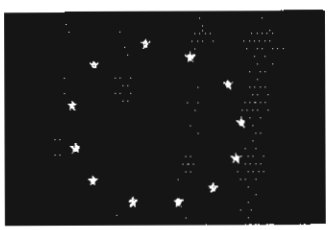

EUROPEAN UNION

SPREP

Project No. 7-ACP-RPR-584

Pacific Regional Waste Awareness and Education Programme (WASTE)

Final Report

Reporting Period: 13.07.98 - 13.04.01

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SUMMARY

Pollution prevention and waste minimisation have long been identified as critical to the sustainable development of Pacific Island countries (PICs). National Environment Management Strategies (NEMS) of all PICs contain specific priorities that provide the basis for collective action to protect terrestrial and marine resources in the region.

SPREP, as the regional organisation with a mandate to coordinate the protection and improvement of the environment of the PICs, is facilitating the following:

- improving national and regional capacity to prevent, minimise and manage pollution and waste; .
- preparing and maintaining inventories of all forms of pollution and wastes in the region;
- coordinating education and awareness campaigns at national and regional levels;
- promoting the development of national strategies and related legislation for the management of wastes.

It is in this context that the European Union and SPREP collaborated to develop WASTE, for which the European Union contributed approx. 690,000 EURO over a three year period. The objective of the programme was to improve the behaviour of significant target groups in order to minimise waste production and disposal. It was consistent with the SPREP Action Plan 1997-2000; the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities; and the South Pacific Regional Pollution Prevention, Waste Minimisation and Management Programme.

The similarity of the solid waste management issues facing Pacific Island countries, combined with their limited resources to deal with the problems at a national level called for cost effective means of addressing the problems on a regional level.

The two main outputs envisaged from WASTE were:

- the development of appropriate methodologies and material that could be applied in the Pacific region in order to increase general awareness and education on solid waste issues and on related possible solutions, and;
- recommendations on further activities in the areas of waste treatment and legislation.

The activities undertaken during the implementation phase of the programme were based on priorities identified during the consultation phase, an analysis of these priorities and other solid waste related issues undertaken by the Project Coordinator, and discussions within SPREP as to how the activities proposed to be funded by WASTE fitted into the SPREP Action Strategy.

On the basis of the above-mentioned consultations and analysis and keeping in mind both the overall objectives and the expected results specified in the Financing Agreement, it was decided that activities funded by WASTE would use five broad strategies to satisfy its objectives.

The first strategy was to focus on the "carriers" of the waste awareness and education messages, and build their capacity so that they could assist WASTE in better educating the general public on solid waste issues. In this regard, the capacity of media personnel was built to enhance the coverage of solid waste issues in all media (radio, newspapers, TV, etc.) and

improve communication between environmental officials (i.e. technical experts) and the general public on solid waste issues through the production of Radio & TV Spots and print articles.

Secondly, methodologies and material were developed to increase the general awareness and understanding among Pacific Island communities of solid waste issues. In this regard, a solid waste education and awareness video was produced that highlighted the responsibilities of the viewers at the individual, family, community, school, workplace, institutional, national and regional levels. Furthermore, the video script was modified to enable the messages to also be conveyed through radio to capture a much larger audience. This led to the production of radio and TV spots in local languages. Furthermore, other education and awareness material was produced in local languages in all Pacific ACP countries through national Solid Waste Education and Awareness Projects (SWEAPs).

Thirdly, methodologies and material were developed to increase the awareness and understanding of solid waste issues among the youth (12-20 year olds) in Pacific ACP countries. In this regard, a cartoon booklet was developed that encouraged the youth to help families be responsible in relation to waste generation, minimisation and management. Furthermore, relevant posters were produced for school children that built upon the work undertaken through the cartoon booklet. This underpinned the sustainability of project impacts.

The fourth strategy was to focus on the legal and administrative support for solid waste management practices. This involved coordination of three national consultation processes (one each in Melanesia, Micronesia and Polynesia) to examine issues such as legislative amendments that could 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; and further options for waste treatment. Participants included representatives from Government, municipal authorities, the private sector, non-government organisations (NGOs), and community based organisations (CBOs). For Melanesia, the project was undertaken in Vanuatu and this led to the formulation and approval of the Vanuatu Waste Minimisation and Management Policy. For Micronesia, the project was undertaken in Kiribati and focussed on highlighting new legislative measures (i.e. Environment Act 1999) for the protection of the environment to key stakeholders. Furthermore, the proposed revisions to the Petroleum Licensing Act were also brought to the attention of relevant stakeholders including those on Kiritimati Island. For Polynesia, the project was undertaken in Samoa and focussed on examining legislation (such as the Container Deposit and Redemption legislation) and obtain stakeholder feedback on draft national waste management policy and implementation plan.

The fifth strategy was to characterise the waste stream in participating countries. The characterisation study, which was undertaken as a TA activity, was used to identify components of the stream that could be reduced, reused and recycled. As this work informed each of the preceding strategies, the outputs were timed to precede all others during the implementation phase. Furthermore, it was complemented by incountry activities in all eight countries that also developed methodologies in local languages to reach a larger target group.

As the focus of the programme was on changing attitudes and to some extent behaviour, a waste awareness baseline survey was undertaken in Apia, South Tarawa and Suva. The aim of this project was 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. Through this study, WASTE set the baseline (which is very important and which did not exist previously) against which changes could be measured 5 - 10 years down the line in relation to waste awareness & education type of initiatives.

It is difficult to measure the outcomes of WASTE against the expected results. This is mainly because results of activities in the area of education & awareness are difficult, if not impossible, to quantify, except over long time frames.

WASTE was an intervention that addressed a high priority environmental concern of the Pacific ACP countries, and as a result received good support from the various stakeholders and beneficiaries. WASTE was regarded as an important initiative because it focused on:

- educating the general public of the environmental and economic damages from existing solid waste generation and disposal habits;
- highlighting that current solid waste disposal practices in the region are environmentally detrimental to the land and ocean waters of the region; a danger to human health; and damaging to the economies of the countries;
- educating and motivating the general public to properly manage waste materials which otherwise contribute towards both land and water pollution;
- educating a wide range of stakeholders on the environmental, health, and economic damage caused by poor waste management and motivating them to support and participate in waste reduction, reuse, and recycling programs.

WASTE is believed to have been effective because it facilitated the successful implementation of activities under all five broad strategies discussed above. Against this background, it is proposed to develop a new regional programme which follows up on the achievements of WASTE. This programme could focus on more action-oriented initiatives to facilitate waste minimisation and management.

1. BACKGROUND

1.1 History of Programme

Pollution prevention and waste minimisation have long been identified as critical to the sustainable development of Pacific island countries (PICs). National Environment Management Strategies (NEMS) of all PICs contain specific priorities that provide the basis for collective action to protect terrestrial and marine resources in the region.

The European Union and SPREP collaborated to develop the Pacific Regional Waste Awareness and Education Programme (WASTE) because this was a priority area highlighted in the National Environment Management Strategy (NEMS) of most of the Pacific ACP countries. The programme was consistent with the SPREP Action Plan 1997-2000; the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities; and the South Pacific Regional Pollution Prevention, Waste Minimisation and Management Programme.

1.2 Features of the sector in Pacific ACP countries

The quantities of solid waste generated in Pacific island countries (PICs) are increasing because of rapid growth in urbanisation and population, increased economic development, rising living standards and the related demand for products packaged in non-biodegradable material.

In general, PICs have limited land areas, fragile ecosystems and lack of human and financial resources. This results in a low capacity for absorption of non-biodegradable wastes and pollutants, which clearly have a negative effect on the environment and human health. The combined effects of inefficient collection systems, poor handling and inadequate disposal have environmental, economic and public health implications. The inclusion of medical and hazardous wastes in the general waste stream in some countries further compounds the dangers of current solid waste management practices in the region.

In some coastal locations, mangrove areas or beaches have become the dumping grounds for much of the waste. Some lagoons are now ruined, turned instead into rubbish dumps. As polluted lagoons no longer provide enough fish and seafood to allow the communities to survive, people are forced to buy more and more imported canned food, and in turn create even more of a litter problem in their fragile environment.

Waterways and freshwater lenses essential for community water supply are becoming increasingly polluted from runoffs and leachates.

Some countries have already begun devising innovative ways of reducing the quantities of waste they must dispose of. These include composting and recycling initiatives. Other options available to Pacific island countries include some forms of user-pays charges based on the three 'R's of waste management – reduce, reuse, recycle.

For many Small Island Developing States (SIDS) in the Pacific, 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 more aware of the realities of the threat which solid waste poses to

their environment, their health and their economy, they will start taking action themselves to reduce their waste.

Further features of the solid waste sector in Pacific ACP countries are discussed in the papers that make up Annex 4.

1.3 Beneficiaries and parties involved

A wide range of stakeholders and partners were involved in the planning and implementation of WASTE. They included:

- SPREP management and programme staff
- EU Resident Adviser in Samoa
- Personnel involved in other EU funded programmes, e.g. PRAP
- staff of the office of the Regional Authorising Officer (RAO)
- staff of the EU Delegation in Suva
- Other regional organisations
- National Government personnel
- Private sector partners
- municipal authorities
- Non-Government Organisations
- Community Based Organisations
- International Organisations, such as UNEP and WHO.

Details of stakeholders and partners consulted are shown in Annex 2.

1.4 Problems to be addressed

The issue of solid waste management has received increased attention in the region in the recent past because it is a visible problem, not easy to overlook. It has been noticed that there has been an increase in both the volumes and variety of solid waste generated in the Pacific island countries. This is attributed to the following factors:

- high population growth rates, particularly in urban areas;
- lack of cleanliness awareness among the public and the inability to link the issues of personal hygiene with a clean environment;
- increasing demand for polluting and hazardous substances;
- change in dietary habits, and increasing demand for highly packaged, imported food;
- limited land areas and resources for safe disposal of wastes;
- lack of suitable infrastructure for waste disposal;
- lack of suitable legislation (such as anti-litter laws) to deal with the problem, and where legislation does exist it is difficult to enforce it;
- lack of database on types/amounts of waste generated;
- lack of trained personnel and resources for waste awareness and education initiatives;
- difficulty in proper operation and maintenance of equipment, including those used for waste management;
- lack of waste minimisation initiatives - a lack of appreciation that source reduction is the most important step for solid waste management.

2. INTERVENTION

2.1 Programme Purpose

Pollution prevention and waste minimisation have long been identified as critical to the sustainable development of Pacific Island Countries. However, most effort has gone into monitoring the extent of the problem, developing a regional legal basis for preventing, controlling and managing waste and a regional plan of action.

To move beyond this stage and effectively address the issues in the region, it is necessary to facilitate:

- improved public awareness to generate local recognition and commitment to control waste at the sources;
- access to clean technology which is appropriate and adaptable to islands and at the same time commercially viable;
- effective training programmes and institutional support to transfer and develop technology;
- comprehensive assessment of land based sources of pollution to ensure targeted pollution prevention and waste management activities.

It is in this context that the Pacific Regional Waste Awareness and Education Programme (WASTE) was designed with the specific objective "*to improve the behaviour of significant target groups in order to minimise waste production and disposal in the ACP States of the Pacific*".

2.2 Results

The main expected results of WASTE were:

i. the development of appropriate methodologies and material that could be applied in the Pacific region in order to increase general awareness and education on solid waste issues and on related possible solutions, and;
ii. recommendations on further activities in the areas of waste treatment and legislation.

2.3 Activities

In order to achieve the results outlined above, the following major activities were undertaken:

- Incountry solid waste awareness & education projects
- Production of TV Spots
- Production of Radio Spots
- Production of waste awareness & education posters
- Undertaking waste characterisation studies
- Undertaking a waste awareness baseline study
- Dissemination of education & awareness products
- Production of regional waste awareness & education cartoon
- Production of regional waste awareness & education video
- Undertaking waste minimisation & management consultations

The above activities were based on priorities identified during the consultation phase of the programme, an analysis of these priorities and other solid waste related issues undertaken by the Project Coordinator, and discussions within SPREP as to how the proposed activities would fit into the overall SPREP Action Strategy. On the basis of these consultations and analysis, and keeping in mind both the overall objectives and the expected results specified in the Financing Agreement, it was decided that activities funded by WASTE would use five broad strategies to satisfy its objectives.

The first strategy was to focus on the "carriers" of the waste awareness and education messages and build their capacity so that they could assist WASTE in better educating the general public on solid waste issues. In this regard, the capacity of media personnel was built to enhance the coverage of solid waste issues in all media (radio, newspapers, TV, etc.) and improve communication between environmental officials (i.e. technical experts) and the general public on solid waste issues through the production of Radio & TV Spots and print articles.

Secondly, methodologies and material were developed to increase the general awareness and understanding among Pacific Island communities of solid waste issues. In this regard, a solid waste education and awareness video was produced that highlighted the responsibilities of the viewers at the individual, family, community, school, workplace, institutional, national and regional levels. A solid waste poster was also produced and disseminated widely.

Thirdly, methodologies and material were developed to increase the awareness and understanding of solid waste issues among the youth (12-20 year olds) in Pacific ACP countries. A cartoon booklet was developed that was designed to encourage the youth to help families be responsible in relation to waste generation, minimisation and management. This underpinned the sustainability of project impacts.

The fourth strategy was to focus on the legal and administrative support for solid waste management practices. This involved coordination of national consultation processes to examine issues such as legislative amendments that could be made to ensure that importers and large scale users of non-biodegradable wastes paid 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 included representatives from Government, municipal authorities, the private sector, recycling companies, NGOs, and CBOs.

The fifth strategy was to characterise the waste stream in participating countries. The characterisation study, which was undertaken as a TA activity, was used to identify components of the stream that could be reduced, reused and recycled. As this work informed each of the preceding strategies, the outputs were timed to precede all others during the implementation phase. Furthermore, it was complemented by in-country activities in all eight Pacific ACP countries that also developed methodologies both in English and local languages to reach a larger target group through use of the media.

As the focus of the programme was on changing attitudes and to some extent behaviour, the use of waste awareness baseline surveys was identified as critical to the monitoring and evaluation of the programme. The surveys were undertaken during the implementation phase. It was intended that the baseline established through this project would be used as a reference

point for the future against which changes could be measured 5 - 10 years down the line in relation to waste awareness & education type of initiatives.

2.4 Assumptions and Risks

The Financing Agreement foresaw that SPREP would:

- provide the PC all the necessary access to information;
- facilitate contacts and relations between the PC and the national administrations;
- indicate within three months after the end of this programme how it intends to implement the recommendations of the PC.

The PC's experience was that throughout the life of the project SPREP provided strong support to the Project Coordinator in relation to the first two dot points (above).

Most of the other assumptions and risks are stated in Table 2.

3. IMPLEMENTATION

Programme implementation was undertaken through a number of regional as well as national initiatives which involved relevant stakeholders such as representatives from Governments, municipal authorities, the private sector, recycling companies, Non-Government Organisations, and Community Based Organisations. The waste characterisation studies and the waste awareness baseline study were undertaken through Technical Assistance (TA) contracts with suitable regional companies.

3.1 Organisation and institutional framework

The PC reported to the Regional Authorising Officer (Secretary General, South Pacific Forum Secretariat) through the Director of the South Pacific Regional Environment Programme (SPREP). The latter ensured the coordination of the project activities and the integration of these with other related activities implemented by other donors.

The PC was based at SPREP because it is the Regional organisation mandated by its members to coordinate the protection and improvement of the environment of the PICs. SPREP facilitated the following as part of its mandate:

- improve national and regional capacity to prevent, minimise and manage pollution and waste;
- prepare and maintain inventories of all forms of pollution and wastes in the region;
- targeted education and awareness campaigns to be conducted at national and regional levels;
- promote the use of integrated coastal management (ICM) approaches in the development of national strategies and related legislation for the management of wastes.

3.2 Commitments and financial structure

As approved in the Financing Agreement (No. 5683/REG), the duration of the project was two years, with a total budget of EURO 600,000. A 12 month extension to the project was requested and approved in early 2000 through Rider Number 1 to the Financing Agreement. It was determined that an additional sum of 90,000 EURO was needed for programme activities from 13 July 2000 to 12 July 2001. The additional time and funds were needed to consolidate on outputs achieved during the first two years. The additional funding was made available from budget re-allocations under budget lines for Project Coordinator, Programme Activities and Contingencies. However, by early 2001 an approval was sought by SPREP and approved by the RAO through Rider Number 2 to close the project activities by 13 April 2001. This was undertaken at the request of the PC who had by then secured long-term employment with an international organisation and also because it was evident that most of the major project activities would be finalised by about mid April. SPREP agreed to manage any residual activities between 13 April 2001 and 12 July using its existing resources.

As mentioned above, the total amount covered by the revised Financing Agreement was EURO 690,000 that was broken down as follows:

Budget Line	Original Financing Agreement (EURO)	Addendum 1 to Financing Agreement (EURO)
1. Project Coordinator	150,000	139,000
2. Short term TA	100,000	100,000
3. Programme activities	300,000	414,700
4. Final evaluation	25,000	25,000
5. Contingencies	25,000	11,300
TOTAL	**600,000**	**690,000**

Details of the actual commitments as well as the original audit reports were submitted to the EU Delegation in Suva on a regular basis. Details of these were reported in the respective Quarterly Reports. SPREP had undertaken to submit the final audit report and the corresponding financial report to the EU Delegation in July 2001. This was to be submitted with the Final Report prepared by the PC.

3.3 Activities by component

The main activities of WASTE are summarised in Table 2, which was formulated at the start of the programme. More detailed information can be found in Quarterly Reports 1-11 and Annual Reports 1 & 2 which the PC prepared and submitted during the life of WASTE.

Table 2 - Logical Framework Matrix for WASTE

	Intervention logic	Objectively verifiable indicators	Sources of verification	Assumptions
Overall objective	To minimise pollution and wastes and improve preparedness for pollution emergencies.	Regional governments reach agreements on enforcement of regional policies and strategies through SPREP.	Regional government agreements. Reports of bi-annual SPREP Meetings.	
Project purpose	To improve the behaviour of significant target groups in order to minimise waste production and disposal in the ACP States of the Pacific.	All or some of the following: a) Solid waste databases developed. b) Integrated solid waste management plans formulated. c) Laws, regulations and policies relating to solid waste reviewed. d) Alternative solid waste management systems developed for major components of the waste stream. e) Guidelines prepared on rate structures to finance waste management activities. f) Governments take steps to introduce/amend legislation to facilitate waste minimisation and better management practices. g) Increase in the number of waste minimisation and management projects jointly undertaken by Governments, municipal authorities, private sector, NGOs, CBOs, etc.	a) Databases b) Plans c) Government and municipal authority documents d) Field visits to sites and activity reports e) Guidelines f) Laws and regulations g) Project proposals, activity reports, site visits.	Regional and incountry initiatives supported at Government and civil society levels. Willingness on the side of Governments and municipal authorities to define and effectively follow up initiatives "seeded" by WASTE.

Results	1) The development of appropriate methodologies and material that could be applied in the Pacific region in order to increase general awareness and education on solid waste issues and on related possible solutions.	a) Develop and produce appropriate public education material for all Pacific ACP States highlighting solid waste minimisation and management issues. b) Implement monitoring programme to assess changed community behaviour and attitudes regarding solid waste minimisation and management issues.	a) Multi-media methodologies such as waste video, cartoons, publications, drama, radio programmes, etc. b) Reports	a) Stakeholders in all countries fully utilise the methodologies developed. b) Donors will support follow up initiatives if the stakeholders reflect commitment to the programme through changed behaviour.
Results	2) Recommendations on further activities in the areas of waste treatment and legislation.	Appropriate legislation recommended to the Pacific ACP States.	Reports	Governments accept recommendations and are committed to make legislative changes to enhance waste minimisation and management.

Activities	• Production of regional waste awareness and education cartoons. • Production of regional waste awareness and education video. • Production of Radio Spots, TV Spots and Print Articles for General Awareness Raising • Waste awareness baseline survey. • Waste minimisation and management consultations.	♦ Examine cartoons and assess results of project monitoring. ♦ View contents of the video and assess results of project monitoring. ♦ View contents of the methodologies and material produced. ♦ Surveys. ♦ Workshops conducted and addressed their aims as outlined in the Project Proposals.	* Cartoon contents, dissemination, and use. * Video contents, dissemination, and use. * Radio Spots, TV Spots and Print Articles produced, training material, project records. * Survey report and results, discussions with pollsters. * Workshop presentations and handouts, discussion with coordinators and participants, project records.	◊ Cartoons will be widely read in the region and that the messages conveyed will be applied. ◊ Video will be widely used in the region and that the messages contained in it will be applied. ◊ Training will result in increase in media coverage of solid waste issues. ◊ Results of polls disseminated widely. ◊ Outputs are considered for implementation by relevant authorities.

Activities	• Fiji solid waste education and awareness project (Fiji SWEAP) • Papua New Guinea solid waste education and awareness project (PNG SWEAP) • Kiribati solid waste education and awareness project (Kiribati SWEAP) • Solomon Islands solid waste education and awareness project (Solomon Islands SWEAP) • Vanuatu solid waste education and awareness project (Vanuatu SWEAP) • Samoa solid waste education and awareness project (Samoa SWEAP) • Tonga solid waste education and awareness project (Tonga SWEAP) • Tuvalu solid waste education and awareness project (Tuvalu SWEAP)	For all the national level projects, appropriate public education material developed and produced in English and local languages. Use polling and other monitoring techniques to assess if there are any changes in community behaviour and attitudes regarding solid waste minimisation and management issues.	Multi-media methodologies developed in local languages such cartoons, publications, drama, radio programmes, etc. Reports	All material developed at the incountry level can easily be adopted in other countries.

4. FACTORS ENSURING SUSTAINABILITY

4.1 Policy support measures

In a relatively small regional programme, only limited policy support can be expected from national governments. As regards support for WASTE's policy objectives, there was a mixed response amongst national governments of the Pacific ACP countries. The strongest support was found in Samoa and Vanuatu. In Samoa, the Government took steps to adopt a Container Deposit and Redemption legislation. Furthermore, in both Samoa and Vanuatu the Governments coordinated 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 included representatives from Government, municipal authorities, the private sector, recycling companies, NGOs, and CBOs.

At the regional level, policy support was provided by SPREP (Implementing Agency) and The Forum Secretariat (Executing Agency). One rationale for implementing projects through a regional organisation like SPREP is that it is able to apply a degree of professionalism and consistency to smaller projects in a number of countries. Under such a model, a regional organisation bundles together a number of separate projects to implement its programs. Waste management is a good example with WASTE being just one contribution to the overall programmatic area of "Waste Minimisation & Pollution Prevention". A "regional" project also results in economies of scale. For example, WASTE facilitated the production of one set of awareness materials that could easily become inputs for other initiatives under the overall area of "Waste Minimisation & Pollution Prevention" and "Environment Education" for delivery in several countries.

Many donors consider project implementation by SPREP to be more culturally appropriate than using a contracting company based in the donor's home country/region. Donors operating in this way have relied on the regional organisation not only to administer and manage the project professionally, but also to organise adequate consultation and participation among the countries, local areas and local partners involved. As far as the management and implementation of WASTE is concerned, SPREP provided excellent policy support and back-stopping to ensure the successful delivery of the various components.

4.2 Socio-cultural aspects

In PICs, the public attitudes to waste are evident from the language commonly used to describe it. Waste is given such names as refuse, garbage, trash, each conveying images of filth and uselessness. Furthermore, people directly handling wastes (such as rubbish collectors, pickers, sorters, scavengers, etc.) generally have a low status in the community. This means that generally there is disrespect for the work being done by the waste handlers, and this can result in low working ethics and poor quality of their work.

An important component of all waste management planning is land tenure. In PICs most land is communally owned and land use decisions are community based. This leads to significant problems in acquiring land for any waste management activity (including landfilling), as governments are not in a position to control many land use decisions. This is also seen in the care and maintenance of family compounds - those where a family is living

are usually well maintained and clean, while areas under public control are often the scene of extensive littering.

Another traditional activity that is waste related but may have major environmental impacts is family bathing as a toilet/ablutions, instead of using a pit latrine or other land-based toilet system. This is particularly evident on atolls, but also occurs in coastal areas of some of the larger islands.

Domestic animals, particularly pigs, also present a cultural problem in terms of waste management. Some countries are proposing to prohibit pigs within urban areas to limit the environmental and health impacts. Other changes include proposals to keep pigs penned, which may lead to other problems, as many of the pens will be on the edges of lagoons, rivers, or the ocean, leading to pollution of water bodies.

In any consideration of the social aspects of waste management, it is important to remember the cross-sectoral nature of the issue. While it has been observed that a number of waste management problems are the result of underfunding, it must be remembered that, in cash terms, most people in the region are poor and are therefore not able to significantly increase their payments for waste management services. Therefore, financing of waste management improvements needs to be considered and applied in a sensitive manner to avoid unnecessary hardships to low-income households.

4.3 Institutional and management policy

In general, weak or fragmented institutional arrangements and poor co-operation between responsible agencies makes effective waste management difficult in most Pacific ACP countries. These countries could benefit from a co-ordinating agency for waste sector planning. In common with other sectors, agencies have difficulty in retaining qualified staff. Furthermore, there are no specialised scientists and engineers in some of the countries. Some agencies have conflicting roles of waste management and the regulation of waste management practices. Stronger institutional arrangements and relationships would improve performance in the countries.

A shortage of funds is a particular constraint for smaller economies. It affects new investments and the operation and maintenance of existing services. A narrow tax base in most countries means the availability of subsidies for services is limited. The situation is not helped by the lower priority waste management receives in national and state budgets. Budgets are usually inadequate to maintain current systems and funds are rarely allocated to improve waste management systems.

The institutional and financial constraints mean that waste management plans, when implemented, are not sustainable. There is much evidence of substandard solid waste disposal systems in the Pacific that were based on appropriate technical plans and funded with appropriate facilities and equipment, but that have fallen into disrepair or under-use because maintenance funds are not available even when the technical ability to maintain systems is available. This usually means a new funding initiative by some donor agency to rehabilitate or renew the system. The cycle continues when the new system provided by the funds has not been given financial and institutional sustainability.

Successful waste management ultimately depends on long term commitment of authorities and communities to the principle of natural resource sustainability. This requires an

attitudinal change that recognises waste management as necessary and important because waste is

- a threat to sustainability and lifestyle of Pacific communities;
- a resource that can be applied to sustainable food production;
- a continuing sustainable supplement for energy needs in the future.

The above implies specific and general campaigns for education and awareness – and highlights the need to continue to build on the foundation established through WASTE. National and regional organisations and education institutions have a role in developing knowledge and commitment in the young to waste minimisation and management.

Provision of expertise and training is a means of strengthening capacity and capability in the area of waste management. There is a need for professional and technical expertise in environmental management including waste management in many Pacific ACP countries. A capacity for investigation, monitoring and design of waste management systems, and for review of commercial and industrial proposals is important. Courses are available for environmental scientists and environmental engineers in technical institutions in the Pacific region. Development of coordination between responsible agencies can complement efforts by regional organisations such as SPREP.

Technical assistance to countries with the development of waste management plans and financing plans offer a means of improving waste management systems and ensuring their sustainability. Some specific areas in which assistance is needed include:

- planning and organisation
- waste audits
- identification of alternatives
- feasibility assessments
- implementation, monitoring and review

4.4 Monitoring and reviews

Programme implementation was monitored at various levels. The Project Coordinator monitored the implementation of all major activities, and prepared and submitted quarterly progress reports as well as annual reports to the Implementing Agency, the Regional Authorising Officer and the European Union.

In terms of financial monitoring, the PC organised quarterly external audits of the project accounts through SPREP's Finance & Administration section. These audits were undertaken using the EU rules and regulations, and were the basis on which the project funds were replenished.

SPREP's monitoring and reporting at program level was through annual work programs, budgets and reports provided to members through the annual Sub-Committee and biennial SPREP Meetings, as well as a formal Annual Report for a wider audience. Monitoring and reporting standards for SPREP activities have been consistently high for formally managed "donor projects" such as WASTE which require monitoring and management under efficient contractual arrangements, which the donor (i.e. the EU), the Executing Agency (i.e. the Forum Secretariat) and the Implementing Agency (i.e. SPREP) have followed carefully.

5. CONCLUSIONS AND PROPOSALS

It is difficult to measure the outcomes of WASTE against the expected results. This is mainly because results of activities in the area of education & awareness are difficult, if not impossible, to quantify, except over long periods of time.

WASTE was an intervention that addressed a high priority environmental concern of the Pacific ACP countries, and as a result received good support from the various stakeholders and beneficiaries. WASTE was regarded as an important initiative because it focused on:

- educating the general public of the environmental and economic damages from existing solid waste generation and disposal habits;
- highlighting that current solid waste disposal practices in the region are environmentally detrimental to the land and ocean waters of the region; a danger to human health; and damaging to the economies of the countries;
- educating and motivating the general public to properly manage waste materials which otherwise contribute towards both land and water pollution;
- educating a wide range of stakeholders on the environmental, health, and economic damage caused by poor waste management and motivating them to support and participate in waste reduce, reuse, recycle programs.

WASTE is believed to have been effective because it facilitated the successful implementation of activities under all five broad strategies discussed in Section 3.3.

Against this background, it is proposed to develop a new regional programme that follows up on the achievements of WASTE. This programme could be made up of the three components mentioned below.

Component 1: Elimination of Environmentally Difficult Materials from the Solid Waste Stream.

Background

Environmentally difficult materials are materials that either do not break down readily in the landfill environment, or are a source of undesirable air emissions and/or solid residues when burned. They include most plastics, glass, and metal containers, especially packaging. Waste surveys in a number of Pacific Islands have shown that these materials typically make up about 15 to 40 % of the solid waste stream. Elimination of these materials from the waste stream would have significant benefits in terms of reducing the need for additional landfill sites, and in reducing the potential for toxic breakdown products in landfill run-off and leachates.

In many developed countries, these materials are being eliminated from the waste stream by a combination of regulatory controls and/or economic instruments (to discourage initial use), and recycling programmes. However, neither of these approaches is readily transferable to the Pacific Island environment, for the following reasons:

- Virtually all of these materials are imported, mainly as packaging on consumer goods. As a result, governments have no direct control over the materials used by suppliers.
- The market size is very small so that once again, government policies are unlikely to influence supplier decisions. Consumer preference is equally limited in effect.
- There are often economic penalties in choosing products supplied in alternative "environmentally friendly" packaging.

- Recycling programmes are generally uneconomic because of the shipping costs and other constraints associated with returning materials to the country of origin.

Project Outline

This project would attempt to clearly identify and quantify the constraints to elimination of environmentally difficult materials in Pacific Island Countries (PICs), followed by development of proposals for overcoming these barriers. Implementation of the proposals would need to be addressed under separate funding.

The project would include one or more workshops to cover country inputs, assessment of the effectiveness of current and past regulatory approaches and recycling programmes in PICs, and identification of reasons why these may or may not be working. The work should also include surveys of available alternatives (packaging, etc) and the identification of potential barriers to their adoption. Outputs from the project could include the following:

- model regulations and guidance on economic instruments for influencing or controlling material/packaging imports
- identification of potential substitute packaging materials and methods, and mechanisms or procedures for encouraging their adoptions in PICs
- identification and detailed descriptions of effective recycling programmes (either on- or off-island)
- proposals for pilot or full-scale projects aimed at implementing some of the recommendations.

There should be significant potential for participation by private sector organisations in this project, and this should be encouraged. This could include packaging industry associations and waste recycling companies.

Component 2: Regional Recycling Programmes

All Pacific Island Countries currently have problems with the treatment and disposal of the following materials:

- Lead/acid (car) batteries
- Dry cell batteries
- Waste oil
- Old cars and other machinery
- Old home appliances (TV, fridges, washing machines, etc)

Most of these materials are able to be recycled, and programmes already exist in many developed countries.

This project would assess the legal, financial and institutional requirements for PICs to take part in existing recycling programmes, and develop action programmes for implementation in specific countries. The option of developing regional recycling facilities would also be assessed.

Component 3: Composting

The results of the waste characterisation studies undertaken in eight PICs in 1999 show that the average generation rate is 0.66 kg/capita/day and that the biodegradable component makes up 58.2 wt. % of this.

Composting is an obvious mechanism for reducing the amounts of material requiring landfilling, while at the same time producing a valuable and potentially saleable resource. Composting is traditional in Pacific Island societies, as historically the only wastes produced were biodegradable. While it is still widely practiced in rural areas, composting is much less common in urban areas due to lack of space, infrequent cropping, time constraints, and social issues.

Given the quantities of biodegradable material in the urban waste stream the question to be considered is not whether composting should be used as a waste management tool, but what techniques will be best in any given community, e.g., should this be done as a community project, or municipal level project, or at the household level.

Composting also can involve the use of chicken and pig manure, and possibly sewage and septic sludges. The products are particularly valuable in Pacific Island situations as soils in the region are often low in organic matter (with low water holding capacity), deficient in certain essential nutrients, and fertilisers are expensive to import.

This project would assess the financial, institutional, cultural, etc. requirements for PICs to set up appropriate composting systems. It would also provide funding for the setting up of some demonstration projects.

ANNEXES

1. Finance Agreement
2. Relevant organisations and contacts
3. Draft terms of reference ex-post evaluation
4. Relevant documentation
5. Audit Report

Annex 1: Financing Agreement between the Commission of the European Communities and the Pacific ACP States

EDF VII *Agreement N° 5683/REG*

COPY

FINANCING AGREEMENT

between

THE COMMISSION OF THE EUROPEAN COMMUNITIES

and

THE PACIFIC ACP STATES

Pacific Regional Waste Awareness and Education Programme
EDF VII (REG 7714/000)

EUROPEAN DEVELOPMENT FUND
EUROPEAN ECONOMIC COMMUNITY
COMMISSION

FINANCING AGREEMENT

The Commission in its capacity as manager of the European Development Fund, hereinafter called ***"the Commission"*** *and acting through the Member of the Commission responsible for Development Policy,*

of the one part, and

The Pacific ACP States, hereinafter called ***"the ACP States"****, and represented by the Secretary General, Forum Secretariat, Suva, Fiji.*

of the other part,

In accordance with the Convention signed at Lomé on 15 December 1989, between the European Economic Community and the African, Caribbean and Pacific States (the ACP States), and hereinafter called ***"the Fourth Lomé Convention"****,*

Whereas the Fourth Lomé Convention seeks to establish, on the basis of absolute equality between the parties, close and continuous cooperation in the spirit of international solidarity and jointly to intensify efforts with a view to the economic, intellectual and social progress of the ACP States,

Whereas to this end the Member States of the European Economic Community have instituted the Seventh European Development Fund, hereinafter referred to as ***"the Fund"****,*

Whereas the project which is the subject of this Agreement was approved on 16 October 1996,

HAVE AGREED AS FOLLOWS:

The project described in Article 1 below will be carried out on the resources of the European Development Fund in accordance with the General Conditions annexed hereto which form an integral part of this Agreement, as amended by the Special Conditions set out below.

SPECIAL CONDITIONS

ARTICLE 1 NATURE AND SUBJECT OF THE OPERATION

The Commission shall contribute by way of grant from the resources of the European Development Fund towards the financing of the following project:

Project No: *7 ACP RPR 584*

(REG/7714/000)

Title: *Pacific Regional Waste awareness and Education Programme,*

which is described in the Technical and Administrative Provisions annexed hereto.

ARTICLE 2 FUND COMMITMENT

The commitment of the Fund is fixed at 600,000 Ecus.

ARTICLE 3 REGIONAL AUTHORIZING OFFICER

The authority responsible for carrying out the project which is the subject of this Financing Agreement is the Secretary General, Forum Secretariat, SUVA, Fiji.

Specimens of the signature of the Regional Authorizing Officer and his deputies shall be notified in triplicate to the Commission through the offices of the ACP States.

Any change in personnel will be subject to notification accompanied by deposit of specimen signatures in the same way.

ARTICLE 4 HEAD OF THE DELEGATION OF THE COMMISSION OF THE EUROPEAN COMMUNITIES

The functions of the Head of the Delegation of the Commission of the European Communities shall be exercised by the person authorized for that purpose by the Commission.

ARTICLE 5 ***PAYING AGENT***

In order to effect the payments resulting from this Agreement the functions of Paying Agent shall be performed, as regards payments in Fiji Dollars, in Fiji, by the Reserve Bank of Fiji, and as regards payments outside the ACP State, by the financial institution chosen by the Commission.

ARTICLE 6 ***RECIPIENTS***

The recipients of the aid which is the subject of this Agreement are the Pacific ACP States.

ARTICLE 7 ***TEXTS***

This Agreement shall be governed by the text of the Fourth Lomé Convention, signed at Lomé on 15 December 1989, its annexes and protocols and in particular articles 308, 309 and 310 on the tax and customs arrangements applicable in the ACP States to contracts financed by the European Development Fund.

ARTICLE 8 ***GENERAL CONDITIONS OF CONTRACT***

Works, services and supply contracts shall be drawn up, entered into and performed in accordance with the provisions set out in Annex N° 1 hereto.

ARTICLE 9 ***ADDRESSES***

The notices provided for in this Agreement and correspondence relating to its performance shall be valid when addressed to the following:

a) ***for the Commission***

Directorate-General for Development
Rue de la Loi 200
B-1049 BRUSSELS

Telegraphic address: COMEURFED BRUXELLES
Telex : 21877 Comeu B
Fax : 299.28.72

b) for the ACP States

The Regional Authorizing Officer of the European Development Fund,
Secretary General,
Forum Secretariat,
SUVA, Fiji

ARTICLE 10 ***NUMBER OF COPIES***

This Agreement is drawn up in two originals, each text being equally valid.

SIGNATURES *In witness whereof the parties to this Agreement, acting through their duly authorized representatives, have hereunto set their signatures.*

Done at Brussels
on 15. XI. 1996

THE COMMISSION OF THE EUROPEAN COMMUNITIES

PROF. JOÃO DE DEUS PINHEIRO

Done at Suva
on 1997 -03- 03

THE PACIFIC ACP STATES

EUROPEAN DEVELOPMENT FUND
EUROPEAN ECONOMIC COMMUNITY
COMMISSION

FORUM SECRETARIAT

ANNEX N° 1

General Conditions of Contract

Works, supplies and service contracts shall be drawn up, awarded and executed in accordance with the General Regulations and the General Conditions of Contract as adopted by the ACP/EEC Council of Ministers by Decision N° 3/90 of 29 March 1990 (E.C.O.J. L 382 of 31 December 1990).

ANNEX N° 2

TECHNICAL AND ADMINISTRATIVE PROVISIONS FOR IMPLEMENTATION

Countries:	*The Pacific ACP States*
Title of the Programme:	*Pacific Regional Waste Awareness and Education Programme*
Accounting No:	*7 ACP RPR 584*
	(REG/7714/000)

1. Main Features of the Sector

Pollution prevention and waste minimisation have long been identified as critical to the sustainable development of Pacific island countries. National Environment Management Strategies (NEMS) throughout the Pacific contain specific priorities that provide the basis for collective action to protect terrestrial and marine resources in this region. Limited land area, high transportation costs, environmental vulnerability and lack of skills and expertise constrain the waste management options available to Pacific ACP countries.

Despite the priority and regional commitment outlined above the prevention of pollution and waste minimisation has received only limited attention in the region to date. Most effort has gone into monitoring the extent of the problem, developing a regional legal basis for preventing, controlling and managing waste and a regional plan of action. Some countries have developed their own National Waste Management Strategies (e.g. Fiji) and have addressed some of their most pressing concerns.

To move beyond this stage and effectively address the issues in the region it will be necessary to facilitate:

- improved public awareness to generate local recognition and commitment to control waste at the source,
- access to clean technology, appropriate/adapted to islands and at the same time commercially viable,
- effective training programmes and institutional support to transfer/develop technology,
- comprehensive assessment of land based sources of pollution to ensure targeted pollution prevention and waste management activities.

2. Project objectives and expected results

2.1 Specific objectives and location of the Project

The specific objective of the proposed programme is to improve the behaviour of significant target groups in order to minimise waste production and disposal in the ACP States of the Pacific.

2.2 Intermediate results

The outputs of the programme are: a) the development of appropriate methodologies and material that could be applied in the Pacific region in order to increase general awareness and education on solid waste issues and on related possible solutions and b) to make recommendations on further activities in the areas of waste treatment and legislation.

2.3 Other aspects

The programme constitutes the beginning of a series of regional activities/programmes in the environment sector of waste prevention, minimisation and management, to be coordinated by SPREP in the framework of the recently approved South Pacific Regional Pollution Prevention, Waste Minimisation and Management Programme. This Programme will be funded by several donors and be executed by different entities including governments, NGOs, private sector and local communities.

The present programme will be executed within the framework of the said Programme and will be based on country endorsed National Environmental Management Strategies (NEMS).

3. Project implementation

3.1 Project inputs

The programme will require the recruitment for a period of 24 months of an expert in environmental education and pollution prevention who will act as project coordinator. Additionally, 12 man-months of short term technical assistance of different nature (media production specialist, sociologist, journalists, theatre groups, studies and surveys) are required. A work plan will be established at the beginning of the programme to

specify the expenditure for the acquisition and production of material, the organisation of workshops, communication and transport.

3.2 Cost estimate

The total cost of the programme is estimated at Ecu 600,000

Project coordinator	150,000
Short term TA	100,000
Programme activities	300,000
Final evaluation	25,000
Contingencies (4 %)	25,000

3.3 Implementation and timetable

The Project Coordinator will be recruited by direct agreement after competitive consultation among a shortlist of individual experts. He and the short term technical assistants will be based in Apia and will operate under the coordination of SPREP which will be the Implementing Agency for this programme.

The total duration of the programme is 2 years; the programme will be implemented on the basis of annual work programmes to be endorsed by the Delegation of the European Commission for the Pacific.

For the two years duriation of the programme, the following timetable is proposed.

Month	**Activity**
0	recruitment of Project Coordinator
1 - 3	travel in the region and consultations SPREP, EC, governments, regional organisations, NGOs, studies and surveys
4	identification of priorities and presentation of draft work plan
5	approval of work plan
5 - 8	development of awareness materials

5 -12	conduct first workshop with politicians and administrators
8 - 24	implementation of campaign
18	Legislative recommendations
23	presentation of proposals for further theme-specific and country-specific activities
24	final evaluation

3.4 Special Conditions

The following special conditions will be taken by SPREP to ensure the success of the programme. SPREP will

i. give the Project Coordinator all the necessary access to information;
ii. facilitate contacts and relations between the Project Coordinator and the national administrations;
iii. indicate within three months after the end of this programme how it intends to implement the recommendations of the Project Coordinator.

4. Monitoring and evaluation

Quarterly Progress Report will be submitted by the Project Coordinator to SPREP and the Delegation of the Commission for the Pacific as well as an annual report at the end of the year 1 and 2. A final evaluation will be carried out on project completion.

Annex

This annex contains information regarding external elements likely to be significant for a successful outcome of the project as well as regarding factors which may assure the viability of the project. It is provided for information only and does not form par of this Financing Agreement.

Outline of activities to be carried out

a) acquisition and organisation of general background information relative to solid waste in the Pacific ACP region (existing national strategies, policies and activities, existing organisations and structures, donors' contributions, etc.).

b) collection of specific data concerning solid waste production and composition.

The waste flow will be described in terms of annual production percentage of the different fractions (e.g. glass, plastics, organic matter, paper and carton, ferrous material, aluminium) and of sectors of origin (e.g. domestic, productive activities, service activities). Where data is not available specific waste analysis campaigns will be organised and executed. (Specific terms of reference can be developed if necessary).

c) development of a multimedia (including radio, audiovisual, newspapers, theatre, workshops) regional program of general waste awareness/education.

The targets will be the general public as well as specific segments of the population such as politicians, administrators, relevant representatives of the private sector and students.

The methodologies and material to be developed will be conceived so as to be easily adapted to most countries in the region.

d) adaptation and implementation of the program developed in a selected number of Pacific ACP states also on the basis of (a) and (b).

Specific indicators such as "programme reaches the targets" and "programme affects and modifies targets' behaviours" will be developed in order to assess and monitor the actual impact of the awareness/education campaign and to ensure that the project is responsive to Pacific island characteristics.

e) Apart from the general waste awareness and education campaigns indicated under (d) above, one of the major results will consist in the identification and development of further country and theme specific awareness and education campaigns.

This would provide the basis for continuing the project under possible further funding.

The project coordinator will identify the theme-specific programs on the basis of the experience acquired during the implementation of the project.

Some specific waste issues that could be analysed include organic waste recycling, waste in the tourism sector, waste in food production and waste in packaging.

f) Nevertheless, when possible and appropriate, this project should already include the implement of some specific awareness and education campaigns, accompanied by limited demonstration activities.

For instance, given its importance in the Pacific context, organic waste recycling may be given priority. Micro composting pilot programs could be developed and implemented.

Advice and support material will be provided under the above programs and, where suitable, in respect of the development of low technology composting plant (excluding static heap systems with periodical/ discontinuous mechanical turning over and natural aeration).

g) Identification of priority legislative measures to be taken in order to facilitate waste management.

The further programmes and activities indicated under (e) and (g) would be proposed for separate funding after the end of the project (EDF national indicative programs, if applicable, regional indicative programme under second financial protocol, or other sources may be available).

GENERAL CONDITIONS

applicable to the Seventh European Development Fund

VIII/678/91-EN

GENERAL CONDITIONS

These general conditions amplify and supplement, for the purposes of executing projects, the provisions of the Fourth Lomé Convention.

SECTION I - PROJECT FINANCING

ARTICLE I FUND COMMITMENT

The Fund commitment, the amount of which is laid down for each project in Article 2 of the Special Conditions of the Agreement, determines the limit within which the national authorizing officer is empowered to commit the expenditure necessary for the execution of the project and to authorize the corresponding payments.

ARTICLE II EXCESS EXPENDITURE

Excess expenditure is incurred where, at the time that a contract is placed or an estimate drawn up, the amount of the contract or estimate exceeds the forecast cost of the corresponding part of the project.

Excess expenditure is also incurred where, in the course of execution of a contract or estimate, an increase in the volume of work or a variation in the project entails, by virtue of the known or foreseeable effect of the price revision clauses, a project cost which is higher than the contract amount, taking into account any provision made for additions to the contracts.

SECTION II - PLACING OF CONTRACTS

ARTICLE III METHOD OF PLACING CONTRACTS

The procedure to be followed prior to the placing of works or supply contracts or the conclusion of technical cooperation contracts shall be determined, within the framework of the principles set out below, by the technical and administrative implementing provisions annexed to the Agreement.

ARTICLE IV PARTICIPATION IN TENDERING PROCESS

As regards participation in tendering procedures, as defined in Article 294 of the Fourth Lomé Convention, the General Conditions shall require tenderers to indicate the State of which they are nationals and to submit the customary proof thereof in accordance with their national law.

ARTICLE V PUBLICATION OF INVITATIONS TO TENDER

Invitations to tender must be the subject of prior publication in accordance with such rules as will ensure the widest distribution of information.

Provision shall be made for a sufficient interval between the publications of invitations to tender and the opening of tenders, in order to enable those taking part to submit their tenders in good time. This period shall be fixed by agreement with the Commission.

In addition to the publication measures which must be undertaken locally in accordance with local law and custom, the notices of invitation to tender and tender dossiers endorsed by the Delegate must be transmitted by the ACP State to the Commission which shall ensure that the said notices are published in the Official Journal of the European Communities and by any other appropriate means. At the time of their publication, the ACP State shall simultaneously communicate the notice of invitation to tender to the local consular representatives of the Member States and of the ACP States.

SECTION III - PERFORMANCE OF CONTRACTS

ARTICLE VI ESTABLISHMENT AND INSTALLATION

In the case of works, supply or service contracts, the natural persons, firms and companies eligible to participate in tendering procedures shall be entitled to temporary instalment and residence where the importance of the contract so warrants. This right arises only following the issue of the invitation to tender and applies to the technical staff needed to carry out studies preparatory to drawing up tenders; it shall elapse one month after the designation of the contractor.

Persons, firms and companies established for the purpose of performing works, supply or service contracts shall be entitled, if they so wish, to re-export any equipment imported by them into the ACP State for the purpose of performing the contract.

ARTICLE VII ORIGIN OF EQUIPMENT, MATERIALS AND SUPPLIES

The equipment, material and supplies necessary for the performance of the contracts must, unless otherwise decided by the Community body competent for such matters, originate in the Member States or the ACP States.

ARTICLE VIII IMPORTS AND EXCHANGE CONTROL RULES

The authorities responsible undertake to grant the import licences and permits for the acquisition of foreign currency necessary to execute the projects. They also undertake to apply local exchange control regulations without discrimination between the Member States and the ACP States.

ARTICLE IX USE OF STUDY DATA

Where the Agreement concerns the financing of a study, the Commission and the ACP State each reserve the right, save where the Special Conditions otherwise provide, to use for their own purposes the data or communicate them to third parties.

ARTICLE X CONTRACT DISPUTES

The ACP State undertakes to consult the Commission before taking a decision concerning a request for compensation made by a party to a contract and considered by the State to be justified in whole or in part. In the event of a dispute the financial consequences may be borne by the Fund only where the Commission has given its prior agreement.

Any dispute arising between the authorities of an ACP State and a contractor, supplier or provider of services during the performance of a contract financed by the Fund shall be settled in accordance with the provisions of Article 307 of the Fourth Lomé Convention.

SECTION IV - FINANCIAL MANAGEMENT

ARTICLE XI CURRENCY TO BE USED FOR PAYMENT OF CONTRACTS

1. *Tenders shall be expressed in the national currency of the State of the Contracting Authority. The tenderer may in addition express the equivalent value of his tender in either ECUs or in the currency of the country in which he has his registered place of business. The conversion rate shall be that in force 30 days prior to the latest date fixed for the submission of tenders.*

2. *A tenderer may request in his tender that a justified part, expressed as a percentage of the tender price, be paid directly to him in foreign currency. The justification required shall be assessed in the light of the verifiable facts as regards the real origin of the Works, Supplies or Service to be performed and the expenditure to which they give rise.*

3. *For Works and Supply contracts, payments shall be made in the national currency except as otherwise stipulated in the contract. For Service contracts, the currency or currencies of payments shall be as stated in the contract.*

4. *Where payment is made in the currency of an ACP State, it must be made through a bank established in that State. Where payment is made in foreign currency or in ECUs, it must be made through the intermediary of an approved bank or agency established in a Member State.*

SECTION V - COLLABORATION BETWEEN THE COMMISSION AND THE AUTHORITIES OF THE ACP STATE

ARTICLE XII FOLLOW UP OF PROJECTS

The Commission shall follow the progress of projects, may request any relevant information or explanation and, where appropriate, may define in agreement with the Government concerned any new project orientation considered to be better adapted to the objectives to be attained.

The chief authorizing officer of the European Development Fund shall take all the necessary measures to ensure that the national authorizing officers carry out the tasks allotted to them under Articles 284(3) and 313 of the Convention and in particular to ensure that they act in accordance with the provisions applicable in respect of the commitment, clearance and authorization of expenditure.

Where the chief authorizing officer of the EDF is aware of delays in the procedures relating to projects financed by the Fund, he shall, in conjunction with the national authorizing officer, make all contacts necessary to remedy the situation.

If, for any reason whatever, services have been rendered but further delay in the clearance, authorization or payment gives rise to difficulties likely to call into question the full performance of the contract, the chief authorizing officer may take all appropriate measures to resolve these difficulties, and to remedy, where necessary, the financial consequences of the resultant situation and, more generally, to enable the project or projects to be completed under the best economic conditions. He shall inform the national authorizing officer of such measures as soon as possible. If payments are thus made directly by the Commission to the beneficiary of the contract, the Community shall automatically acquire that beneficiary's right as creditor vis-à-vis the national authorities.

If remedial measures are not adopted in time in the event of failure to meet an obligation set out in this Agreement, the Commission may suspend financing of the project.

ARTICLE XIII COLLABORATION ON THE SPOT

As regards the duties laid down in Articles 317 and 318 of the Fourth Lomé Convention, collaboration with the authorities of the ACP State locally shall be the responsibility of the Commission delegate.

During the performance of operations financed by the Fund, the delegate shall verify on the spot and on the basis of records that work carried out or services rendered tally with their descriptions as given in the financing agreements, loan contracts or other contracts and estimates.

ARTICLE XIV SUPPORT MISSIONS

Independently of the duties referred to in the preceding Article, the Commission shall have the right to send its own staff or duly authorized agents to carry out any technical, accounting or financial support missions it considers necessary.

The Government of the ACP State undertakes to supply all information and documentation requested of it and to take all appropriate measures to facilitate the work of persons undertaking support missions. The Government shall be informed of all such missions referred to above.

SECTION VI - GENERAL AND FINAL PROVISIONS

ARTICLE XV EUROPEAN COURT OF AUDITORS

In implementation of the tasks allotted to it in respect of the Community Institutions, the audit carried out by the Court of Auditors shall be based on records and shall, if necessary, be performed on the spot. Its purpose shall be to establish vis-à-vis the Commission that all revenue has been received and all expenditure incurred in a lawful and regular manner with regard to the provisions applicable, and that the financial management has been sound.

ARTICLE XVI ABANDONMENT OF A PROJECT BY THE ACP STATE

The ACP State may, with the agreement of the Commission, abandon a project wholly or in part.

An exchange of letters shall lay down the detailed rules for such abandonment.

Unexpended funds earmarked for the abandoned project may be allocated to other projects financed by the Fund in the ACP State concerned.

ARTICLE XVII AMENDMENT OF PROVISIONS

Any amendment to this Agreement must be decided by agreement between the parties signatory to the Agreement and may be adopted only after written acceptance by the parties.

ARTICLE XVIII DISPUTES

Any dispute between the European Community and the ACP State arising from the implementation of this Agreement which is not settled by agreement between the parties shall be resolved in accordance with the provisions laid down in Article 352 of the Fourth Lomé Convention.

ARTICLE XIX NOTIFICATION AND ADDRESSES

Any notification or agreement between the parties required by this Agreement must be made in writing. Such notification or agreement shall be made by letter sent to the party authorized to receive the same, at the address notified by the party. In an emergency, telegrams and telex messages shall be admissible and shall be deemed to have been validly sent, provided that they are forthwith confirmed by letter.

The addresses are laid down in the Special Conditions.

Annex 2: Relevant organisations and contacts

Annex 2.1 - Stakeholders Consulted in Developing and Implementing WASTE

FIJI

1. Mr. Epeli Nasome, Director of Environment, Department of Environment, Ministry of Housing, Urban Development & Environment
2. Ms Hitexa Maysuria, Environment Officer, Department of Environment, Ministry of Housing, Urban Development & Environment
3. Ms Susana Roson, Charge d' affaires, European Union, Delegation of the European Commission for the Pacific
4. Ms Annett Gorne, Natural Resources Officer, European Union, Delegation of the European Commission for the Pacific
5. Mr. Sunil Singh, Manager, Waste Recyclers (Fiji) Limited
6. Mr. David Scott, Groundwater Hydrologist, Water Resources & Sanitation Program, South Pacific Applied Geoscience Commission (SOPAC)
7. Mr. Harald Scholzel, Hydraulic Engineer, Water Resources & Sanitation Program, South Pacific Applied Geoscience Commission (SOPAC)
8. Mr. Ian Rolls, Graphic Arts Specialist, Multimedia Centre, Secretariat of the Pacific Community (SPC)
9. Mr. Yaminiasi Guanavou, Radio Broadcast Specialist, Multimedia Centre, Secretariat of the Pacific Community (SPC)
10. Ms Hazel Clother, Regional Laboratory Scientist, Pacific Regional Vector Borne Diseases Project, Secretariat of the Pacific Community (SPC)
11. Ms Teresa Anastasia Ngau-Chun, Manager, Research & Development, Tourism Council of the South Pacific
12. Dr. S.K. Ahn, WHO Representative, World Health Organisation
13. Dr. Franklin Rousar, Technical Officer EPI/CDD, World Health Organisation
14. Mr. Viliame Rabici, Project Officer, Keep Fiji Beautiful Association (KFBA)
15. Mr. Ilitomasi Verenakadavu, Chief Health Officer, Suva City Council
16. Mr. Waisele Delai, Senior Health Inspector (Waste Management), Ministry of Health
17. Mr. Malcolm Ponton, Senior Technical Assistant (EC), Development and Economic Policy Division, Forum Secretariat
18. Mr. Iosefa Maiava, Deputy Secretary General & Deputy Regional Authoring Officer, Forum Secretariat
19. Mr. Jaindra Kumar, Director, Trade and Investment Division, Forum Secretariat
20. Mr. Ulafala Aiavao, Media Adviser, Political & International Affairs Division, Forum Secretariat
21. Mr. Gordon Chang, Office Manager, Pacific Power Association (PPA)
22. Mr. Sefanaia Nawadra, Senior Environmentalist, Sinclair Knight Merz, Consulting Engineers, Scientists & Planners
23. Ms Maureen Penjueli, Toxics Campaigner, Greenpeace Pacific
24. Ms Samantha Madgick, Media Officer, Greenpeace Pacific
25. Ms Ahti Vunisea, Executive Committee Member, Women in Fisheries Network, USP
26. Mr. Rajendra Pratap, Director Of Health Services, Lautoka City Council
27. Mr. Pushp Raj, Town Clerk & Chief Executive Officer, Lautoka City Council,
28. Mr. Mohammed Kadir, Divisional Health Inspector Northern, Ministry of Health & Social Welfare, Labasa
29. Mrs. Kala Wati Reddy, Health Inspector (Northern), Labasa
30. Mr. Manikam Pillay, Health Inspector (Northern), Labasa
31. Mr. Faiz Ali, Health Inspector, Labasa Town Council

KIRIBATI

1. Mr. Kausu Temakei, Acting Environmental Coordinator & Environmental Impact Assessment Officer, Environment Unit, Ministry of Environment & Social Development;
2. Mr. Taulehia Pulefou, Waste Management Officer - WASTE Focal Point, Environment Unit, Ministry of Environment & Social Development;
3. Mr. Michael Phillips, Environmental Impact Assessment Trainer (VSO), Environment Unit, Ministry of Environment & Social Development;
4. Mr. Bwere Eritaia, Conservation Area Support Officer, Environment Unit, Ministry of Environment & Social Development;
5. Mr. Nakibae Teuatabo, PICCAP Coordinator, Environment Unit, Ministry of Environment & Social Development;
6. Mr. Amara Makaea, Biodiversity Programme Coordinator, Environment Unit, Ministry of Environment & Social Development;
7. Ms Leonie Smiley, Director, FSP Kiribati;
8. Ms Danfung Ng Kamho, Environment Education Officer, FSP Kiribati;
9. Ms Mary-Anne Healy, Ecoforestry Officer, FSP Kiribati;
10. Mrs. Karakimau Teioo, Town Clerk, Tarawa Urban Council;
11. Mrs. Buretau Kaureata, Town Clerk, Betio Town Council;
12. Mr. Nitya Singh, Motor Garage Proprietor, Betio;
13. Mrs. Ileen Bob, Retailer & Member of Kiribati Chamber of Commerce, Betio;
14. Mr. Norati Anterea, Secretary of Maritime Workers Union;
15. Mr. Teauoko Tonako, Administration Manager, Kiribati Oil Company, Betio

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3. Mr. Godfried Angi, Senior Environment Protection Officer, Environment Protection Branch, Department of Environment & Conservation
4. Mr. Leo Mandeakali, Environment Planner, Environment Assessment & Monitoring Branch, Department of Environment & Conservation
5. Mr. Missiel Uve, Director, Corporate Services Branch, Department of Environment & Conservation
6. Mr. Bobby Peruka, Head of Communications Unit, Corporate Services Branch, Department of Environment & Conservation
7. Mr. Dick Nihara, Engineer-Sewage Operations, Eda Ranu Limited
8. Mr. Alan Lari, Engineering Services Manager, Department of Mining and Petroleum
9. Mr. Mase Heni, Principal Engineer, Department of Mining and Petroleum
10. Mr. Jaru Bisa, Sustainable Development Adviser, UNDP
11. Mr. Richard Tau, Manager, PNG Recycling Pty Ltd
12. Mr. Asi Winnie, Manager, Port Moresby Scrap Metal Ltd
13. Mr. Markus Theobald, First Secretary, Delegation of the European Commission in Papua New Guinea
14. Mr. Steven Iddings, Environmental Engineer, World Health Organisation (WHO), Office of WHO Representative for PNG
15. Mr. Igo Sere, Assistant Secretary (Environmental Health), Environmental Health Unit, Department of Health
16. Mr. Enoch Posonao, Assistant Secretary, Environmental Health Unit, Department of Health

17. Mr. Robin Yanopa, Acting Chief Health Surveyor, Division of Community & Social Services, Department of Community Services, National Capital District Commission
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10. Mr. Tautulu Roebeck, Manager Special Projects, Treasury Department;
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15. Mr. Ronald Wolters, Environmental Health Officer, WHO Samoa;
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11. Mr. Manase Felemi, Head of Finance and Administration, Ministry of Agriculture;
12. Ms Sulia Maue, Office Administrator, European Union, Nuku'alofa;
13. Ms Olivia Ramanlal, Managing Director, Radio 88.8 FM, Nuku'alofa.

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5. Dr. Tiliga Pulusi, Director of Health, Princess Margret Hospital
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8. Mr. Pene Enoka, Secretary, Funafuti Town Council
9. Ms Claudia Ladescher, Australian Volunteer (Marine Biologist), Funafuti Town Council
10. Ms Loise Sumeo, Administrative Officer, Funafuti Town Council
11. Mr. John Sammows, Chief Engineer and Acting Chief Broadcasting Officer, Radio Tuvalu
12. Mr. Luki Taniela, General Manager, Matagi Lagi Bar (operators of Cancare Project)
13. Mr. Kalisi Sogivalu, Land owner associated with the Cancare Project

14. Mr. Elisala Pita, Coordinator, Tuvalu Association of Non-Government Organisations (TANGO)
15. Mr. Kapliafe Lifuka, Tuvalu Solar Electric Cooperative Society Limited (TSECS)
16. Mr. Fiamalu Leupena, Manager of construction company.

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Annex 2.2 - SPREP National Focal Points in Pacific ACP States
(Effective 1 January 2001)

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Annex 2.3 – Official WASTE Focal Points in Pacific ACP States

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Annex 3: Draft terms of reference ex-post evaluation

Evaluation of the Pacific Regional Waste Awareness and Education Programme (7-RPR-584)

Draft Terms of Reference

INTRODUCTION

The EEC funded Lomé IV Pacific Regional Waste Awareness and Education Programme (WASTE) commenced in July 1998. Implemented by the South Pacific Regional Environment Programme (SPREP) in eight Pacific ACP countries, it's objective was "to improve the behaviour of significant target groups in order to minimise waste production and disposal."

A significant amount of the total project budget (approx. 0.4 MECUs or 65 %) was allocated to education & awareness activities and to information compilation through waste characterisation studies in all Pacific ACP countries (PACPs). These include Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

This ex-post evaluation is to review the effectiveness of the programme and to review recommendations on further activities in the area of waste treatment and legislation.

OBJECTIVES OF THE STUDY

The objectives of the study are threefold :

2.1 to assess the coherence of the programme's objectives with the objectives of the concerned Governments and the adequacy of the approach used by this Programme in the specific field of solid waste minimisation and management;

2.2 to assess the technical, socio-economic, financial and institutional soundness of the use of a regional approach to solid waste education and awareness in the Pacific; particularly in regard of its socio-economic sustainability,

2.3 to formulate recommendations for the possible further use of such a regional approach for solid waste treatment and legislation;

In this perspective, the evaluation will, :

- analyse the project in terms of objectives, relevance and correspondence to needs as identified in the project documents (technical, socio-economic, institutional, etc);
- assess the results and (long term) impacts of the programme;
- identify factors that enhance or impede the sustainability of the results of the Programme, notably follow-up and monitoring, and formulate appropriate recommendations

BACKGROUND

Pollution prevention and waste minimisation have long been identified as critical to the sustainable development of Pacific island countries (PICs). National Environment Management Strategies (NEMS) of all PICs contain specific priorities that provide the basis for collective action to protect terrestrial and marine resources in the region.

SPREP, as the regional organisation with a mandate to coordinate the protection and improvement of the environment of the PICs, is facilitating the following:

- improving national and regional capacity to prevent, minimise and manage pollution and waste;
- preparing and maintaining inventories of all forms of pollution and wastes in the region;
- coordinating education and awareness campaigns at national and regional levels;
- promoting the development of national strategies and related legislation for the management of wastes.

It is in this context that the European Union and SPREP collaborated to develop WASTE, for which the European Union contributed approx. 690,000 EURO over a three year period. The objective of the programme was to improve the behaviour of significant target groups in order to minimise waste production and disposal. It was consistent with the SPREP Action Plan 1997-2000; the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities; and the South Pacific Regional Pollution Prevention, Waste Minimisation and Management Programme.

The similarity of the solid waste management issues facing the PACPS combined with their limited resources to deal with the problems at a national level called for cost effective means of addressing the problems on a regional level.

The two main outputs envisaged from WASTE were:

- the development of appropriate methodologies and material that could be applied in the Pacific region in order to increase general awareness and education on solid waste issues and on related possible solutions, and;
- recommendations on further activities in the areas of waste treatment and legislation.

Originally designed for two years the project commenced in July 1998 after the Finance Agreement between the EU and the Forum Secretariat was signed in March 1997. The project was subsequently extended for an additional year to July 2001.

During the first five months, the Project Coordinator travelled to all participating countries and consulted with a wide range of stakeholders before drafting the Work Programme. These consultations were coordinated through the SPREP National Focal Points. The consultation phase was used to prepare a comprehensive summary of the state of solid waste issues in the Pacific ACP countries, and this was used extensively as a background document during the implementation phase of the programme.

The activities undertaken during the implementation phase of the programme were based on priorities identified during the consultation phase, an analysis of these priorities and other solid waste related issues undertaken by the Project Coordinator, and discussions within SPREP as to how the activities proposed to be funded by WASTE fitted into the SPREP Action Strategy.

On the basis of the above-mentioned consultations and analysis and keeping in mind both the overall objectives and the expected results specified in the Financing Agreement, it was decided that activities funded by WASTE would use five broad strategies to satisfy its objectives.

The first strategy was to focus on the "carriers" of the waste awareness and education messages and build their capacity so that they could assist WASTE in better educating the general public on solid waste issues. In this regard, the capacity of media personnel was built to enhance the coverage of solid waste issues in all media (radio, newspapers, TV, etc.) and improve communication between environmental officials (i.e. technical experts) and the general public on solid waste issues through the production of Radio & TV Spots and print articles.

Secondly, methodologies and material were developed to increase the general awareness and understanding among Pacific island communities of solid waste issues. In this regard, a solid waste education and awareness video was produced that highlighted the responsibilities of the viewers at the individual, family, community, school, workplace, institutional, national and regional levels. Furthermore, the video script was modified to enable the messages to also be conveyed through radio to capture a much larger audience. This led to the production of radio and TV spots in local languages. Furthermore, other education and awareness material was produced in local languages in all PACPCs through national Solid Waste Education and Awareness Projects (SWEAPs).

Thirdly, methodologies and material were developed to increase the awareness and understanding of solid waste issues among the youth (12-20 year olds) in Pacific ACP countries. In this regard, a cartoon booklet was developed that encouraged the youth to help families be responsible in relation to waste generation, minimisation and management. Furthermore, relevant posters were produced for school children that built upon the work undertaken through the cartoon booklet. This underpinned the sustainability of project impacts.

The fourth strategy was to focus on the legal and administrative support for solid waste management practices. This involved coordination of three sub-regional consultation processes (one each in Melanesia, Micronesia and Polynesia) to examine issues such as legislative amendments that could 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; and further options for waste treatment. Participants included representatives from Government, municipal authorities, the private sector, non-government organisations (NGOs), and community based organisations (CBOs). For Melanesia, the project was undertaken in Vanuatu and this led to the formulation and approval of the Vanuatu Waste Minimisation and Management Policy. For Micronesia, the project was undertaken in Kiribati and focussed on highlighting new legislative measures (i.e. Environment Act 1999) for the protection of the environment to key stakeholders. Furthermore, the proposed revisions to the Petroleum Licensing Act were also brought to the attention of relevant stakeholders including those on Kiritimati Island. For Polynesia, the project was undertaken in Samoa and focussed on examining legislation (such as the Container Deposit and Redemption legislation) and obtain stakeholder feedback on draft national waste management policy and implementation plan.

The fifth strategy was to characterise the waste stream in participating countries. The characterisation study, which was undertaken as a TA activity, was used to identify components of the stream that could be reduced, reused and recycled. As this work informed each of the preceding strategies, the outputs were timed to precede all others during the implementation phase. Furthermore, it was complemented by incountry activities in all eight PACPCs that also developed methodologies in local languages to reach a larger target group.

As the focus of the programme was on changing attitudes and to some extent behaviour, a waste awareness baseline survey was undertaken in Apia, South Tarawa and Suva. The aim of this project was 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. Through this study, WASTE set the baseline (which is very important and which did not exist previously) against which changes could be measured 5 - 10 years down the line in relation to waste awareness & education type of initiatives.

MAIN ISSUES TO BE STUDIED

The present study is an ex-post evaluation. It will cover the relevant activities during the whole life of the project, as well as the period from the end of donor support to the present day. The evaluation will take into account the evolution of the context.

The main issues to be studied are as follows:

4.1 Project Design

Assess the design of the project based on the Financing Agreement. Also assess the internal coherence of the project, with due consideration given to:
The overall objectives
Project purpose
Results
Activities
Assumptions / precondition

4.2 Relevance

The consultant will consider the relevance of the project in the context in which it is integrated. The consultant is to assess the problems to be solved against the existing physical and policy environment. In particular, the consultant will, assess the following:

- The advantages of addressing the issues within a regional project rather than national projects.
- Analysis of the compatibility, complimentarity and/or integration with national and regional priorities.
- the methodology of the preparation stages and the extent of involvement of the beneficiaries / participants in the initial planning stages.
- Other interventions of the governments, SPREP, SOPAC, SPC, SPTO, EU and other organisations which are directly or indirectly related to the project.

4.3 Efficiency

Evaluate the efficiency with which the activities have been undertaken in order to yield project results. Have the project variables (TA, equipment, training etc.) been transformed into project results? Has this been the most cost-effective means of achieving these results? This will require an assessment of the following factors;

- Organisation and Management

An assessment of the general organisational arrangements (structures, responsibilities and contractual arrangements) relating to the project (Forum Secretariat, TA, national ministries, Steering Committee other regional organisations etc.). It also requires an assessment of the management capabilities of the Project Coordinator and supporting services based in the project office.
The issues to be analysed include the plan of operations and timetable, financial management and budgeting, application of EDF procedures, terms and conditions, phasing of activities,

internal monitoring arrangements, management of TA under the project, co-ordination with donors, institutional capacities of relevant national ministries.

- Implementation of Activities

An evaluation of the approach and methods used to implement the project and the project activities undertaken will be an important feature of the evaluation.

An inventory of all equipment installed under the project and whether these were appropriate and operational.

Special attention will be given to training. Specifically, the consultant will evaluate whether the training was relevant, the quality of the training, rate of success and coverage.

The consultant will undertake an analysis of the actual implementation schedule against the initial schedule outlining reasons for delays.

The consultant will assess the role and commitment of national authorities in institutional strengthening to build on the achievements of the project.

- Monitoring

The monitoring carried out by the RAO (Forum Secretariat) and the EC Delegation should be reviewed. Particular focus should be given to project monitoring systems empolyed by SPREP.

4.4 Effectiveness and Impact

The evaluation will analyse the relationship between the project purpose and results. Noting that the objective of the project is to improve the behaviour of significant target groups in order to minimise waste production and disposal, the consultant will determine whether a qualitative step has been achieved in this direction.

The consultant will assess project impact through verification of the operations by observing or testing. The consultant will compare the scenario immediately prior to the implementation of the project and the achievements at the end of the project.

As far as possible, the consultant will assess the potential of the project outside the Waste Awareness framework, such as;

Environment management and protection;

Coastal management and protection;

Human resource development

Natural resources

Tourism

4.5 Sustainability

The consultant will assess the extent to which the results of the project at the regional and national levels will be maintained. The evaluation should also provide an assessment in global terms of the sustainability of the project with particular attention to;

- Policy Support

The extent to which the project has been supported by recipient countries, (willingness to provide resources - financial and personal).

Support from relevant organisations (international and regional)

- Appropriate Technology

Does the technology offered correspond with the needs of the target group?

Will the beneficiaries be able to adapt to and maintain the technology acquired without further project assistance?

- Institutional and management capacity, public and private.

Assess the commitment of all parties' involved, such as Government (eg. through policy and budgetary support) and other institutions in contributing towards sustainability.

- Financial and economic analysis

The main product of the project is a better informed and more alert population.

The consultant will compare the situation ***with*** the project, to a situation that would have existed ***without*** the project, not only in terms of results but also the additional costs generated by investments and operations. In doing so, the following points will be studied;

- Costs related to resources used
- Advantages relating to tangible results

4.6 Conclusions and Recommendations

Having evaluated the project in terms of efficiency, effectiveness, impact and sustainability, summarise the outcome and draw conclusions. Formulate what policy, organisational and operational lessons are to be learnt.

Conclusions should cover all areas of efficiency, effectiveness, impact and sustainability. Each conclusion should lead to a corresponding operational recommendation that could be adopted. The following points merit particular attention;

i) Overall outcome

What were the main achievements of the project? Elaborate on the impacts of the outcomes and their efficiency, effectiveness and sustainability. Were the objectives achieved within the budget and timeframe?

ii) Sustainability

Conclusions should be drawn and recommendations made regarding the key sustainability factors relevant to the project (eg. is the policy environment likely to ensure the sustainability of the project's benefits?).

iii) Management capabilities

From the evaluation of organisational, supporting and management arrangements related to the project, comment on its efficiency and effectiveness in implementation by SPREP.

5. PLAN OF WORK

The evaluation will be undertaken as follows:

- Initial briefing with the RAO (Forum Secretariat) and the EC Delegation in Suva, Fiji
- Further briefing in Suva with SOPAC, SPC and other related agencies.
- Field Visit to all eight Pacific ACP countries
- Debriefing with RAO and EC Delegation in Suva,

6. EXPERTISE REQUIRED

The evaluation will be carried out by an ACP/EU national, preferably a regional expert, with the following competencies:

- Expertise in project evaluation within developing countries.
- Extensive Pacific Region experience
- Knowledgeable of EDF rules and procedures.
- Expertise in solid waste minimisation and management, including knowledge of education and awareness issues.

7. REPORTING

On the basis of the report schema contained in the "Format for the evaluation report" the consultant will prepare the following reports;

- A brief end of mission report, incorporating the preliminary conclusions and recommendations at the end of the field visits.
- A draft final report, within one month after completion of the field visits. The draft report should include an executive summary, approximately 10% of the text.
- A final evaluation report, within one month after receiving comments from the RAO related to the draft report.

12 copies of each note and report (plus one unbound copy) will be forwarded to the RAO who will be responsible for distribution.
A PC diskette (Word/ Windows 6.0) containing the text of the final evaluation should also be provided.
All reports will be written in English.

8. TIME SCHEDULE

The evaluation should take place in August-October 2001.
Services rendered between the beginning of the evaluation study and the acceptance of the final report should span no more than a period of four calendar months.
An indicative time schedule per study phase is as follows:

a) Field Work (including briefing) - 40 days
c) Report Writing/Finalisation - 10 days

Annex 4: Relevant documentation

Annex 4.1 - SOLID WASTE ISSUES IN PACIFIC ACP COUNTRIES

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(Report for EU funded Pacific Regional Waste Education and Awareness Programme)

Rapid growth in both urbanisation and population contributes to solid waste management problems in all eight Pacific ACP countries. Table 1 provides data on both population growth rates and densities illustrating the extent of these problems and the wide variation in these countries.

Table 1: Geographic Data on Pacific ACP States

Country	Land Area (km^2)	Population	Annual Growth Rate of Population (%)	Population Density (Persons/km^2)	Urban Population (% of total)
Fiji	18,333	772,655	0.8	43	46
Kiribati	811	77,658	1.4	103	37
Papua New Guinea	462,243	3,607,954	2.3	9	15
Samoa	2,935	161,298	0.5	58	21
Solomon Islands	28,370	285,176	3.4	16	13
Tonga	747	97,446	0.3	131	36
Tuvalu	26	9,043	1.7	419	42
Vanuatu	12,190	142,419	2.8	15	18

Source: SPC. (1998 Revised Edition). *Pacific Island Populations*. Noumea, SPC

Much solid waste is generated because of rapid urbanisation, an equally rapid rise in 'standard of living' expectations and the related demand for imported canned, plastic-wrapped, or bottled goods. With limited land areas around many urban centres, and with local reefs, lagoons or inshore fisheries particularly vulnerable to pollution, all the Pacific ACP countries have serious disposal problems, few disposal sites being acceptable socially, economically, or from the viewpoint of human health.

In most of the municipalities, the search for environmentally safe and socially acceptable sites for solid waste disposal has become a perennial concern which is for several towns at least, seemingly insoluble. In smaller settlements, and coastal peri-urban situations, mangrove areas or beaches have become the casual dumping grounds for much of the waste, ranging from derelict cars to household refuse. Expected further urbanisation and industrialisation will make these problems even worse.

In terms of solid waste characterisation, the overall situation can be summed up as "one cannot manage what one cannot measure". In this context, all the programme countries recognised waste characterisation studies as very important because a reliable baseline data

is a prerequisite to setting 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 and will be useful for making recommendations on further activities in the areas of waste treatment and legislation. On the basis of the locally available data one can conclude that domestic solid waste generation is of the order of 0.3-0.7kg/capita/day. Organic/biodegradable material generally makes up about 50% of this. Other important components of the solid waste stream include plastics, glass, metals, paper, batteries, white metal goods, and pesticide containers.

Population growth, industrialisation, urbanisation and a move towards increasingly consumeristic lifestyles will maintain the growth in waste outputs in the programme countries for the foreseeable future. Consequently, waste management is expected to become an increasingly critical environmental challenge in all the countries. Regionally implemented waste management programmes, such as the European Union (EU) funded Pacific Regional Waste Education and Awareness Programme (WASTE), are taking the first steps to meet this challenge.

Current institutional arrangements in regard to the government structure and management of the environment are summarised in Table 2.

Table 2: Institutional arrangements at a national level

Pacific ACP State	Description
Fiji	Environmental matters, including waste, dealt with by the Department of Environment, Ministry of Housing, Urban Development and Environment.
Kiribati	Environment Unit, Ministry of Environment and Social Development. Siting of rubbish dumps falls under the jurisdiction of the Ministry of Home Affairs and Rural Development.
Papua New Guinea	Department of Environment and Conservation.
Samoa	Division of Environment and Conservation within the Department of Lands, Surveys and Environment.
Solomon Islands	Division of Environment and Conservation, Ministry of Forests, Environment and Conservation. DEC is guided by the priorities identified in NEMS and by its recently passed Environment Act.
Tonga	Environmental administration is vested with the Ministry of Lands, Surveys and Natural Resources within which government policies are implemented by an Environmental Planning Section. Legal power for waste issues is with the Ministry of Health.
Tuvalu	Ministry of Lands and Natural Resources.
Vanuatu	Environmental issues are coordinated by the Environment Unit, Ministry of Lands and Natural Resources.

Legislation dealing with environmental protection has been drafted in several countries (Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands and Vanuatu). Of these, only the legislation in the Solomon Islands, called The Environment Bill 1998, has been enacted by the National Parliament. In some cases the legislation has incorporated procedures for environmental impact assessment (EIA), but care has been taken not to make these too demanding of slender administrative and technical resources. The implementation of this legislation is the next step in the process of legal reform.

Table 3 presents a summary of the national legislation dealing with solid waste management issues in Pacific ACP Countries.

Table 3: Legislation dealing with solid waste issues

Pacific ACP State	Summary of Legislation
Fiji	The Litter Decree 1991 covers aspects such as litter prevention, offences and procedures for prosecuting alleged offenders. The Decree enabled public and other authorities to appoint litter prevention officers and made it an offence to litter or break bottles and glass in public places. The Fijian authorities have included a comprehensive section on waste minimisation and management in its draft Sustainable Development Bill which is currently being considered by Cabinet. It is expected that the Bill will be approved by mid-1999.
Kiribati	The Local Government Act 1984 empowers Local Council to make provision for sanitary services dealing with rubbish and the prohibition of acts detrimental to the sanitary condition of the area. Under the Public Health Regulations: * it is an offence to deposit a receptacle at any public place or allow receptacles to remain upon any premises; * all premises and land must be kept clean; * rubbish must be burnt if possible, and if not, put in bins ready for daily collection. The Public Highways Protection Act 1989 prohibits the depositing of litter or rubbish on the public highway. A conviction could lead to a fine of $200 and three months imprisonment. The Asian Development Bank assisted the Environment Unit in drafting its Environment Protection and Conservation Act in 1996. Part IV of the proposed Act deals with waste management and pollution issues. The draft legislation is still being considered by the Attorney General's Office.
Papua New Guinea	**1. The Environmental Planning Act (EPA), Chapter 370, 1978** The EPA provides for an environmental impact assessment of major development projects. It is used as an instrument to monitor and control developments. Any sanitary landfills proposed will have to satisfy the requirements of this Act. **2. The Environmental Contaminants Act (ECA), Chapter 368, 1978** The ECA provides the regulatory mechanism for regulating the importation, distribution, use and discharge of contaminants into the environment. It has provisions for regulating littering, breaking of glass, and general regulation of discharges from waste dumps into the environment. It is an instrument for prevention, abatement and control of contamination and protection of the environment. **3. The Water Resources Act (WRA), Chapter 205, 1982** This Act deals with the protection of natural water resources and its management. It provides the regulatory mechanism for controlling discharges of contaminants into natural water systems. **4. The Public Health Act (PHA)** This Act provides the mechanism for regulating and controlling domestic refuse, the establishment of refuse point, and covers health, sanitation, cleaning, scavenging and disposal of waste. **5. The Amended Organic Law on Provincial Government, 1995.** This Act provides the mechanism and gives powers to Local Governments to set up by-laws to cover municipal waste management.

Pacific ACP State	Summary of Legislation
Samoa	Provisions for the control of solid wastes are contained in Division 8 of Part VIII of the Lands, Survey and Environment Act 1989 under the title "Control of Litter". The relevant provisions can be summarised as follows: a) For the designation of disposal sites, the Minister of Lands, Survey and Environment has the authority to designate Government or State land as the disposal site by notification in the Gazette; b) It is an offence to litter on public or private land without the permission of the owner: offenders can be ordered to clean up or face instant fines of $10.00 or Court fines (upon prosecution and conviction) of up to $500 (individuals) and $5,000 (companies); c) Administrators or owners of public places are required to provide rubbish bins and arrange for their regular and efficient emptying; The enforcement of the law can be carried out by Conservation Officers. d) The Department of Lands, Survey and Environment can enter into contracts to fulfill its requirements for solid waste management. In late 1996 the Department of Lands, Survey and Environment coordinated the drafting of the National Waste Management Policy for the Government of Western Samoa. This is a comprehensive document that covers issues such as individual and collective responsibility, sustainability, environmental protection and public health, waste minimisation, and economic development. This policy is still being considered by the Government.
Solomon Islands	**The Public Health Act (PHA) 1980 & The Public Health Regulation 1980** This Act provides the mechanism for regulating and controlling domestic refuse, the establishment of refuse point, and covers health, sanitation, cleaning, scavenging and disposal of waste. **The Environment Bill 1998 & The Environment Act 1998** The Environment Bill 1998 was enacted by the National Parliament of the Solomon Islands on 20 October 1998. The resulting Act makes provision for the protection and conservation of the environment, the establishment of the Environment and Conservation Division and the Environment Advisory Committee. Section 3 (c) of the Bill specifically deals with solid waste issues.
Tonga	The Town Regulations (Amendment) Act of 1974 (5/74) makes it illegal to litter on any government roads, public places, beaches and properties of other persons. Under this Act offenders could be fined up to $T50 and/or imprisoned up to six months and could also be required to pay compensation of up to $T50 to any person injured as a result of the littering. Other legislation dealing with the management of solid waste in Tonga includes the following: ♦ The Garbage Act, (Act 11 of 1949, 14 of 1962, 27 of 1977, 8 of 1980); ♦ The Public Health Act, (Part VI of Act 29 of 1992); ♦ The Refuse Dumping Ground Regulations of the Public Health Act, (Section 4 of 1936); ♦ The Mosquito Control Regulations, 1938 (G25/38, Section 3).

Pacific ACP State	Summary of Legislation
Tuvalu	Under the Public Health Act and Regulation (1926), all premises and land must be kept clean. Rubbish must be burnt if possible, and if not, put in bins ready for collection. The Marine Pollution Act 1991 regulates the dumping of pollutants and waste into the marine environment. According to the Tuvalu National Environment Management Strategy, appropriate legislation covering waste minimisation and the disposal of waste from land, and on land, need to be developed. Furthermore, the selection of tipping sites is unplanned and unregulated. Furthermore, consideration should be given to regulating the reclamation of borrow pits by the dumping of waste.
Vanuatu	Public Health Act - includes controls on the disposal of waste in public places and controls on litter; Environment Act (draft law in preparation) - scope will include solid waste issues; Water Resources Act - Covers ground and surface water resources, including provisions to control pollution and protect water catchments.

It is evident from Table 3 that as regards waste management, no country has specific legislation dealing with this issue yet. They often rely on outdated unspecified legislation such as Public Health Acts or Anti Litter Decrees. This can be supported by EIA legislation that requires new industries to consider waste issues, hopefully leading to good management and preferably to on-site treatment facilities. Some environmental licensing does occur, but like all other aspects of environmental legislation, unless enforcement is carried through and regular checks that license conditions are being maintained, the legislation is ineffective. In general, enforcement of legislation is poor as a result of staffing constraints, lack of proper training for staff, the level of fines is ridiculously low because the legislation has not been regularly updated, and cultural issues. Another important issue is that there is a lack of awareness of regulations amongst personnel who are supposed to enforce them (such as health inspectors, police officers) as well as the general public who is supposed to abide by the regulations.

Like other regions, the Pacific faces the "implementation gap". This means that the policies which are on paper or in the statute may not be implemented in a consistent way and may, in the worst cases, be completely bypassed. Not surprisingly, this arises when the pressure to reap an economic benefit by rapid resource extraction is too great and when governments are reluctant to slow down a project by sticking to the letter of environmental regulation.

Financing is a weak point in waste management operations in all Pacific ACP States. No sustainable funding plans have been developed or are in place. Many waste operations are severely under-funded, and as they are national government programs, the operators have to make do with the resources provided, even though this leads to significant environmental problems. In addition, there seems to be a reluctance to move to commercialising waste activities and few realistic ideas have been tested in raising revenues.

There are a number of ways in which waste operations can be funded. The operations could be privatised and "user pay" principles introduced. Other potential sources of funding include realistic waste collection fees, fees to dump materials in landfills, revenues from sale of recyclable materials, sale of compost, and the imposition of appropriate tariffs to items that are likely to create waste management problems such as vehicles, disposable nappies, plastic bottles, etc. During its implementation phase, WASTE will examine these options to assess whether or not they are realistic for the Pacific ACP Countries. In this regard, an assessment of available options, including discussions with relevant stakeholders such as Government Departments, NGO, etc. would help to develop waste management plans and policy recommendations.

The institutional and financial constraints mean that waste management plans when implemented are not sustainable. There is evidence of substandard solid waste disposal systems in the Pacific that were based on appropriate technical plans and funded with appropriate facilities and equipment, but that have fallen into disrepair or under-use because maintenance funds are not available even when the technical ability to maintain systems is available. This usually means a new funding initiative by some donor agency to rehabilitate or renew the system. The cycle continues when the new system provided by the funds has not been given financial and institutional sustainability.

Waste management, like many other multisectoral issues, is generally poorly handled in all Pacific ACP countries. For example, the siting of rubbish dumps in Kiribati is under the jurisdiction of the Ministry of Home Affairs and Rural Development which has no technical expertise in any aspect of landfill management, but has control through the Foreshore Act of

1977. It is vital that Governments determine a clear allocation of responsibility through good national level planning. One mechanism for dealing with this is to develop an integrated waste management policy, and following that, an implementation strategy. Without such an integrated approach, new initiatives in waste management may not have long-term success. This issue will be emphasised to Governments and other stakeholders throughout the implementation phase of WASTE. It will also be included in recommendations developed from the programme.

Successful waste management ultimately depends on long term commitment of authorities and community to the principle of natural resource sustainability. This requires an attitudinal change that recognises waste management as necessary and important because waste is

- a threat to sustainability and lifestyle of Pacific communities;
- a resource that can be applied to sustainable food production;
- a continuing sustainable supplement for energy needs in the future.

As regards policy options for the future, the reversal of present trends call for a concentrated effort to build capacity across the region, backed by a menu of policy options that will reduce the volume of non-biodegradable material in the waste streams entering the region. Attention also needs to be given to new and unfamiliar forms of waste, such as packaging material which is hard to dispose of, or the by-products of new technology.

The three Rs of waste management - reduce, reuse and recycle - cannot be fully applied in the circumstances of most Pacific ACP countries. The size of the market is too small to impose special packaging requirements on a distant exporter, and this also affects the economic opportunities for recovering waste materials or recycling them. The region is thus at the end of the line for many waste streams generated in manufacturing countries and special measures (e.g. surcharges, taxes or deposits) may be justified for plastics, cans and bottles. Such instruments are fully in line with the Polluter Pays Principle. The funding thus obtained could be used in part to ensure that these materials can be sorted and backloaded at reduced rates to destinations where recycling can be carried out. Furthermore the reversal of present trends of increasing non-biodegradable wastes entering the region, calls for a concentrated effort to build capacity across the region, backed by a menu of policy options that can facilitate a reduction in these waste streams. Some of these policy options, such as the introduction of clean technologies, will be explored during the implementation of WASTE. Furthermore, WASTE will also undertake activities to assist in the strengthening of the capabilities of the target groups (such as community based organisations, urban dwellers, etc) in identifying and redressing their purchasing behaviours, and avoiding the importation of high waste or non-biodegradable products.

There are other areas where a "clean Pacific" policy may be justified, given the limited space for waste disposal facilities in many islands and the huge exposure of coastal regions to intractable waste, such as polystyrene and plastic bags. It is here that the link is most obvious with the need for clean water and food security. Public education and awareness needs to be built up to highlight the linkages and to encourage waste prevention, source segregation and the three Rs of waste management. It is in this context that WASTE would be an effective initiative because it aims to concentrate on educating the general public of the environmental and economic damages from existing solid waste generation and disposal habits. It will also highlight that current solid waste disposal practices in the region are environmentally detrimental to the land and ocean waters of the region; a danger to human health; and damaging to the economies of the countries. It will educates and motivate the general public to properly manage waste materials which otherwise contribute towards both land and water pollution. Furthermore, it will educate a wide range of stakeholders such as

community based organisations (churches, schools, youth and women's groups), local councils, provincial and national governments, NGOs, training institutions, etc. on the environmental, health, and economic damage caused by poor waste management and motivate them to support and participate in waste reduce, reuse, recycle programs.

It is also important to emphasise that that creating awareness of the solid waste issue amongst the general population will also increase pressure on municipal authorities and governments to improve waste management policies and practices. However, the programme will also focus on decision-makers regarding the need to introduce better legislation and enhance their enforcement to facilitate better waste minimisation and management practices.

Conclusions

All Pacific ACP countries face critical problems with regard to waste management. These problems have many common themes, including: insufficient government priority and political support for action; lack of finance; lack of long-term planning; poor landfill siting, design, planning and management; lack of skilled personnel; lack of awareness of the problems caused by poor waste management; insufficient recycling and reuse; organic waste not fully utilised; etc. If not properly addressed, these problems will result in increasing environmental and health problems in the region as well as having serious consequences for economic development.

It is recognised that education and awareness initiatives highlighting linkages between poor waste management practices and threats to health, environment and the economy is a strategy that can be used to address the issue. It is in this context that WASTE is an important programme for the Pacific ACP countries. This EU funded and SPREP implemented programme will initiate national and regional initiatives to educate and assist key stakeholders in the Pacific ACP States to offer practical solutions of litter and solid waste disposal, to encourage participation of the community, to raise general awareness, to encourage good citizenship concerning waste minimisation and management, and to emphasise the three Rs of waste management. Furthermore, it will enhance greater awareness of linkages to economic development that seeks to use "clean" Pacific image and reality e.g. underpins successful investment strategies in tourism and green labelling in the region.

The importance of WASTE is recognised by key stakeholders in all eight programme countries who were consulted by the Project Coordinator, and this ensures strong support for and commitment to the programme.

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Annex 4.2 SOLID WASTE EDUCATION AND AWARENESS IN PACIFIC ISLAND COUNTRIES

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(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.

9. References

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Annex 4.3 AN OVERVIEW OF SOLID WASTE MANAGEMENT IN PACIFIC ISLAND COUNTRIES

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(Paper presented at the WASTECON 2000, Cape Town, South Africa
4^{th} – 9^{th} September 2000)

Abstract

The quantities of solid waste generated in Pacific island countries (PICs) are increasing because of rapid growth in urbanisation and population, increased economic development, rising living standards and the related demand for products packaged in non-biodegradable material.

In general, PICs have limited land areas, fragile ecosystems and lack of human and financial resources. This results in a low capacity for absorption of non-biodegradable wastes and pollutants, which clearly have a negative effect on the environment and human health. The combined effects of inefficient collection systems, poor handling and inadequate disposal have environmental, economic and public health implications. The inclusion of medical and hazardous wastes in the general waste stream in some countries further compounds the dangers of current solid waste management practices in the region.

In some coastal locations, mangrove areas or beaches have become the dumping grounds for much of the waste. Some lagoons are now ruined, turned instead into rubbish dumps. As polluted lagoons no longer provide enough fish and seafood to allow the communities to survive, people are forced to buy more and more imported canned food, and in turn create even more of a litter problem in their fragile environment.

Waterways and freshwater lenses essential for communities' water supply are becoming increasingly polluted from runoffs and leachates.

Some countries have already begun devising innovative ways of reducing the quantities of waste they must dispose of. These include composting and recycling initiatives. Other options available to Pacific island countries include some forms of user-pays charges based on the three 'R's of waste management – reduce, reuse, recycle.

For many Small Island Developing States (SIDS) in the Pacific, 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 more aware of the realities of the threat which solid waste poses to their environment, their health and their economy, they will start taking action themselves to reduce their waste.

KEYWORDS

Pacific Island Countries, Management, Characterisation, Legislation, Financing, Institutional, Policy

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 Pacific island countries (PICs) have an attractive image internationally, which 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 picture of the Pacific 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 of the 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, and 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.

SOLID WASTE MINIMISATION AND MANAGEMENT ISSUES

Solid waste management in the region is not just a matter of solving the problems of litter and solid waste - a full solution has social, economic, environmental, health, education, commercial and international relations implications. Some of these are discussed below in more detail.

Financial issues

Developing basic infrastructure to collect and treat solid waste is extremely expensive for small island developing states (SIDS) with very narrow economic bases. Therefore, in general PICs can be classified as those regions where the lack of waste management is felt most severely but which are amongst the poorest and fastest growing in the world. Local governments often find that they cannot generate the investment required, and availability of private financing for these types of projects is virtually non-existent. Furthermore, since solid waste management is a very low priority at the national level very limited funds are provided for this by national governments.

Whilst some national and local governments have introduced user-pay charges, the collection rates are very low because most of the users are not able to afford such charges. Those that can afford it are also often reluctant to pay because of the irregular and ineffective service provided.

Some personnel responsible for management and planning of waste management services, both within national and local governments, lack good financial management and planning skills. One of the results of this is that sometimes funds allocated for waste management are used up well before they are supposed to, and the waste management service has to be stopped for some periods while additional funds are secured. This causes resentment amongst the users who become even more convinced not to pay for such unreliable services.

Technical and management issues

At both the national and municipal level in most PICs, there is a severe lack of human resources with technical expertise necessary for solid waste management planning and operation. Many officers in charge of solid waste management, particularly at the municipal level, have little or no technical background or training in engineering or management.

Training programmes for environmental health officers have been going on in the region for many years, but they are limited to addressing only certain aspects of waste management. For example, little is done on the landfill design, revegetation after closure, and business aspects of waste management.

Another technical constraint in PICs is that there are very few truly integrated waste management plans or strategies, addressing the whole issues from 'source to sink' or by life-cycle analysis. This involves identification of the types, quantities, sources, pathways, and final disposal of wastes, considering wastewater solid waste and hazardous wastes in a holistic manner, moving across traditional government sectors and requiring high-level support.

Institutional and jurisdictional issues

Waste management systems require well developed institutional frameworks to ensure that waste is collected as expected, disposal and treatment facilities are operated and maintained effectively, and revenues collected.

Effective waste management involves different levels of government (local, state or provincial, and national), as well as different departments within a jurisdiction. Conflicting and competing priorities often impede the efficient development and implementation of solid waste management. This is mainly because there are often no clear roles/functions of the various agencies defined in relation to solid waste management and also no single agency or committee designated to coordinate their projects and activities. The lack of coordination among the relevant agencies often results in different agencies becoming the national counterpart to different external support agencies for different solid waste management collaborative projects without being aware of what other national agencies are doing. This leads to duplication of efforts, wasting of resources, and unsustainability of overall solid waste management programmes.

Economic issues

Most PICs have narrow and weak economic bases, with heavy reliance on one or two economic sectors, such as tourism. Therefore, not only are there insufficient funds for sustainable development of solid waste management systems, this sector is actually a very low priority in the overall scheme of national planning and development.

The three Rs of waste management – reduce, reuse and recycle – cannot be fully applied in the circumstances of most PICs. The size of the market is too small to impose special

packaging requirements on a distant exporter, and this also affects the economic opportunities for recovering waste materials or recycling them. This, together with a weak industry base for recycling activities is a common constraint for the improvement of solid waste management in PICs.

Social and cultural issues

In PICs, the public attitudes to waste are evident from the language commonly used to describe it. Waste is given such names as refuse, garbage, trash, each conveying images of filth and uselessness. Furthermore, people directly handling wastes (such as rubbish collectors, pickers, sorters, scavengers, etc.) generally have a low status in the community. This means that generally there is disrespect for the work being done by the waste handlers, and this can result in low working ethics and poor quality of their work.

An important component of all waste management planning is land tenure. In PICs most land is communally owned and land use decisions are community based. This leads to significant problems in acquiring land for any waste management activity (including landfilling), as governments are not in a position to control many land use decisions. This is also seen in the care and maintenance of family compounds - those where a family is living are usually well maintained and clean, while areas under public control are often the scene of extensive littering.

Another traditional activity that is waste related but may have major environmental impacts is the use of lagoons, which are normally used for bathing, as toilets. This is particularly evident on atolls, but also occurs in coastal areas of some of the larger islands.

Domestic animals, particularly pigs, also present a cultural problem in terms of waste management. Some countries are proposing to prohibit pigs within urban areas to limit the environmental and health impacts. Other changes include proposals to keep pigs penned, which may lead to other problems, as many of the pens will be on the edges of lagoons, rivers, or the ocean, leading to pollution of water bodies.

In any consideration of the social aspects of waste management, it is important to remember the cross-sectoral nature of the issue. While it has been observed that a number of waste management problems are the result of underfunding, it must be remembered that, in cash terms, most people in the region are poor and are therefore not able to significantly increase their payments for waste management services. Therefore, financing of waste management improvements needs to be considered and applied in a sensitive manner to avoid unnecessary hardships to low-income households.

Public awareness and education issues

Regular waste management education takes place in almost all countries in the region. This occurs in the formal education system, and in a number of non-formal situations. It would appear that the formal education system is having some impact as, in many countries, young people seem to be more aware of waste issues than their elders. Part of this may be a result of personal experiences and perceptions. Older Pacific islanders grew up in a situation where almost all wastes were biodegradable, and so waste disposal was not a concern as all wastes returned to the land. The introduction of non-biodegradable materials has led to a change in the nature of wastes, without the associated change in attitudes.

Non-governmental organisations (NGOs) and community-based organisations (CBOs) are also playing a strong role in community education in a range of environmental issues including waste management. Their approach is to combine workshops and practical demonstrations, through which the repetition of the message leads to a gradual change in attitude. The role of practical demonstrations cannot be over-emphasised, as there is little point in asking people to change their attitudes and activities without providing them with a feasible alternative.

Community participation issues

Ultimately, the success of a waste management system depends upon the willingness of the public to use it. Unfortunately, many waste management projects have historically focused on relatively large, centralised infrastructure investments and have either ignored the role of the community or included it too late in the process. The results have been poorly designed or ill-suited projects lacking public support.

In some PICs collaborative projects involving government, NGOs and CBOs have attempted to mobilize community resources and develop community self-help activities. The social incentive is based on the responsibility of individuals as part of the community for the improvement of the community, and is created by public education and awareness.

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 & 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 Islands (wt%)**	**Nuku'alofa, Tonga (wt%)**	**Lautoka, Fiji Islands (wt%)**	**Port Vila, Vanuatu (wt%)**	**South Tarawa, Kiribati (wt%)**	**Port Moresby, PNG (wt%)**	**Apia, Samoa (wt%)**	**Funafuti, Tuvalu (wt%)**	**Average**
Paper	5.9	31.3	14.7	11.4	7.0	11.9	6.1	10.4	**12.3**
Plastic	16.8	5.2	8.1	7.7	7.2	12.8	10.6	9.3	**9.7**
Glass	4.5	3.3	2.7	3.3	13.6	9.0	3.5	9.5	**6.2**
Metals	6.1	8.0	3.2	3.6	9.4	12.3	8.4	9.8	**7.6**
Biodegradable	64.6	47.2	67.8	71.0	51.3	50.4	61.0	52.4	**58.2**
Textiles	1.8	3.7	3.0	1.6	3.0	1.5	6.1	2.2	**2.9**
Potentially Hazardous	0.1	<1	0.2	0.7	0.8	2.0	1.2	0.6	**0.8**
Construction and Demolition	0.1	1.0	0.0	0.7	7.7	0.9	0.6	3.2	**1.8**
Other	0	0.3	0.2	0.0	0	0	2.3	2.5	**0.7**
Total	100%	100%	100%	100%	100%	100%	100%	100%	
Average Bulk Density (kg/m3)	**209**	**159**	**169**	**158**	**130**	**198**	**120**	**169**	**164**
Generation rate (kg/capita/day)	**0.62**	**0.82**	**0.94**	**0.65**	**0.33**	**0.41**	**1.10**	**0.43**	**0.66**

The results of the waste characterisation studies undertaken in eight PICs in 1999 show that the average generation rate is 0.66 kg/capita/day. This is 57% higher than the average generation rate calculated from the data in Table 1. This shows that there is 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 was discarded as household waste. However, by 1999 this practice had completely stopped because householders started feeding this component to pigs, dogs and poultry. This is a significant observation because it means that rubbish dumps in PICs 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. The countries should pay considerable attention to determine whether there is potential to reduce the waste stream through the diversion of this material to mulch or compost projects. Green wastes are a valuable resource for soil improvement, particularly on the atolls.

Composting is an obvious mechanism for reducing the amounts of material requiring landfilling, while at the same time producing a valuable and potentially saleable resource. Composting is traditional in Pacific Island societies, as historically the only wastes produced were biodegradable. While it is still widely practised in rural areas, composting is much less common in urban areas due to lack of space, infrequent cropping, time constraints, and social issues.

Given the quantities of biodegradable material in the urban waste stream (Table 2) the question to be considered is not whether composting should be used as a waste management tool, but what techniques will be best in any given community, e.g., should this be done as a community project, or municipal level project, or at the household level.

Composting also can involve the use of chicken and pig manure, and possibly sewage and septic sludges. The products are particularly valuable in Pacific Island situations as soils in the region are often low in organic matter (with low water holding capacity), deficient in certain essential nutrients, and fertilisers are expensive to import.

Three urban centres, Nuku'alofa (Tonga), Honiara (Solomon Islands) and Apia (Samoa) are covered in both the surveys reported in Tables 1 and 2. Therefore, it is possible to directly compare the results from these three urban centres.

The Nuku'alofa results indicate that the per capita generation rate increased by 21% over 5 years. The greatest contributor to this is paper. Its generation rate increased by 96% over 5 years mainly because of 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.

In Apia, the per capita generation rate increased by 112% over 6 years, i.e. an average annual increase of 19%. The main contributors to this are major increases in plastic, glass and textiles.

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.

POSSIBLE POLICY OPTIONS

The reversal of present trends call for a concentrated effort to build capacity across the region, backed by a menu of policy options that will reduce the volume of non-biodegradable material in the waste streams entering the region. Attention also needs to be given to new and unfamiliar forms of waste, such as packaging material which is hard to dispose of, or the by-products of new technology.

The three Rs of waste management – reduce, reuse and recycle – cannot be fully applied in the circumstances of most Pacific island countries. The size of the market is too small to impose special packaging requirements on a distant exporter, and this also affects the economic opportunities for recovering waste materials or recycling them. The region is thus at the end of the line for many waste streams generated in manufacturing countries and special measures (e.g. surcharges, taxes or deposits) may be justified for plastics, cans and bottles. Such instruments are fully in line with the Polluter Pays Principle. The funding thus obtained could be used in part to ensure that these materials can be sorted and backloaded at reduced rates to destinations where recycling can be carried out. To reverse present trends of increasing non-biodegradable wastes entering the region, there needs to be a concerted effort to raise awareness and to pursue a combination of regulatory controls and/or economic instruments to discourage initial use.

CONCLUSIONS

All Pacific island countries face critical problems with regard to waste management. These problems have many common themes, including insufficient government priority and political support for action; lack of finance; lack of long-term planning; poor landfill siting, design, planning and management; lack of skilled personnel; lack of awareness of the problems caused by poor waste management; insufficient recycling and reuse; and organic waste not fully utilised. If not properly addressed, these problems will result in increasing environmental and health problems in the region as well as having serious consequences for economic development.

The results of the waste characterisation studies undertaken in 1999 in eight PICs provide a good starting point for future initiatives. From these it is evident that there is a pressing need for efforts to reduce, reuse and recycle paper, plastic, glass, metals and biodegradable components of the waste stream. Elimination of these *materials* from the waste stream would have significant benefits in terms of reducing the need for additional landfill sites, and in reducing the potential for toxic breakdown products in landfill run-offs and leachates.

For the waste management situation to improve in the region, firm commitment is needed from all key stakeholders including national and local governments. Primary

emphasis has to be placed on waste minimisation because it is the most effective way of managing solid waste in the future. Other strategic measures to improve solid waste management in PICs include development and implementation of waste management planning to achieve cost-effective use of limited resources, and improvement of collection services and cost savings in their operation. The raising of funds for waste minimisation and management is another issue that needs serious consideration by national stakeholders in developing their waste management strategies.

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Annex 5: Audit Report

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15 May 2001

Dr David Mac Rae
Head of Delegation of the European
Commission for the Pacific

Cc: Mr Tamarii Tutangata

Dear Sir,

REPORT OF FACTUAL FINDINGS

We have performed the procedures enumerated below with respect to the attached Expenditure Statement of Project No. 7-RPR-584 entitled " Pacific Regional Waste Awareness & Education Programme" for the period 1st January 2001 to 27 April 2001. These procedures are based on section 1.7 of the Mini Work Programme Details.

As the procedures are specific, our engagement was undertaken in accordanee with the International Standard on Auditing applicable to agreed upon procedures engagements. The procedures were performed solely to assist you in evaluating the validity and accuracy of the Expenditure Statement and are summarised as follows:

1 We checked the additions of the Expenditure Statement as at 27 April 2001.

2 We checked the bank statement reconciliation.

3 We verified all payments and commitments made under the Work Programme with full original supporting documents for the period 1st January 2001 to 27 April 2001.

4 We checked that all expenditure was authorised by the Imprest Account Holder.

5 We checked the accuracy of recording transactions in the accounting records by checking the correct coding of expenses to the relevant budget allocation.

6 We checked that all authorised expenditure relate to the approved work programme.

7 We checked that proper accounting records were maintained by the project.

Findings

(a) With respect to item 1, we found the additions to be correct.

(b) With respect to item 2, we found the bank reconciliation to be correct.

(c) With respect to item 3, we found that all payments and commitmments were in accordance with the work programme and reconciled them to supporting documents.

(d) With respect to item 4, we found that all expenditure were authorised by the Imprest Account Holder.

(e) With respect to item 5, we found the coding of expenses to be in accordance with the relevant budget allocation.

(f) With respect ot item 6, we found that all authorised expenditures related to the approved work programme.

(g) With respect to item 7, we confirm that proper accounting records were maintained by the project.

Because the above procedures do not constitute either an audit or a review made in accordance with International Standards on Auditing, we do not express any audit assurance on the Expenditure Statement as of 27 April 2001.

Had we performed additional procedures or had we performed an audit or review of the Expenditure Statement in accordance with International Standards on Auditing, other matters might have come to our attention that would have been reported to you.

Our report is solely for the purpose set forth in the second paragraph of this report and for your information and is not to be used for any other purpose.

This report relates only to the Expenditure Statement specified above and does not extend to any financial statements of the South Pacific Regional Environment, taken as a whole.

BETHAM & CO
Certified Public Accountants

Apia, SAMOA

Dated: May 15, 2001

ORGANISATION : **South Pacific Regional Environment Programme**

RECONCILIATION OF OUTSTANDING PWRAEP/EDF IMPREST ADVANCE/ STATUS OF FUNDS

FOR PERIOD FROM 01 JANUARY TO 27 APRIL 2001

PROJECT TITLE : **Pacific Regional Waste Awareness & Education**

PROJECT NO : 7-RPR-584

	USD	WST
Balance brought forward from 01/01/01	4,442.83	14,292.90
Add: : Advances received this year :		
- received this reporting period	15,991.67	52,900.00
Total EU funds available for above Project	20,434.50	67,192.90
Less: Total Disbursements (this reporting period)	5,157.08	22,014.79
Status of EDF Imprest Account as at 27 April 2001	**15,277.42**	**45,178.11**

Date Submitted : 03/05/01

By : **Tamari'i Tutangata**
(Authorised Officer)

Title : **Director**

Signature:

EXECUTING AGENCY	:	SOUTH PACIFIC REGIONAL ENVIRONMENT PROGRAMME
PROJECT TITLE	:	WASTE AWARENESS & EDUCATION PROGRAMME
PROJECT NO	:	7-ACP RPR 584 (REG/7714/000)
DONOR	-	7TH EUROPEAN DEVELOPMENT FUND
PERIOD	:	01 JANUARY 2001 TO 27 March 2001
CURRENCY	:	WESTERN SAMOAN TALA(WST)

Category of Activity	Activity Code	Activity	Budget 2000/2001 A	Expenditure 01 January to 27 April 2001	Year to Date Expenditures 2000 - 2001	Available Budget A - B
1) Project Coordination						
	PC001	SPREP Administrative Expenses	17,000.00	5,698.64	12,698.64	4,301.36
	PC002	Equipment/Stationary	1,000.00	0.00	999.79	0.21
	PC003	Travel for Project Coordinator	20,000.00	161.61	12,243.45	7,756.55
		Seminars & Conference	10,000.00	1,275.54	7,051.78	2,948.22
	PC004	Quarterly Audit/Bank Fees	5,000.00	565.00	1,949.00	3,051.00
			53,000.00	7,700.79	34,942.66	18,057.34
2) Public Education & Awareness Activities	PEA001	Incountry SWEAP (Samoa, Tonga, Tuvalu)	90,000.00	0.00	90,000.00	0.00
	PEA002	TV Spots	20,000.00	10,300.60	18,957.49	1,042.51
	PEA003	Radio Spots	15,000.00	0.00	801.50	14,198.50
	PEA004	Waste Awareness & Education Posters	4,000.00	0.00	990.53	3,009.47
			129,000.00	10,300.60	110,749.52	18,250.48
3) Media and Publication (MAP)	MAP001	Publication of Waste Characterisation Study Reports	5,000.00	0.00	0.00	5,000.00
	MAP002	Publication of Waste Awareness Baseline Study Reports	4,400.00	2,900.00	2,900.00	1,500.00
	MAP003	Dissemination of Education & Awareness Reports	5,000.00	1,113.40	2,629.71	2,370.29
			14,400.00	4,013.40	5,529.71	8,870.29
4) Review of Incountry Projects (RIP)	RIP001	Consultancy to draw the Lessons Learnt from Incountry projects	45,100.00	0.00	0.00	45,100.00
			45,100.00	0.00	0.00	45,100.00
Contingencies	CTGC		45,500.00	0.00	0.00	45,500.00
			45,500.00	0.00	0.00	45,500.00
		TOTALS	287,000.00	22,014.79	151,221.89	135,778.11

PRWAEP/EDF IMPREST ACCOUNT
Bank Account Reconciliation as at 27/04/01

		WST
Closing Balance as per General Ledger at 27/04/01		51,334.55
Less: Unposted Item		
Balance commitment	(6,156.44)	(6,156.44)
Adjusted Closing Balance as at 27/04/01		**45,178.11**
Represented by:		
Closing Balance as per bank statement Pg35/1 - 27/04/01		92,389.04
Less Unpresented Cheque:		
786144	(114.00)	
037212	(12,500.00)	
037213	(14,121.81)	
037214	(6,212.59)	
037215	(750.00)	
037216	(65.00)	
037217	(7,273.96)	
037218	(17.13)	
Balance of Committed funds	(6,156.44)	
		(47,210.93)
Closing Balance as per above		**45,178.11**

Prepared by : Luapene

EU - Commitment - 2000/2001

		SAT
Balance of Funds committed from 2000		85,354.04
Less: Adjustments (approved by Bruce)		
Production Radio/TV Spots		(49,218.80)
Payment made in 2001 - '037209		(29,978.80)
Balance of funds to retain for anticipated administration costs		**6,156.44**
Represented by:		
Audit Fees & bank charges	710.00	
Communications/Overtime A/A	4,446.44	
Incidentals	1,000.00	
Balance as per above		6,156.44

Prepared by: Pene

SPREP
South Pacific Regional Environment Programme

PROE
Programme régional océanien de l'environnement

PO Box 240, APIA, Samoa. Tel.: (685) 21 929, Fax: (685) 20 231
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Please use sprep@samoa.net if you encounter any problems with sprep@sprep.org.ws

AP 6/4/2

SPREP
DISPATCHED ON
DATE 26 JUL 2001

2 July, 2001

Mr C J (Stan) Vandersyp
Director
Development and Economic Policy Division and
Deputy Regional Authorising Officer
Forum Secretariat
Private Mail Bag
SUVA, **Fiji**

Dear Mr Vandersyp

7.RPR.584 Pacific Regional Waste Awareness and Education Programme: Final Audit of Accounts

Thanks you for your letter regarding the Final Financial Report for the above project.

A revised report has been produced to address the rounding issues that you raised. A copy of this report is attached.

Your comments about unpresented cheques are noted although we should comment that only one of the unpresented cheques was issued last year. Most of the outstanding cheques relate to work that has only been completed over the last few months. We will of course follow up on these unpresented cheques and will send you a copy of the final bank statement once the transactions have been completed.

A bank draft for the residual funds of WST45.178.21 will be forwarded to you shortly.

Yours sincerely

Matt McIntyre
Acting Head, Environmental Management & Planning Division
***for* Director**

attach.

ORGANISATION : **South Pacific Regional Environment Programme**

RECONCILIATION OF OUTSTANDING PWRAEP/EDF IMPREST ADVANCE/ STATUS OF FUNDS

FOR PERIOD FROM 01 JANUARY TO 27 APRIL 2001

PROJECT TITLE : **Pacific Regional Waste Awareness & Education**

PROJECT NO : 7-RPR-584

	USD	WST
Balance brought forward from 01/01/01	4,443	14,293
Add: : Advances received this year :		
- received this reporting period	15,992	52,900
Total EU funds available for above Project	20,435	67,193
Less: Total Disbursements (this reporting period)	5,157	22,015
Status of EDF Imprest Account as at 27 April 2001	**15,277**	**45,178**

Date Submitted : 05/06/01

By : **Tamari'i Tutangata**
(Authorised Officer)

Title : **Director**

Signature: Tutangata

EXECUTING AGENCY	:	SOUTH PACIFIC REGIONAL ENVIRONMENT PROGRAMME
PROJECT TITLE	:	WASTE AWARENESS & EDUCATION PROGRAMME
PROJECT NO	:	7-ACP RPR 584 (REG/7714/000)
DONOR	-	7TH EUROPEAN DEVELOPMENT FUND
PERIOD	:	01 JANUARY 2001 TO 27 March 2001
CURRENCY	:	WESTERN SAMOAN TALA(WST)

Category of Activity	Activity Code	Activity	Budget 2000/2001 A	Expenditure 01 January to 27 April 2001	Year to Date Expenditures 2000 - 2001	Available Budget A - B
1) Project Coordination						
	PC001	SPREP Administrative Expenses	17,000.00	5,699	12,699	4,301
	PC002	Equipment/Stationary	1,000.00	0	1,000	0
	PC003	Travel for Project Coordinator	20,000.00	162	12,243	7,757
		Seminars & Conference	10,000.00	1,276	7,052	2,948
	PC004	Quarterly Audit/Bank Fees	5,000.00	565	1,949	3,051
			53,000.00	7,701	34,943	18,057
2) Public Education & Awareness Activities	PEA001	Incountry SWEAP (Samoa, Tonga, Tuvalu)	90,000.00	0	90,000	0
	PEA002	TV Spots	20,000.00	10,301	18,957	1,043
	PEA003	Radio Spots	15,000.00	0	802	14,199
	PEA004	Waste Awareness & Education Posters	4,000.00	0	991	3,009
			129,000.00	10,301	110,750	18,250
3) Media and Publication (MAP)	MAP001	Publication of Waste Characterisation Study Reports	5,000.00	0	0	5,000
	MAP002	Publication of Waste Awareness Baseline Study Reports	4,400.00	2,900	2,900	1,500
	MAP003	Dissemination of Education & Awareness Reports	5,000.00	1,113	2,630	2,370
			14,400.00	4,013	5,530	8,870
4) Review of Incountry Projects (RIP)	RIP001	Consultancy to draw the Lessons Learnt from Incountry projects	45,100.00	0	0	45,100
			45,100.00	0	0	45,100
Contingencies	CTGC		45,500.00	0	0	45,500
			45,500.00	0	0	45,500
		TOTALS	287,000.00	22,015	151,222	135,778