



Republic of Nauru

Hot Spot Analysis Results (HSA) & Selection of Demonstration Project

May 2007

Integrated Water Resources Management (IWRM) Program



Pacific Islands Applied Geoscience Commission (SOPAC)
Dr Ian Wallis

Introduction

Nauru is a small country comprising a single island with an area of only 22 km². The island is having severe difficulties in achieving a safe and adequate supply of potable water and suffers from pollution of local groundwater due to inadequate sanitation services. The problems have arisen from the collapse of the utility services when phosphate mining ceased, followed by a national financial crisis.

As a consequence, households and commercial buildings are experiencing a severe water shortage, and have to use non-potable water for a wide range of purposes even though it is often polluted by wastes from onsite sanitation systems.

The key factors that underlie the water and sanitation difficulties are:

- Insufficient rainwater tanks, guttering and down pipes to collect a satisfactory amount of rainwater for potable use;
- The large desalination plant, which uses waste heat from the power station, has not operated since 2001;
- The two small RO desalination plants are operating but, due to a lack of delivery trucks, only 3 % of possible production was delivered to consumers in 2005/06;
- There is a possible groundwater resource, but it is still to be explored, and the ownership of water is yet to be settled;
- Many households have cesspits which are close to wells used to withdraw non-potable water for a wide range of household uses;
- Most septic tanks are full of sludge because there is no sludge removal truck, and this reduces treatment and hence increases local pollution of groundwater;
- The shortage of local skills in plumbing repairs and in managing water supply and water demand; and
- Crippling financial limitations on governments.

Purpose of HAS

The Hot Spot Analysis (HAS) is an assessment of the national priority issues that need to be addressed to move towards integrated water resources management and sustainable solutions for drinking water and sanitation. It uses the knowledge of the participants to identify the highest priority issues in water resources management.

HSA Participation

Appendix 1 lists the participants in the HSA. The HSA followed a consultative and participatory process and included a cross-section of representatives from: the Nauru Rehabilitation Corporation (NRC), Department of Commerce, Industry and resources (CIR), Utilities, Atmospheric Radiation Measurement, Nauru Fisheries Marine Resource Authority (NFMRA), Education, Government of Nauru (GON), Eigigu Holding Corporation (EHC), Nauru Island Association of NGOs (NIANGO) and South Pacific Applied Geoscience Commission (SOPAC).

HSA Process and Methodology

IWRM reflects a transition from sectorial implementation to an inter-linked approach. Thus the HAS should lead to projects that are of value nationally as well as providing a demonstration of IWRM for the region.

After careful review of the general HSA guidelines, a HSA workshop was carried out over the course of one afternoon and followed the agenda below:

12.30 – 2.00	WELCOMING LUNCH
2.00 – 2.15	Welcome and Opening Remarks
2.15 – 2.30	Purpose of Workshop
2.30 – 3.00	Perspective of Water Resources on Nauru (Diagnostic Report)
3.00 – 3.30	Hot Spot Analysis – Discussion of Issues
3.30 – 4.00	Reflections during Afternoon Tea
4.00 – 4.30	Suggestions from Working Groups
4.30 – 4.50	Evaluation and Recommendations
4.50 – 5.00	Closing remarks

At the outset of the workshop, the consultant conducted a presentation welcoming the HSA participants with a brief outline of the purpose of the workshop and the issues with regard to water resources (potable water and sanitation requirements) for Nauru.

The HSA process was explained step-by-step with the participants, including familiarisation of the forms used to identify and rank the hot spots areas.

The participants moved into three separate groups, each of which was responsible for conducting their own HSA on the three separate issues listed below:

1. *Supply and demand for supply of drinking water and institutional arrangements;*
2. *Effects of sanitation practices on Nauru water resources; and*
3. *Conservation and environmental issues.*

Upon completion of the respective HSA's, each group presented its hot spot selections along with a short description of the major priority issues and an overall justification for each selection.

The groups collectively identified and ranked the hot spots. Upon completion of the HSA, these final hot spots were evaluated and a list of actions was developed in order of priority, to assist in developing the Demonstration Concept Project.

In summary, the four main steps followed during the HSA and leading up to the final selection of the Demonstration Project were:

1. Familiarisation of participants with IWRM and HSA process;
2. Three break-out groups separately carry out HSA's;
3. Break-out groups report back to main group results of analyses; and
4. Evaluate selections with consideration of other factors and criteria and then make final selection for Demonstration Project

Final Selection of Hot Spots for Demonstration Project

At the Hot Spot Workshop it was concluded that more resources were essential for Nauru to achieve a sustainable, safe and adequate water supply, and a sustainable, non-polluting sanitation system. The actions listed below were seen as of high priority. All actions have been attributed to existing entities on Nauru, to reinforce existing roles and responsibilities. The tasks are consistent with the goals and milestones in the *National Sustainable Development Strategy* for the water and sanitation areas, and the directions currently being taken by aid donor funding.

Task	Responsible Agency
1. Obtain and install 180 large water tanks in 2007, with associated guttering and plumbing.	Aid Coordination Unit/Eigigu Holdings
2. Obtain and install 45 tanks of 6,000 L in community areas as backup storage and for irrigation of community garden plots.	Aid Coordination Unit
3. Obtain and install 180 large water tanks in 2008, with associated guttering and plumbing.	Aid Coordination Unit/Eigigu Holdings
4. Obtain and install 180 large water tanks in 2009, with associated guttering and plumbing.	Aid Coordination Unit/Eigigu Holdings
5. Strengthen local skills and capacity in tank installation, plumbing and repairs.	Aid Coordination Unit/Eigigu Holdings
6. Conduct water efficiency audits at all households with large tanks and other households that volunteer.	Aid Coordination Unit
7. Conduct water efficiency audits at all commercial premises supplied with desalinated water.	Aid Coordination Unit

Task (continued)	Responsible Agency
8. Re-commission large desalination unit at low capacity to match generation of waste heat from the power station.	Utilities
9. Purchase and operate 2 trucks to deliver desalinated water.	Utilities
10. Purchase and operated 1 truck to collect and dispose of septage.	Utilities
11. Complete survey of households, roof area, tanks, and sanitation systems.	SOPAC/Survey and Mapping
12. Twice annual monitoring of household wells and bores (EC, turbidity, E Coli).	Health
13. Establish legal framework for ownership of boreholes and groundwater extraction.	Nauru Rehabilitation Corporation
14. Drill 20 boreholes, including test holes, monitoring bores and production bores.	Nauru Rehabilitation Corporation
15. Develop several production bores and associated storage tanks for drought supply and for agricultural use.	Nauru Rehabilitation Corporation
16. Update National Water and Sanitation Plan.	Health/WHO
17. Public awareness program.	ICR/Health/Utilities
18. Annual audit and review of progress on water and sanitation tasks, and refinement of future strategy.	Health/WHO/Aid Coordination unit

In summary, the outcome of the Hot Spot Analysis was a series of actions:

1. To address the water scarcity (actions 1 to 4);
2. To reduce the demand for water (actions 6 and 7);
3. To improve local skills and capacity (actions 5, 9 and 10);
4. To increase knowledge and understanding (actions 11 to 13);
5. To explore the potential groundwater resources (actions 14 and 15); and
6. To integrate management activities (actions 16 to 18).

The Demonstration project is consistent with the National Water Plan and National Sanitation Plan developed by the Ministry of Health/World Health Organization in 2001 and also with the Nauru National Sustainable Development Strategy 2005-2025.

The demonstration project proposed for Nauru involves a multi-task approach, which is consistent with an integrated approach to water resources management. In particular, the project reflects the two key issues of the GEF Business Plan for SIDS:

- Water scarcity and efficient water usage; and
- Integrated approaches to management of groundwater and other water supplies.

Appendix 1 HSA Participants

Serenaid Debao	Department of Commerce, Industry and Resources
Andrew Kaierua	ARM/ Department of Commerce, Industry and Resources
Nelson Tamakin	Development Policy and Planning Division/GON
Cindy Kephas	Nauru Island Association of Non-Government Organisations
Claudette Wharton	Department of Commerce, Industry and Resources
Ebelina Tsiode	Nauru Fisheries Marine Resource Authority
Margo Deiye	Nauru Fisheries Marine Resource Authority
Bernard Grundler	Education
Ramrahka Detenamo	Statistics/Government of Nauru
Dempsey Detenamo	Nauru Rehabilitation Corporation
George Joram	Nauru Rehabilitation Corporation
Don Olsson	Eigigu Holding Corporation
Joske Teabuge	Eigigu Holding Corporation
Raphael Ribuaw	Utilities
Ian Wallis	Consulting Environmental Engineers
Mr. Peter Sinclair	SOPAC