

SOPAC workshop: Appropriate and Affordable Sanitation for Small Islands

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This workshop was organised by SOPAC, (the South Pacific Applied Geoscience Commission), which is based in Suva, Fiji. It was held in Tarawa, Republic of Kiribati from 6-8 August 1996. Tarawa Atoll is a series of narrow islets, some joined by causeways slightly above sea level, located just north of the Equator with a population in excess of 30,000 and few toilet facilities.

The workshop was designed to share information on available sanitation options for Pacific countries containing small islands. The main goals of the workshop were:

- to provide information on sanitation options;
- to produce a guidelines booklet on appropriate and affordable sanitation;
- to develop project proposals for trial installations; and
- to promote health and hygiene standards associated with sanitation

Fifty-five consulting engineers, scientists and representatives from nongovernmental organisations, (NGOs), regional organisations, aid donor nations and government departments from American Samoa, Australia, Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, New Zealand, Papua New Guinea (PNG), Solomon Islands, Tonga and Tuvalu took part.

The workshop opened with an address by Dr Ali Basaran, the WHO's Regional Adviser, who drew attention to the "Healthy Islands" concept which was intended to involve people in dealing with the problems of health, sanitation and the environment.

Dr Leonie Crennan and Greg Berry from the Centre for Environmental Studies, University of Tasmania described the recent trial of alternating batch type composting toilets on Kiritimati (Christmas Island), Kiribati. The programme arose because of the need to protect the ground water resources from contamination by open defecation, pit latrines and septic

tanks. Composting toilets with zero liquid discharge were seen as an attractive alternative. The toilets have proved to be appropriate from a technical, cultural and environmental point of view, so much so that the trial has been extended from the original 15 units to an additional 150 by the funding agency AusAID. The composted material has been used around fruit trees on Kiritimati.

Dave Rapaport of the Centre for Clean Development, Oregon, USA, told participants of the similar aerobic double vault toilets constructed for Greenpeace as a trial on Yap and Pohnpei between 1992 and 1994. The Greenpeace report on "Sewage Pollution in the Pacific" describes the philosophy behind the design and use of zero discharge toilets for eliminating land based contaminants.

Bill Bencke of ACT Electricity and Water discussed the mechanisms and health problems associated with discharging septic tank effluent into various sensitive geological environments. Dr Stephen Winter of Appropriate Technology Enterprises, Chuuk, described his experiences with the construction and maintenance of VIP, (Ventilated Improved Pit), latrines in Micronesia.

Steve Iddings, WHO Engineer, and Joel Kolam, Senior Health Inspector, both from the PNG Environmental Health Division, told the workshop that WHO encouraged the use of VIP toilets in PNG but that in coastal areas, particularly around Port Moresby, overhung, drop toilets built out over the sea often among overhung housing, were also popular.

John la Roche of Water for Survival, Auckland, described health education and sanitary practices in projects his organisation has funded in Africa, India and the Solomon Islands. He stressed the need for community participation and noted that many sanitation programmes fail because the beneficiary communities are not consulted before implementation.

These opening sessions, essentially describing the range of options available and used in other countries and within the Pacific, were followed by a series of working group discussions on three major topics. These were :

- Community Participation
- Sanitation, Health and Hygiene
- Sanitation Technology for Small Islands

The basic findings of the working groups were reported in considerable detail and will be used to write a booklet

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containing guidelines for developing sanitation on small islands. It was made clear from the deliberations of the working groups that, prior to selection and construction of any form of sanitation, it is necessary to obtain full participation of the community in the choice, construction and, ultimately, in the operation and maintenance. It was regarded as equally important, according to the findings of the health, hygiene and sanitation group, to include a community education programme. The working groups' reports are summarised in the following paragraphs.

Community participation

There are four stages to successful community participation. Firstly the organisations promoting sanitation, usually NGOs and government departments, need strengthening by way of training and resources. Secondly the communities themselves need strengthening. The first step is to visit the community and find out what their priority needs and wants are. A wide selection of "community" should be involved from young children to senior citizens. They should be informed of the available options the promoters are able to offer. Community leaders and trainers who will be effective in their own village or island need to be identified. Compensation may be needed for such people. Thirdly there will be a need for decision making. This must be done by the community with the support of those promoting improved sanitation. Finally external support agencies, providing the financial assistance and technical expertise can be involved once the decision has been made.

Sanitation, health and hygiene

Education on the health and hygiene aspects of sanitation is fundamental to the sustainability of programmes. Coordination of all inputs is necessary to avoid duplication and confusion at the village level. Integration of activities by NGOs and government departments should be routine.

Simple methods, such as flip charts, using local language where possible, should be used, although a range of methods including radio, video, posters and banners can create variety and interest. Community elders, church leaders and women can be very powerful and credible conveyors of health and hygiene education messages.

Education programmes should begin with mothers, be reinforced in the school curriculum and then be extended into the community as a whole. Education programmes need continuity, persistence and much time before the health and hygiene messages are accepted. These may take a whole generation and therefore could involve some cost to maintain.

Sanitation technology for small islands

The technology working group detailed the types of islands which could be considered in the context of sanitation technology, ranging from small sand islands and atolls to larger high volcanic islands. The goals or criteria for selection of a technology for small islands were then outlined as needing to

- provide a barrier to the transmission of disease by either destroying pathogens or effectively isolating them from human contact
- ensure the protection of fresh water and sensitive coastal resources
- conserve fresh water
- recover the resource value of human excreta
- be affordable to the majority of the local population
- be easy to maintain and require a minimum of off-island expertise and equipment
- be convenient, comfortable, pleasant and easy to use
- be acceptable to the local population.

This group then provided a full analysis of the available options for sanitation. This included an assessment of relative cost, level of technology, constraints and advantages, risks, resource reclamation and level of pathogen containment and/or removal. The group suggested a possible community based risk management approach consisting of the setting of objectives based on their priority needs and wants and on pollution limits and parameters. The technology could then be selected to match these requirements.

Some informal discussion towards the end of the workshop looked at the possible ways of implementing trial installations of some of the types of sanitation. It was noted that further trials of composting toilets were planned for Tarawa, Kiribati, Western Samoa and Fiji.

The delegates at the workshop came from many backgrounds and included Health Inspectors, Social Workers, Water and Sewerage Engineers, non governmental organisations (NGO), and aid donor country representatives. Many met their counterparts from other Pacific countries for the first time.

Basic information on the technologies was displayed during the workshop and made available to participants together with all papers presented or written for the event. Although not attending, due to unavoidable problems, contributions were received from the South Pacific Commission, (SPC), and the South Pacific Regional Environmental Programme, (SPREP), both of whom have responsibilities for waste disposal and sanitation in the region.

The workshop concluded with a social evening, including a display of custom dancing, arranged by the government of Kiribati, whose support and assistance with the organisation ensured the smooth running of the programme. □

Editorial note: Mostly expatriate speakers are named in this report but Pacific people, with names, also spoke as well.