Annex 4.2 SOLID WASTE EDUCATION AND AWARENESS IN PACIFIC ISLAND COUNTRIES

Raj, S.C.
Project Coordinator, Pacific Regional Waste Awareness and Education Programme
South Pacific Regional Environment Programme (SPREP)
PO Box 240, Apia, Samoa
Email: SureshR@sprep.org.ws

(Paper presented to the Proceedings of the R'2000 5th World Congress, Toronto, Canada, 5-9 June 2000)

Abstract

In Pacific island countries (PICs), where solid waste disposal has traditionally not been a problem, there is a need to carefully explain to the public why changes to waste management practices are now required.

Public education and awareness is being undertaken through regionally implemented initiatives, such as the Pacific Regional Waste Education and Awareness Programme, to encourage PIC nationals to support and participate in waste "reduce, reuse, recycle" (3Rs) programmes. This is being achieved through the development and dissemination of appropriate methodologies and material to increase general awareness and education on solid waste issues and on related possible solutions, and by making recommendations to decision-makers on further activities in the areas of waste treatment and legislation.

1. Introduction

Whilst the Pacific region is quite diverse in terms of the size and features of various countries and territories, there are some common features which characterise it as a region. These include geographical isolation, fragility of the island environment, rapid population growth, limited natural resource base, dependence on marine resources, vulnerability to natural hazards, vulnerability to external changes for instance in trade and capital markets, and heavy reliance on one or two economic sectors such as tourism.

The PICs have an attractive image internationally, an image that has been exploited for tourism development. The picture of white sandy beaches, clear lagoon waters, and thriving coral reef communities is widely used to attract visitors from all over the world. Whilst this is generally accurate, in some locations there is considerable pressure on the environment. If remedial actions are not taken then the natural resources that form the basis of this substantial foreign exchange earning capacity may cease to be attractive, and once the image is damaged it may be impossible to repair.

Another important issue is that the population of many PICs is increasing at a rate above the world average, and this represents a major problem in terms of environmental management. The expanding populations also want increased standards of living including piped water and sewerage facilities, better housing, a wider range of foodstuffs and consumer goods. All of these usually contribute to additional stress on the environment as they lead to increased construction, increased waste disposal problems, deforestation and subsequent erosion and siltation.

2. Solid waste minimisation and management issues

Waste management is a serious environmental problem in Pacific island countries. Virtually every island and territory in the region sees disposal of solid wastes as the environmental problem most urgently in need of resolution. Empty bottles, plastic bags and containers, and all the other debris of modern society are littering formerly pristine waters, shorelines and land, threatening food and water supplies, public health and the tourism industry alike. In small Pacific islands, there is just not enough land area to accommodate the rapidly increasing quantities of solid waste.

Solid waste management in the region is not just a matter of solving the problems of litter and solid waste. A full solution would have implications for the areas of social behaviour, economics, environment, health, education, commerce and international relations. For small Pacific island countries, reduction of waste is probably the most practical option, and this is dependent on public awareness and education. The hope is that as people become aware of the threat solid waste poses to their environment, health and economy, they will start taking action themselves to reduce their waste.

3. Solid waste characterisation

It is very important to establish what types and quantities of solid waste are generated in each country. Waste characterisation studies are a prerequisite, providing reliable baseline data which make it possible to set realistic targets for waste reduction, reuse and recycling. Furthermore, data generated by waste characterisation studies can be used to raise awareness of decision-makers and legislators. They can also be used as a basis for making recommendations on further activities in the areas of waste treatment and legislation.

One of the components of Pacific Regional Waste Education and Awareness Programme (WASTE) concentrated on solid waste charcterisation studies, undertaken during the second half of 1999. The results of the characterisation studies are being used to identify components of the waste stream that could be reduced, reused or recycled. Furthermore, comparison with historical data (Table 1) is being used to highlight changes in the quantities and nature of the solid waste generated.

On the basis of data generated between 1990 and 1994 (Table 1) one can conclude that domestic solid waste generation rate in PICs was of the order of 0.3-0.7 kg/capita/day with an average of 0.42 kg/capita/day. Biodegradable material (vegetable/putrescible and garden waste) generally made up about 50% of this. Other important components of the solid waste stream included plastics, glass, metals and paper.

Table 1. Characteristics of solid waste in selected Pacific island countries between 1990 & 1994

Item	Honiara, Solomon Islands	Pohnpei, FSM	Majuro, Marshall Islands	Apia, Samoa	Rarotonga, Cook Islands	Nuku'alofa, Tonga	Average
Year	1990	1991	1991	1993	1994	1994	1990-94
Composition (% by wet weight)							
Vegetable / Putrescible	18	11	2	45	7	60	**24**
Paper	2	13	13	13	11	16	**11**
Textile	0	1	3	3	1	2	**2**
Leather / Rubber	0	1	2	0	1	0	**1**
Plastic	4	17	16	8	13	9	**11**
Metal	8	17	10	14	12	7	**11**
Glass / Ceramic	2	8	6	2	17	2	**6**
Garden Waste	0	32	44	14	28	4	**20**
Miscellaneous	66	0	6	1	10	0	**14**
Bulk Density (kg/m3)	**270**	**120**	**110**	**350**	**100**	**Not known**	**190**
Generation Rate (kg/capita/day)	**0.38**	**0.38**	**0.38**	**0.52**	**0.19**	**0.68**	**0.42**

Table 2. Characteristics of solid waste in selected Pacific Island countries, 1999

Waste Classification	Honiara, Solomon Is (wt%)	Nuku'alofa, Tonga (wt%)	Lautoka, Fiji Islands (wt%)	Port Vila, Vanuatu (wt%)	Average
Paper	5.9	31.3	14.7	11.4	**15.8**
Plastic	16.8	5.2	8.1	7.7	**9.5**
Glass	4.5	3.3	2.7	3.3	**3.5**
Metals	6.1	8.0	3.2	3.6	**5.2**
Biodegradable	64.6	47.2	67.8	71.0	**62.7**
Textiles	1.8	3.7	3.0	1.6	**2.5**
Potentially Hazardous	0.1	<1	0.2	0.7	**0.5**
Construction and Demolition	0.1	1.0	0.0	0.7	**0.5**
Other	0	0.3	0.2	0.0	**0.1**
Total	100%	100%	100%	100%	
Average Bulk Density (kg/m3)	**209**	**159**	**169**	**158**	**174**
Generation rate (kg/capita/day)	**0.62**	**0.82**	**0.94**	**0.65**	**0.76**

The results of the waste characterisation studies undertaken in 1999 show that the average generation rate is 0.76 kg/capita/day. This is 81% higher than the average generation rate calculated from the data in Table 1. This shows that there has been a significant increase in solid waste generation rates over a period of 5-9 years. Another significant difference between the results of Table 1 and 2 is that during 1990-1994, on average about 24 wt% vegetable/putrescible matter (i.e. kitchen waste) was discarded as household waste. However, by 1999 this practice had almost completely stopped in all countries mentioned in Table 2. The main reason for this is that householders started feeding this component to pigs, dogs and poultry. This is a significant observation because it means that rubbish dumps in PICs possibly have less nuisance potential (smell, vermin, birds) than may be expected under the climatic conditions.

The dominance of biodegradable (or green) waste in the waste stream is evident from the results of Tables 1 and 2. It is continually emphasised to decision-makers in PICs that should pay considerable attention to the potential for reducing the biodegradable waste stream by diverting this waste to mulch or compost projects. Green wastes are a valuable resource for soil improvement, particularly on the atolls.

Two urban centres, Nuku'alofa (Tonga) and Honiara (Solomon Islands) are covered in both the surveys reported in Tables 1 and 2. Therefore, direct comparison can be made of results pertaining to these two urban centres.

A closer examination of the Nuku'alofa results indicates that the per capita generation rate increased by 21% over 5 years. The greatest contributor to this is paper, the generation rate of which increased by 96% over 5 years. The main reason for this is the increased use of disposable nappies and diapers. This was confirmed during the 1999 characterisation study.

A closer examination of the Honiara results indicates that the per capita generation rate increased by 63% over 9 years. The main contributors to this are huge increases in the disposal of paper (mainly disposable nappies and diapers), plastics and glass.

The above results are very important in the context of a solid waste education and awareness programme because they indicate areas that need to be focussed on. Such results are also used to educate policy makers and Government officials in relation to issues such as enforcement legislation and demonstration projects to facilitate waste minimisation and management.

4. Strategies for implementing solid waste education and awareness initiatives

The activities funded through the Pacific Regional Waste Education and Awareness Programme use five broad strategies to satisfy its objectives. The underlying principle used in developing waste awareness and education material is that all material be developed with input from key stakeholders and community representatives.

The first strategy is to undertake solid waste characterisation studies, as discussed in Section 3, and use the results of the surveys to design well targetted and relevant education and awareness campaigns.

The second strategy is to focus on the "identified carriers" of the waste awareness and education messages and build their capacity so that they can assist WASTE in better educating the general public on solid waste issues. In this regard, the capacity of media personnel is being built through in-country workshops to enhance the coverage of solid

waste issues in all media (radio, newspapers, TV, etc). Furthermore, participatory training sessions are used to improve communication between environmental officials (i.e. national waste experts) and the general public on solid waste issues through the production of radio and television spots and print articles.

Thirdly, methodologies and material are being developed to increase Pacific island communities' general awareness and understanding of solid waste issues. A solid waste education and awareness video currently under production will highlight the responsibilities of the viewers at the individual, family, community, school, workplace, institutional, national and regional levels. Furthermore, the video script will be reworked to enable the messages to be conveyed through radio to capture a much larger audience.

Fourthly, methodologies and material are being developed to increase the awareness and understanding of solid waste issues among the youth (12-20 year olds) in PICs. A cartoon booklet currently under production will encourage young people to help families be responsible in relation to waste generation, minimisation and management. This will underpin the sustainability of project impacts.

The fifth strategy is to focus on the legal and administrative support for solid waste management practices. This involves coordination of national consultation processes to examine issues such as legislative amendments that can be made to ensure that importers and large-scale users of non-biodegradable wastes pay at least some of the costs of collection and safe disposal of the waste material; alternative packaging; legislative protection of current recycling agents; and further options for waste treatment. Participants include representatives from Government, municipal authorities, the private sector, recycling companies, tourism, non-governmental organisations (NGOs), and community-based organisations (CBOs).

5. Basic principles of solid waste education and awareness initiatives

The projects initiated and implemented through the Pacific Regional Waste Education and Awareness Programme are based on four basic principles. These are:

- Each of us is responsible for the management of our own waste.
- Most material that we refer to as "waste" are actually "resources" which can be reused or recycled.
- The cheapest and best option is to separate waste at the source.
- We are responsible to future generations for the state of the environment that we leave to them.

These basic principles are continually used in the education and awareness activities undertaken by the programme.

6. Waste awareness baseline survey

As the focus of the Pacific Regional Waste Education and Awareness Programme is on changing attitudes and to some extent behaviour, the use of baseline surveys has been identified as critical to the monitoring and evaluation of the programme. The baselines established through this project will be used as a reference point for the future against which changes in waste awareness and education initiatives could be measured 5 - 10 years down the line.

A waste awareness baseline survey has been initiated through WASTE. The objectives of the survey are to measure awareness of solid waste issues, identify the key solid waste issues in the community, assess the level of understanding of the solid waste issues - including both causal factors and solutions to problems, ascertain the source(s) of understanding, and gauge the level of resourcing available for waste minimisation and management projects. The report of the survey will be available by September 2000.

7. Lessons learnt to date

The Pacific Regional Waste Education and Awareness Programme commenced about 18 months ago. A number of important education and awareness lessons have been learnt in relation to designing and implementing solid waste education and awareness projects in PICs. Experience gained to date indicates that within PICs people retain messages that can be linked to their own experiences and everyday life. Furthermore, people prefer simple and visual messages because of the relatively low literacy rates of the Pacific people. To enhance the effectiveness of visual messages, it is important to reinforce them simultaneously with spoken messages, preferably in the local language. Pacific islanders generally prefer positive and humorous messages. For example, personalised messages repeated on a regular basis by well known sports stars or respected persons (elders, teachers, clergy) are very effective in the region. The latter is important to enhance the credibility of the message. Since singing and dancing is an integral part of Pacific life, these elements are very important in an education and awareness programme.

8. Conclusions

Public education and awareness initiatives highlighting linkages between poor waste management practices and threats to health, environment and the economy can be used to effectively address the issue of poor waste management in Pacific island countries. It is in this context that the Pacific Regional Waste Awareness and Education Programme is an important initiative for Pacific island countries. This programme is establishing national and regional initiatives to educate and assist key stakeholders in devising practical solutions of litter and solid waste disposal. It actively encourages participation of the community and all other important stakeholders in promoting good citizenship regarding waste minimisation and management, and in emphasising the three Rs of waste management.

The programme has made every effort to integrate community awareness into a solid waste minimisation and management strategy. It continues to carefully consider reasons why people do not do the right thing and tries to design waste awareness and education projects that assist in facilitating long-term change in behaviour.

The programme has identified key target groups and considered their information needs. It has identified the sources from which the key stakeholders within the region get their information and has ensured that its solid waste education and awareness messages will be conveyed through these media. Furthermore, effort has been made to use as many different media as possible to get the message across to the community.

Apart from focussing on getting the messages across to the public, the programme continues to monitor the progress of its efforts. In this context, the waste awareness baseline surveys are an important indicator.

The importance of WASTE is recognised by key stakeholders in all programme countries and this ensures strong support for and commitment to the programme.

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