceros* beetles

DIELDRIN

- Probably not Produced anymore
- Possible “residual” Uses through Stockpiles
- Reported uses include:
 - locust control
 - termite control in tree nurseries, forest plantations, buildings and crops
 - Insect control in Grain Storage
 - Possibly control of tsetse flies
 - Ectoparasites on Cattle

DDT

- Still in production (up to 50,000 tons per year according to certain estimates, probably including production as an intermediate for dicofol manufacture)
- Reported uses include:
 - vector control (malaria mosquitos; sand and tsetse flies (leishmaniasis and trapanosomiasis); fleas (plague)
 - illicit control of crop pests, e.g. lepidopteran

ENDRIN

- Probably not Produced anymore
- Possible “residual” Uses through Stockpiles (although it seems not to be used anymore)
- Reported uses include:
 - control of lepidopteran pests in crops (maize, rice, cotton and sugarcane)
 - control of mice and water voles

HEPTACHLOR

- Probably not Produced anymore (last manufacturer stopped production in 1997)
- Possible “residual” Uses through Stockpiles
- Reported uses include:
 - Termite and ant control in buildings, crops, nurseries and forest plantations
 - control of cut worms

HEXACHLOROBENZENE (HCB)

- Produced as an intermediate in dye production and as a By-product in the manufacture of other chemicals
 - (e.g. production of Chlorinated pesticides)
- Probably not produced as a fungicide anymore
- Reported uses include:
 - fungicide, particularly effective against bunt and dwarf bunt on wheat

MIREX

- Some production of smaller quantities may still take place
- Reported uses include:
 - termite and ant control in crops, grassland, forests and buildings
 - fire retardant

TOXAPHENE

- Believed to be out of production
- Possible “residual” uses through stockpiles
- Reported uses include:
 - insect control mainly in cotton, but also in soybeans, vegetables and on livestock pests
 - possibly control of tsetse flies
 - control of ectoparasites on cattle

Ban

- A ban on a specific Pesticide
- Stockpiles become Obsolete (if not already)
- Stockpile shipment for Final Disposal

Obsolete pesticides

- Obsolete pesticide stocks include large quantities of banned Organo-chlorine compounds that are highly persistent in the environment



FAO: Plant Protection Service, Pesticide Management Unit

Pesticides clean-up

- The obsolete pesticides in developing countries include Aldrin, DDT, Dieldrin, Endrin, Fenitrothion, HCH, Lindane, Malathion, Parathion and many others
- *FAO: Prevention and Disposal of Obsolete Pesticides*



The Alternatives to POPs pesticides



Lessons learned

- No simple replacement of a Pesticide by another Pesticide (No silver bullet solution)
 - Negative side effects
 - Resistance building
- Decentralization of knowledge is key
- (Eco) System approach

Integrated approaches

- Involvement of the Knowledge of the Whole System:
 - Ecosystem analysis
 - Community/Farmers knowledge

Integrated Pest Management (IPM)

Its the careful integration of a number of available pest control techniques that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and safe for human health and the environment

- Not only does it involve minimizing the use of pesticides, it also involves a wide range of other practices aimed at growing a healthy crop.

Farmer fieldschools

- developing and supporting training which helps farmers to learn about the ecology of their fields and, as a result, enables them to make and implement decisions which are safe, productive and sustainable.



- **Picture: FAO Programme for Community IPM in Asia**

FAO's experience has shown that

- IPM increases the sustainability of farming systems.
- It improves social stability because it is institutionalized at the level of the farming community and local government.
- IPM programmes are economically sustainable as they reduce farmers' dependence on procured inputs.
- IPM addresses far more than purely pest management. It offers an entry point to improve the farming system as a whole. -e.g. healthier crops through better use of fertilizers.
- The farmers' field school concept can be used to address other farming situations and extension problems.

Integrated Vector Management (IVM)

IVM uses the same concepts as IPM, of combining methods/products and strategies with an optimal mix adapted to the local situation, however introduction of IVM is at a very early stage compared to IPM activities

IVM basics

- To strengthen knowledge base on local vector ecology
- Transition Vertical vector control programmes to community based Vector Control Programmes
- Capacity building in Cost effectiveness analysis of Vector Control
- Coordination with Integrated Disease management

POPs pesticide use after Stockholm



- Countries have asked for acceptable purposes of uses of specific POPs Chemicals
- List of Acceptable uses

List of Acceptable Uses for the intentionally produced POPs

- Aldrin:
 - Art. in use
 - ectoparasiticide
- Chlordane
 - Art. in use
 - Termiticide in buildings/roads
 - ectoparasiticide
- DDT
 - vector control
- Dieldrin
 - Art. in use
- etc.....available at the INC5 Final report

Alternatives (incl. Strategies) to the use of POPs pesticides

Alwin Kool, UNEP Chemicals

Sub-regional Awareness Raising Workshop on the Prior
Informed Consent (PIC) Procedure, Persistent Organic
Pollutants (POPs) and the Basel Convention, Nadi, Fiji,
22-26 May 2000

Topics:

- Problem analysis
- Uses
- Alternatives
- Activities

Problem analysis

- Life cycle
 - R&D POPs Pesticide
 - Production and Introduction of POPs Pesticide
 - Use POPs Pesticide
 - legal status POPs
 - Use manual
 - legal status
 - Stockpiling
 - Stockpile disposal POPs

-
- Uses
 - Agriculture
 - Human Health
 - Contruction

Country exemptions

- Use ASB annexes

Alternatives for using POPs pesticides

- Categories

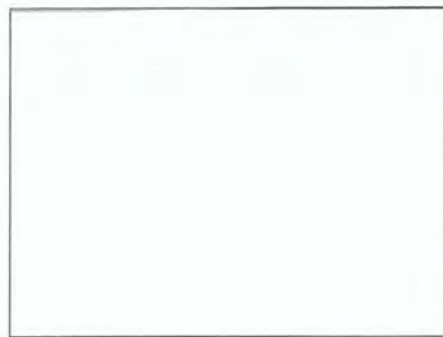
Biological Control
Chemical Substitute
Environmental Management
IPM
IVM
Physical Barrier
Waste Management
Water Management

Alternatives for using POPs pesticides

- What are they??
- Examples
 - Closure of drainage pipes (vector control projects in India)
 - Use of Guppies in Rice Paddies
 - Integrated Pest Management in Rice Paddies (FAO, Asia)
 - Pesticides Alternatives

Activities aiming at Promoting the Use of Alternatives

- Global
- Regional
- National
- FAO/UNEP/WHO Activities
- SPREP???
- Numerous



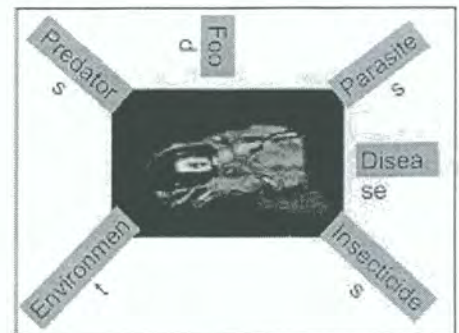
Integrated Pest Management (IPM)

Bruno Pinese
Senior Entomologist
Queensland Horticulture Institute

 Queensland Government
Department of Primary Industries

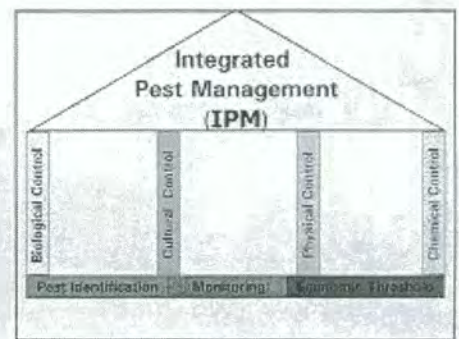
The three eras of insecticide use

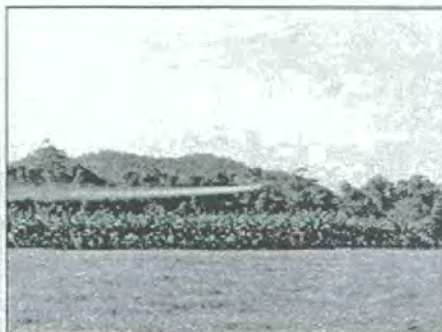
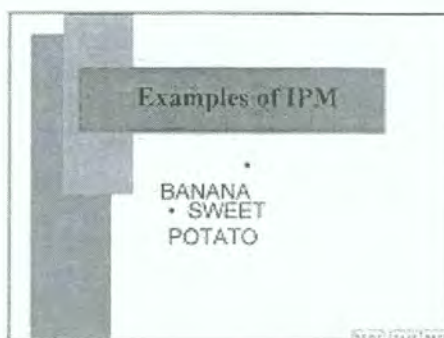
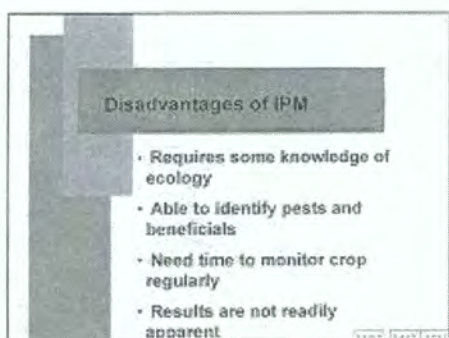
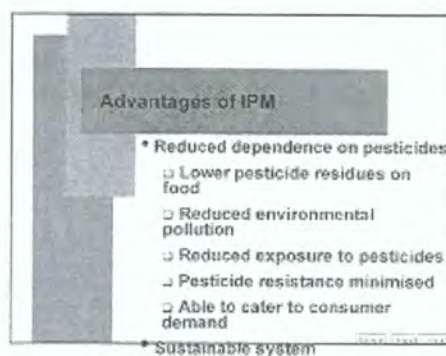
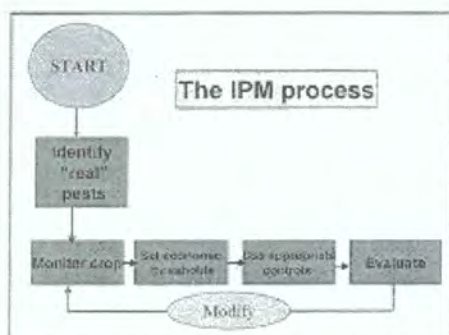
- 1 "The era of optimism"... (1942 - 1962)
- 2 "The era of doubt".....(1962 - 1976)
- 3 "The era of IPM".....(1976 - present)

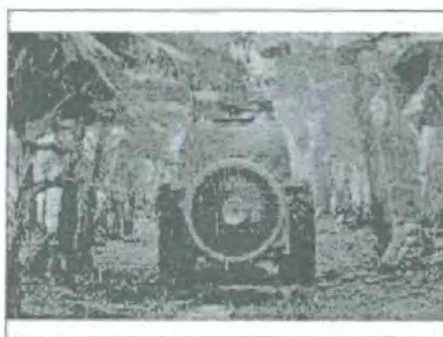


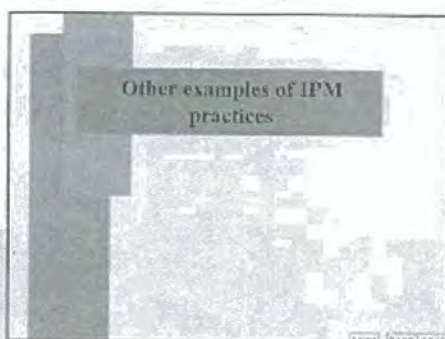
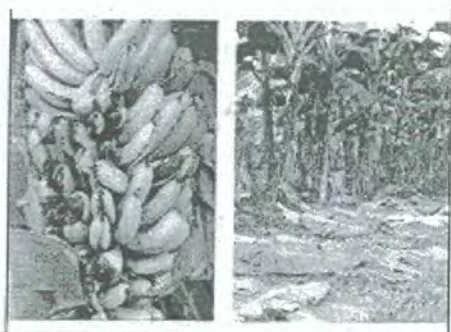
Definitions of IPM

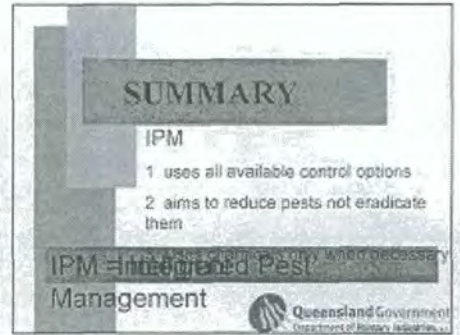
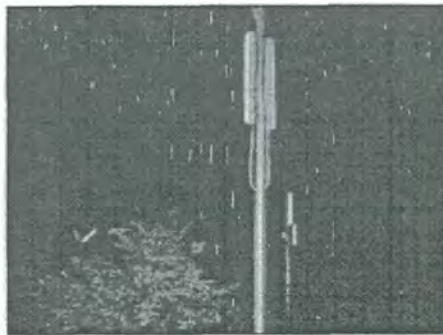
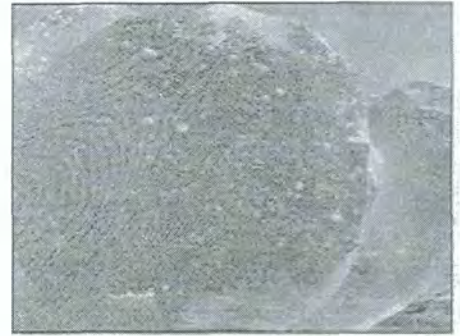




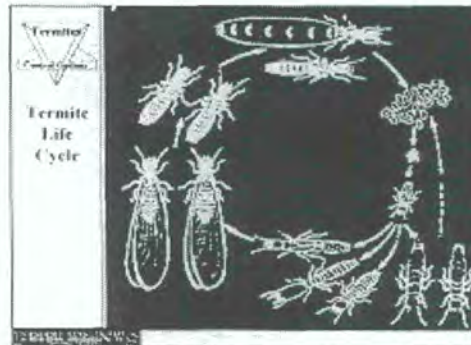
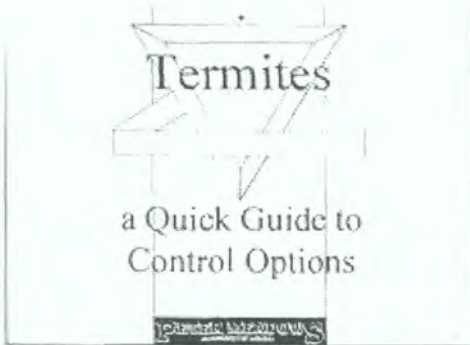






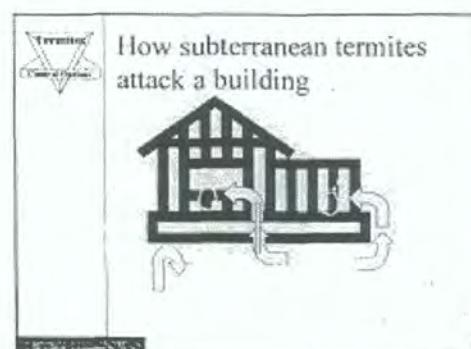


Termites : a quick guide to control



Termite Colony Elimination

- ▼ Practised in Australia since 1918
- ▼ Based on the use of arsenic trioxide dust
- ▼ Minute quantities blown into termite galleries
- ▼ Termite workers translocate the toxin throughout the colony
- ▼ The queen dies and the colony collapses
- ▼ Used in conjunction with aggregation systems since mid 1930's



Termite Types

- ▼ Drywood
- ▼ Dampwood
- ▼ Subterranean

Termite Management Options

- ▼ Colony Control
 - dusts
 - baits
- ▼ Barrier Systems
 - chemical
 - physical
- ▼ Australian Standards
 - AS3660.1-2000 (buildings under construction)
 - AS3660.2-2000 (existing buildings)

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Termite Management Procedures

- ▼ First
 - colony elimination
- ▼ Second
 - barrier system construction (if required)
- ▼ Note - termite barriers on their own will not prevent termites attacking buildings

13 DECEMBER 2000 8



Dust Options

- ▼ Bayer INTRIGUE Termite Dust
 - contains an insect growth regulator
 - affects termites when they moult
 - queen lays eggs that will not hatch
 - colony slowly declines (2 months or more)
 - more "forgiving" than arsenic trioxide
- ▼ Still requires good knowledge and skill

14 DECEMBER 2000 11



Colony Elimination AS 3660.2-2000

- ▼ Dusts
 - inject small quantities into active workings
 - workers spread dust through colony
 - queen is affected
 - colony eventually succumbs and dies out
- ▼ Good knowledge of termites essential
- ▼ Dusting techniques require great skill

15 DECEMBER 2000 9



Colony Elimination

- ▼ Baits
 - need to get termites to feed at baiting sites
 - termite foraging habits must be understood
 - sufficient bait must be taken to ensure control
 - control may take many months, depending on speed of termites finding and eating bait
 - only one registered bait in Australia
 - Sentricon (How AgroSciences)

16 DECEMBER 2000 12



Dust Options

- ▼ Arsenic trioxide
 - been used in Australia and Pacific region since 1918
 - highly toxic, but only small quantities needed
 - effective and fast acting when used correctly
 - improper or inadequate applications will fail

17 DECEMBER 2000 10



Colony Elimination

- ▼ Aggregation Systems
 - encouraging termites to eat at selected spots can be useful for both powdering and baiting
 - understanding of termite foraging systems essential
 - extended "wings" in aggregation systems will lead termites to the feeding site
 - results may be slow and regular checking for termite activity is necessary

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Termitex
Colony Elimination

- ▼ Direct nest destruction
 - find and physically remove nest
 - find and inject dust directly into nest
 - find and inject liquid termiticide into nest

14

Termitex
Chemicals for barrier construction

- ▼ After construction
 - Chlorpyrifos (Organophosphate)
 - Durban - Dow Agrosciences
 - Generics - take care to ensure technical support
 - Bifenthrin (Pyrethroid)
 - Biflex - FMC
 - Imidacloprid (Chloromethine)
 - Premise - Bayer
 - Forms a "Treated Zone" - not a barrier

17

Termitex
Barrier Construction

- ▼ During construction (AS 3660.1-2000)
 - chemical
 - physical
- ▼ After construction (AS 3660.2-2000)
 - chemical
 - installation of some physical barriers may be possible, depending on construction

15

Termitex
The Perfect Barrier



18

Termitex
Chemicals for barrier construction

- ▼ During construction
 - Chlorpyrifos
 - Durban - Dow Agrosciences
 - Generics - take care to ensure technical support
 - Bifenthrin
 - Biflex - FMC

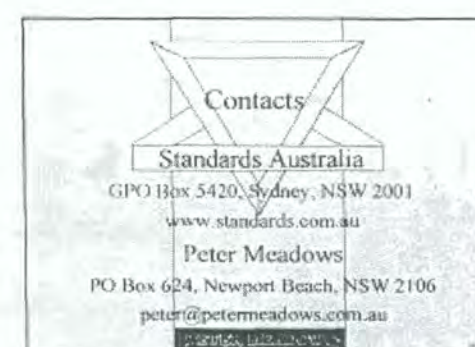
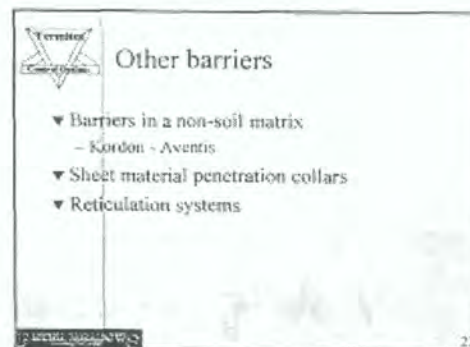
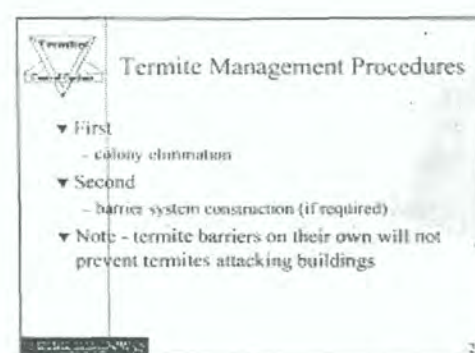
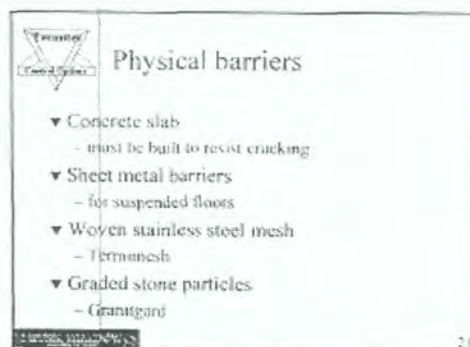
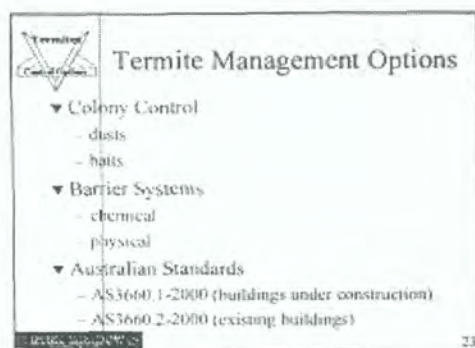
16

Termitex
The Normal Barrier



19

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MANAGEMENT OF STOCKPILES OF POPs

When are pesticides obsolete

- product is withdrawn for health or environmental reasons
- product has deteriorated as a result of improper or prolonged storage - can no longer be used according to its label specifications nor can it easily be reformulated
- product is not suitable for its original use, cannot be used for another purpose or modified to become usable

MANAGEMENT OF STOCKPILES OF POPs

Sub-Regional Awareness Raising Workshop
on the Prior Informed Consent Procedure,
POPs and the Basel/Waigani Conventions
Cairns, Australia
2-6 April 2001

MANAGEMENT OF STOCKPILES OF POPs

Hazards associated with obsolete pesticides

- ▢ Degree of hazard is function of:
 - quantity and condition of containers
 - the place of the storage, inside or outside
 - toxicity of the products
 - location of the storage site - ground water level and proximity to the storage site

MANAGEMENT OF STOCKPILES OF POPs

Hazards associated with obsolete pesticides

- ▢ Occupational hazard
 - to people working at the storage facility
 - unauthorised or inappropriate use
- ▢ General danger to public health and the environment
 - poisoning of people or animals
 - contamination of ground water or soil
 - fire hazard, and associated environmental hazard
 - improvised disposal

MANAGEMENT OF STOCKPILES OF POPs

Six key factors - accumulation of obsolete stocks

- banning of products
- inadequate stores and poor stock management
- unsuitable products and packaging
- donations or purchases in excess of requirements
- inadequate coordination among and within aid agencies
- commercial interests and hidden factors

MANAGEMENT OF STOCKPILES OF POPs

Seven steps in managing a stockpile:

- inventory
- sampling and analysis
- determining if products are obsolete
- site stabilisation
- selecting a disposal method
- long term storage
- prevention

MANAGEMENT OF STOCKPILES OF POPs

Goal: to identify the types and quantities of obsolete pesticides and the condition of their packaging

to determine which are obsolete and which might still be useable

to obtain accurate information to draw up a plan for site stabilisation

identify suitable disposal options

to prepare a disposal plan

MANAGEMENT OF STOCKPILES OF POPs

1. Inventory:

Goal: to identify the types and quantities of obsolete pesticides and the condition of their packaging

• determine which are obsolete and which might still be useable

• obtain accurate information to draw up a plan for site stabilisation

• identify suitable disposal options

• basis for a disposal plan

MANAGEMENT OF STOCKPILES OF POPs

2. Sampling and analysis

Goal: to determine the properties of unidentified products and to establish whether older products are still useable or not

- qualitative analysis may be needed
- complex process requiring a quality control laboratory, with appropriate test methods and specifications
- commercial lab with assistance from aid agency
- government or university lab or manufacturer

MANAGEMENT OF STOCKPILES OF POPs

3. Determining whether products are obsolete

Goal: investigate possibilities for alternative uses or reformulation of the products concerned

- give priority to the use of old stocks that are still useable and if necessary, repackage and re-label these pesticides

MANAGEMENT OF STOCKPILES OF POPs

3. Determining whether products are obsolete

obsolete pesticides include those:

- products banned for environment or health reasons
- products visibly deteriorated beyond usability or where analysis has established they are no longer usable
- products contaminated by other products

MANAGEMENT OF STOCKPILES OF POPs

4. Site stabilisation

Goal: site clean up to avoid further and unnecessary environmental contamination

- containment (repackaging) and relabelling of products in leaking and deteriorated containers;
 - clean up of spills - packaging of contaminated materials

MANAGEMENT OF STOCKPILES OF POPs

4. Site stabilisation (cont'd)

- ▢ centralisation of obsolete stocks if products can be transported without risk
 - can be more easily inspected and facilitates disposal operations
 - segregate obsolete from operational stocks

MANAGEMENT OF STOCKPILES OF POPs

5. Disposal methods

- ▢ Main criteria:
 - environmental soundness
 - occupational safety for operators
 - technical feasibility of bulk quantities
 - suitability for common circumstances in developing countries
 - cost effectiveness

MANAGEMENT OF STOCKPILES OF POPs

5. Disposal methods (cont'd)

Factors to consider in selecting a disposal method

- ▀ quantity and variety of products, their formulations, packaging types and size
- ▀ legal aspects
- ▀ locally available disposal facilities, expertise
- ▀ availability of necessary infrastructure and utilities
- ▀ cost aspects

MANAGEMENT OF STOCKPILES OF POPs

5. Disposal methods (cont'd)

methods that may be acceptable depending on type of product and local circumstances include:

- ▀ high temperature incineration
- ▀ chemical treatment
- ▀ specially engineered landfill (for immobilised materials, incinerator ash and slag)
- ▀ long term controlled storage

MANAGEMENT OF STOCKPILES OF POPs

5. Disposal methods (cont'd)

- ☐ disposal methods unsuitable for bulk quantities of pesticides
 - open burning
 - burying or landfill disposal
 - discharge to sewer
 - solar evaporation
 - deep well injection

MANAGEMENT OF STOCKPILES OF POPs

6. Long term storage

- ☐ May be the only choice where there is no approved disposal technology or where funding for approved disposal is not available

MANAGEMENT OF STOCKPILES OF POPs

7. Prevention

- Only long term solution to the problem

 - raise awareness of the problem

 - countries with obsolete stocks to take leadership in establishing/strengthening their pesticide management infrastructure

MANAGEMENT OF STOCKPILES OF POPs

7. Prevention (cont'd)

- Only long term solution to the problem

 - follow available guidelines

 - make use of existing laws and conventions to create political will

 - improve communication and information exchange among stakeholders

MANAGEMENT OF STOCKPILES OF POPs

Available guidance

Prevention of accumulation of obsolete stocks, Series No.2

Pesticide storage and stock control manual, Series No. 3

Disposal of bulk quantities of obsolete pesticides in developing countries, Series No. 4

Guidelines for the management of small quantities of unwanted obsolete pesticides, Series No. 7

Assessing soil contamination (A reference manual) Series No. 8

WWW.fao.org/ag/AGP/AGPP/Pesticid/Disposal/guides.htm

Dioxins and Furans: Overall Status

Sub Regional Awareness Raising
Workshop on Prior Informed
Consent (PIC) Procedure, POPs
and the Basel and Waigani
Conventions

Cairns, Australia 2-6 April 2001

Outline of presentation

- Introduction/characteristics/toxicity
- Major sources
- Exposures/levels
- Inventories
- Reduction measures

Stockholm Convention on POPs

Article 5 (Measures to reduce/eliminate releases from unintentional production) Annex C (Unintentional production)	Develop and implement an action plan to identify sources and reduce releases of POPs listed in Annex C (dioxins and furans) Promote measures, including best available techniques (BAT) and best environmental practices (BEP), to achieve release reduction of POPs listed in Annex C taking into consideration guidance adopted by COP	Develop and implement an action plan to identify sources and reduce releases of POPs listed in Annex C (dioxins and furans): • Evaluation of current and projected releases • Source inventories and release estimates • Evaluation of efficacy of relevant laws and policies • Strategies to implement Article • Education, training and awareness raising • Review of strategies every 5 years • Schedule for implementation Identifying BAT and BEP for particular industry Awareness raising in industry and community on appropriate procedures, practices and alternatives
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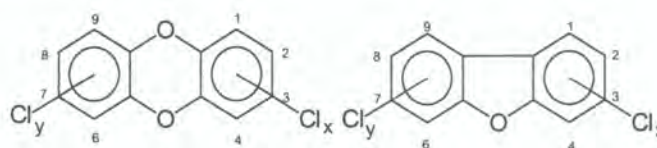
Introduction

- PCDD/PCDF are ubiquitous contaminants
- Were never produced intentionally
- Byproducts of many chemical-industrial and combustion processes
- PCDD/PCDF accumulate in fatty tissues of animals and humans
- PCDD/PCDF are persistent in the environment
- PCDD/PCDF adsorb to organic carbon
- PCDD/PCDF undergo long-range transport

PCDD/PCDF congeners

210 possible congeners of PCDD/PCDF
Almost all congeners can be released
from sources

PCDD and PCDF



**Polychlorinated
dibenzo-*p*-dioxins
PCDD**

**Polychlorinated
Dibenzofurans
PCDF**

IARC Evaluation of Cancer (1996)

- 2,3,7,8-TCDD is a Group 1 compound and thus, classified as carcinogenic to humans;
- 2,3,7,8-TCDD is a multi-site carcinogen;
- all other 2,3,7,8-substituted PCDD/PCDF congeners are not classifiable as to its carcinogenicity to humans = Group 3

Toxicity - Non-Cancer Effects

- TEF concept is applicable
- Non carcinogenic endpoints in animal models are more sensitive than carcinogenic endpoints in rodents and monkeys
 - Reproductive, neurobehavioral and immunotoxicological effects occur at 10-40 pg TCDD/kg bw*d
 - Biochemical effects (P450 enzymes, thyroid hormones) occur at 1-10 pg/kg bw*d
- In present human population with background exposure (1-4 pg TEQ/kg bw*d) subtle effects on thyroid hormones and neurobehavior occur.

Outline of presentation

- Introduction/characteristics/toxicity
- **Major sources**
- Exposures/levels
- Inventories
- Reduction measures
- UNEP Toolkit for doing inventories

Sources of PCDD/PCDF

Primary Sources:

- Inputs predominantly occur from combustion processes such as
 - waste incineration, power generation
 - steel and non-ferrous metal industries
 - automobiles, home heating, forest fires

Secondary Sources:

- Releases from reservoirs
 - Sewage sludge, compost, sediments, landfills, ...

Major Source Categories

- **Iron and Steel:** Foundries, sinter and coke plant
- **Non-ferrous Metals:** Copper, aluminum, zinc, lead
- **Waste Incineration:** Municipal, hazardous, hospital, sewage sludge, crematoria
- **Industrial Combustion Plants:** Coal, gas, oil, sludge

Major Source Categories (cont.)

- **Small Combustion:** Domestic stoves - coal, oil, gas, wood
- **Road Transport:** Leaded and unleaded gasoline, Diesel
- **Power Plants:** Coal, gas, oil, wood
- **Mineral Products:** Cement, lime, brick, ceramics, glass
- **Others:** Car shredders, asphalt, chemical industry, fires

Outline of presentation

- Introduction/characteristics/toxicity
- Major sources
- Exposures/levels
- Inventories
- Reduction measures
- UNEP Toolkit for doing inventories

Pathways of Human Exposure

Occupational exposure

Accidental exposure

Environmental (background) exposure (general population)

Direct Exposures

⇒ inhalation of air and intake of particles from air

⇒ dermal absorption (cosmetics, cloths, consumer goods)

⇒ ingestion of soil (children)

Indirect Exposures

⇒ food consumption

Human Background Exposures

90 % of daily dioxin intake results from ingestion (WHO, 1990)

95 % of daily dioxin intake results from food, 5 % from ingestion of soil or inhalation of air (Federal Health Institute and Federal Environment Agency, Germany, 1990)

95-98 % of total exposure from food (Compilation of EU Dioxin Exposure and Health Data, European Commission, October 1999)

Significance of Main Routes to PCDD/PCDF- Exposure

Source	pg I-TEQ/day	pg I-TEQ/kg bw day
Food	30 – 100	0.5 – 1.5
Air	2	0.03
Soil	0.1 - 2	< 0.002 – 0.03
Potential intake from miscellaneous sources		
Cigarettes	1.6 - 3	0.02 – 0.04
Coffee filter	8.2	0.15
Milk carton	29	0.5

Daily Dioxin Intake (Germany)

Category	1986-91 pg I-TEQ/g	1992-96 pg I-TEQ/g	1986-91 pg I-TEQ/person·d	1992-96 pg I-TEQ/person·d
Milk	1.1-2.2	0.7	41.7	19.3
Meat	0.3-2.7	0.3-0.7	33.1	13.8
Eggs	1.5	1.3	5.9	5.1
Fish	31-43	10.4	33.9	10.4
Fruit	15	ND	2.0	(2.0)
Vegetables	15	15	3.7	3.7
Others			7.0	(7.0)
Total Intake			127.3	61.3
Intake per kg			1.82	0.88

Parameters Effecting PCDD/PCDF Levels in Human Milk

- **Personal data of the mother**
(higher concentrations for feeding 1st child;
earlier weeks higher than later in time)
- Food consumption habits**
(diet, rich in fish, meat, *etc.*)
- Living conditions**
(*e.g.* chimney, smoking)
- Time trend**
(lower in recent years)

Outline of presentation

- Introduction/characteristics/toxicity
- Major sources
- Exposures/levels
- **Inventories**
- Reduction measures
- UNEP Toolkit for doing inventories

Countries with Dioxin Inventories



Outline of presentation

- Introduction/characteristics/toxicity
- Major sources
- Exposures/levels
- Inventories
- **Reduction measures**
- UNEP Toolkit for doing inventories

PCDD/PCDF Reduction Measures

- Complete source elimination
- Optimization of process technology
- Change in production technology
- Application of PCDD/PCDF control and reduction techniques

Complete Source Elimination

- Indirect measure
- Ban of chemicals known to be contaminated with PCDD/PCDF
- Examples are some countries who have phased out production and use of:
 - 2,4,5-trichlorophenoxy acetic acid (2,4,5-T)
 - polychlorinated biphenyls (PCB)
 - pentachlorophenol (PCP)

Optimization of Process Technology

- Ensure adequate operation and maintenance of the equipment at all times
- Keep all equipment in good working order and as designed operating conditions
- Train personnel with respect to understanding the implications of operating procedures
- Closely monitor and control the process
- Modify the existing equipment
- Avoid spills and accidental releases

Change in Production Technology

- **Ensure adequate operation and maintenance**
- **Minimize or eliminate inevitable releases**
- **Minimize or eliminate waste generated**
- **Modernize/upgrade the existing equipment**
- **Replace existing equipment and switch to a different, more efficient technology**
- **Switch to an entirely different production process**

Apply Dioxin Reduction Techniques

- **Ensure adequate operation and maintenance**
- **Protect the production facility from weather**
- **Contain the production facility in a concrete basin**
- **Apply a leachate collection and treatment system**
- **Collect and treat all liquid, sludge, and solid waste**
- **Remove particulate matter from flue gas**
- **Apply adsorption filters to flue gas**

Resources

All information can be found on
UNEP's homepage:

**[http://www.chem.unep.ch/
pops](http://www.chem.unep.ch/pops)**

Some observations

- Developing an inventory is key to setting priorities for action
- Some of the first steps that can be taken are most cost effective in reducing emissions
- In addressing other environmental problems you can also address dioxins and furans (e.g., urban air pollution)

Possible National Activities

- Place dioxin inventory on political agenda
- Nominate chairman and create working group comprising of interested parties/stake holders
- Conduct a national workshop on dioxins/furans
- Make source information centrally available
- Send out questionnaires to plant owners, agriculture/forestry, industry associations, *etc.*
- Evaluate questionnaires and start inventory

Dioxin/Furan Emission Inventories and Management Plans

Dr Bruce W Graham

Coordinator - Waste Management & Pollution
Prevention, SPREP

Management Requirements under the POPs Convention

- **Development of National
Implementation Plans**
- **National Reports (progress on
implementation)**

Components of a National Plan



Dioxin/Furan Emissions Inventory

- Identifies all possible sources of dioxins and furans (discharges to air, water and land)
- Calculates the amount discharged from each source or group of sources
- Determines the total emissions for the country
- Identifies the major sources

Inventory Methodology

- Identify all possible sources
- Collect information on activity rates (eg. fuel use or production rate)
- Measure emissions **OR** estimate emissions using published emission factors
- Repeat for all sources

Where to start ?

“Standardised Toolkit for Identification and Quantification of Dioxin and Furan Releases” UNEP Chemicals, 2001

- Helps to identify sources
- Shows how to estimate emissions

Possible Dioxin Sources

- Waste incineration
- Metal production
- Energy production (electricity/heat)
- Mineral processing
- Transport
- Uncontrolled burning
- Chemical production and use
- Waste disposal/landfill
- Other

Estimating Emissions

- **Emissions = activity rate x emission factor**

eg. HFO (heavy fuel oil) electricity generators

emission factor = 4 ug TEQ/tonne of fuel

emissions (ugTEQ/yr) = fuel use (Tonnes/yr) x 4

New Zealand Dioxin Inventory

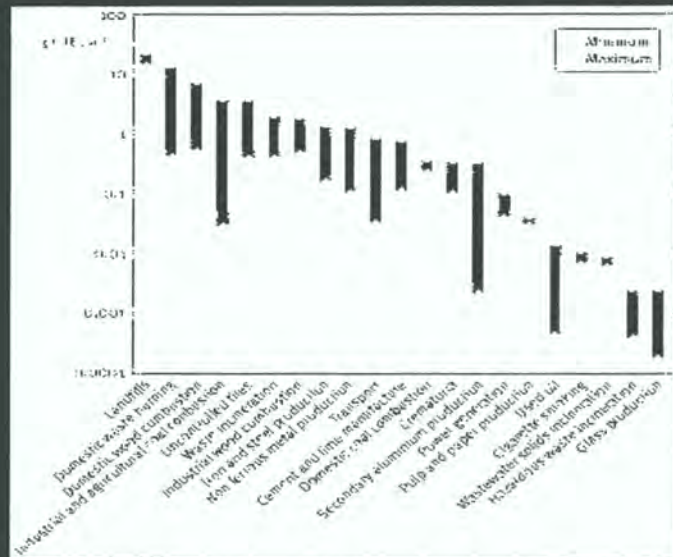
**National Organochlorines Programme,
Ministry for the Environment, 1996-2002**

- monitoring (air, water, soil, food, humans)
- emissions inventory (releases to air, water, land, plus reservoirs)
- risk assessment (population exposures)
- policy development and national standards

NZ Inventory Method

- Source identification (published data, and brainstorming by expert group)
- Emission testing on selected sources
- Activity data from questionnaires and published information (eg. fuel sales)
- Calculations using emission test results and published emission factors (mainly UK)

NZ Dioxin Emissions to Air



New Zealand Emissions Inventory
Report, Ministry for the
Environment, March 2000

Key Sources in NZ

- Landfill fires
- Domestic rubbish burning
- Industrial and domestic wood burning
- Industrial coal combustion
- Motor vehicles

Possible Dioxin Sources in PICs

- Power stations (oil and gas)
- Motor vehicles
- Rubbish burning (landfills + other)
- landfill gas and leachate
- Wood and waste oil burning
- Steel and cement plants, foundries
- Waste incinerators
- Forest, scrub, grass fires

Components of a National Plan



Management Options - 1

- **Emission standards**

Best for large sources (cost of testing)
Forces industry to increase emission controls or switch to cleaner technology

- **Environmental standards**

No direct control over sources but will indicate need for controls
High monitoring costs

Management Options - 2

- **Technology changes**

eg. restrictions on types of incinerators
ban on rubbish burning
use of unleaded petrol in cars
vehicle tuning programmes
switch to solar or wind power

Dioxin Management for PICs

Simple technology options are likely to be the preferred approach, with other improvements being made as equipment is upgraded or replaced

(ie. low implementation costs, and minimal monitoring and compliance costs)

Possible National/Regional Strategies

- Environmental levels and food survey (USP)
How significant are dioxins in the region?
- Emission inventories - identify main sources
- Implement simple controls (eg. no landfill fires)
- Develop vehicle management strategies
- Move towards cleaner alternatives (eg. solar)

PCBs Polychlorinated Biphenyls Presentation Outline

- PCBs origins and uses
- Identification of PCB contaminated equipment
- Removal and Storage of PCB contaminated equipment
- Disposal options for PCB equipment

Polychlorinated Biphenyls (PCBs)

Presentation to SPREP Conference Cairns
2- 6 April 2001

Boyne Drummond
General Manager
Tredi New Zealand Ltd

What is PCB (Polychlorinated Biphenyl) ?

- A synthetic chemical liquid
- Very stable and fire resistant
- Excellent electrical properties
- Widely used in electrical equipment until 1970's
- Chemical stability means disposal of PCB must be properly managed to avoid pollution of the environment
- PCB will bioaccumulate ie build up in the environment
- PCB is moderately toxic to humans

Properties of the Polychlorobiphenyls (PCBs)

- Good Heat transfer fluid
- Good insulator
- Very stable
- Non biodegradable
- Soluble in oil
- Very viscous
- Non-volatile to room temperature
- Specific scent

Main Manufacturers of PCBs

• E.E.C.U.	Monsanto, Arcochlor.
• ENGLAND	Monsanto, Arcochlor.
• GERMANY	Bayer, Clophen.
• FRANCE	Prodeloc, Pyralene, Phenoclor.
• SPAIN	Cms, Neffamol.
• ITALY	Caffaro, Apirelio, Fencior, DK, Incior.
• RUSSIA	Sovol.
• JAPAN	Kanegafuchi, Mitsubishi, Kanechlor, Santotherm.

• 1.05 million tonnes produced between 1930 and 1980

Use of the PCB Produced in the United States

CAPACITORS	196,000,000 Lbs.	50%
TRANSFORMERS	100,000,000 Lbs.	26%
PLASTIFICANTES	35,000,000 Lbs.	9%
LUBRICANTS	24,000,000 Lbs.	6%
COPY PAPER	13,000,000 Lbs.	4%
INTERCHANGERS	10,000,000 Lbs.	3%
OTHERS	8,000,000 Lbs.	2%

End of the production of PCBs

COUNTRIES	YEAR
ECUADOR	1979
GERMANY	1980
AUSTRIA	1985
BELGIUM	1981
DENMARK	1986
FINLAND	1989
FRANCE	1972
NETHERLANDS	1975

Equipment that Contains PCBs



- Made originally with PCB
- Made originally with mineral oil and that was contaminated:
- By the treatment of the oil using a contaminated filter.
- With addition of contaminated oil.

PCB Storage Site



Site View



Large Units

Special handling is required for the larger units.



Size and capacity of Askarel Transformers



PCB Capacitors

- Electrical Switchboards
- Radio Transmitters
- Light Fittings
- Street Lights
- On Electric Motors

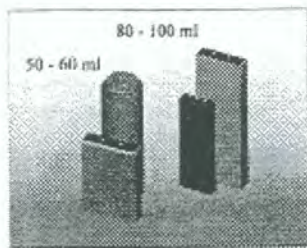


Small Ballast Capacitors

- Fluorescent light fittings
- Street light ballasts



Size and Capacity of small Askarel Capacitors



Classification of Equipment According to its Content of PCBs

- | | |
|----------------|-------------------|
| • Below 2 ppm | NON CONTAMINATED |
| • 2 - 50 ppm | NON SCHEDULED PCB |
| • 50 - 500 ppm | PCB CONTAMINATED |
| • Over 500 ppm | HIGH STRENGTH PCB |

Methods of Analysis for PCBs



- Oil on Water Test
- Dextil test of chlorine (50 and 500 ppm)
 - Oil in transformers.
 - Oil in general
 - Soils.
- Gas Chromatograph (1 ppm).

Labelling of Equipment

- Warning
- This Equipment contains PCB
- UN 2315
- Special handling instructions



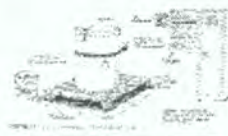
Standard Storage Facility

- Security
- Containment
- Ventilation
- Notices
- Inventory
- Communications
- Safety Gear
- Spill Gear
- Packing Materials Drums
- Regular Inspections



Small Storage Facility

- UN Rated Drums
- Notices
- Inventory
- Safety Gear
- Spill Gear
- Regular Inspection



Identification and labelling for the marine transport of PCB



Hazardous Class of the PCB in the international regulation

Class 9



This label indicates the danger of the polluting agent. The individual packages must identify clearly the name of the owner of the waste and the final destination.

UN 2315

Transport



- TREDI offers a transport service complying with the highest quality standard, the international IMDG regulations and the Basel convention.

PCB Disposal Options

- Reference publications
 - Basel Convention
 - International Inventory of PCB Disposal Options
 - Environment Australia
 - Appropriate technologies for hazardous wastes

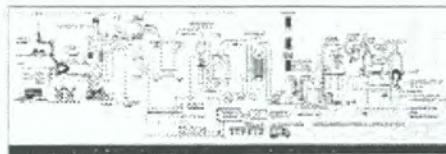
PCB Disposal Established Options

- High Temperature Incineration
 - The most widely used option
- Chemical Dechlorination
 - Suitable for low strength liquids
- Base Catalysed Dechlorination
 - Proven treatment for liquids up to 10% PCB
- Solvent Extraction
 - Proven technology for transformers
- Plasma Arc Thermal Decomposition
 - Proven but expensive technology for high PCB liquids

PCB Disposal Emerging Technologies

- Bioremediation
 - Using micro-organisms to break down the toxics
- Vitrification
 - Melting the waste in situ
- Solidification
 - Limits the mobility of the toxic components

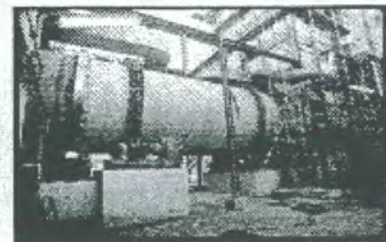
Procedure of HT Incineration



• Tredi PCB Disposal Facility in France
• Full compliance with EU Emission Regulations



Tredi HTI Destruction Facility Rotary Kiln



Key Elements when Managing PCBs

- Identification of the PCB problem
- Quantity and Concentration
- Risk in present location
- Assess the requirements for the replacement equipment
- Plan the replacement on present/future needs
- Select safest disposal option
- Protect the environment

Tredi New Zealand Ltd

Hazardous Waste Disposal Services in the Asia Pacific Region

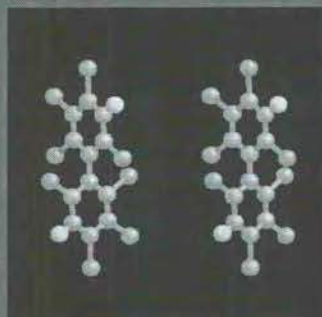


Polychlorinated Biphenyls (PCBs)



Workshop on PIC, POPs and Basel
Cairns, Australia
2-6 April 2001

OVERVIEW



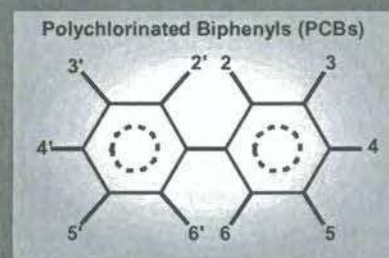
PCB molecule

- Objectives
- Polychlorinated Biphenyls (PCBs)
 - What are they?
 - History and use
 - Environmental fate
 - Health effects
 - Laws, regulations, international agreements

2

Chemical structure of PCBs

- Polychlorinated biphenyls (PCBs)
- Structure
 - Two benzene rings and 1 to 10 chlorine atoms
 - 209 possible congeners or forms of PCBs
- Produced by reaction of biphenyl and Cl_2 using a catalyst

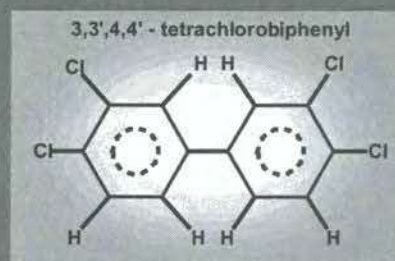


PCB molecule

3

Physical Characteristics of PCBs

- Broad range:
 - light, oily fluids
 - heavy, honey-like
 - heavy greases, waxes
- Non-flammable
- Do not conduct electricity
- High boiling points
- Slightly soluble, heavier than water



Example of a PCB congener

4

History

- Discovered in the 19th century
- Began manufacture in 1929
- Excellent properties for many applications
 - Non-flammable
 - Does not easily degrade

5

Use

- Used extensively from 1929 to 1978
 - Dielectric fluids - transformers and capacitors - 60%
 - Industrial fluids - hydraulics, gas turbines - 15%
 - Adhesives, textiles, printing, sealants, etc. - 25%
- Countries that have manufactured PCBs
 - Austria, China, Czechoslovakia, France, Germany, Italy, Japan, Russia, Spain, U.K., U.S.
- National PCB phase outs took place
 - Late 1970s: Canada, Japan, Sweden, U.S.
 - Early 1980s: France, Germany, Spain, U.K.

6

Where PCBs are found

Applications		
<u>Closed</u>	<u>Partially Closed</u>	<u>Open</u>
Transformers	Heat transfer fluids	Plasticizers
Capacitors	Hydraulic fluids	Sealants
Lighting ballasts	Vacuum pumps	Adhesives
Motors	Switches	Paints
Magnets	Circuit breakers	Surface coatings
	Voltage regulators	Carbonless paper
	Liquid-filled electrical cables	Inks
	Liquid-filled circuit breakers	Lubricants

7

How Did PCBs Get into the Environment? (1)

- In the past, disposal of PCB wastes into the environment was considered acceptable, legal and hazard-free
- Often disposed of intentionally for dust suppression

8

How Did PCBs Get into the Environment? (2)

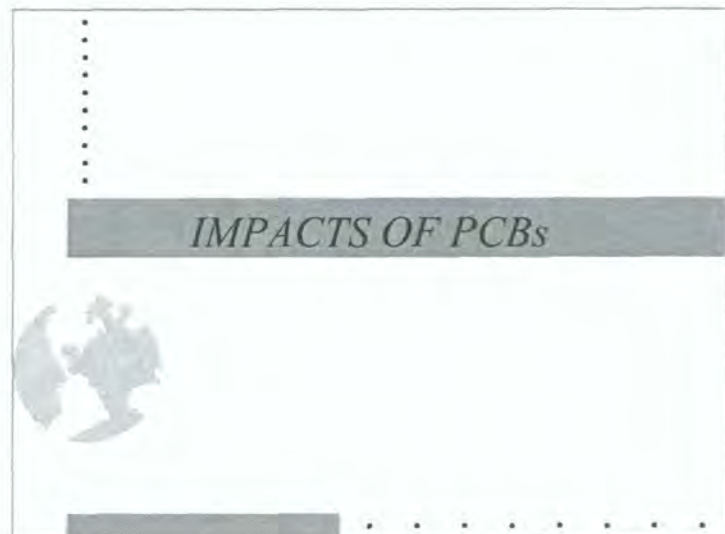
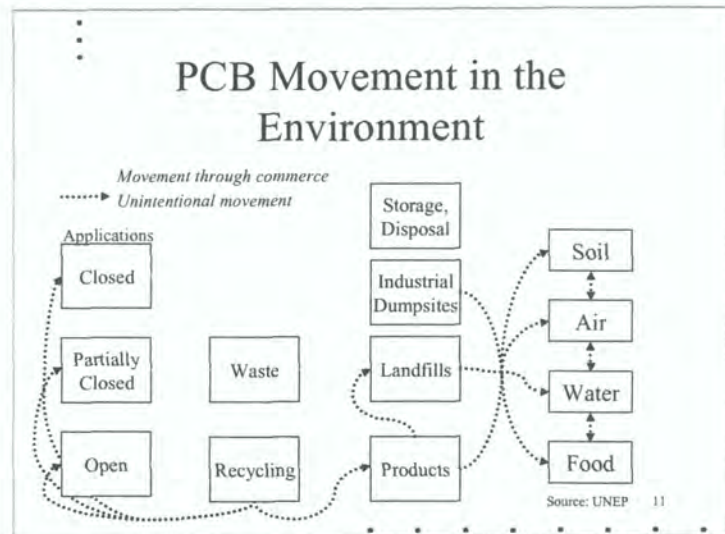
- Accidental releases
 - Leaks, spills from PCB equipment
 - Waste oil (recycled)
 - Contaminated fuels
 - Disposal in landfills

9

How Did PCBs Get into the Environment? (3)

- Other releases
 - Open burning
 - Transformer fires
 - Capacitor explosions
 - Releases from paints, coatings, printing inks, plastics, sealants

19



Health Effects -- Historical Concern

- Early 1930s
 - Chloracne in people working with PCBs
- 1966
 - PCBs found in environmental samples
- 1968: Japan
 - “Yusho” episode
- 1978: Taiwan
 - “Yu-Cheng” disease

13

Health Effects

- Acute effects
 - Chloracne, skin rashes, liver disorders
- Chronic effects
 - Chloracne, liver damage, reproductive and developmental effects, immunosuppression
 - Possibly cancer
- PCB degradation products are more toxic

14

International Agreements

- Basel Convention
 - Responsibility of exporting countries to ensure that hazardous waste treated correctly
 - Annex VIII lists wastes containing PCBs
- POPs Convention - Stockholm
- OECD: "Red List"
 - Transboundary movement of wastes
 - PCB-contaminated wastes greater than 50 ppm not suitable for recovery

15

Classification of PCBs

- 50 ppm (mg/kg) is the threshold level for regulation in most countries
- PCB equipment usually contains liquids with high PCB concentrations
 - Greater than 500 ppm
 - Many countries require specific marking, handling, disposal methods

16

SUMMARY

- Objectives
- Polychlorinated Biphenyls (PCBs)
 - What are they?
 - History and use
 - Environmental fate
 - Health effects
 - International agreements

17

Persistent Organic Pollutants and their Management in Fiji

By: Moti Lal Autar, Fiji

- While pesticide use in the agricultural sector brings about an increased production of food, both at commercial and subsistence levels, it has its own adverse effects on man and the environment.
- Fiji, a small island developing state is classified as a very vulnerable country; therefore the management of pesticides (chemical imports) is very actively monitored. Ministry of Agriculture, Fisheries and Forests (MAFF) research division (Pesticides Registration Unit) is responsible for regulating pesticides in Fiji under Pesticide Act 41 of 1971, as well as notifying the general public of significant criteria related to pesticides. These criteria may affect the registration and uses of products in the country.
- Application for registration must demonstrate that the pesticide satisfies the Statutory standards for registration, i.e the pesticide performs its intended function without causing unreasonable adverse effects on the environment and human health, taking into consideration the economic, social and environmental factors. This standard requires a finding that the benefits of the use of pesticide exceed the risks of use (Cost-Benefit analysis), when used in compliance with the rules and conditions of registration and commonly recognized practice. Intent to use or ban a product is based on the risk and benefit factors.
- The minister reserves the right to cancel the registration of a pesticide, refuse registration with reasons if requested, register a pesticide with or without conditions and to require modification on registered products, whenever he determines that the pesticide appears to cause unreasonable adverse effects on the environment and the human health.
- Under the pesticide act, pesticide registration unit has a responsibility for registering all pesticides marketed in Fiji. In accordance with the Pesticide Act of 1971 and pesticide regulation on 1971, all pesticides must be registered before they can be sold or used in Fiji. Registration is only granted by the registrar of pesticides when evidence is provided to show the product is safe when used according to the directions and found effective against its target pest.
- Notice of export by various interested companies is provided to Fiji through the respective high commission offices, example Hexane export from USA in 1993 was passed to us for comments via USEPA – to Foreign Affairs to Pesticide registration unit (Fiji).
- To obtain registration for a product, the pesticide register requires the manufacturers to submit a detailed and specific information concerning the chemical composition of their product, toxicological data, documented hazards associated with the use of the produce and effectiveness data to support their claims against target organisms. Efficiency data should also be submitted by the applicant and verification done by researchers in Fiji, to get optimum dose/frequency rates most suited to local conditions. Furthermore the applicant has to provide information on the registration status in countries like USA, NZ and Australia of the product they seeking a registration for. Decision taken for registration is by reviewing and scrutinizing of the data generated on the product. Once the registrar is satisfied that the pesticide is effective for the uses claimed and that no toxicological problems exist, the product is then registered.

Note that no research on the pesticide product is conducted in the country, but information is gathered from the USA (EPA), NZ (pesticide registry) and Australia (pesticide registry) and a consensus decision to use or ban the product is taken, based on these research information.

- Fiji, at present phase is experiencing with the major problems associated with pesticides, i.e. the disposal issue. Old stockpiles of obsolete chemicals are “sitting” at various premises in large quantities, which needs proper disposal. SPREP consultant in a survey found that about 21,210kg of old agricultural chemicals together with 19 contaminated, found sites need disposal and cleaning.
- The convention on Pops organized by UNEP offers some solution to the disposal issue regarding the obsolete chemicals. An initiative by the department of environment (Fiji) has seen the compilation of a draft cabinet paper for presentation to the cabinet. Once Fiji signs and ratifies this convention, a lot of positive opportunities will open up for Fiji, especially the disposal issue.
- Note that currently none of the pesticides categorized under POPs is used in Fiji. Most pesticides mentioned as POPs were deregistered and their use banned, while some were not registered for use at all.
- Fiji follows very closely with Food and Agricultural Organization recommendations for labeling and registration of pesticides. Also is signatory to various conventions such as Vienna convention, Montreal convention, FAO-UNEP/UNITAR Prior Informed Consent procedure and Codex Alimentarius commission to safeguard and protect its people and environment.
- Information on pesticides in the country is made available to the community at large by the following means:
 - Detail information on the product for registration is supplied by the applicant/manufacturer
 - Ministry of Agriculture Information system: by radio broadcasts, publications in newspapers and research publications.
 - Publications are a very informative channel in the forms of, Research reports distributed to library, extension agents, Pamphlets available to the general public and Fiji Republic Gazettes available from government offices to general public on request.
 - Through the Ministry's extension advisors to farmers.
 - Through the promotional advertisements by Agro Chemical companies to the general public.
 - Officially gazetting all registered pesticides for general public.
 - Information is also exchanged with other countries and organizations via:
 - Pesticide registrar maintains direct contact with the registration authorities in New Zealand, Australia and USA.
 - Documents concerning research, feature articles etc. concerning pesticides are sent by USEPA, UNEP, FAO/WHO, IOUC and PAN.
- Fiji is a developing country that lacks the expertise or infrastructure to ensure the safe use of pesticides. The implementation of PIC (Prior Informed Consent) procedure by Fiji will mean that:
 - Fiji making informed decisions on the import of chemicals that have been banned or severely restricted.
 - Fiji will learn more about the characteristics of potentially hazardous chemicals that may be imported

- Fiji will be able to initiate a decision-making process on the future import of these chemicals.
 - Fiji will be able to facilitate the dissemination of these decisions to other countries.
 - Pesticide dealers and NGOs are very cooperative towards the implementation of PIC.
- At the moment Fiji does not have a national analytical laboratory to facilitate proper management of pesticides. There is a need to establish such a laboratory that will help in implementing proper use of chemicals, which can provide routine analysis service to assist authorities in monitoring and policing of harmful activities. There is also a need to train local people in all aspects of chemical management. A training scheme and other educational efforts in pesticide related program for people involved in pesticide and toxic chemical regulatory work should prove effective. There also exists a need to establish Poison Control centers.
- International organizations can make arrangements for aid in kind to assist developing countries in upgrading their capabilities so that countries become in better positions to implement the recommendations from various conventions in order to safeguard their people and the environment.

Preliminary Dioxin...Inventory of Samoa

- References:
 - UNEP (1999c) "Dioxin...Inventories: National & Regional Emissions..."
 - NZ MfE (1999) "Reporting on Persistent OrganoChlorines in NZ"- tinned fish >3x local
 - Buckland et al. (2000) "NZ Inventory of dioxin emissions to air, land & water, & reservoir sources" – landfill fires greatest
- Possible proxy of PCBs & Chloro-Phenols (CPs) residues in shellfish & marine sediments following:

Preliminary Dioxin...Inventory of Samoa

- UNEP POPs Profile Reporting Form 2 (1998, 24 Apr)
 - Major: Traffic emission; Transportation; Forest Fires; Wood combustion; Asphalt mixing installation
 - Minor: Contaminated pesticides; industrial processes; Waste incineration [+Landfill fires]; Wastes, medical solids
- GOS (1998) Greenhouse Gas Inventory: Gasoline & Diesel >> Jet kerosene, Lubricants > LPGas
- Also estimated Municipal Solid Waste (based on 1kg/person-day, to include organic rich industrial wastes)
- & survey of fuelwood use to estimate national use:
 - dry wood > coconut husk & shell > fresh wood > waste timber > paper & sawdust

Preliminary Dioxin...Inventory of Samoa

- Using UNEP (1999c) emission factors, major sources estimated:
- 1 Unleaded fuels $320+ \text{ mg/mt} \times 34,400 \text{ mt} = 11,000 + \text{ mg}$ (11 g) ca.90% (reduced about 40% from pre1999 leaded petrol)
- 2 Forest fires:
 - 1998 $0.04 \times 20\text{mt/ha}$ (degraded dry) $\times 7,000\text{ha} = 5.6$
 - 1984 " (dry primary) 3,500 8.4g
 - Sum 14g, ca. 1g/yr, ca. 10%
- + cyclones 1990 & '91 $0.04 \times ?$
 - Salt damaged to mountain tops, followed by burning & clearing for taro to 1993 blight abandonment;
 - Coconut tolerance to salt may have increased factor?
- 3 Municipal Solid Waste (incineration) ? (13) $\times 14,600\text{mt} = ?$ (0.19) < ca.2%
 - Reconsider landfill fires per Buckland et al. (2000) NZ based on Swedish emission factor
- 4 Fuelwood $0.04 \times 1,380\text{mt} = 0.05$ (negligible)

Preliminary Dioxin...Inventory of Samoa

- NZ MfE (1999): tinned fish > 3x local fresh
- Galanis et al. (1999) 1991 Samoa survey of family fat intakes:
 - Fresh similar tinned fish
- Central Bank of Samoa (in SPREP, 2000) tinned fish 1994 5.4m cans vs. 1998 9.4 million

Preliminary Dioxin...Inventory of Samoa

- Conclusions:
- 1 Proper survey a part of draft Waste Management Policy, further considering cyclones' salt spray & coconut tolerance factor
- 2 awareness of need to minimize unnecessary burning, reduce power use & use efficient equipment
- 3 Ministry of Transport to encourage public transport & enforce emission standards;
 - Their Fire Brigade to prepare for fires, especially plastics, with reduced used of PVC (deposit/ban?); with PIC ban of EDC?)
- 4 MAFFM Forestry/ vulnerable villages increase capacity to fight forest fires

Summary of the Provisions of the Stockholm Convention on POPs

The objective of the Stockholm Convention on Persistent Organic Pollutants (POPs) is to protect human health and the environment from POPs. The Convention is global in scope and multimedia in coverage. It focuses initially on twelve chemicals that can be grouped into three categories:

- Pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene (also an industrial chemical and unintended byproduct), mirex and toxaphene;
- Industrial chemicals: PCBs (also unintended byproducts); and
- Unintended byproducts: Dioxins and Furans

Parties are obligated to take measures to reduce or eliminate releases of the POPs covered by the Convention, namely:

- Eliminate the production and use of POPs listed in Annex A to the Convention (aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex and toxaphene) with an exception for PCBs – DDT for disease vector control in accordance with WHO guidance – with certain other limited exemptions.
- Restrict export of POPs listed in Annex A and B: (i) to Parties that have a specific exemption or allowable purpose, (ii) to non-Parties whose compliance with relevant provisions of the Convention is certified, or (iii) for the purpose of environmentally sound disposal.
- Ensure that PCBs are managed in an environmentally sound manner and by the year 2025 take action to remove from use PCBs found above certain thresholds;
- Ensure, where countries have registered to do so, that use of DDT is restricted to vector control use according to WHO guidance and report on amounts of the chemical used;
- Develop and implement an action plan to identify sources and reduce releases of POPs byproducts listed in Annex C, including the development and maintenance of source inventories and release estimates, and promote measures including the use of best available techniques and best environmental practices; and
- Develop strategies for identifying stockpiles of POPs listed in Annexes A and B, and products containing POPs listed in Annexes A, B and C, and take measure ensure that POPs wastes are managed and disposed of in an environmentally sound manner according to international standards and guidelines (e.g: the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal), and endeavor to identify POPs contaminated sites for possible remediation.

The Convention includes an important procedure for adding additional POPs for coverage in order to respond to new threats maybe identified in the future.

General provisions contained in the Convention include Party obligations to:

- Develop and endeavor to implement a plan for the implementation of their obligations under the Convention within two years of its entry into force.
- Report to the Conference of the Parties on measures taken to implement the Convention.
- Facilitate and undertake information exchange on POPs including the establishment of a national focal point for this purpose.
- Facilitate and promote awareness, education, and the provision of information to the public, particularly for decision-makers and affected groups; and
- Encourage and undertake research, development and monitoring of POPs and their alternatives, and support international efforts and effected along these lines.

It is recognized that many Parties will need technical and financial assistance in order to implement all the above provisions. For this reason, the Convention mandates:

- Cooperation to provide technical assistance to strengthen Parties, particularly developing countries and countries with economy in transition, to help them develop and strengthen their capacity to implement the Convention.
- The provision of new and additional resources from developed countries to developing countries and countries with economy in transition, Parties to the Convention, to help them develop and strengthen their capacity to implement the Convention.
- The establishment of interim financial arrangements (that is until COP defines the permanent mechanism) – the principal entity of which is to be the Global Environment Facility which is to fulfill this function through operational measures related specifically to POPs.

UNEP is to provide the secretariat for the Stockholm Convention on POPs including its bodies.

Summary of major provisions of the Stockholm POPs Convention

Article/Annex Ref.	Party Obligation	Specific Action
Preamble	No obligations	Parties encouraged to develop regulatory and assessment schemes for pesticides and industrial chemicals if they do not already have them
Article 1 (Objective)	No obligations	
Article 2 (definitions)	No obligations	
Article 3 (Measures to reduce/eliminate releases from intentional production)	Eliminate the production & use of POPs listed in Annex A (aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene, & PCBs) subject to the provisions of Annex A (para 1)	Preliminary inventory of Annex A & B POPs Implementation of the NIP, including more detailed inventories
Annex A (Elimination) Part I and Annex B (Restriction) Part I and use)	Restrict the production and use of POPs listed in Annex B (DDT) subject to the provisions of that Annex (para 1)	Identification of alternatives Assessment of regulatory and other mechanisms
	Only allow imports and exports of POPs listed in Annex A or B for environmental sound disposal, to a Party for a use or purpose to which it is permitted, or to a non-Party where it is certified that it will comply with applicable provisions of the convention (para 2 and 1 (a) (ii))	Enhancement or development of regulatory and other mechanisms Institutional strengthening as necessary for implementation Implement regulation
	Take regulatory measures to prevent the introduction of new chemicals with POPs characteristics (paras 3 and 4)	Assessment of regulatory and other mechanisms governing introduction of new chemicals Enhancement or development of regulatory and other mechanisms and institutional strengthening as necessary for implementation Assessment of new chemicals
	Parties (with specific exemptions or acceptable purposes for certain production of use POPs) take measures to prevent/minimize releases from these activities (para 6)	Evaluate need for exemptions Awareness raising in industry and community on appropriate procedures, practices and alternatives
	For article in use exemption (note ii),	Identify relevant industries and develop reporting arrangements

Article/Annex Ref.	Party Obligation	Specific Action
	Parties must notify the Secretariat For closed-system site-limited intermediate exception Parties must notify the Secretariat	Notify Secretariat
Annex A, Part II (PCBs)	Take action by 2025 to identify and remove from use PCBs in equipment above thresholds Use only intact, non-leaking equipment and not use around food or feed areas Take other measures to ensure sound management of disposal as detailed Provide reports every five years on efforts to eliminate PCB use to COP	Inventory PCB in use Test for concentration Measures outlined in Annex Identify possible sources of information and develop reporting arrangements Enhance the infrastructure to undertake this obligation Provide reports to the COP
Annex B, Part II (DDT)	Each Party that produces or uses DDT shall restrict such activities to disease vector control in accordance WHO guidelines Each Party that produces or uses DDT shall provide the Secretariat and WHO with information on amounts used and conditions of use every three years	Assessment of regulatory and other mechanisms Enhancement or development of regulatory and other mechanisms Institutional strengthening as necessary for implementation
Article 4 (Register of specific exemptions)	Parties wishing to continue use of specific exemption beyond five year period need to submit report to the Secretariat for justification	Inventory POPs usage Determination of need for exemption Notify Secretariat
Article 5 (Measures to reduce/eliminate releases from unintentional production) Annex C (Unintentional production)	Develop and implement an action plan to identify sources and reduce releases of POPs listed in Annex C (dioxins and furans)	Develop and implement an action plan to identify sources and reduce releases of POPs listed in Annex C (dioxins and furans): • Evaluation of current and projected releases • Source inventories and release estimates • Evaluation of efficacy of relevant laws and policies • Strategies to implement Article

Article/Annex Ref.	Party Obligation	Specific Action
	Promote measures, including best available techniques (BAT) and best environmental practices (BEP), to achieve release reduction of POPs listed in Annex C taking into consideration guidance adopted by COP	• Education, training and awareness raising • Review of strategies every 5 years • Schedule for implementation Identifying BAT and BEP for particular industry Awareness raising in industry and community on appropriate procedures, practices and alternatives
Article 6 (Measures to reduce/eliminate releases from stockpiles and wastes)	Develop strategies and for identifying stockpiles of POPs listed in Annexes A and B, and products containing POPs listed in Annexes A, B and C and manage in an environmentally sound manner Take measures to ensure that POPs wastes are managed and disposed of in an environmentally sound manner according to international standards and guidelines Not allow recovery, recycling, reclamation, direct use of alternative uses of POPs Ensure that transport of POPs wastes is consistent with Basel Convention Endeavour to identify POPs contaminated sites, and if remediation is necessary that it is done in an environmentally sound manner	Preliminary inventory of stockpiles of POPs, or products and wastes containing POPs Assess capacity, including regulatory and policy, to manage or dispose of stockpiles or wastes Assess capacity, including regulatory and policy, to implement obligation Assess capacity, including regulatory and policy, to implement obligation Evaluate need for national action plan
Article 7 (Implementation plans) ¹	Develop and endeavour to implement a plan to meet its obligations under the convention to be submitted to the COP within two years of entry into force for the Party	Consultation with national stakeholder Undertake preliminary inventories Develop National Implementation Plan

¹ A GEF project to develop guidelines for the development of National Action Plans will commence late 2001

Article 8 (Listing of chemicals in Annexes A, B and C) Annex D (Information requirements and screening criteria) Annex E (Information requirements for the risk profile) Annex F (Information on socio-economic considerations)	Parties may submit proposals to the Secretariat for listing of additional chemicals in one or more of the annexes	Monitor POPs usage and impacts Strengthening capacity for chemical risk assessment/risk management Submit information to Chemicals Review Committee
Article 9 (Information Exchange)	Facilitate/undertake exchange of information on POPs and their alternatives and designate a national focal point for the exchange of such information	Assessing information availability and needs Disseminate relevant information to stakeholders Designate focal point Provide infrastructure to support focal point
Article 10 (Public information, awareness & education)	Facilitate/promote awareness and understanding of POPs information to the public, particularly decision makers and effected groups	Development and use of public awareness materials. Review mechanisms for providing POPs information to the public Development (as necessary) of tools for collection and dissemination of information on POPs Training of workers, scientists etc,
Article 11 (Research, development & monitoring)	Encourage/undertake research, development and monitoring on POPs and their alternatives and support national and international efforts along these lines	Review capabilities and capacities Identify gaps and needs
Article 12 (Technical assistance)	Cooperate to provide technical assistance to develop and strengthen their capacity to implement the convention, and developing arrangements for this purpose as well as transfer of technology	Identification of needs for technical assistance at national level

Article 13 (Financial resources and mechanisms)	Developed country Parties provide new and additional financial resources developing country and economy in transition Parties	Identification of needs for financial assistance at national level
Article 14 (Interim financial arrangements)		
Article 15 (Reporting)	Report to COP on measures it has taken to implement the convention and on the effectiveness of these measures	Identify sources of information and data Enhancing the infrastructure to undertake this obligation Compile statistical data on production, import and export of Annex I & II POPs
Article 16 (Effectiveness evaluation)	Implement arrangements to be determined by the COP at its first meeting	Identify data gaps and the need for monitoring Enhancing the infrastructure to undertake this obligation Provide information and data
Article 17 (Non-compliance)		
Article 19 (Conference of the Parties)		
Article 20 (Secretariat)		

Annex 6 : Copies of the Rotterdam Convention Presentations

ROTTERDAM CONVENTION

**Sub-Regional Awareness Raising Workshop
on the Prior Informed Consent Procedure,
POPs and the Basel/Waigani Conventions
Cairns, Australia
2-6 April 2001**

ROTTERDAM CONVENTION

- **BACKGROUND**
 - what it is
 - how it was developed
- **SCOPE**
 - what chemicals are to be included
- **HOW IT WILL WORK**
 - key players
 - key elements

ROTTERDAM CONVENTION

OPERATION OF THE INTERIM PIC PROCEDURE

- overview of the operation
- country responsibilities
- benefits

WHAT IS THE ROTTERDAM CONVENTION

- Enables the world to monitor and control the trade in certain hazardous chemicals:
 - gives importing countries the power to decide which of these chemicals they want to receive and to exclude those they cannot manage safely
 - if trade does take place, requirements for labelling and provision of information on potential health and environmental effects will promote the safe use of these chemicals.

WHAT IS THE ROTTERDAM CONVENTION

Includes provisions for the exchange of information among Parties about potentially hazardous chemicals that may be exported and imported.

The aim is to promote a shared responsibility between exporting and importing countries in protecting human health and the environment from the harmful effects of such chemicals

ORIGIN OF THE ROTTERDAM CONVENTION

1985 - FAO International Code of Conduct on the Distribution and Use of Pesticides

1987 - UNEP London Guidelines for the Exchange of Information on Chemicals in International Trade

1989 - FAO/UNEP Joint Program on the Prior Informed Consent procedure

Goal: that governments had the information they needed about hazardous chemicals for assessing the risks and taking informed decisions on future chemical imports.

ORIGIN OF THE ROTTERDAM CONVENTION

- 1992 United Nations Conference on Environment and Development (UNCED)
 - adopted Chapter 19 of Agenda 21,
 - called for adoption of a legally binding instrument on the PIC procedure by the year 2000.

HOW WAS THE CONVENTION DEVELOPED

- ❑ FAO/UNEP sponsored Intergovernmental Negotiating Committee (INC)
 - March 1996 initiated negotiations
 - Five negotiating sessions
 - March 1998 negotiations concluded

HOW WAS THE CONVENTION DEVELOPED

September 1998 - Rotterdam Conference

text was adopted and signed by 61 States and one regional economic integration organization

opened for signature 12 September 1998 to 10 September 1999

will enter into force once ratified by 50 countries

interim arrangements – *interim PIC Procedure*

ROTTERDAM CONVENTION

INTERIM ARRANGEMENTS

- Rotterdam Conference - resolution on *interim arrangements*
- Voluntary PIC procedure changed to bring it in line with the provisions of the Convention
- *Interim PIC Procedure* - operates until the Convention enters into force
- FAO and UNEP jointly perform Secretariat functions

WHAT CHEMICALS WILL BE INCLUDED

Chemicals eligible for inclusion

Pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by participating Parties

Severely hazardous pesticide formulations that present a hazard under the conditions of use in developing country Parties or Parties with economies in transition

WHAT CHEMICALS WILL BE INCLUDED

Chemicals not eligible for inclusion

- ▮ certain specific groups of chemicals including: narcotic drugs and psychotropic substances, radioactive materials, wastes, chemical weapons, pharmaceuticals, food and food additives
- ▮ quantities chemicals in quantities not likely to affect human health or the environment,
 - ▮ imported for research or analysis purposes or
 - ▮ by an individual for personal use in quantities reasonable for such use.

WHAT CHEMICALS WILL BE INCLUDED

Chemicals subject to the Interim PIC Procedure

- originally 22 pesticides (including 5 severely hazardous formulations) and 5 industrial chemicals carried forward from the voluntary PIC procedure
- since September 1998 the INC has added 4 pesticides

HOW WILL IT WORK - KEY PLAYERS

Designated National Authorities (DNAs)

Focal point for the operation of the PIC procedure

- responsible for the administrative functions required by the Convention
- generally a governing department or office responsible for broad policy decisions with the authority to decide which chemicals are used in the country

DNAs for pesticides or chemicals or one for both,

- depends on national administrative/legislative organisation

HOW WILL IT WORK - KEY PLAYERS

Conference of Parties (COP)

Countries that have become parties to the Convention oversee its implementation

- interim procedure – Intergovernmental Negotiating Committee (INC)

- 101 countries

HOW WILL IT WORK - KEY PLAYERS

Chemical Review Committee (CRC)

- 29 members from 7 PIC Regions

- Africa, Asia, Europe, Near East, Latin America, North America, Southwest Pacific

- review notifications and nominations from Parties

- make recommendations to the COP/INC on chemicals to be added to the Convention

HOW WILL IT WORK - KEY ELEMENTS

PRIOR INFORMED CONSENT PROCEDURE

mechanism for formally obtaining and disseminating the decisions of importing countries as to whether they wish to receive future shipments of those chemicals specifically subject to the Convention and for ensuring compliance with these decisions by exporting countries

INFORMATION EXCHANGE

provisions for the *exchange of information* among Parties about a very broad range of potentially hazardous chemicals that may be exported and imported

HOW WILL IT WORK - KEY ELEMENTS

INFORMATION EXCHANGE

The provisions include:

- parties must inform other Parties of each national control action to ban or severely restrict a chemical and
- that a Party that plans to export a chemical that is banned or severely restricted for use within its territory, inform the importing Party that such export will take place, before the first shipment and annually thereafter;

HOW WILL IT WORK - KEY ELEMENTS

INFORMATION EXCHANGE

The provisions include:

that an exporting Party, when exporting chemicals that are to be used for occupational purposes, shall ensure that a safety data sheet that follows an internationally recognized format is sent to the importer;

opportunities for developing country Party to inform others that it is experiencing problems caused by a severely hazardous pesticide formulation under conditions of use in its territory;

WHAT ARE COUNTRIES RESPONSIBILITIES

Importing countries

- ensure that importers, relevant authorities and where possible users are informed of notifications received
- ensure that import decisions apply uniformly to imports from all exporting countries and
- to any domestic manufacturing of the chemical

WHAT ARE COUNTRIES RESPONSIBILITIES

Exporting countries

- not to export the chemical without the consent of the importer
 - unless there have been previous shipments or the chemical is approved in that country
- communicate import decisions to exporters, industry and other relevant authorities
- ensure that exports do not occur contrary to the decision of the importing country

ROTTERDAM CONVENTION

KEY FEATURES - BENEFITS

- ability to control unwanted imports of chemicals
- export notifications of chemicals banned or severely restricted in the exporting Parties
- summaries of control actions to ban or severely restrict chemicals, in other Parties
- summaries of incidents involving severely hazardous pesticide formulations, in other Parties
- list of DNAs in the PIC region

ROTTERDAM CONVENTION

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ROTTERDAM CONVENTION

SUPPORTING DOCUMENTATION

- ☐ PIC Circular
- ☐ Notification of Control Action form
- ☐ Severely Hazardous Pesticide Formulation Report form
- ☐ Decision Guidance Document (DGD)
- ☐ Import Response form

ROTTERDAM CONVENTION

PIC CIRCULAR

- Issued every six months, December and June, sent to all DNAs and posted on Website
- Provides background information on the interim PIC Procedure
- Provides all Parties with the information required to be circulated in line with Articles 4, 5, 6, 7, 10, 11, and 14.
- Complete list of Designated National Authorities

ROTTERDAM CONVENTION

PIC CIRCULAR

Includes the following Appendices:

- | | |
|--------------|--|
| Appendix I | Synopsis of final regulatory actions |
| Appendix II | Proposals for inclusion of Severely Hazardous Pesticide Formulations |
| Appendix III | Chemicals subject to the interim PIC Procedure |
| Appendix IV | List of all import responses received from Parties |

ROTTERDAM CONVENTION

NOTIFICATION OF CONTROL ACTION FORM

Facilitates reporting of national regulatory actions in accordance with Article 5 *Procedures for Banned or Severely Restricted Chemicals*

- ☐ Meets the information requirements of Annex I *Information Requirements for Notifications made Pursuant to Article 5*
- ☐ Summary of complete notifications is included in the PIC Circular

ROTTERDAM CONVENTION

NOTIFICATION OF CONTROL ACTION FORM

- ☐ An official government document it must be signed by the DNA and submitted to the Secretariat
- ☐ Combined with supporting risk evaluation is basis for review by Chemical Review Committee

ROTTERDAM CONVENTION

SEVERELY HAZARDOUS PESTICIDE FORMULATION REPORT FORM

Facilitates the preparation and submission of proposals regarding hazardous pesticide formulations in accordance with Article 6 *Procedures for Severely Hazardous Pesticide Formulations*

Meets the information requirements in part 1 of Annex IV and serves as the basis for the development of proposal for submission by the DNA

ROTTERDAM CONVENTION

SEVERELY HAZARDOUS PESTICIDE FORMULATION REPORT FORM

Draft proposal is for a two part form.

Part A - DNA transmittal form: identity of the formulation and information on its use in the prevailing conditions of the country

Part B - Incident Report form: a clear description of incidents related to the problem, including the adverse effects and the way in which the formulation was used

ROTTERDAM CONVENTION

SEVERELY HAZARDOUS PESTICIDE FORMULATION REPORT FORM

Summary of complete incident reports is included in the PIC Circular

Triggers collection of relevant data by the Secretariat in line with part 2 Annex IV

Original form and information collected by the Secretariat is basis for review by the Chemical Review Committee

ROTTERDAM CONVENTION

DECISION GUIDANCE DOCUMENT (DGD)

Developed for each chemical subject to the PIC procedure

Clearly identifies the reasons for a chemical being included in the PIC procedure

Summarises the basis for regulatory decisions reported by notifying countries

ROTTERDAM CONVENTION

DECISION GUIDANCE DOCUMENT (DGD)

- Identifies additional sources of information
- Assists governments in making informed decisions regarding future import of the chemical

ROTTERDAM CONVENTION

IMPORTING RESPONSE FORM

- Facilitates reporting of import decisions for chemical subject to the PIC procedure in accordance with Article 10 *Obligations in Relation to Imports of Chemicals Listed in Annex III*
- DNA must complete and submit the form to the Secretariat within 9 months of date of dispatch of the DGD
 - consent to import
 - not to consent to import
 - consent to import subject to specific conditions

ROTTERDAM CONVENTION

AVAILABILITY OF DOCUMENTATION

Rotterdam Convention Website:

WWW.PIC.INT

Role/Functions of DNAs

Per PIC Circulars, e.g: Dec 2000

Presented by: Bill Cable, Samoa

- Information documents received from Secretariat;
- New nominations or changes of DNAs (Article 4);
- Synopsis of notifications of final regulatory action received (Art.5);
- Proposals for inclusion of severely hazardous pesticide formulations (SHPF; Art.6);
- List of chemicals currently subject to interim PIC procedure (Art.7);
- Listing of all importing country responses & failure to transmit (Art.10.2-4) & legislative/administrative decisions
- Information on transit movements (Art.14.5);
- Ratification/Accession to Rotterdam Convention
- Information documents received:
 - - Rotterdam Convention
 - - Decision Guidance Documents (DGDs)
 - - Instructions &
 - - Forms for:
 - Importing Country Responses (ICRs);
 - Bans/Severe restrictions + SHPF
- DNAs (separately)

Role/Functions of DNAs

- **Information documents received:**
 - Rotterdam Convention
 - Decision Guidance Documents (DGDs)
 - Instructions &
 - Forms for:
 - Importing Country Responses (ICRs);
 - Bans/Severe restrictions + SHPF
- DNAs (separately)
- New nominations or changes in nominations of DNAs (Art.4)
 - e.g: Samoa's Industrial Chems.© like Cook & Solomon Is & Vanuatu C & Pesticides (P) separately;
 - Vs. PNG's C-P; & Fiji's P. (see)
 - Others yet to nominate

Role/Functions of DNAs

- Synopsis of Notifications of final regulatory action, including verified (Art.5)
 - e.g Fiji's captafol, Methyl Bromide;
 - Samoa ('95) methamidophos (Monitor600) DGD'97 (see)
 - Verified: Canada's CFCs & tetra-ethyl/methyl lead;
 - Netherlands' dicofol (see) & endosulfan
 - Asbestos (chrysotile); CCA; phospho-ne/de; oxamyl;
 - & paraquat (see); others (see)
- Proposals for severely hazardous pesticide formulations (SHPF; Art.6, Annex IV Pt.1)
 - & chemicals (raised at INC); e.g: hydrazine contaminant of Maleic Hydrazide?
 - None!!! Vs. Pesticides Action Network (AP?) with WHO assistance

Role/Functions of DNAs

- List of interim PIC chemicals/pesticides (Art.7)(see)
 - 5 Industrial Chemicals = crocidolite (blues asbestos); PCB/PCT/PBB; Tris
 - 5 SHPF = (methyl) parathion; monocrotophos; phosphamidon; & methamidophos
 - 21 P's (see); incl. 2/01 Ethylene DiChloride & Ethylene Oxide (industrial incl. Surgical wastes)
- Importing Country Responses (ICRs; Art 10.2-.4)
 - New form 6/99
 - 6/00 Circular did not include Samoa's 5/00 ICRs for binapacryl & toxaphene;
 - Modification to non-consent of lindane (pharmaceutical) omitted ticks of some boxes, now ok

Role/Functions of DNAs

- Info. concerning future import (Art.10.10 & 11.2)
 - Legislative/administration measures for decision; e.g: PTC meeting
 - Failure to transmit; e.g: Samoa for methamidophos in 6/99 after 2 ICRs in '98!
 - 2nd ICR removed Monitor600 as not >600g/l;
 - Recently queried for right for more stringent decision (Art.15.4)
- Information on transit movements (Art.14.5)
 - No party yet reported need;
 - Samoa supported at INC7 re illegal traffic
- Ratification (Accession) – currently 14 of 50 needed;
 - INC7 Chair recommended to Samoa for SIDS representation
 - Hazardous Material/Waste Workshop; Samoa recommends <12/01

Using Regional Workshops as a Means to Strengthen Links between the Needs of DNAs and the Work of the ICRC (.2/INF.3)

Presented by: Bill Cable, Samoa

Next Steps:

1. Reports including presentations by participants reviewed by ICRC experts (e.g: Australia, Samoa) for comments/proposals of DNAs in using PIC documents; consolidated & presented at ICRC (3)
2. Agenda amended, if appropriate, to include a working session on PIC documents as revised by ICRC, i.e. PIC Circular, DGDs, forms for notification & ICR, submissions of SHPF (incident report forms & environmental). Purposes:
 - a) Increase familiarity of the DNA with documents & PIC implementation
 - b) Use of PIC Circular as 'primary' source of info. on implementation
 - c) Feedback on ICRC proposals for revised DGDs, forms etc.
 - d) Direct feedback on difficult aspects (agenda at Oct. INC8)
 - e) DNAs identification of problems, e.g. ban or severe restriction. [ICRC2 discussed: info exchange; Chem.Abstract Service, CAS Nos.; registered chemicals; assistance to developing countries (e.g: TG4 re Art. 5 vs 6), including risk evaluation transferability & missing info.
 - f) Practical guidance to DNAs on PIC implementation
3. Reps of ICRC could chair working sessions, prepare workshop report & present to next ICRC.

Status of Implementation of the Interim PIC Procedure in the South West Pacific Region

Presented by: Ian Coleman

A. Purpose

1. The purpose of this paper is to provide participants of this workshop with an overview of the status of implementation of the interim PIC procedure in the South West Pacific as of December 2000. The information provided has been compiled from information provided in paper UNEP/FAO/PIC/INC.7/14 presented to the seventh session of the INC, the PIC Circulars, particularly circulars X, XI, and XII and the PIC database provided by the Joint Interim Secretariat at site : <http://www.fao.org/ag/agp/agpp/pesticide/pic/pichome.htm>

B. Parties to the Convention and Convention Commencement

2. The Rotterdam Convention was adopted at the Conference of Plenipotentiaries on the PIC Procedure on 10 September 1998.
3. It remained open for signature for one year at the UN Headquarters in New York till 10 September 1999. During this period a total of 72 States and one regional economic integration organisation signed the Convention.
4. The Convention will enter into force 90 days after the deposition of 50 instruments of ratification, acceptance, approval or accession. As of March 2001 a total of 14 States have ratified, accepted, approved or acceded to the Convention. None of these States are from the SW Pacific region.
5. The Convention also calls upon the Executive Director of UNEP and the Director-General of the FAO to convene the first meeting of the Conference of the Parties (COP) no later than one year after the Convention has entered in force.
6. Participants should be aware that although countries that have not ratified, accepted, approved or acceded to the Convention would not be excluded from participating in meetings of the Conference of the Parties, they would of course, are not formally a member of the COP. Such countries may not be able to be considered in any formal COP procedures such as voting on decisions and participation in certain activities.
7. These decisions/activities could include, among others, decisions on the addition of chemicals included under the Interim Procedure, decisions on other chemicals proposed for inclusion in Annex III, decisions on the location of the Secretariat, and membership of bodies such as the Chemical Review Committee.
8. The first COP will also decide on the PIC regions for the purposes of the Convention. It is possible that the parties at the first COP may decide on a different regional basis which may not include a separate South West pacific region, particularly if there are few or no countries from the region that are parties to the COP. This would have potential flow on effects to representation to the Chemical Review Committee.

9. Should countries wish to be influential in the early establishment, further development and operation of the Convention they may wish to consider their efforts at ratification, acceptance or approval.

C. Designated National Authorities

10. During the interim period before the Convention enters into force, a "Party" is understood to mean any State or regional economic integration organisation having nominated a designated national authority or authorities for the purpose of participating in the interim PIC procedure.
11. Article 4, paragraph 1 requires Parties (countries) to nominate one or more designated national authorities (DNAs) to act on behalf of the party and perform the administrative functions required by the Convention.
12. The nomination of a DNA is therefore pivotal to a party's ability to effectively operate under PIC and to receive the health and environmental benefits that can accrue to countries, particularly developing countries.
13. The South West Pacific region has nominated 14 DNAs from 9 of the 16 countries in the region. At INC 7 (and as of 31 May 2000), it was reported that 164 States had nominated a total of 239 DNAs. It was also reported that 29 States had not yet nominated a DNA. Seven (7) of these 29 countries, or almost 25%, are from the SW Pacific region.

D. Notification of final regulatory action to ban or severely restrict a chemical

14. Article 5, paragraph 1 of the Convention, requires parties to notify the secretariat of final regulatory actions (bans or severe restrictions for health or environmental reasons). The secretariat circulates summaries of notifications received, and which have been verified contain the information required by annex I of the Convention. These circulars are numbered and distributed each 6 months and are known as the PIC Circular.
15. Table 1 provides a summary of the number of notifications that had been submitted by Parties as of December 2000. The figures are separated into Section A reporting for all PIC Regions and Section B reporting for the South West Pacific region only.

Table 1

Notifications of final regulatory action as of December 2000 + Info from PIC Circular XII				
A	Number of chemicals	Number of States and regional economic integration organizations	Number of notifications	
			that meet the information requirements of Annex I	that do not meet the information requirements of Annex I
A. all PIC Regions				
Original PIC procedure (before 11.09.98)	453	45	0	1 485
Interim PIC procedure (from 11.09.98)*	56	7	6	62
B. South West Pacific Region				
Original PIC procedure (before 11.09.98)	41	4	0	66
Interim PIC procedure (from 11.09.98)	8	1	8	0

* not updated from PIC Circulars (XI) and XII

16. An important observation is that, notwithstanding, the number of years that the original voluntary PIC had operated and the relatively large number of notifications received, none of these satisfied the information requirements that the Convention imposes through Annex 1.
17. This does not reflect on the validity of the regulatory decisions of countries but more represents the rigour that has been built into the Convention and the increasingly comprehensive nature of contemporary regulatory decision making.
18. Notifications received from the SW Pacific region under the Interim PIC procedure have all been verified by the Secretariat to have satisfied Annex 1.

E. Responses concerning future imports of chemicals subject to the interim PIC procedure

19. Article 10, paragraph 2 of the Convention, requires parties to inform the Secretariat of their response (to circulated Decision Guidance Documents) and their decision concerning future importation of chemicals subject to the interim PIC procedure. The Secretariat provides summaries of these responses as well as information on cases of failure to transmit a response.
20. Table 2 provides the number of responses received by the Secretariat for each of the Chemicals currently subject to the PIC. The figures are segregated into responses that give consent, no consent or do not address importation. Figures are also provided for cases where no response has been received. The main figures in each cell refer to all countries while the figures in parentheses are for the SW Pacific region only.
21. There are undoubtedly a number of potential impacting factors affecting countries individual responses or failed responses. These could range from the ability of the country to assess the potential risk of the chemical in their circumstances, the time since the Decision Guidance Document (DGD) was circulated, the importance of the chemical to their situation and the availability of alternatives.
22. If all 9 countries, from the SW Pacific region that have notified DNAs, were to respond to all 31 chemicals that are currently subject to PIC then there would be 279 importation responses. The figures in table 2 indicate that there are a total of 172 failed response or responses that do not address importation. This figure would be higher if countries who have not nominated DNAs were included.
23. Importation responses are a central element of the PIC and provide an opportunity for importing countries to augment their chemicals management systems by providing advice that participating exporting countries are obliged to comply. Countries should be encouraged to ensure that they have submitted as far as is possible responses that address importation for all chemicals.

Table 2

Responses concerning future import of a chemical as of December 2000				
Chemical	Number of responses/failures to provide responses			
	Consent	No consent	Response did not address importation	Cases of failure to provide a response
2,4,5-T	4	55 (4)	0	97 (5)
Aldrin	13	98 (6)	1	46 (3)
Binapacryl	2	11 (2)	0	143 (7)
Captafol	8	49 (4)	1	98 (5)
Chlordane	13	92 (6)	2	51 (3)
Chlordimeform	15	86 (6)	5	53 (3)
Chlorobenzilate	6	52 (4)	0	98 (5)
DDT	20	90 (6)	1	47 (3)
Dieldrin	16	94 (6)	1	47 (3)
Dinoseb and dinoseb salts	10	96 (6)	3	49 (3)
1,2-dibromoethane (EDB)	9	90 (6)	22	57 (3)
Ethylene dichloride	1	5		####
Ethylene oxide	1	5		####
Fluoroacetamide	17	83 (6)	8	51 (3)
HCH (mixed isomers)	11	96 (6)	2	49 (3)
Heptachlor	13	91 (6)	2	52 (3)
Hexachlorobenzene	5	54 (4)	0	97 (5)
Lindane	24	32 (4)	0	100 (5)
Mercury compounds	7 (1)	92 (5)	5	54 (3)
Pentachlorophenol	10 (1)	46 (3)	0	100 (6)
Toxaphene	2	14 (2)	0	141 (7)
Methamidophos (Soluble liquid formulations > 600g/l)	16 (1)	16 (3)	0	124 (5)
Methyl-parathion (EC and dusts)	15 (2)	18 (2)	0	123 (5)
Monocrotophos (soluble liquid formulations > 600g/l)	18 (1)	18 (3)	0	120 (5)
	Consent	No consent	Response did not address importation	Cases of failure to provide a response
Parathion (all formulations - except capsule suspensions)	9	28 (4)	0	121 (5)
Phosphamidon (soluble liquid formulations > 1000g/l)	12	22 (4)	0	122 (5)
Crocidolite	11	29 (1)	6 (2)	111 (6)
Polybrominated biphenyls (PBB)	27	8 (1)	8 (2)	114 (6)

Polychlorinated biphenyls (PCB)	12 (1)	29 (1)	6 (1)	110 (6)
Polychlorinated terphenyls (PCT)	10 (1)	26 (1)	7 (1)	114 (6)
Tris (2,3-dibromopropyl) phosphate	27	9 (2)	10 (1)	111 (6)

(x) - figures for the South West pacific region

National Perspective/Experience and Challenges Regarding the Implementation of Prior Informed Consent (PIC)

Presented by: Ian Coleman

A. Purpose

1. The purpose of this paper is to provide participants of this workshop with information on Australia's experience in implementing the Prior Informed Consent Procedure. This is presented largely from the perspective of the author's former position as Australia's Designated National Authority (DNA) for pesticides for approximately 10 years. As such there will be a heavy emphasis on pesticide issues and examples, with lesser focus on industrial chemicals.

B. Main Activities of the Designated National Authority

2. The function of the DNA under the Rotterdam Convention is to act on behalf of the party (country) and perform the administrative functions required by the Convention. The DNAs, together with the Secretariat, are the focal points for the information exchange that is the essence of the Convention. The DNA can be involved in three main actions/decision points for the day to day operation of the Convention. These being:
 - Identification of possible final regulatory actions for notification to the secretariat;
 - Responses to circulated Decision Guidance Documents (DGDs) concerning future importation of a chemical; and
 - Decisions on export controls and export notifications.

C. Notifications of Regulatory Actions

Australia's Regulatory System

3. To understand Australia's experience with notifications of regulatory action it is helpful to have an overview of Australia's chemical regulatory system.
4. Australia is a Federation of Australian States and Territories. Under the Australian Constitution responsibility for chemicals management rests with the States and Territories. As a consequence, the registration of pesticides, was historically not performed at the Commonwealth level. It was not until the early 1990s that the Commonwealth took over the function of registering pesticides through the operation of the National Registration Authority for Agricultural and Veterinary Chemicals (NRA).
5. Industrial chemicals are regulated at the National level under the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). However, as the name suggests this scheme is primarily a notification and assessment scheme and actions to ban (or severely restrict) an industrial chemical usually are undertaken through arrangements with the States and Territories.
6. Under the old voluntary PIC scheme countries were requested to provide notifications of past and current bans or severe restrictions. The identification of pesticides regulatory actions Australia encountered two main problems.
 - (i) As regulatory actions were undertaken by the states and territories; individual actions were often taken at different times and via different mechanisms. In some jurisdictions a chemical might be formally banned (registration cancelled), in another the registrant might simply not renew registration at the time of re-

registration; in another the chemical might be placed in a poison schedule that limited its marketability, such that it was no longer commercially viable; while in others the maximum residue limits might be withdrawn making treated produce unsaleable. Several of these regulatory actions were not valid under PIC and where they were it was often found that Australia could not present a single national "regulatory action".

- (ii) Furthermore, for many past regulatory actions documentation of both the action itself and the rationale underpinning it were inadequate. In short, we sometimes knew that a chemical had disappeared from the market but did not know how, why, when or by whom it had been removed.

- 7. For our initial notification of pesticide regulatory action a considerable amount of judgement was required to enable us to complete the task. The industrial chemical scheme encountered similar difficulties to those of pesticides. The list of pesticides notified by Australia under the old scheme is at Table 1.
- 8. When countries were invited by the Secretariat to submit notifications under the Interim PIC procedure, no chemicals in Table 1 was resubmitted by Australia. This was principally because of the above situation.

Notifications of Regulatory Actions under the Interim PIC Procedure

- 9. Legislation under which the National Registration Scheme for Agricultural and Veterinary Chemicals (NRA) operates provide extensive powers by which the NRA can call for information, assess the risks of chemicals and impose regulatory controls. In addition the legislation contains provisions that establish a formal review program for agricultural and veterinary chemicals.
- 10. The result of this has been that there is now a central record keeping and decision making process, based upon rigorous and comprehensive scientific assessment of data sets.
- 11. As a consequence Australia has nominated five (5) pesticides (and three (3) industrial chemicals) under the interim PIC procedure all of which have been verified as satisfying the information requirements of Annex I.
- 12. Scrutiny of recent assessments and regulatory action undertaken by the NRA with a view to identify valid notifications of regulatory actions has illuminated other potential problems.
- 13. Historically regulators encountered situations where chemicals may not appear to present significant risk to health or the environment but there was not sufficient data, to contemporary standards, upon which regulators could conduct a credible assessment and make a determination as to the suitability for continued registration. To overcome such situations a provision was included in the legislation that enabled the NRA to cancel the registration of a product not on the basis of an adverse finding from a risk assessment but because of inadequate data.
- 14. When regulators encounter significant data deficiencies they may first call upon the registrant to generate and submit the required new data. For many older chemicals, the registrant may judge that it is no longer a commercially viable prospect to invest in the generation of such data and may elect to withdraw the product from the market. This has sometimes been called "data death".
- 15. In some circumstances, as mentioned above, there may be no concerns from regulators beyond the simple inadequacy of the data while in others there may be concerns regarding the risks that can only be settled by submission of the necessary data.

16. Whether regulators cancel the registration, or industry voluntarily withdraws the product(s) it can be argued that the action was not for health or environmental reasons but for lack of data and does not warrant nomination of the chemical. Indeed, in the case of some NRA the specific legislative provisions relating to inadequate data are cited as the basis for cancellation.
17. In such situations, Australia has had to look behind the declared decision to determine if it was underpinned by **REAL** health or environmental concerns. In such situations the detailed reports of the assessment are essential and a "weight of evidence" approach is adopted in deciding whether to notify the PIC Secretariat or not of the regulatory action.
18. It is possible that other countries may encounter similar difficulties with respect to identifying valid notifications.

"Is the regulatory action a ban or severe restriction?"

19. Before notifying a regulatory action it is necessary to determine if it is a **ban** or **severe restriction**. Both terms are defined in the Convention and the term "ban" is fairly precise - All uses have been prohibited - and has not presented Australia with any problems..
20. Both definitions of a **ban** or **severe restriction** rely on the term "use". This term in the context of pesticides is generally regarded to be the spectrum of crop, commodity or situations where the pesticide is permitted to be legally applied. The term is not as well understood from an industrial chemical perspective.
21. Even for pesticides, judgement is required to determine if a regulatory action constitutes a severe restriction. Where virtually all uses of a pesticide have been prohibited the action is a candidate for notification. But if the prohibited uses were primarily minor and the remaining use constitutes the majority of the use then this does not usually constitute a severe restriction. An additional difficulty for most countries is that they do not have quantitative information on the use of the pesticide in each crop, commodity or situation. In these situations there is heavy reliance on the opinion of experts in the field.
22. There are a number of other common regulatory actions which do not qualify as being a severe restrictions. These include:
 - . restricting the use of the chemical to certain trained operators;
 - . restricting the use to certain times of the year or to certain regions;
 - . imposing stringent requirements for protective clothing or equipment.
 - . imposing product quality standards; and
 - . establishing very low maximum residue limits (MRLs) or other exposure limits.

Information Requirements of Annex 1 of the Convention

23. The information requirements of Annex 1 came into effect with the advent of the Interim PIC procedure and will continue when the Convention comes into force.
24. The new rigour that Annex 1 imposes on notifications is one of the major reasons that Australia's previous notifications under the old PIC procedure were not resubmitted. However, with the establishment of our National Registration Scheme for agricultural and veterinary chemicals, Australia can be reasonably confident that future notifications are likely to satisfy most if not all requirements.
25. There are some parts of Annex 1 that warrant drawing to the attention of countries:
 - . Paragraph 2 (b) (iii) requires information, where available, of quantities of the chemical produced, imported, exported and used. For many countries, including

Australia, this information is considered to be confidential. Although available, it cannot be disclosed and at first sight this would seem to be a major impediment to the completion of a notification.

We should recall, however, that the primary purpose of seeking this information is to establish if the chemical in question is still being traded internationally. There is a substantial effort that needs to be undertaken by the Secretariat, the Chemical Review Committee and the Conference of the Parties in processing candidate chemicals and on-going obligations for parties if it is listed. It would be inefficient and consume valuable limited resources to list a chemical that is no longer traded.

It is not necessary to provide specific quantities to deliver against this purpose. It is usually sufficient to provide an indication of trade by the use of descriptive terminology such as "large amounts imported" or "small amounts of usage only". This will protect the information while still delivering the outcome sought.

Information on alternatives is required under Annex 1 paragraph 2 (d)(ii). Countries should be cautious as to how they view any such information following a notification.

Other countries should be aware that the NRA assesses and registers chemicals for use under Australian conditions. Suggested "alternatives" may not be appropriate for similar or the same uses in other countries where different conditions, cultivars, pests, management practices, climate and socioeconomic conditions may exist. Countries should be cautious in how they utilise such information.

D. Responses Concerning Future Importation

26. The approach that Australia has taken with respect to responses concerning future importation of PIC Listed pesticides needs to be placed in context.
27. Like most SW Pacific PIC countries, Australia is an Island with no land borders with its neighbours. This has implications for possible importation. In addition Australia has a comprehensive registration scheme where by all registered pesticides are determined to present no unacceptable risks to public, health, occupational health, the environment, international trade and that the product is shown to efficacious.
28. Provision within the legislation makes it illegal to import an unregistered chemical and the NRA has an active compliance and enforcement program.
29. With the ability to rely on our own national assessments, the Decision Guidance Document is not a significant input into the decision making for importation responses. Such decisions are heavily dependent upon the registration status of the chemical granted by the NRA.
30. However, other factors may be considered in formulating a response. These include whether:
 - it is a dual chemical or not;
 - there is an application for registration before the NRA or whether it is under active review; and
 - the information that lead to the original regulatory action by the nominating parties has been made available to the NRA.
31. Other countries with different national circumstances may take a different but equally legitimate approach in formulating their response to future importation.

E. Decisions on Export Controls and Export Notifications.

32. Mechanisms for controls on the export of chemicals and the provision of export notifications are essential for exporting parties to be able discharge their obligations under PIC.
33. Australia has yet to decide how it will implement these obligations with respect to either industrial chemicals or pesticides. However, for pesticides early thought has been given to the possible use of the Customs Prohibited (Export) Regulations. There are a number of obvious advantages to using this mechanism.
34. The Customs service already has an existing legislative infrastructure, an existing barrier control system and expertise in the management of export controls.
35. The use of these regulations with a permit system could also provide the flexibility necessary to permit export to some countries while preventing export to others consistent with their import responses. This mechanism can also be used to provide export notifications for chemicals that are domestically banned but not yet included on Annex III of the Convention.
36. Australia is also primarily an importer of chemicals with only limited exports of pesticides. Most of the pesticides under the Convention are not registered in Australia and it is therefore likely that exports of pesticides subject to the Convention will be small in number. Given this, it would also seem inefficient to consider establishing a separate barrier system solely for PIC.
37. Countries of the region may wish to consider within their own circumstances and what mechanism(s) would be best implemented within their own country to discharge these obligations.

F. Interpretation of Quantities for Research Purposes

38. Article 3 of the Convention defines the scope of the Convention by declaring the classes of chemicals to which it applies and also by excluding other items.
39. For most of these items there would be a common understanding between parties as to their meaning but this is not necessarily so for all entries.
40. One entry excludes "quantities not likely to affect human health or the environment provided they are imported for the purpose of research or analysis".
41. It was our interpretation that the intent of the Convention was to focus on chemicals that were traded in quantities for commercial application. We have therefore moved to introduce a limit of 25 grams maximum as being the limit on quantities that will satisfy this exclusion. This amount was arrived at following consultation with industry as well as experience with a administering a separate prohibited imports system for certain chemicals.
42. Other countries have legislated a different amount, such as 10 kg, as the limit applying to "research and analysis". To date this has not cause any difficulties but it should be recognised that different interpretation could impact on the smooth operation of the Convention.
43. Information exchange is at the core of the Rotterdam Convention and it is through this that countries can develop an appreciation of the circumstances and problems of other parties

and to foster a cooperative approach to chemicals management and overcome differences of interpretation related to various elements of the Convention.

Table 1.

Common name	Chemical Abstracts name (or IUPAC)
1,2-dichloropropane	Propane, 1,2-dichloro-
1,3-dichloropropene	1-propane, 1,3-dichloro-
Azocyclotin	1-tricyclohexyl stannyl-1H-1,2,4-triazole or 1H-1,2,4k-triazole, 1-(trichlohexylstannyl)-
Alachlor	Acetamide, 2-chloro-N-(2,6-diethylphenyl)-N-(methoxymethyl)-
Aldrin	1,4:5,8-dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,8a-hexahydro- or (1R,4S,4aS,5S,8R,8aR)-1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,8a-hexahydro-1,4:5,8-dimethanonaphthalene
Barban	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester
Binapacryl	2-sec-butyl-4,6-dinitrophenyl 3-methylbut-2-enoate
Cadmium compounds	Cadmium
Captafol	1H-isoindeole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-[(1,1,2,2-tetrachloroethyl)thio]- or N ((1,1,2,2-tetrachloroethyl)thio)cyclohex-4-ene-1,2-dicarboximide
Captan	1H-isoindeole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-[(trichloromethyl)thio]-
Chlordane	4,7-methano-1H-indene, 1,2,4,5,6,7,8,8-ocachloro- 2,3,3a,4,7,7a-hexahydro or 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methanoindene
Chlordecone	1,3,4-metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro- or perchloropentacyclo[5.3.0.02,6.03,9 04,8] decan-5-one
Chlordimeform	Methanimidamide, N'-(4-chloro-2-methylphenyl)-N,N-dimethyl- or N2 -(4-chloro-o-tolyl)-N1,N1-dimethylformamidine
Chlormethiuron	Thiourea, N'-(4-chloro-2-methylphenyl)-N,N-dimethyl-
Cyhexatin	Stannane, tricyclohexylhydroxy-
DDT	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro- or 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane

Table 1. (continued)

Common name	Chemical Abstracts name (or IUPAC)
Dibromochloropropane DBCP	Propane, 1,2-dibromo-3-chloro-
Dieldrin	2,7:3,6-dimethanonaphth[2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1a.alpha,2beta,2a.alpha,3beta,6beta,6a.alpha,7 or (1R,4S,4aS,5R,6R,7S,8S,8aR)-1,2,3,4,10,10-hexachloro-1,4,4a,5,6,7,8,8a-octahydro-6,7-epoxy-1,4:5,8-dimethanonaphthalene
Dinoseb and salts	Phenol, 2-(1-methylpropyl)-4,6-dinitro- Or 2-sec-butyl 4,6-dinitrophenol
Endrin	2,7:3,6-dimethanonaphth[2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1a.alpha,2beta,3alpha,6alpha,6a.beta,7
Folpet	1H-isoindole-1,3(2H)-dione,2-[(trichloromethyl)thio]-
HCH (mixed isomers)	Cyclohexane, 1,2,3,4,5,6-hexachloro-
Heptachlor	4,7-methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro- or 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene
Hexachlorobenzene	Benzene, hexachloro-
Iodofenphos	Phosphorothioic acid, O-(2,5-dichloro-4-iodophenyl)O,O-dimethyl ester
Lead arsenate	Arsenic acid (H ₃ AsO ₄), lead(2+) salt(1:1)
Lindane	Cyclohexane,1,2,3,4,5,6-hexachloro- ,(1.alpha,2alpha,3beta,4alpha,5alpha,6beta or 1 α ,2 α ,3 β ,4 α ,5 α ,6 β -hexachlorocyclohexane
Methoxychlor	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy or 1,1,1-trichloro-2,2-bis(4-methoxyphenyl)ethane
Nicotine	Pyridine,3-(1-methyl-2pyrrolidinyl)-,(S)-
Nitrofen	Benzene, 2,4-dichloro-1-(4-nitrophenoxy)-

Samoa Perspectives & Challenges of RC

Presented by: Bill Cable, Samoa

- 1 Introduction (previous section refers)
 - Pacific Island Countries (PICs)/Small Island Developing States (SIDS)
 - Least Developed Countries (LDCs)/Low Income Food Deficit Countries (LIFDC)
 - Affects capacity for PIC/POPs & UNEP/FAO/partner assistance
- 2 Hazardous Chemicals Management
 - 12/95 review for Int. Register for Potentially Toxic Chems (IRPTC) workshop
 - for UNEP survey referred to as "Mini-Profile"
 - awaited DLSE prepared Cabinet submission of full Profile on Chemical Management
 - Material Safety Data Sheets (MSDS) required
 - Burial of pesticides to be avoided pending SPREP - assisted Phase II disposal

Administrative Structure & Legislative Framework

- 09/98 review of Univ. of S.Pacific (USP), Samoa "Regional Workshop on Pesticide Management in S.Pacific"
- 1989-91 FAO/Japan assistance for capacity, i.e: NZ RoP consulted PICs (see section 1)
- RoP responsible to Dir.Ag, but budget with Quarantine & Regulatory Div.
- 1st PTC decides for fees for registration & annual import permit
- AFF Amendment 1992/3: registration 300 tala (ca. US\$100); permit 50 tala to 5kl/200>10kl
- 13 of 32 original applications withdrawn, & 3/12 1994-96; + 10% VAGST

Progress in Implementation

Samoa Perspectives & Challenges of RC

- RC Article (PTC review, see Annex 2 details)
- all notified no consents (like Indonesia);
- for methamidophos FAO requested RC Annex IV 1(g) description of incidents
 - vs. precaution for WHO IB that others restrict
- asbestos 'crocidolite' questioned as for Bangladesh
 - (not in SPREP survey)

Problems & Constraints

Samoa Perspectives & Challenges of RC

- 1985 S.Pacific Commission Tech.Paper on paraquat poisoning (see section 9)
- Gramoxone registered 2 years instead of 5 for rest; restriction impractical per 1996 & 1998 reviews;
 - next 10/00 included Dec '99 PIC Circular notifications (Annex 3)
- Latter also indexed for others of interest (Annex 4)
- UNEP questionnaire on Methyl bromide found
 - restricted use to MAFFM Quarantine contravened in 1999 due to higher fee
- proximity of Am. Samoa risk for pesticides not registered here (also pests & diseases)

Cooperation with Private

Samoa Perspectives & Challenges of RC

- Mainly with PTC rep semi-Gov. agro-chemical importer
- main household pesticide importer & pest control operator also interested;
- former suggested import permits with each importation but not eventuating
- 1992 sample of m/coils confirmed by NZ ex-RoP as a I.DDT; Customs intercepted container failed to ve notified
- reported to UNEP about 1mt DDT & transit 3rd country
- 04/00 ad by fumiugator using chlordane warned per paper
- Philippines & Thailand legislation for storage/possession noted
- 05/00 final warning for import permits, copied to Chamber of Commerce
- Farmer (Federation) requested exemption of dicofol (<1% DDT 'de minimus?')

Regional Network on PIC

Samoa Perspectives & Challenges of RC

- Info from PICs vs. 1994 Regional Agro-Pesticides Index;
- eg: DGD for binapacryl shows NZ ban vs. Morocide in Niue 1994, & Indian alternative to tridemorph (withdrawn?) for banana Black Leaf Streak control?
- Sub(sub)-regional, e.g Polynesia,
- Fiji hub & SPREP role?

Poisoning

Samoa Perspectives & Challenges of RC

- Ca. 1970 Nosco (As)
- ca. 1972 1st Gramoxone deaths; peaked 1981/1984 minimum following campaign
- 2000 new NGO campaign; possible input 10/00 review?

Challenges in Implementation

- All previous notifications fail to meet RC
- SIDS/developing countries capacity to meet?
- Tech. Assistance (TA) reserved for priorities

Priorities for Implementation

- Global issues, eg: Methyl bromide per Montreal Protocol
- Vydate L(oxamyl) severely restricted to banana with special sprayer, Samoan label, max. 5 l transport;
 - not veges?
- Capacity, eg: Customs per PR (not currently in PTC);
 - especially World Customs Organization codes

Options for Resolving Issues

- TA for capacity building
- Samoa draft Waste Management Policy for legislative 'umbrella vs. draft Customs Order?
 - Malaysia draft regulation for indus'l chems.
- Thailand proposed informing Secretariat of country of origin/manufacture
- sub-regional training, eg: USP-Alafua, Samoa
- Internet requirement for Persistent Toxic Substances
 - Clearing House Mechanism capacity?

Conclusions

Samoa Perspectives & Challenges of RC

- Opportunities for cooperation in Region: 7 suggests sub-subregional; eg: Polynesia, as well as sub-regional,
- perhaps Fiji hub & SPREP involvement as well as POPs?
- Perspectives on TA: 7 suggests priority &
- 11 for capacity building, eg: customs

SUMMARY OF THE KEY PROVISIONS OF THE ROTTERDAM CONVENTION

The objective of the Rotterdam Convention is to promote a shared responsibility between importing and exporting countries in protecting human health and the environment from the harmful effects of hazardous chemicals.

It enables the world to monitor and control the trade in certain hazardous chemicals. It gives importing countries the power to decide which of these chemicals they want to receive and to exclude those they cannot manage safely. If trade does take place, requirements for labelling and provision of information on potential health and environmental effects will promote the safe use of these chemicals.

The Convention covers pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by participating Parties. Severely hazardous pesticide formulations that present a hazard under the conditions of use in developing country Parties or Parties with economies in transition may also be included.

The Rotterdam Convention was adopted at the Conference of Plenipotentiaries in Rotterdam on 10 September 1998 and will enter into force 90 days after the deposition of 50 instruments of ratification, acceptance, approval or accession. As of March 2001 14 states had ratified, adopted, approved or acceded to the Convention. The interim Prior Informed Consent (PIC) Procedure will operate until the Convention enters into force.

Countries participating in the interim PIC procedure must designate one or more national authorities (DNAs) to act on its behalf in the performance of the administrative functions required by the Convention.

As of March 2001, the 31 chemicals were subject to the interim PIC Procedure:

- **Pesticides:** 2,4,5-T, aldrin, binapacryl, captafol, chlorobenzilate, chlordane, chlordimeform, DDT, dieldrin, dinoseb, 1,2-dibromoethane (EDB), ethylene oxide, ethylene dichloride, fluoroacetamide, HCH, heptachlor, hexachlorobenzene, lindane, mercury compounds, pentachlorophenol, toxaphene and certain formulations of metamidophos, methyl-parathion, monocrotophos, parathion and phosphamidon.
- **Industrial chemicals:** crocidolite, polybrominated biphenyls (PBB), polychlorinated biphenyls (PCB), polychlorinated terphenyls (PCT), tris(2,3 dibromopropyl)phosphate.

The Convention includes a process for adding further chemicals. Four chemicals have been added to the interim PIC Procedure since September 1998.

- **The benefits of ratifying adopting or acceding to the Rotterdam Convention include:**
 - ability to control unwanted imports of chemicals subject to the Convention
 - export notifications of chemicals banned or severely restricted in the exporting Parties
 - information summaries of control actions to ban or severely restrict chemicals, in other Parties
 - information on incidents involving severely hazardous pesticide formulations, in other Parties
 - a network of DNAs in the South Pacific PIC region

- access to DNAs in other PIC Regions with similar conditions

The Convention contains provisions for:

The *Prior Informed Consent (PIC) procedure*, a mechanism for formally obtaining and disseminating the decisions of importing countries as to whether they wish to receive future shipments of those chemicals specifically subject to the Convention and for ensuring compliance with these decisions by exporting countries.

The *exchange of information* among Parties about potentially hazardous chemicals that may be exported and imported and provides for a *national decision-making process* regarding import and compliance by exporters with these decisions. The provisions regarding information exchange include:

- the requirement for a Party to inform other Parties of each ban or severe restriction on a chemical it implements nationally;
- the possibility for a developing country Party or a Party with an economy in transition to inform other Parties that it is experiencing problems caused by a severely hazardous pesticide formulation under conditions of use in its territory;
- the requirement for a Party that plans to export a chemical that is banned or severely restricted for use within its territory, to inform the importing Party that such export will take place, before the first shipment and annually thereafter;
- the requirement that an exporting Party, when exporting chemicals that are to be used for occupational purposes, shall ensure that a safety data sheet that follows an internationally recognised format, setting out the most up-to-date information available, is sent to the importer;
- the requirement that exports of chemicals included in the PIC procedure and other chemicals that are banned or severely restricted domestically, when exported, are subject to labelling requirements that ensure adequate availability of information with regard to risks and/or hazards to human health or the environment.

Operation of the PC Procedure:

For each chemical subject to the PIC procedure a decision guidance document (DGD) is developed and circulated to DNAs. The DGD is intended to help governments assess the risks connected with the handling and use of the chemical and make more informed decisions about future import and use of the chemical, taking into account local conditions of use.

For each chemical subject to the PIC procedure the DNA is requested to decide whether to accept import, refuse import or allow import under certain conditions and to inform the Secretariat of their decision. A listing of the import responses given for each chemical subject to the PIC procedure is circulated to all DNA every six months in the PIC Circular.

Import decisions taken by Parties must be trade neutral; that is, if the Party decides it does not consent to accepting imports of a specific chemical, it must also stop domestic production of the chemical for domestic use or imports from any non-party.

A chemical subject to the PIC procedure should not be exported without the consent of the importing Party. In the absence of an import response the export may proceed if there have been previous shipments to that Party or if the chemical is approved in that Party and the regulatory situation has not changed. Exporting Parties should ensure that import responses published in the PIC Circular are immediately communicated to their exporters, industry and any other relevant authorities, such as the Department of Customs. Exporting Parties are also

obliged to take appropriate measures, within their authority and legislative competence, to ensure that exports do not occur contrary to the decision of each importing Party.

The Convention provides for technical assistance between Parties. Parties shall, cooperate in promoting technical assistance for the development of the infrastructure and the capacity necessary to manage chemicals to enable implementation of the Convention. Parties with more advanced programmes for regulating chemicals should provide technical assistance, including training to other Parties in developing their infrastructure and capacity to manage chemicals throughout their life-cycle.

UNEP and FAO will serve as Secretariat for the interim period, in order to support the implementation of the interim PIC procedure and prepare for the entry into force of the Convention. UNEP and FAO have also been assigned the responsibility for Secretariat of the Convention.

Annex 7: Copies of the Basel/Waigani Presentations

Description of the Convention to Ban the Importation into Forum Islands Countries of Hazardous and Radioactive Waste and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (WAIGANI CONVENTION)

Presented by: Jacques Mougeot, SPREP

Under the umbrella of the Basel Convention, in particular within the framework of its Article 11, the Waigani Convention has been adopted on the **16 September 1995** in response to the need to cover specific issues of relevance to Pacific Islands Countries.

Status

The Convention has been so far ratified by seven countries and will enter into force upon the Deposit of the tenth instrument of Ratification. The Parties are:

1. Australia; (B)
2. Cooks Islands
3. Federated States of Micronesia; (B)
4. Fiji; (B)
5. New Zealand; (B)
6. Papua New Guinea; (B)
7. Solomon Islands.

Any matters related to the Waigani Convention, should not be seen from an isolated point of view, but together with the Basel Convention. The **requirements** under the Waigani Convention **are quite similar** than those under the Basel Convention.

Overall goal

The Waigani Convention provides an **effective mechanism for controlling the transboundary movement** of hazardous wastes to protect human health and the environment against the potential adverse effects from the generation, storage, treatment, recycling and reuse, transport, recovery, and disposal of these wastes. *(therefore it addresses the need to strengthen the capacity of the Pacific Island Developing Countries to adequately manage the hazardous waste that they themselves generate.)*

Specific objectives:

- To prohibit the importation of hazardous wastes and radioactive wastes into Pacific Island Developing Parties;
- To reduce the transboundary movement of hazardous wastes to a minimum consistent with their environmentally sound management;
- To treat and dispose hazardous wastes as close as possible to their source of generation in an environmentally sound way;
- To minimize the generation of hazardous wastes (quantity-potential hazard)

Wastes covered by the Convention

In order to decide whether or not a waste is subject to control under the convention, it has to be defined.

Wastes:

Article I of the Convention defines wastes as any substance or material which are disposed of, are required to be disposed of or are intended to be disposed of by provisions of national legislation.

To be covered by the convention, the wastes must be hazardous.

Hazardous wastes.

The Convention defines as hazardous wastes, the wastes that belong to any categories listed in Annex I unless they do not possess the characteristics contained in Annex II.

In other words, these wastes must have certain characteristics to be considered as hazardous wastes (explosive, flammable, corrosive, toxic, etc.)

The wastes not covered by this definition, but defined as such by the national legislation of the exporting, importing or transit Party are covered by the Convention. The Party shall, within 6 month of becoming Party, inform the Secretariat of these wastes as well as of any subsequent significant change to the information. The Secretariat will forward this information to all Parties. The Parties will be responsible for making the information available to their exporters, importers and other appropriate bodies.

In the context of the Waigani Convention,

- ***household waste, including sewage and sewage sludge*** with the exception of clean store recyclable waste which do not possess any of the hazardous characteristics defined in the Convention, and
- ***residues arising from the incineration of household waste.***

Are considered as Hazardous Wastes while within the framework of the Basel Convention,

- ***waste collected from households and***
- ***residues arising from the incineration of household wastes***

are considered as other wastes needing special consideration.

Radioactive Wastes

Wastes which, as a result of being radioactive, are regulated by other international instruments, applying specially to radioactive materials.

Rather than adopting one definition of radioactive wastes, the Convention takes a broad view and accepts the definition of other international agreements applying specifically to radioactive materials. *Reference to South Pacific Nuclear Free Zone Treaty; IAEA Code of Practice on the International Transboundary Movement of Radioactive Wastes is made.*

However, the Convention excludes wastes:

Which derive from the normal operations of a Vessel, of which the discharge is covered by another international instrument (*Article II-3*)

The Ban and other prohibitions

The Convention tends to prohibit the inflow of Hazardous and radioactive wastes within the Region with a particular protection for the Pacific Island Developing Countries.

Article 4-1 states that:

- *Each Pacific Island Developing Party* shall take appropriate measures to **ban the import** of all hazardous wastes and radioactive wastes from outside the Convention Area.
- *Each Other Party shall ban the export* of all hazardous wastes and radioactive wastes **to all Forum Islands Countries**, or to Territories within the Convention Area with the exception of those that have the status of Other Parties. (*Other Party is defined in Annex IV. At present Australia and New Zealand are Other Parties. USA, UK, France are possible candidates as Other Parties once the Convention comes into force*)

Australia and New Zealand can export wastes to each other and will possibly be able to export waste to territories of Other Parties e.g Guam, American Samoa, Pitcairn, ... if the USA, UK or France become Other Parties in the future.

Australia and New Zealand as well as Territories having the Status of Other Parties are not required to ban the import of wastes from outside the Convention Area.

Cooperation to ensure that no illegal import of hazardous wastes and radioactive wastes enters the areas under the jurisdiction of a Party

The Convention requires (*Article IV-2*) Parties to cooperate in order to ensure that no illegal import of hazardous wastes and radioactive wastes from a non Party enters areas under the jurisdiction of a Party.

Prohibition of hazardous wastes being transported through their territory from or to non Parties.

The Convention requires that Parties prohibit hazardous wastes being transported through their Territory from or to non Parties (*Article IV-4*).

In other words, Parties have the authority to stop the movement of hazardous wastes passing through their territory when coming from a non Party. This does not cover radioactive wastes.

However, Parties may enter into bilateral, multilateral, or regional agreements. Such agreement should not derogate to the Ban and be compatible with the environmentally sound management of hazardous wastes.

Ban on Dumping of hazardous wastes and radioactive wastes at sea.

The Convention also refers to the Ban on Dumping of hazardous wastes and radioactive wastes (*Article IV-3*) and Parties are required to reaffirm their commitments under a number of Agreements which prohibit the Dumping of Hazardous Wastes and hazardous Wastes:

1. The South Pacific Nuclear Free Zone Treaty, 1985;
2. The United Nations Convention on the Law of the Sea
3. The London Convention;
4. The 1986 Dumping Protocol to the SPREP Convention.

Regarding the London Convention and the SPREP Protocol, Parties are required to become Parties to these Conventions.

Domestically Prohibited Goods

As provided for in *Article IV-6*, a Party may act to ban the importation of domestically prohibited goods into Areas under their jurisdiction. Parties are encouraged to participate in global fora to find solutions to problems related to the International Trade of domestically prohibited goods.

Notification Procedure

This procedure requires that sufficient information be made available to the Competent authorities concerned to make a judgement on whether to object or consent to the movement.

The transboundary movement of hazardous wastes can take place only:

1. Upon the Prior Written Notification to the Competent Authorities of the States of import and transit, and
2. After these Authorities have given their Express Written Consent.

Each shipment of hazardous wastes shall be accompanied by a Movement Document from the point at which the transboundary begins to the point of disposal.

Each Party shall designate a Competent Authority to implement the Prior Written Consent Procedure.

Designation of the Competent Authority:

According to Article V of the Convention, each Party shall designate or establish one Competent Authority which will be responsible for the implementation of notification procedure. The Secretariat shall be informed about such designation within 3 month. (*The existing authorities should be used as far as practicable.*)

The designated Authority will be responsible for receiving the notification of a transboundary movement of hazardous wastes and any information related to it, and for responding to such a notification.

Description of the Procedure:

The Export Notification:

Through the channel of its Competent Authority, the Exporting Party shall notify, or shall require the generator or exporter to notify the Competent Authorities of the countries concerned (Importing - Transit) of any proposed transboundary movement of hazardous wastes. Such Notification shall contain the information required under Annexe VI-A.

(Reasons for export - Country of Import/Export and the Competent Authority - Generator - Exporter - Importer - Disposer- Means of Transport - method of disposal. Type of packaging - Quantity - etc.)

Possible responses: Written Consent of Disapproval:

- ◆ The importing Party:
 - The **Competent Authority of the Importing Party** shall acknowledge the receipt of notification within 14 working days.(Article VI-3.a)
 - Then the **Competent Authority of the Importing Party** has 60 days to inform, in writing, the Competent Authority of the Exporting Party that he is consenting with or without conditions, refusing the movement or requesting additional information.
- ◆ The same procedure will apply to the Transit Party when concerned.
- ◆ In all cases, the Exporting Party will authorise the transboundary movement only upon the receipt of:
 - The written consent of the Importing Party;
 - The written consent of the transit Party;
 - The written consent of a non Party involved as transit country;
 - The written confirmation from the Importing Party of the existence of a contract between the exporter and disposer specifying the environmentally sound management of the wastes.
 - The written confirmation from the exporter of the existence of adequate insurance, bond or other guarantee.

General Notification:

The Convention also contains provision for a general notification which may cover several shipments of wastes over a maximum period of one year. The waste in question shall have the same physical and chemical characteristics and will be regularly shipped to the same disposer via the same customs offices for entry and exit (*Article VI-6*).

Movement Document:

Each transboundary movement of hazardous wastes must be accompanied by a Movement Document (*Article VI-9*) which provides accurate information on a particular consignment. The required information for this document is found in Annex VI B. (i.e. on customs offices receipt, disposal...)

The Movement document accompanies the wastes from the point of generation to the point of disposal in another country. It shall be signed by each person responsible for the wastes upon delivery or receipt. Once the waste has reached its final destination, the disposer must inform the Exporting country and Exporter. If not, the exporter or the Competent Authority of the Exporting Party shall notify the Importing Party.

Illegal Traffic of Hazardous Wastes and Duty to Re-import

Any transboundary movement of hazardous wastes taking place in contravention of the provisions of the Convention, is considered as illegal traffic

Cases of illegal traffic: Article 9-1

1. Movement without notification to all countries concerned;
2. Movement without the consent of a country concerned;
3. Consent is obtained from country through falsification; misinterpretation; fraud
4. Content does not conform with the supporting documentation;
5. Deliberate disposal of hazardous wastes (e.g Dumping) in contravention with other relevant international instruments and general principles of international law;
6. Movement in contradiction with the import-export ban.

Illegal traffic is considered as criminal and the Parties shall adopt national legislation to prevent and punish illegal traffic: The State responsible for the illegality has to ensure the proper disposal of the wastes, if necessary by re-importation into the State of origin.

Illegal traffic as the result of conduct of the exporter or generator:

The Exporting Party shall within 30 days from the time it has been informed:

- Ensure that the wastes are taken back by the exporter, generator or if necessary by itself; or
- Disposed in accordance with the provisions of the Convention.

Illegal traffic as the result of conduct of the importer disposer:

The importing Party shall within 30 days from the time it has been informed:

- Ensure that the wastes are disposed of in an environmentally sound manner by the importer or disposer or if necessary by itself.

Responsibility for the illegal traffic cannot be assigned either to the Exporter/generator or to the importer/disposer:

Cooperation should ensure that the wastes are disposed as soon as possible in an environmentally sound manner either in the State of export or the State of import.

Duty to re-import:

An authorised transboundary movement of hazardous wastes cannot be completed:

- The State of Export has an obligation to ensure re-importation of the wastes if alternative arrangements cannot be made for their environmentally sound disposal. *(the wastes are returned to the exporting Party by the exporter.)* (Article VIII)
- Also the Exporting Party need not re-import those wastes provided that alternative arrangements are made for the disposal of the wastes. *(Such disposal shall take place within 90 days from the time that the importing party informed the Exporting Party and the Secretariat.)*

Information exchange and Cooperation as a means to strengthen the Technical and Institutional Capacity of the Pacific Islands Developing Countries to adequately manage the Hazardous wastes that they themselves generate.

The Pacific Island Developing Countries will need to be given assistance in order to meet their obligations described in article IV.

Article X require cooperation among Parties and International cooperation to promote the environmentally sound management of hazardous wastes in the following areas:

1. Monitoring the effects of hazardous wastes on human health and the environment;
2. Development and implementation of new environmentally sound and cleaner production technologies and the improvement of the existing technologies;
3. Transfer of technology and management systems related to the sound management of hazardous wastes including the development of technical capacity and infrastructure of the Parties;
4. Development of technical guidelines and code of practice;
5. With Other Parties and concerned developed countries to facilitate and finance the transfer of, or access to environmentally sound technologies and know-how to Pacific Island Developing Parties;
6. With international Organisation, promotion of public awareness, development of rational management of hazardous wastes, adoption of new technologies including cleaner production technology.

SPREP will support and coordinate these efforts and will carry out the following functions:

1. Compilation and circulation of information on approved sites and facilities and means of transport to these sites;
2. Information about available sources of technical and scientific expertise;
3. Convey information on consultants having the technical competence in the field of eg *assistance to examine notification, proposed disposal facilities for hazardous wastes are environmentally sound; etc.*
4. Identification of cases of illegal traffic;
5. In cooperation with countries provision of rapid assistance on the event of an emergency situation.

SPREP will transmit to the Parties a yearly report on:

1. Transboundary movement in which Parties have been involved including: quantity of hazardous wastes exported, // amount of hazardous wastes imported, // disposals which did not proceed as intended, // efforts to achieve a reduction of the amount of hazardous wastes subject to transboundary movement;
2. Measures adopted by Parties for the implementation of the Convention;
3. Agreement or Arrangement under Article 11.
4. The effects on human health and the environment from the generation, transportation and disposal of hazardous wastes;
5. Accidents occurring during transboundary movements, treatment and disposal of hazardous wastes;
6. Information on environmentally sound treatment and disposal options operated by Parties;

7. Measures undertaken by Parties for the development of cleaner production technologies.

SPREP in collaboration with the Secretariat of the Basel Convention for the purpose of preventing and monitoring illegal traffic:

1. Exchange information on incidents or alleged incidents of illegal traffic and on appropriate steps to remedy;
2. Provide assistance to Pacific Islands Developing Parties for capacity building including development of national legislation in order to prevent and penalize illegal traffic.

Also, the Parties are required to inform SPREP on their waste-related activities

1. National definition of hazardous wastes and any change occurred;
2. Illegal hazardous or radioactive waste import activity;
3. Change to the nominated focal point or the competent authority;
4. Hazardous wastes generated on its territory;
5. Alternative disposal arrangements;
6. Agreements developed with non Parties within the framework of Article 11,
7. Submit report to the Secretariat under request of the Conference of Parties on wastes generated

and on accidents occurring during the transboundary movement of hazardous wastes or their disposal.

WHAT ARE OUR OBJECTIVES:

- Entry into force of the Waigani Convention as soon as possible;
- Increase of the number of Pacific Island Countries as Parties to the Basel Convention
- Consequently, further strengthen collaboration between SPREP Secretariat and the Secretariat of the Basel Convention.

It is necessary to keep in mind that these conventions will partially support the implementation of the upcoming treaty on POPs.

The implementation of both Conventions has always been foreseen as a joint effort due to the fact that the Waigani Convention provides at the regional level a similar scope to the Basel Convention at a global level while taking into account the specific situation and needs of Pacific Islands Countries.

Recognizing this, formal working relations between the Secretariat of the Basel Convention, and SPREP Secretariat has been established through **a MOU signed 12 February 1996** in order to explore more actively all means of cooperation and synergies.

Both Secretariats agreed on:

- Mutual representation at appropriate meetings;
- Strengthening and expansion of activities of mutual concern to the South Pacific;
- Development of two years cooperative programmes for activities of mutual interest and concern to the South Pacific Region;
- Consultation on policy matters;

- Information to the respective member countries on any cooperative activities undertaken.

Of great importance is that the Secretariat of the Basel Convention and the SPREP Secretariat fully agreed:

- To cooperate in providing technical and legal assistance in order to fully implement both the Basel and Waigani Conventions. (subject to availability of funds)

Also another MOU signed between UNEP and SPREP (*represented by their mutual Director*) on the occasion of the visit by the Executive Director of UNEP to SPREP, **3 March, 2000** contains a specific provision stipulating that both Organisations agreed:

- To fully implement the Waigani and the Basel Convention through the strengthening of cooperation between the Secretariat of the Basel Convention and the SPREP Secretariat.

As a means to implement these MOUs the following has been done:

- | | |
|----|--|
| I. | Assessment of SPREP in its capacity as the Secretariat of the Waigani Convention made in August 1999 upon the request of SPREP and on the behalf of SBC. |
|----|--|

This assessment reiterated the need for the Waigani Convention to be the vehicle for the regional implementation of the Basel Convention. Also, the approach to be taken is to create synergies of cooperation between both Secretariats in order to **make use of the expertise available within SBC** in areas such as:

- Information system: clearing house mechanism
- Joint Training Material and Activities
- Joint Programmes
- Sharing of SBC experience and expertise
- Cooperation in fund raising.

It was also noted that SBC could assist in the **adaptation of existing documents and tools** developed under the Basel Convention to meet the needs of the Basel Convention.

- Model National Legislation
- Model of instrument of accession/ratification
- Movement document
- Notification document
- Technical Guidelines
- Annual reporting form
- Characterization of hazardous wastes

Subject to the availability of resources, SBC would consider contributing to funding of specific activities under the Waigani Convention before and after its entry into force.

- | | |
|-----|---|
| II. | SPREP Secretariat attended the 5 th Meeting of the Conference of the Parties to the Basel Convention and can report here that SBC informed the Participants about its cooperation with SPREP as a new upcoming activity. |
|-----|---|

- | | |
|------|---|
| III. | Visit by the Officer in Charge of the Secretariat of the Basel Secretariat to the South Pacific Region. |
|------|---|

By letter to the Executive Director of UNEP, we requested a firm commitment of UNEP to assist SPREP with the implementation of the Waigani and Basel Convention.

As a result, the **head of the Secretariat of the Basel Convention** visited the South Pacific Region with the objective to promote the implementation of both Conventions. A Meeting was held in Suva with the following participants:

- SPREP
- Forum Secretariat
- SPC
- UNDP
- Government of Fiji

SPREP and SBC decided on a number of cooperative actions to be undertaken toward the aim of urging the countries to take the necessary steps to deposit their instrument of accession to the Waigani and Basel Conventions.

Among those actions we have:

- Development of documentation (Guide for SIDS).
- Make the relevant information available to Pacific Islands countries
- Decision makers awareness.
- Technical assistance and participation to Regional Centre for technology transfer.
- Participation of the Secretariat of the Basel Convention in big events such as the SPREP Ministerial Meeting.
- Exchange of expertise i.e. participation of the Legal Officer of SBC at the Workshop.

We recognize as a priority the need for the countries to become Parties to both instruments as soon as possible and consequently for the Waigani Convention to enter into force.

In light of the Statement of Dr Topfer at Basel COP5:

“Globalisation must necessarily be combined with a new culture of solidarity, with a respect for regional identities, and cooperation for mutual benefit”

SPREP Secretariat is convinced that the Waigani Convention will be the key for a Regional Harmonized Position essential for an effective participation at the Global level.

As mentioned by the Circular letter sent to the Pacific Islands Countries by SPREP, **by becoming Party to the Waigani and Basel Conventions, assistance to countries will be greatly facilitated in areas such as:**

- Legal assistance (adoption of legislation, institutional arrangements and preparation of administrative procedures and enforcement);
- Technical assistance
- Access to information and sharing of expertise available at SBC/SPREP
- Financial support for representatives of PICs

Being a Party is the key to eligibility for cooperative activities.

Also, being Parties to both Conventions will facilitate the access of countries to the Centres for Training and technology transfer. These Centres are key for strengthening capacity at the regional level of developing countries and countries with economies in transition to manage their hazardous wastes in an environmentally sound manner and to minimise their

generation. Implementation of activities will include legal, institutional and technical support.

Also, financial mechanisms will be designed to assist regional, national and local initiatives for the minimisation of the generation of hazardous wastes. General public awareness, development of training programmes and participation of industry will be well promoted.

The Basel Convention

Presented by: Ibrahim Shafii

Contents

- 1. History of the Convention**
- 2. Goals and Objectives**
- 3. Provisions of the Convention**
- 4. Assistance for Control and Management**
- 5. The Basel Protocol**
- 6. Ministerial Declaration**

1. History of the Convention

Initial Awareness of a problem....

- What was the problem?
- Large generation of hazardous wastes in industrialized/developed countries
- illegal movements of hazardous wastes from developed to developing countries
- resulting in detrimental effects on the environment and public health

Initial Awareness of a problem....

- How did the problem arise?
- Higher cost of disposal in developed countries
- lack of legal and administrative framework in developing countries
- lack of technical capacity to dispose waste safely in developing countries

Adoption of Measures....

- Initiation of Process: Development of Cairo Guidelines in 1987
- Adoption of Basel Convention on 22 March 1989:
A Legal Instrument
- Came into force: 5 May 1992
- 145 Parties up to March 2001

2. Goals and Objectives of the Convention

The Goal of the Convention

- To protect Human Health and the Environment Against Hazardous Wastes
- Safeguard of the Environment in the Developing Countries

Objectives to Achieve this Goal

- Reduce Transboundary Movements of Waste
- minimize Generation
- assist Developing Countries in Managing Hazardous Waste in an Environmentally Sound Way

Principles of the Convention

- Minimize generation in terms of quantity and toxicity
- disposal close to source of generation
- guarantee environmentally sound management
- exportation only in case of lacking technical capability

Provisions of the Convention

- I. Control of the transboundary movements of hazardous wastes
- II. Environmentally sound management of hazardous wastes and other wastes and their disposal

3. Provisions of the Convention

Control of Transboundary Movement of Hazardous Wastes

a) Ban on Import and export of Hazardous Wastes

- article 4, paragraph 1(a) of the Basel Convention
- ACP/EEC Convention (Lome IV)
- Bamako Convention
- Decision I/22 of the 1st COP
- Decision II/22 of the 2nd COP
- Ban Amendment (COP 3)

Control of Transboundary Movement of Hazardous Wastes

b) Illegal Traffic

- definition of Illegal Traffic
- necessary actions in Case of Illegal Traffic
- Obligations of the Parties to prevent Illegal Traffic
- Obligation of the Secretariat
- Strategy to prevent and monitor Illegal Traffic

Control of Transboundary Movement of Hazardous Wastes

c) Bilateral, Multilateral and Regional Agreements/Arrangements

- outlined in Article 11 of the Convention
- decision I/9 (COP1) & II/10 (COP2) requests Parties to notify the SBC on such agreements

Control of Transboundary Movement of Hazardous Wastes

d) Control System of the Basel Convention

- conditions for Movement of Hazardous Wastes Notification and Movement Documents
- Transmission of Information
- Liability and Compensation
- Compensation and Emergency Funds

The Environmentally Sound Management of Hazardous Wastes and Other Wastes and their Disposals

- ### **a) Priority Areas for Assistance**
- article 10 of the Basel Convention
 - transfer of Technology and Management Systems
 - development & implementation of new technologies
 - improvement of existing technologies with the view of eliminating generation of wastes
 - harmonization of technical standards, practices and appropriate technical guidelines
 - monitoring of effects of the management systems on human health and the environment
 - development and promotion of sound management
 - public awareness

The Environmentally Sound Management of Hazardous Wastes and Other Wastes and their Disposals

- B) The SBC to Facilitate Assistance to the Parties
- article 16 of the Basel Convention
- the SBC to assist with:
 - management of wastes
 - monitoring of wastes
 - environmentally sound technologies
 - assessment of disposal capabilities & sites
 - emergency responses
 - information on consultants having the necessary competence
 - information on technical and training sources
 - identification of cases of Illegal Traffic

The Environmentally Sound Management of Hazardous Wastes and Other Wastes and their Disposals

- c) Activities under Development by the SBC
 - Technical Guidelines for the Environmentally Sound Management of Wastes
 - Regional Centres
 - Training and Seminars
 - Implementation Manuals
 - Models of National Legislation

Basel Protocol

- a) The Basel Protocol on Liability and Compensation adopted at COP5
 - An associated decision establishing an interim fund to provide emergency assistance and compensation

Basel Protocol

The Protocol provides for a *Comprehensive regime for liability, which addresses who is financially responsible in the event of an incident*

Basel Protocol

Covers each phase of transboundary movement, from:

- the generation of wastes;
- international transit;
- destination of export;
- and lastly, to the final disposal; is considered

Basel Protocol

- The Protocol also provides adequate and prompt compensation for damage resulting from the transboundary movement of hazardous wastes and other wastes.
 - Including incidents occurring because of illegal traffic

Ministerial Declaration

- The Ministerial asserted a vision that the environmentally sound management of hazardous and other wastes is to be accessible to all Parties, emphasizing the minimization of such wastes and the strengthening of capacity-building
- They agreed that decision V/33 on environmentally sound management constitutes the agenda of the Convention for the next decade on environmentally sound management
- The Declaration, which will guide the activities of the Convention, outlines the main areas of focus during the next decade:

Ministerial Declaration (con't)

1. Prevention, minimization, recycling, recovery and disposal of wastes
2. Promotion for cleaner technologies and production
3. Further reduction of transboundary movements of hazardous wastes
4. Prevention and monitoring of illegal traffic
5. Improvement of institutional and technical capacity-building and transfer of environmentally sound technologies
6. Further development of regional and subregional centres
7. Enhanced information exchange, education and public awareness in all sectors of society
8. Greater cooperation at all levels between countries, public authorities, international organizations, industry, NGOs and academia
9. The development of mechanisms for assuring implementation of the Convention and monitoring compliance

For Further Information.....

Visit the Basel Convention's Website:

www.basel.int

**Environmentally Sound
(ESM)
Management of Hazardous Waste**

*Ibrahim Shafii
Programme Officer
Secretariat of the Basel Convention*

ESM

- Article 2(8) defines ESM as “taking all practicable steps to ensure that all hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes”

Achieving ESM of Hazardous Wastes Requires Meeting:

- Legal conditions
- Institutional conditions
- Technical conditions

Conditions to be met

- Existence of regulatory and enforcement infrastructure
- Existence of authorised/licenced facilities
- Adequate standard of technology for pollution control
- Site operators are competent and well trained in h.w. management

ESM requires the knowledge of:

- Purpose, scope and definition of the operation
- Description of the technologies
- Description of the efficiency of operation
- Environmental hazards
- Suitability of waste for operation
- Opportunities for waste avoidance
- Opportunities for recovery
- Criteria for sound operation
- Principles for assessment of predicted environmental impacts
- Guidance for monitoring and corrective actions
- Guidance for closure plans and aftercare
- Economic aspects of the operation

Work by the Technical Working Group

- Developed a Framework Document on the Preparation of Technical Guidelines for the ESM of Wastes subject to the Basel Convention (1993)
- Adopted by COP2 in 1994

Criteria for Evaluation of ESM for recovery operations

- Compliance with regulatory requirements
- Licenced facilities
- Adequate pollution control
- Levels of technology (exporter and importer)
- Monitoring capabilities of operator
- Trained personnels
- Management of final residues
- ERP for emergencies and accidents

Questions to be asked in Evaluation of Export or Import

- Physical state of HW product
- Recovery rate (% of feedstock)
- Types and management of residues
- Temporary storage requirements
- Types and quantity of releases
- Pollution control measures
- Economic value of the recovered products
- Degree of difficulty in clean-up of spills
- Capacity to recover/recycle the waste
- History of adverse environmental accidents
- Is waste routinely traded
- Overall enviornmental benefits arising from the recovery operation
- Extent of use of waste recovered
- Assessment of the facilities by the exporting country

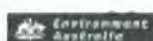
Conclusions

- ESM needs may vary from one region to another
- For developing countries, mainly the capacity building to handle waste in ESM
- For developed countries, mainly on facility performance, trade liberalization and market forces
- ESM requires collective commitments by all stakeholders

Requirements for the Environmentally Sound Management of Hazardous Wastes

An Australian Perspective

presented by Dr Greg Rippon



Introduction

- Setting the scene - need for exports?
- Legislation & ESM
- Hazardous Waste Definition
- Australia & ESM
- Assessing ESM
- Example: Metal recycling plant
- Exports to OECD countries
- Risk management approach
- Further thoughts

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Setting the scene

Need for exports?

- ULABs
- Clinical Waste
- Waste Oils
- PCBs
- NiCad Batteries
- Household waste
- Plastics
- Electronic scrap
- Spent Pesticides
- Asbestos

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Setting the scene

- **Alternatives**
 - eg plastics, pesticides, household waste
- **Waste minimisation**
 - eg clinical waste, plastics, household waste, pesticides
- **In-country capacity**
 - eg clinical waste, household waste, electronic scrap, waste oils
- **Export for final disposal or recycling**
 - eg ULABs, nicads, PCBs, spent pesticides, electronic scrap, waste oils

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Legislation & ESM

Hazardous Waste Act

- Basel Convention through HWA & regulations
- Recyclable wastes exported to Asia until 1996
- Permits introduced with need to assess ESM
- Implements all Basel Convention requirements & OECD Council Directives

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Hazardous Waste Definition

Ministerial Advice

- Conforms to that in Basel Convention
- Uncertainty dealt with by Technical Group:
 - Consists of scientific & technical experts
 - Advises particular facilities or processes meet ESM
 - Prepares papers on technical issues
 - TG papers reviewed by Policy Reference Group

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Hazardous Waste Definition

Guidance Papers

Include:

- distinguishing wastes from non-wastes,
- setting concentration cut-offs for hazardous constituents of wastes, and
- assessment of esm of hazardous waste destined for recovery operations in non-OECD countries

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Australia & ESM

Principles

- Disposal in country of generation
- Management consistent with human health & environmental protection
- ESM obligation not transferred with movement
- ESM must be “cradle-to-grave” assessment
- No export to take advantage of less stringent standards
- Onus of proof rests with applicant

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Australia & ESM

ESM Definition

- Basel Convention defines ESM as
"taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes"
- Protecting human health encompasses OH&S

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Assessing ESM

- Based on Basel Convention guidance & Australian experience
- Considered specifically for export permits
- Many detailed enquiries received
- Only one application granted

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Assessing ESM

8 Questions

- Comprehensive scope
- Specific answers to any 1 question less important than answers to all questions taken as a whole

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Assessing ESM

8 Questions

1. Physical & chemical state?
2. Nature of market?
3. Overall environmental benefits & efficiencies?
4. Nature of recovery process?
5. Wastes generated by recovery process?
6. How transported & stored?
7. Possible accidents & incidents?
8. Compliance with regulations or other standards?

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Assessing ESM

8 Questions

- Must demonstrate management broadly comparable to Australian standards
- Answers to first 7 questions paper-based
- Answer to last question helps verify ESM implemented in practice

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Example: Metal recycling plant

Answers Covered:

- general setting of plant;
- credentials & capability of staff;
- evidence of monitoring of worker health;
- evidence of stock & residue control;
- evidence of monitoring for furnace & kettle process operations;
- evidence of smelting and refining instructions;
- evidence of quality assurance with regard to laboratory methods; &
- evidence of register of accidents

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Example: Metal recycling plant

Key Issues

“the wastes, from an environmental perspective, be satisfactorily processed and would not result in residues or releases which give rise to an unacceptable environmental impact”.

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Example: Metal recycling plant

Key Issues - Not known:

- information from formal QA or EMS system;
- independent reports with environmental perspective;
- information on emission control systems; &
- detailed information on monitoring.

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Example: Metal recycling plant

Difficulties:

- Cannot certify environmentally sound if relevant information not made available
- Lack of independent verification that plant operating to good international practice

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Example: Metal recycling plant

Way forward

- Engage independent consultant
- Consultancy done in <2 days
- Cost of around AUD5,000
- Consistent with *user pays* principle & use of independent auditors
- Requirements of due diligence may then be satisfied

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Example: Metal recycling plant

Consultancy

Scope limited & not management review, but includes:

- inspect plant;
- describe nature of recovery process;
- identify wastes & emissions, what happens to them & assess impacts;
- find evidence of good management & best practice;
- describe the handling and storage of wastes;
- confirm status of operation; and
- inspect offsite waste disposal sites.

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Example: Metal recycling plant

Conclusion

- 100% satisfaction may never be obtained
- But should be possible to reduce risk to acceptable level
- The information provided will always be
 - mosaic of data
 - never complete & require judgements to be made

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Exports to OECD countries

Council Decision 92(39)

- Implies appropriate licensing:
“the wastes shall be destined for recovery operations within a facility which, under applicable domestic law, is operating or is authorised to operate in the importing country”
- Implemented through HWA Regulations for OECD

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Exports to OECD countries

Accession to OECD membership

- demonstrate willingness & ability to uphold obligations,
 - provide details of waste management administration, legislation, & policy, &
 - how these may be harmonised.
- process, however, recognises candidate countries need time to develop all capabilities

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Exports to OECD countries

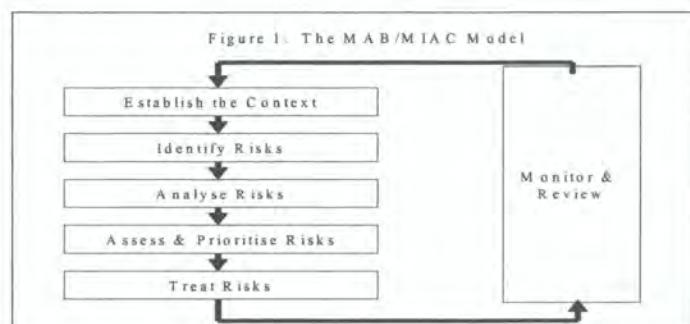
- Cannot assume export will automatically meet requirements
- Australian legislation requires ESM of import & exports
- Refers to Basel Convention definition
- Additional information or evidence may be required

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Exports OECD countries



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Risk management approach

Auditing, Accountancy & Assessment

- Could use auditing & accountancy standards with respect to diligence and probity
- Risk is that hazardous waste might not be handled in environmentally sound manner
- Assessment would require information:
 - track record,
 - benchmarking, &
 - quality

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Risk management approach

Risk profile of importing country

Could look formally or informally at importing country's risk profile, including:

- quality & efficacy of legislation,
- quality & efficacy of hazardous waste management,
- benchmarks (comparison with best practice),
- OECD data, eg with respect to environmental ratings, &
- extraterritoriality (ie with respect to diplomatic relations & international law)

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Risk management approach

Conclusion

- If favourable risk profile, then reliance on the reference to appropriate licensing in Council Decision 92(39) may be sufficient
- If the risk profile unfavourable, then:
 - further information may be required, and
 - a more stringent regime of checks & balances if risk still considered high but manageable

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Further thoughts

- Legislation incorporates:
 - ESM
 - expert advice for decision-maker
- Extensive technical guidelines for industry
 - authoritative
 - frequently revised, learning as we go
 - policy implications also examined by stakeholders

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Further thoughts

- Knowledge of control systems (eg differences)
 - decision-makers
 - line areas
 - other agencies
- Alternatives
 - build capacity in-country
 - other processes to minimise or prevent waste or waste type

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Thank You!



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The Basel Convention Control System

*Ibrahim Shafii
Programme Officer
Secretariat of the Basel Convention*

Components of implementation

- I. Waste controlled under the Convention
- II. The Control System
- III. The Basel Ban Amendment (Decision III/I)
- IV. Other restrictions of Transboundary Movement
- V. Hazardous Waste Management

I. Waste controlled under the convention

- 1. Transboundary movements
- 2. Definition of wastes
- 3. Which wastes are covered by the Convention
 - 1. Hazardous waste
 - 1. Basel waste (art. 1(1) a)
 - 2. Nationally defined hazardous wastes (art. 1(1)b)
 - 2. Other waste

I. Waste controlled (con't)

- Definition of Hazardous wastes
- Wastes that belong to any category contained in Annex I of the Convention (Y1-18 or Y19-45), unless they do not possess any of the characteristics contained in Annex III of the Convention;
- List A (The Hazardous waste list contained Annex VIII)
- b) wastes other than those referred to above which are defined as, or are considered to be, hazardous of the Party of export, import or transit (Art. 1, para. 1)

I. Waste controlled (con't)

Definition of other waste

- Wastes that belong to any category as contained in Annex II, referred to as “other wastes” for the purposes of this Convention (Art. 1.(2))

II. The Control System

What is it?

- A procedure for the notification of transboundary movements of hazardous wastes or other wastes
- Based prior written consent procedure
- Each shipment of hazardous waste or other waste shall be accompanied by a movement document from the point at which transboundary movement begins to the point of disposal

The Control Procedure in general

1. Responsibility to notify
2. Documentation and general notification
3. Contract between the exporter and the dsiposer
4. Insurance/financial guarantees
5. International transport rules and regulations
6. Environmentally sound management

The Control Procedure – step by step

1. When to complete
2. Who completes it
3. How to complete
4. Where to sent it
5. Possible responses
 - a) state of import's written consent and confirmation of contract for sound management of wastes
 - b) written consent of the State of transit Party to the Convention
 - c) transit through a State that is not a Party to the Convention

The Control Procedure – step by step

- The main stages of the control procedure of the Basel Convention
 - figure 1. Flow chart of the notification and authorization procedure of the Basel Convention
 - figure 2. Flow chart of the tracking procedure of the Basel Convention
- The main responsibilities of the different parties involved in the control system

III. The Basel Ban Amendment

A new Article 4A:

- Immediate export ban from Annex VII to non Annex VII countries for disposal
- Phase in export ban for recycling and recovery from 1998

IV. Other restrictions on transboundary movements

1. Transboundary movements only among parties
2. The state of export shall prohibit export if
 - the state of import has an import ban
 - the state of import has not given its consent to the shipment
3. Non-environmentally sound management
4. Exports for disposal to the area of 60° South latitude

Reporting on implementation

- Each party is required to submit an annual report to the secretariat providing e.g.
 - details of each transboundary shipment of Basel-controlled wastes;
 - Disposal methods;
 - Countries of import and transit;
 - Accidents ;
 - Efforts to reduce transboundary movements of hazardous wastes and other wastes;
 - The so-called Article 11 agreements

National enforcement

- Enforcement is central to the effective implementation of the convention
- Need for a proper infrastructure, adequate staffing of trained personnel, appropriate logistical support and knowledge of hazardous wastes
- How do we get there?

Supporting tools for implementation

- Manuals and guidelines
 - model legislation on control and management of hazardous wastes
 - implementation manual
 - Instruction manual on the control system
 - Technical guidelines
- The secretariat and its website
- The Basel Convention Regional Centres

For further information

Visit the Basel Convention's website:

<http://www.basel.int/>

Transboundary Movement of Hazardous Waste

Processes and Controls

Dr Greg Rippon



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Introduction

- Legislation
- Definition
- Processes
- Achieving results
- Case Studies
- Issues for Further Consideration

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Legislative Context

Legislation

- Hazardous Waste Act,
- Other legislation gives general mechanisms:
eg Customs, Crime, Privacy, FOI, Public Service

Associated Policies, Codes, Strategies etc

- Government & departmental
eg EA Compliance & Enforcement Strategy
- Administrative & operating procedures

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What is Hazardous Waste?

The Act defines hazardous wastes as:

waste containing any of the characteristics mentioned in Annex III to the Basel Convention eg

- | | |
|------------------------------|-------------|
| • poisonous (acute) | • explosive |
| • infectious | • ecotoxic |
| • toxic (delayed or chronic) | • flammable |

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What is Hazardous Waste? cont...

- *wastes belonging to any category contained in Annex I to the Basel Convention, eg*
 - clinical wastes
 - waste oils
 - mercury (mercury compounds)
 - lead (lead compounds).
- *household wastes; or*
- *residues arising from incineration of household wastes.*

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What is Hazardous Waste? Electronic Scrap Example

- Requires permit if contains hazardous components eg
 - nickel-cadmium batteries
 - mercury switches
 - glass from cathode-ray tubes
- Not required computers for further use

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HWA Permit System

Most enquires for:

- brass or lead dross;
- used lead acid batteries (ULAB's);
- aluminium ashes and residues;
- waste oil; &
- electronic and plastic scrap

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HWA Permit System



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Australian Export Permits: 2000-01

Quantity	Type of Waste	Destination
15,000 t	Used lead-acid batteries	New Zealand
15,000 t	Lead dross	Belgium
7,000 t	Lead sulphate concentrate	Belgium
3,000 t	Used lead-acid batteries	UK
250 t	Brass dross/skimmings	UK
200 t	Nickel-cadmium batteries	Belgium
150 t	Tin ashes & residues	Belgium
100 t	Solder dross	Belgium
80 t	Leaded antiknock sludge	UK
60 t	Paragoethite	South Africa
50 t	Nickel-cadmium batteries	France

9

Australian Import Permits: 2000-01

Quantity	Type of Waste	Country
2400 t	Zinc ashes and residues	Malaysia, Vietnam, Indonesia, Philippines
1200 t	Aluminium ashes and residues	New Zealand
350 t	Zinc ashes & residues	New Zealand
250 t	Brass ashes & residues	New Zealand
150 t & 15,000 ltrs	Household wastes	French Antarctic Territory
60 t	Paragoethite	South Africa

10

Links Between Agencies



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Agency Cultural Issues

- Profile of Compliance and Enforcement
- Allocation of Adequate Resources
- Consistency in approach
- Planning and monitoring by Responsible Areas
- Recognition of Key Partnerships

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Compliance & Enforcement

- Intelligence analysis:
 - *Customs data*
 - *Industry*
 - *Community, NGOs*
- Federal Police or EA investigates
- 6 suspected illegal exports
- 1 successful prosecution
- 4 suspected illegal imports

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Compliance & Enforcement

- Appropriate penalties
- Penalties under Australian Act
 - *Up to \$1,000,000 for a body corporate*
 - *Up to 5 years imprisonment for individual*
 - *Personal liability for company executive officers*

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Zinc Ash Export Case Study

- 200 tonnes zinc dust to Asia
- Onus on exporting country to control & take back
- Export to non-OECD country without proper ESM assessment
- BC & HWA presume Annex VIII wastes hazardous unless proved otherwise.

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Zinc Ash Export Case Study

- Presumption could be rebutted through using appropriate (national) tests (in Annex III)
- But only total composition determined
- Also, material was cut with sand
- Prosecution did not proceed
 - *prioritisation of cases because resources limited*
 - *definitional issues*
 - *recklessness could not be proved*

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Clinical Waste Import Case Study

- Australian Army set up export
- Continued by UN
- Permit issued by AQIS but no HWA permit
- Local government also not consulted

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Clinical Waste Import Case Study

- Could argue process managed in good faith
- Also, concern for welfare of community & need for safe disposal led to import
- Any further imports could only be issued after:
 - *Bilateral Article 11 arrangement, &*
 - *Issue of Special Permit under HWA*

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Waste Oil Import Case Study

- Transported directly from PIC
- Import was in apparent breach of HWA
- State EPA alerted EA
- Administrative & Prosecution difficulties
 - *role for AFP investigation*
 - *no prosecution because "reasonable doubt"*

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Waste Oil Import Case Study

Issue highlights potential for:

- identifying selected waste streams then education program,
- need for Waigani Convention & its publicity, &
- potential to collect data more formally from NEPM requirements for tracking

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Issues for Further Consideration

- Small agency, non-enforcement culture
- Centralisation of activities:
 - obtain & maintain required standards,
 - achieve better utilisation of resources,
 - standardised Agency procedures, and
 - avoid dependency on outside agencies

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Issues for Further Consideration

Any centralisation needs to ensure that:

- prioritising work did not disadvantage smaller sections,
- resources were available (time, personnel and money)
- training in the various systems was as needed, (eg to some internal level)

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22

Issues for Further Consideration

Further, compliance & enforcement strategy & performance indicators:

- Gives strategic direction
- Gives impetus to performance
- Raises profile of:
 - *investigation, inspection, & prosecution*
 - *key partnerships*
 - *Information flows and management*

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& Waigani Conventions

23

Issues for Further Consideration

Inherent Convention difficulties

- Definitional:
 - *hard for industry, enforcement officers, & courts*
 - *Article 11 arrangements*
- Need for authoritative advice for:
 - *decision-maker*
 - *court*

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24

Issues for Further Consideration

Role of education

- provision of technical information
- advertising strategy for increasing general awareness

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25

Thank You!



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26

Ministry of Industry EMC Group France Entreprise Minière et Chimique

- TREDI S.A. Paris France
Treatment Valorization Elimination of
Industrial Wastes
- Saint-Vulbas : Incineration
- Tredi New Zealand Ltd.
ISO 14001 – Logistic International

Risk Analysis

- Identify that there is a problem
- Assess the Quantity and Concentration
- Assess the risk to the site
- Assess the risk to the environment
- Assess the legal situation
- Assess the commercial situation
- Identify the solution

Managing a PCB Project

- Management Plan
 - Site Inspection
 - Clearance Plan
 - Site Preparation
 - Packing
 - Transport & Shipping
 - Safe Disposal
 - Insurance
 - Emergency Response
- Considerations
 - Risk Analysis
 - Safety and Environmental Issues
 - Regulations
 - Work Procedures
 - Quality Assurance
 - Track Record
 - Commercial Objectives

Classification of Equipment According to its Content of PCBs

- | | |
|----------------|-------------------|
| • Below 2 ppm | NOT PCB |
| • 2 - 50 ppm | NON SCHEDULED PCB |
| • 50 - 500 ppm | PCB CONTAMINATED |
| • Over 500 ppm | HIGH STRENGTH PCB |

Methods of Analysis for PCBs



- Preliminary test of chlorine (50 and 500 ppm)
 - Oil of the transformers
 - Oil in general
 - Soils
- Gas Chromatograph (1ppm).
- Mass Spectrograph (1ppb).
 - Utilization for DDTPC and DFTPC.

Site View



Site View

- Original distribution of the electrical equipment.



Personal Safety Gear

- Tyvek Overalls
- Good Gloves
- Gumboots
- Eye Protection
- Respirator Available
- Hard Hat with Visor
- Communication
- Partner



Pumping and packing



Transfer all PCB liquid into UN rated drums.

Safe Storage

- Weighing scales
- Spill gear
- Bunding



Safe Storage



Storage Facility



Spill Gear

- Absorbent & Booms
- Tools
- Packing Materials
- PPE Gear for staff
- Spill Response Procedures
- Emergency contact numbers
- Barrier equipment



Steel Pans



All equipment is organized in steel pans.



Safety

The steel pans with the equipment are secured inside the containers in accordance with ISO standard procedures.



Other Handling Procedures



Identification and labelling for the marine transport of PCB



Hazardous Class of the PCB in the international regulation

IMO Class 9



This label indicates the danger of the polluting agent. The individual steel containers must identify clearly the name of the owner of the waste and the final destination.

UN 2315

Compliance with International Protocols.

- Basel Convention for the transboundary movement of hazardous wastes
- Prior Informed Consent
- IMO and IMLG shipping regulations
- National Regulations for registering, handling, storage and local transport
- Good Planning & Quality Assurance

The transport



- TREDI offers a transport service complying with the highest quality standard, the international regulation and the Basel convention



Tredi Logistics Service



BASEL CONVENTION REGIONAL CENTRES

Capacity Building Activities

Designated Host Institutions

Africa and West Asia

Egypt: Centre for Hazard Mitigation, Cairo University

Senegal: African Institute for Urban Management, IAGU, Dakar

South Africa: Vista University, Pretoria

Nigeria: Linkage Centre for Cleaner Production, Technology and Hazardous Waste Management, University of Ibadan

Asia and the Pacific

China: Tsinghua University, Beijing

India: The Asian Pacific Centre for Transfer of Technology, New Delhi (UN/ESCAP)

Indonesia: Environmental Management Centre, Serpong (Jakarta) through BADEPAL

CENTRAL and EASTERN EUROPE

Slovak Republic: Slovak Environment Agency, Bratislava

Russian Federation: Centre for International Projects, Moscow

LATIN AMERICA AND THE CARIBBEAN

Argentina: National Institute for Waste and Environment, Buenos Aires (originally)

El Salvador: Ministry of Environment and Natural Resources, San Salvador

Trinidad and Tobago: Caribbean Industrial Research Institute. CARIRI, Port of Saipan

Uruguay: National Directorate for Environment. Ministry of Housing, Land Management and the Environment

AFRICA AND WEST ASIA

- Egypt and Senegal: MOU's
- South Africa: Centre Hosted by Vista University, but created as a separate entity. SBC on Board of Directors MOU's to be signed between Centre and Participating countries
- Nigeria: No activities initiated yet

ORGANIZATIONAL ARRANGEMENTS

Governing and Advisory Bodies

Slovak Centre: Advisory Board and general Assembly
Asia and Pacific Centres: Steering Committee
Egypt and Senegal: Advisory Board
South Africa: Board of Directors and Training and Technology Transfer Council
Latin America and Caribbean: Executive Boards of Subregional Centres and Coordinating Centre. Regional Assembly

Governing Mechanism

Regional Assemblies: discuss problems and needs and establish priorities

Advisory Committee: Evaluation of activities formulation of proposal

Financial Mechanism

- Feasibility study for collaboration Centre Private sector Long-term funding crucial for stability of Centre Strategic partners
- Increase of users of services
- Adoption of marketing programs

Staffing

- Core staff provided initially by host country (Director, Adm. Staff)
- External Funding required for recruitment of long term staff

Development of work programs for regional centres

Management of information and information sharing

- Ongoing activities and proposals

AFRICA and WEST ASIA

- Inventories and databases
- Well developed communication infrastructure
- Access to international data on waste management, public awareness on hazardous waste issues
- Designing of programmes for Collection and analyzing of data

ASIA – PACIFIC

- Establishment of regional hazardous waste databases
- Information of available technologies and research and development work
- Data exchange and provision of information
- Development of information networks on environment sound management of hazardous waste

CENTRAL and EASTERN EUROPE

- Improve access to environment sound technologies
- Exchange of experience and information, including on hazardous waste movements
- Establish a database on legislation related to hazardous waste from the region

LATIN AMERICA and the CARIBBEAN

- Establishment of inventories
- Databases on expertise, hazardous waste facilities, etc
- Regional network on information exchange and a system to alert neighboring countries about possible illegal traffic in the area
- Dissemination of information related to management and minimization of hazardous wastes
- Electronic network on hazardous waste information through the WEB

Strategy for collaboration and promotion of synergies

- a) involvement of all stakeholders, including UNEP, other UN agencies or, private sector and NGO's
- b) establishment of advisory group for centres

INVOLVEMENT OF ALL STAKEHOLDERS

- UNEP/UNIDO on national Cleaner Production centres
- UNEP Regional offices
- UNEP Chemicals on PIC and POPs
- UNEP International Environmental Technology Centre, Japan
- UN Regional Commissions
- UN Department of Humanitarian affairs (emergencies)/UNEP
- OECD
- European topic centre of wastes

Concrete steps to promote synergies

- Coordinators of UNEP Regional offices and UNEP Convention Secretariat to call a meetings with relevant conventions and other UNEP program
- Agree on a framework of concrete activities and modalities of cooperation between regional centres and NCPCS
- Setting up of periodic review mechanism at regional level to review emerging environmental problem related to hazardous wastes and toxic chemicals, possibly through regional centres

Development of a funding strategy for capacity building through the Regional Centres for training and Technology Transfer

Overall goal:

Ensure financial security for the first years of operation and form the long term sustainability of the centres.

Objectives

- Maximum use of existing funding mechanisms for hazardous waste management
- New financial resources identified
- Support from member countries

Steps for the development of a funding strategy

- Undertake an overview of financial arrangement to support capacity building activities in the UN system
- Prepare the ground to encourage participating countries to support the centres
- Develop approach to obtain funds from multilateral and bilateral assistance as well as from development banks and other funding institutions
- Explore ways and means to obtain support through industry including charging fees for services
- Explore new and innovative fund raising methods such as private funding, partnerships, debt swaps, etc

Annex 8: Activity Plan for the Basel and Waigani Conventions

Activity Plan for the ratification and implementation of the Basel and Waigani Conventions

1. LEGAL AND INSTITUTIONAL REQUIREMENTS

1.1 Legal Requirements

Objective: Promote ratification of the WAIGANI/BASEL Conventions

	Item	Activity	Relevance to other Conventions	Who Leads	Priority	Time
1.1.1	Review of existing laws by countries in collaboration with Secretariats - determine whether to do convention by convention or integrated approach	1. Identification of legal experts (national or external), issuance of TOR 2. Identify weaknesses and needs and recommend options (FAO consultant's review of pesticides in countries?)	BC, WC, then option for POPs, PICs		High	1 year
1.1.2	Development of appropriate legislation based on model (assessment - use of existing model under Basel vs taking broader approach for 4 conventions) or adaptation of existing legislation or integrated Act	1a For Countries with existing legislation, amend that legislation, if necessary 1b For Countries without any existing legislation, adapt the model 2. As part of development or amendment of legislation, undertake stakeholder consultation program 3. Enact legislation or amendments	BC, WC, then option for POPs, PICs		High	1 year
1.1.3	Suggestions for specific workshops on legislation & awareness-raising programs	1. Relevant Stakeholders (eg Decision-makers, Public, Industry/private sector, NGOs, Others)	BC, WC, then option for POPs, PICs		High	1 year
1.1.4	Training of legal officers (units on environment at universities, regional)	1. Identify needs 2. Train (eg kit developed on environmental matters)	BC, WC, then option for POPs, PICs		Low	long-term

1.2 Institutional Requirements

Objective: Strengthening of institutional capacities for enforcement and monitoring

	Item	Activity	Relevance to other Conventions	Who Leads	Priority	Time
1.2.1	Assessment of capacities of countries for implementation, compliance and enforcement (possibly developing synergies with other MEAs)	1. Identification of appropriate institutional infrastructure and capacity 2. Establish appropriate partnerships between identified agencies (eg department, committees, groups) 3. Identification of resources & personnel requirements	All		H	now
1.2.2	Collaboration of Countries with the SPREP and the Secretariat of the Basel Convention to address country needs	1. Coordination of activities, including with POPs/PIC and others (eg clearing house, joint training material) 2. Identify suitable joint programs through the Basel regional centres (Indonesia & China) 3. Adapt existing Basel tools for use by the PICs 4. Facilitate access to Basel mechanisms (eg Protocol on Liability & Compensation) 5. SPREP to coordinate & support the regional participation at COPs and technical meetings (eg pre-meeting briefings, assist in developing position papers, technical and legal advice). Note the involvement of NGOs in briefing of national teams at these international for a	all		High	now

2. CONTROL AND MONITORING REQUIREMENTS

Objective: Use the provisions of the Waigani Convention and Basel Convention to control the transboundary movement of hazardous waste, and to prevent illegal traffic.

2.1 Control and Process Requirements

	Item	Activity	Relevance to other Conventions	Who Leads	Priority	Time
2.1.1	Training & Personnel	1. Identification of resources & personnel requirements 2. Identify minimum requirements for the setting up of a control system 3. Analyse the benefits and costs in regional vs in-country systems 4. Through capacity building - see section 4	all		H	now
2.1.2	Education/awareness of private and public sectors	1. Assist countries with the development of appropriate materials	all		H	Now (ong oing)
2.1.3	Information systems and exchange	1. Through capacity building - see section 4	all		H	now
2.1.4	Access to Basel mechanisms (eg Emergency response plans and cleanup of accidental spills, Assessment of damages)	1. SPREP to coordinate on Regional basis 2. Countries to seek as needed for in-country needs but keeping SPREP informed	all		H	Now (ong oing)
2.1.5	Assistance from Waigani and Basel Conventions	3. SPREP to coordinate on Regional basis 4. Countries to seek as needed for in-country needs but keeping SPREP informed	WC/SPREP		H	now

2.2 Monitoring and enforcement Requirements

	Item	Activity	Relevance to other Conventions	Who Leads	Priority	Time
2.2.1	Training & Personnel	1. Identification of resources & personnel requirements 2. Identify minimum requirements for the setting up of a monitoring and enforcement system (but see 2.2.4, 2.2.6, & 2.2.7) 3. Analyse the benefits and costs in regionalising vs in-country systems 4. Through capacity building - see section 4	all		H	ongoing
2.2.2	Education of private & public sectors	1. Development of appropriate material to highlight the need for dealing with problematic hazardous waste 2. Involve public for ownership and enforcement	all		H	ongoing
2.2.3	Information systems & exchange	1. Through capacity building - see section 4	all		H	ongoing
2.2.4	Assistance from Waigani and Basel Conventions	1. SPREP to coordinate 2. SPREP to identify strategy for dealing with ships passing into areas of national jurisdiction 3. Countries may seek assistance but inform SPREP	WC/BC		H	
2.2.5	Compliance and enforcement strategy to indicate priorities, needs, barriers, partnerships, etc	1. SPREP to develop a compliance & enforcement strategy framework for Region 2. Countries to complete to further develop priorities in this area	all			After implementation
2.2.6	Investigation of illegal trafficking	1. Roles of other agencies to be determined (eg customs) 2. Arrangements made for this to occur (eg MOU, statement of intent, informal line area contact, working group or taskforce etc)	all			After implementation

3. ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS WASTE

Objective: To Prevent or minimise waste generation, and ensure management of hazardous wastes in a sound and efficient manner.

	Goal	Activity	Relevance to other Conventions	Who Leads	Priority	Time
3.1.1	Development of hazardous waste management strategy	1. Set intermediate goals for stabilising quantities of hazardous wastes generated and industrial chemicals used (waste segregation at source, waste recycling, re-use, or reclamation, etc) and upgrading of existing facilities 2. Set long term goal of waste reduction or prevention and its environmentally sound management 3. Establishment of national, regional-based, or mobile facilities for waste treatment and disposal based on geographical considerations 4. Adopt/adapt standards, guidelines and manuals for hazardous waste management 5. Involvement of all stakeholders 6. Identify resource & capacity needs including human, finance, technology etc (eg the development of OH&S standards and monitoring of workers) 7. Consider financial aspects and financial implications (eg Incentive schemes, Possible sources of funding) 8. Develop monitoring, compliance and enforcement mechanisms 9. Review and evaluation of action plans 10. Provide for the exploration of alternatives to chemicals ie, cultural or traditional knowledge or practices 11. Build the hazardous waste management strategy into the national waste management strategy	all		High for 1 (for those without one)	1 year

3.1.2	Management of existing stockpiles	1. Update existing inventories 2. Assessment of conditions and ensuring adequate repackaging, labelling, storage and security 3. Implement best practice for possible in-country solutions 4. Export of hazardous waste for disposal (recovery or final) 5. Implement best practice for rehabilitation of contaminated sites (including closure of sites)	POPs, BC & WC		Countries to determine	1 year
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4. CAPACITY BUILDING THROUGH TRAINING, & INFORMATION MANAGEMENT & SHARING

Objective: To strengthen the capacity of governments to comply with technical, legal and institutional requirements in the management of hazardous wastes.

	Item	Activity	Relevance to other Conventions	Who Leads	Priority	Time
4.1.1	Training	1. Identification and implementation of training needs and strategy 2. At National level (eg management of chemicals and hazardous waste) 3. At Regional level (including negotiation skills) 4. At International level	all		High but country specific	
4.1.2	Network of professionals dealing with hazardous wastes	1. Develop a roster of regional experts to deal with technical & legal issues 2. Make it available to through the clearing house mechanism of SPREP	WC (SPREP)		High	
4.1.3	Strategies on information requirements	1. Assessment of needs (software and hardware, accessibility, personnel) 2. Development of regional databases where appropriate or utilise existing databases (eg by linking) 3. Guidelines on how to access and better use information (ie analysis), and improve information flows 4. Development of "how to/what for" manuals for technical and legal personnel				
4.1.4	Access and contribution of the Regional Centres for Training and Technology Transfer (RTTC) under the Basel Convention	1. SPREP to coordinate with Basel and the region 2. General training workshop by SPREP 3. More formal - should look into USP				
4.1.5	Financial aspects	1. Identify priorities for funding 2. Identify sources of funding 3. SPREP to coordinate and seek synergies with relevant secretariats and other stakeholders (eg through partnerships)				

4.1.6	Promote and enhance stakeholder partnerships	1. SPREP to coordinate and seek <i>SYNERGIES</i> with relevant secretariats & other stakeholders (eg through partnerships) 2. Developing inter-agency stakeholder cooperation through appropriate mechanisms				
4.1.7	Awareness programs	1. Secretariats to provide information to assist government awareness programs (eg user-friendly) targetted at the following groups: • Decision-makers • General public/community leaders/religious heads (language considerations) • Relevant agencies (environmental officers, local authorities, Customs, police, trade, others) • Industries • Academia				