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REPORT ON

TRAINING WORKSHOPS IN EFFECTIVE MANAGEMENT OF HAZARDOUS MATERIALS, HAZARDOUS WASTES AND CONTAMINATED SITES WORKSHOP REPORT SAMOA

Submitted to :

South Pacific Regional Environment Programme

PO Box 240

Apia, Samoa

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ACRONYMS

CD	Customs Department
DE	Department of Education
DEC	Division of Environment and Conservation
DH	Department of Health
DL	Department of Labour
DLSE	Department of Lands, Survey and Environment
EPC	Electric Power Corporation
MAFFM	Ministry of Agriculture, Forestries, Fisheries and Meterology
MOT	Ministry of Transport
NCP	National Chemical Profile
NGO	Non-Government Organisation
PA	Ports Authority
PCBs	Polychlorinated Biphenyls
PICs	Pacific Island Countries
POPs in PICs	Persistent Organic Pollutants in Pacific Island Countries Project
PTC	Pesticides Technical Committee
PWD	Public Works Department
SPCC	Spill Prevention Control and Countermeasures Plan
SPREP	South Pacific Regional Environment Programme
SWA	Samoa Water Authority
TWG	Technical Working Group

1.0 INTRODUCTION

Management of hazardous materials, hazardous wastes and contaminated sites has become an increasingly important issue for Pacific Island Countries (PICs). In 1997, AusAID, in conjunction with SPREP, implemented the Persistent Organic Pollutants in Pacific Island Countries project (POPs in PICs) to address this issue. As part of the POPs in PICs project, training workshops will be held in thirteen PICs to create awareness and understanding on the **effective management of hazardous materials, hazardous wastes and contaminated sites**.

A four day training workshop was delivered in Samoa from Monday 26 February through Thursday 1 March, 2001, and included interactive activities and exercises, site inspections and practical field demonstrations. The workshops were designed and delivered by Golder Associates under contract to SPREP with the following objectives:

- To upgrade Samoa's capacity for the effective management of hazardous materials and hazardous waste;
- To upgrade Samoa's capacity for effective management of contaminated sites;
- To encourage the development of specific strategies for managing hazardous materials in Samoa; and
- To raise awareness in Samoa's communities of issues associated with the generation and management of hazardous wastes.

Prior to the workshop commencing, a Pre-Workshop Questionnaire was prepared and distributed to workshop participants. The purpose of the questionnaire was to obtain preliminary information on participants understanding of hazardous materials management and any desired workshop outcomes. A summary of responses received from the Pre-Workshop Questionnaires is provided in Appendix A.

2.0 WORKSHOP PARTICIPANTS

2.1 Organisations Represented

A complete list of workshop participants is provided in Appendix B.

2.2 Organisations Not Represented

Several applicable organisations were unable to send a representative to the training workshop, including:

- Samoa Water Authority (SWA);
- The Attorney-Generals Office;
- The Med-Cen Hospital;
- Boral Gas; and
- Timber Mill Co. Ltd.

3.0 MAJOR ISSUES IDENTIFIED

The following major in-country issues were agreed by workshop participants, in order of priority:

1. Lack of enforcement and awareness of existing laws;
2. Inadequate disposal facilities;
3. No co-ordinated approach or delegated responsibility for the management of hazardous materials;
4. Need for adoption of an integrated waste management policy framework, which includes hazardous wastes and contaminated land;
5. Limited community awareness and understanding of hazards associated with chemical use in Samoa;
6. Implementation of good practices by industry is not publicly recognised;
7. Need for greater control on the type and amount of hazardous materials being imported into Samoa;
8. Consistent design standards are needed for chemical stores; and
9. Uncontrolled contaminated sites adjacent to coastal waters.

4.0 COUNTRY REPORT UPDATE

The following current information was obtained from participants and/or during site inspections:

A representative from the Department of Education reported that obsolete chemicals are stored at a school in Apia that does not appear to have been identified in the Country Report prepared in 1998. It is reported that the Department of Education is currently considering relocation of this store to a site further away from the school grounds, however the Department currently has no plans in place for the disposal of these chemicals.

A Medical Waste Disposal pit has been established at Tafaigata dump site and is used for the disposal of contaminated sharps, infectious wastes and pharmaceutical drugs. The site is poorly managed and access to the site is not controlled.

Recommendations for selected existing stockpiles, as prepared by workshop participants, is provided in Table 2 in Section 6.2.

No other additional comments were obtained regarding the Country Report for Samoa.

5.0 EVALUATION ISSUES

The following issues were noted in the daily workshop evaluation forms:

- Additional information is required on waste oil recycling and disposal;
- There is a need for the increased inspection and management of unlabelled chemical containers;
- Resources are required for the development of public information material on the negative impacts of waste;
- Establish clear protocols for dealing with hazardous materials from their arrival through to their disposal;
- Need to initiate action in the short term, to address in-country issues relating to hazardous materials management;
- Incorporate clean technology in new economic development projects;
- Adopt suitable local standards based on relevant international criteria;
- There is concern about the possible existence of unidentified contaminated land;

- Toxicological information is required on the human health and environmental impacts on the disposal of waste rubber and plastic, including the effects of burning.
- Prepare educational material for use in the school curriculum, on waste reduction options for hazardous materials;
- Identify affordable site investigation and remediation techniques; and
- Key agencies consider that there is currently no suitable site for the disposal of hazardous wastes.

6.0 ACTION PLANS

6.1 General Action Plan

To address the identified major issues, during the workshop participants developed and agreed to implement the Action Plan shown in Table 1 below.

Table 1 – General Action Plan for Samoa

ACTION	WHO	TIMELINE	STATUS
Promote the adoption of a National Waste Policy	DLSE	04/01	
Formalise a technical working group to co-ordinate responses	Cabinet/ National Government.	06/01	
Introduce a community education program on hazardous materials	DLSE	04/01	
Implement routine inspections of storage sites, stockpiles and known contaminated areas.	DL / DH / DLSE	09/01	
Strengthen import controls on listed chemicals	CD	12/01	
Provide additional chemicals handling training for key government personnel and operators	TWG	09/01	
Develop design standards for chemical storage facilities	Fire Department / DLSE / PWD	08/01	
Pursue Waigani Convention ratification to prepare for export of certain hazardous wastes	DLSE	12/01	
Investigate key contaminated sites and develop remediation plans (including the Power Station and former timber treatment mill).	DLSE / MAFFM	06/02	

6.2 Action Plan for Existing Stockpiles

A proposed action plan to manage existing stockpiles of hazardous materials was developed by participants, following the site inspections, as shown in Table 2.

Table 2 – Action Plan for Existing Stockpiles

SITE NO.	SITE ACTIVITY	PROBLEMS	ACTION	RESPONSIBILITY
Sam01	Former Timber Treatment Site	DLSE still seeking information from owner on fate of 10,000 L storage tank	Investigate sources of contamination on site	DLSE
Sam02	Agricultural Research	Burial of stockpiled drums at unmarked locations	Identify and mark burial sites. Monitor ground water on site. Investigate corrosion rates of drums.	MAFFM
Sam08	Power Stations	Inadequate bunding of chemical stores (tanks, drums, etc). Inadequate separation of stormwater and oily wastes.	Include stormwater management plan in site management plan requested by DLSE. Upgrade bunding.	EPC

7.0 RECOMMENDATIONS

Based on the training workshop outcomes, Golder Associates recommendations to achieve the defined project objectives in Samoa are outlined in Table 3 below.

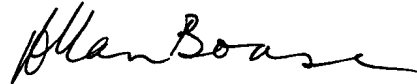
Table 3 – Recommendations Arising From Workshop

RECOMMENDATION	RESPONSIBILITY
1. Establish and provide institutional strengthening in integrated waste management for the proposed new waste management unit within DLSE.	DLSE
2. Develop a National Chemical Profile (NCP) as a baseline for future management. NCP to include ongoing monitoring of quantities of chemicals used and stockpiled.	MAFFM (PTC)
3. Establish a central bioremediation facility for the treatment of hydrocarbon contaminated soil.	DLSE
4. Conduct environmental field trials to monitor residuals from pesticides commonly used in Samoa (eg: Sting, Gramoxone).	MAFFM (PTC)
5. Develop simple checklists for auditing and risk assessment of chemical stores.	DLSE / DH /DL
6. Liase with NGO's and community groups to develop community based educational programs	DEC

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APPENDIX A

Responses to Pre-Workshop Questionnaire

RESPONSES TO PRE-WORKSHOP QUESTIONNAIRE

Eleven pre-workshop questionnaires were completed and returned to Golder Associates. A summary of the information obtained from these is as follows.

Profile of Participants

A diverse range of national government departments as well as a number of private organizations were represented at the workshop.

A number of participants have formal qualifications and/or training, including the following:

- Diploma in ports management (currently studying);
- Bachelor of Science;
- Bachelor of Science (Biochemistry);
- Bachelor of Agriculture Science;
- Certificate IV in Fire Fighting Supervision and Workplace Assessment; and
- Technicians Certificate (Telecommunications).

Other workshops attended by participants in the past, either in Apia or overseas included:

- 2nd Annual PACPOL workshop (1999);
- Ships Waste Management Facilities (1999);
- AusAID training on Occupational Health and Safety (1998);
- Hazardous Wastes and Chemicals Management Workshop (1996);
- Training at the Telecom Training Centre, Maluafo; and
- Training in the Safe use of Pesticides.

Current Perceptions on Hazardous Materials and Hazardous Wastes

- There are a lot of risks involved including proper safety procedures during and after clean up operations;
- The government should take action to avoid dumping hazardous wastes in the Pacific Ocean;
- There are acute and chronic illnesses associated with hazardous materials;
- Pollution to the environment, especially the marine ecosystem;
- Harmful to people and destroys the environment; and
- Dangerous to human health.

Common Issues

- There is no where to store it properly;
- No-one really understands the risks involved;
- No-one takes responsibility for it; and
- Poor disposal methods.

Expectations

Participants expectations of the workshop (as obtained from feedback received from both the pre-workshop questionnaires and during the workshop) included the need for training in how to:

- Identify hazardous material including containers that were not labelled;
- Determine the toxicity of various hazardous materials;
- Properly store hazardous materials;
- Manage damaged containers or spills of hazardous materials;
- Properly transport, load and unload hazardous materials;
- Properly dispose of hazardous materials, including empty containers; and
- Manage spills of hazardous wastes.

Participants also indicated they would like information on:

- The effects of hazardous materials to the environment and people;
- Methods of personnel protection;
- The different types of classes and labelling of hazardous materials;
- The types of legislation that deals with the implementation, enforcement and regulation of activities involving hazardous materials and hazardous wastes;
- Risk Assessment;
- Residues from pesticides and other chemicals that may be contained in contaminated food and water;
- Site safety and inspection;
- Contamination pathways;
- Information sources; and
- Contingency Plans .

Other expectations recorded included:

- An understanding of the current and planned measures for the disposal of hazardous materials in Samoa; and
- That the workshop will solve the problems of disposal methods for empty containers and chemicals used in agriculture.

Techniques of Interest

Specific techniques of interest included:

- Remediation of CCA contaminated sites at Savaii;
- Testing for PCB's;
- Asbestos removal and awareness campaigns;
- Sampling marine sediments for history of contamination;
- Alternatives available for chemicals commonly used in Samoa;
- Handling lead acid batteries;
- Unloading of hazardous materials from cargo ships; and

- What types of facilities or equipment a port must have in anticipation of an incident involving hazardous materials spills.

Sites to Visit During the Workshop

- Dump site at Tafaigata including site for dumping of public waste and site for dumping of quarantine and hospital waste); and
- Disposal of pesticides buried at MAFFM Crops, Nu'u.

Implications For Workshop

Participants attending the workshop appear to be well qualified, with some existing experience in hazardous materials. Topics to be focused on should include proper handling and storage techniques, site management plans, and hazard control systems. During the workshop participants should be encouraged to discuss what techniques are available in Samoa for the disposal and management of hazardous wastes and obsolete chemicals.

APPENDIX B

Workshop Participants