

REPORT ON

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

Submitted to :

South Pacific Regional Environment Programme

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Apia, Samoa

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TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION	1
2.0 WORKSHOP PARTICIPANTS.....	1
2.1 Organisations Represented	1
2.2 Organisations Not Represented	2
3.0 MAJOR ISSUES IDENTIFIED.....	2
4.0 COUNTRY REPORT UPDATE.....	3
5.0 EVALUATION ISSUES.....	3
6.0 ACTION PLANS.....	4
6.1 General Action Plan.....	4
6.2 Action Plan for Existing Stockpiles	5
7.0 RECOMMENDATIONS	5

LIST OF TABLES

Table 1	General Action Plan for Nauru
Table 2	Action Plan for Existing Stockpiles
Table 3	Recommendations Arising from Workshop

LIST OF APPENDICES

Appendix A	Responses To Pre-Workshop Questionnaire
Appendix B	Workshop Participants

ACRONYMS

IED	Industry, Economics & Development
NRC	Nauru Rehabilitation Corporation
NFMR	Nauru Fisheries & Marine Resources
NPC	Nauru Phosphate Corporation
PCBs	Polychlorinated Biphenyls
PICs	Pacific Island Countries
POPs in PICs	Persistent Organic Pollutants in Pacific Island Countries Project
PPE	Personal Protective Equipment
SPREP	South Pacific Regional Environment Programme
WMT	Waste Management Team
PICCAP	Pacific Islands Climate Change Assistance Program
TCLP	Toxicity Characterisation Leaching Procedure

1.0 INTRODUCTION

Management of hazardous materials, hazardous wastes and contaminated sites has become an increasingly important issue for Pacific Island Countries (PIC's). 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 five day training workshop was delivered in **Nauru** during the period 15 – 22 February 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 Nauru's capacity for the effective management of hazardous materials and hazardous waste;
- To upgrade Nauru's capacity for effective management of contaminated sites;
- To encourage the development of specific strategies for managing hazardous materials in Nauru; and
- To raise awareness in Nauru'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 private organisations were unable to send a representative to the training workshop, including:

- Capelle & Partners; and
- Jeremiah Trading;

The two companies represent the main retail stores on the island.

3.0 MAJOR ISSUES IDENTIFIED

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

1. **Inadequate environmental**, occupational health and safety and regulated waste legislation and **regulations**;
2. **Inadequate training** of specialised personnel in hazardous material and waste management handling/storage;
3. A **lack of public awareness** of environmental issues;
4. A **lack of public awareness** of hazardous waste, domestic waste and imported materials that may be detrimental to the environment;
5. A **lack of internal and external funding** for waste management initiatives and training;
6. A lack of funding for **youth education initiatives** and programs regarding environmental and waste management issues;
7. Inadequate internal and external funding for **technical equipment and training**;
8. The need for a detailed hazard **assessment of cadmium slimes** and
9. Investigation of a possible **historical diesel spill under the old fuel stores**.

4.0 COUNTRY REPORT UPDATE

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

- Possible oil/diesel contamination in Aiwo district impacting the local groundwater lens. Local inhabitants have reported an oily smell in water pumped from groundwater wells in the district. Reported groundwater contamination may be the result of historical spillage from the Second World War;
- Local inhabitants adjacent the airport have reported smelling kerosene / Jet A1 fuel in water pumped from the underlying groundwater lense. The locality of the airport is relatively close to the above site. No testing of groundwater has been carried out in country to confirm the existence of any contamination;
- A former landfill is located near the current landfill site. The site was not inspected during the workshop period and no further information was forwarded regarding the extent of filling;
- Buada lagoon is reportedly contaminated by leachate from the current landfill and suffers periods of eutrophication. Confirmation testing of local groundwater down-gradient of the landfill is not currently carried out. Further reports have implicated local septic tanks from residents as being a potential source of contamination impacting lagoon water quality;
- An area of oil contaminated surface water was observed in the NPC topside workshops together with extensive areas of soil contamination. Contaminated surface water appears to flow around the back of the site toward the centre of the island;
- Areas of soil contamination by oils and greases exist in the various vehicle dumping locations. This is particularly evident where old mining machinery is located such as the NPC disposal stockyards; and
- Transformers stored at the NPC power station have been moved to a new location, either the number 2 bin or adjacent the topside former fuel tanks 200 m north of the phosphate works.

5.0 EVALUATION ISSUES

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

1. Public awareness of contaminated land and hazardous waste issues are very limited within Nauru;
2. Nauruans need such a program to be aware of the environmental implications of their waste management practices;
3. There is a lack of specific environmental legislation for Nauru; and

4. Public health and occupational health and safety legislation needs to be improved to provide adequate protection of Nauruan residents.

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 Nauru

ACTION	WHO	TIMELINE	STATUS
Investigation of the feasibility of restarting aluminium can recycling for the Island	Dempsey Detenamo	Feasibility July 2001 Initiation Jan 2002	
Investigation of the feasibility of initiating plastics recycling.	Tim Aingimea	Feasibility Sept. 2000	
Public education program for waste reduction and recycling	Tara Akiri	July 2001	
Investigate waste oil recycling and feasibility	Pene Agadio	Sept. 2001	
Formation of hazardous material and waste management taskforce	All participants directed by IED and NRC	May 2001	
Recommend the enactment of pending environmental, Occupational Health and Safety and Environmental Impact Assessment Legislation.	Golder Associates, SPREP & WMT	April 2001	
Carry out a public awareness program for waste and hazardous substance management	WMT	Jan 2002	
In country training in hazardous waste management and risk assessment	Nauru Gov. Departments, NPC and Attendees	Oct 2001	
Investigation of external funding sources for waste management infrastructure and training	Joseph	Aug 2001	
T.C.L.P. testing of cadmium slimes to assess potential environmental and public health hazard.	NPC & IED	May 2001	
Investigation of reported oil contamination of groundwater in Aiwo district.	NPC & IED	Mar 2002	
Repair or obtain new incinerator to improve current disposal practices of medical waste	WMT	Mar 2003	

6.2 Action Plan for Existing Stockpiles

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

7.0 RECOMMENDATIONS

Table 2 – Action Plan for Existing Stockpiles

SITE NO.	SITE ACTIVITY	PROBLEMS	ACTION	RESPONSIBILITY
A site number has not been assigned to this stockpile	Cadmium Slimes Dump	Unknown hazard of cadmium content.	Carry out TCLP Assign a site number to identify the stockpile	IED & NPC

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

Table 3 – Recommendations Arising From Workshop

RECOMMENDATION	RESPONSIBILITY
1. Legislative change within Nauru, namely pass pending environmental acts and regulations on Occupational Health and Safety and Environmental Impact Assessment.	Govt of Nauru
2. Form a Waste Management Taskforce comprising of members of the workshop under the supervision of IED and NRC.	Workshop Participants
3. Seek funding from external sources of funding to provide waste management infrastructure and provide training to potential employees with training updates on a regular basis.	Joseph – IED
4. Initiate a public awareness program of waste management for the local community that is culturally sensitive and effective.	WMT, IED and NRC
5. Encourage effective and economic recycling initiatives for Nauru and seek markets for material in conjunction with other SPREP countries.	SPREP and WMT

GOLDER ASSOCIATES PTY LTD

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Workshop Facilitator

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Project Manager

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APPENDIX A

Responses to Pre-Workshop Questionnaire

RESPONSES TO PRE-WORKSHOP QUESTIONNAIRE

No pre-workshop questionnaires were received from participants. Subsequently during the introduction of the workshop participants were asked to express their expectations of the course. Further information was forwarded during the course and in the course overview.

Profile of Participants:

- Participants attending the workshop were derived from Government Departments, Non-Government Organisations, Corporations and the public sector a full list of participants is provided in Appendix B.

Expectations:

Participants provided the following expectations during the introduction of the course;

- Increased awareness of environmental issues associated with hazardous material/waste and contaminated site management;
- Increased knowledge of legislative regulations and enforcement;
- Handling and management of hazardous waste;
- Increased awareness of hazardous waste issues;
- Disposal options for hazardous waste;
- National Regulations pertaining to hazardous waste management; and
- Possible preventative measures for hazardous waste.

Participants expectations were reviewed at the end of the course to ensure all expectations were achieved satisfactorily.

Current Perceptions on Hazardous Materials and Hazardous Wastes:

- The majority of participants demonstrated some basic knowledge of hazardous waste issues.
- Little knowledge was displayed of the potential environmental and human consequences of hazardous waste.

Sites to Visit During Workshop:

- NPC Power Station;
- NPC Hazardous Goods Store;
- NPC Topside Workshops;
- Nauru Landfill; and
- Cadmium Slimes Dump

Techniques of Interest:

- Composting;
- Spill Clean Up;
- Hazardous goods labelling; and
- Environmental Management.

Other Comments:

- Asbestos was indicated to be contained in many of the private and commercial buildings on the island;
- Cultural inhibitors often resulted in the failure of previous recycling initiatives. Nauruans residents react negatively to being told or requested to carry out an act often resulting in a oppositional reaction. Initiatives should encourage the residents to consider the future consequences of their actions.
- Land ownership issues instill an attitude where the population consider it a right to use land for any purpose they desire regardless of environmental or human consequence.

Implications For Workshop:

- Participants revealed during review of the workshop that all expectations outlined during the course introduction had been achieved. It was stressed that caution should be carried out with regard to expectations of workshop outcomes.

APPENDIX B

Workshop Participants

WORKSHOP PARTICIPANTS

NAURU

Name

Organisation

Workshop Participants (13):

Lara Atto	Nauru Fisheries and Marine Resources
Limay Kera	Department of Industry and Economic Development
Ramos Agege	Department of Fisheries
Fine Olsson	Nauro Phosphate Corporation
Nelson Tamakin	Nauru Environmental Association
Tim Aingimea	Nauru Phosphate Corporation
Dempsey Detenamo	Nauru Rehabilitation Corporation
Livingstone Hiram	Nauru Youth Affairs
Vincent Scotty	Department of Health
Tara Akiri	Nauru National Youth Affairs
Pene Agadio	Environment Officer
Margo Deiye	Nauru Secondary Shool
Tyrone Deiye	Department of Industry and Economic Development

Facilitators:

Ken Gilbert	Golder Associates
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