



Centre for Environment  
Fisheries & Aquaculture  
Science



wasteaid

# THE COMMONWEALTH LITTER PROGRAMME: FINAL REPORT

## BEST PRACTICES FOR SOLOMON ISLANDS

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## Executive Summary

This is the final report for the Best Practices element of the Commonwealth Litter Programme (CLiP) field work conducted in Solomon Islands in February 2019. The purpose of the report is to identify opportunities for community-led initiatives reducing leakage of solid waste, in particular plastic, into the marine environment.

The sub-contractor presenting this report is WasteAid UK. As an organisation, WasteAid focuses on solid waste management at the grassroots level in lower income countries. The organisation's operational priorities reflect this focus. Therefore, data collected for this project represents the community-based approaches to solid waste management which could reduce or remove litter otherwise flowing into the surrounding marine environments.

To implement the project, WasteAid used a five-stage methodology including:

1. Mobilisation
2. Literature review report
3. Stakeholder consultation
4. Stakeholder workshop and action planning
5. Reporting

This report is the final deliverable of the project and focuses on Stages 3 and 4.

Key findings from the literature review revealed several conclusions from the data which assisted in the design of the project. These conclusions identified: Rapid urbanisation in Honiara and its environs leading to increasing waste arisings and inability of municipal authorities to cope; Lack of waste collection coverage in Honiara and widespread open dumping, leading to severe local public health and environmental problems; Lack of waste disposal infrastructure, notably in Honiara where Ranadi dump has chronic problems and only a few years of capacity left; Solid waste is a low government priority and has a confused legislative structure, leading to lack of clear lines of accountability; A reliance on donor-funded programmes for waste collection vehicles and disposal infrastructure; Remoteness from export facilities and international markets making business cases for recycling unfavourable; Macro trends in packaging and materials leading to ever increasing and diversifying waste streams.

The gaps in the literature identified that the research that exists is very Honiara-focused. There is a need to understand the extent of ocean leakage from micro sources in other urban areas, such as Gizo, Auki, and the from the majority of the population that are still rural. Furthermore, very little innovative research has been done amongst urban and rural communities around attitudes and approaches to community management of solid waste. There may be opportunities for NGOs interested in livelihoods and community health to develop and consider approaches for community organisation, artisanal recycling and value chains development.

For the stakeholder consultation conducted in Stage 3, one WasteAid Consultant conducted field work over 14 days, participating in 25 activities during this time. Three themes emerged from the field work:

1. The need to change behaviour around dumping and littering
2. Lack of formal collection and disposal
3. Challenges with end-markets for recyclable materials

The overarching findings focused on limited awareness of the negative impacts of littering and open dumping and an acceptance that this was part of urban life by much of the public; it was noted by many that dumping into rivers, streams and directly into the sea was seen as an effective method of removing waste from the locale and burning of waste was actually seen as good practice by many; Honiara City Council officials noted that around 80% of waste was collected and the rest dealt with informally; beyond Honiara and a few other urban areas there is no solid waste management at all and people are left to dump, burn or bury their waste themselves.; There are significant difficulties finding end market for materials that are widely recycled in other, less isolated parts of the world (e.g. PET plastic and aluminium).

Solid waste is an issue that has not been widely focused on by civil society organisations within Solomon Islands but there is a notable desire to address this gap in knowledge. There was strong interest when solid waste management was reframed as a global development issue. This was done by making clear the linkages between open dumping and marine litter, along with the employment opportunities that recycling could offer to the most marginalized communities as well as the importance of waste collection to healthier communities. Best practices discussed including urban community composting, small plastic reprocessing businesses, aluminum can smelting, and the creation of briquettes to use in fires as a replacement for plastic bags used to start fires. There was also desire from the municipalities in both Gizo and Honiara to work with civil society to achieve this.

Key players and relationships within each of these three themes were identified, as were training and capacity building needs. From the analysis of the fieldwork data, there were eight overarching recommendations:

1. Develop civil society organisation capacity in solid waste management in Solomon Islands including overall co-ordination of efforts and taking a 'cascade-training' approach to the importance of improved solid waste management.
2. Develop urban composting capacity and training to develop urban approaches to composting.
3. Develop plastic waste livelihoods techniques within those organisations currently delivering this and deliver to new parts of the country without formal waste collection.
4. Develop organic waste collection at scale in Honiara: There is the technical capacity and desire but there is a need for political will to deliver this
5. Develop model community waste management urban areas: There are numerous areas that do not received regular waste collections within Honiara. A comprehensive approach to community waste collection could relieve the pressure on HCC and all benefits to be capture within the community.
6. Develop model community waste management hub in rural areas: Remote island communities receive no organised waste collection at all. A system of community collection could reduce local pollution and help realise any potential benefit from the capture of materials.

7. Advocacy for improved waste policy: There is a desire amongst some portions of civil society to lobby for a plastic bag ban and other policy measures to reduce waste.
8. Set up a waste livelihoods research centre. Small Island Developing States represent a major challenge to traditional recycling and waste management systems, accordingly new approaches are needed that realise value locally to produce sustainable local end-markets.

A draft action plan is presented in Section 8, developed from the findings. These suggested actions have not been reviewed by local stakeholders to date.

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## Glossary

CBO – Community Based Organisation

CLiP – Commonwealth Litter Programme

CSO – Civil Society Organisation

DSE – Development Services Exchange

ESSI – Ecological Solutions Solomon Islands

GELCA - Gizo Environment Livelihood Conservation Association

HCC – Honiara City Council

KGA – Kastom Gaden Association

LASI - Literacy Association Solomon Islands

LDPE – Low Density Polyethylene (plastics code 4, used for a variety of uses, notably plastics)

LEAF - Learning and Ecological Activities Foundation for Children

NGO – Non-governmental Organisation

PET – Polyethylene Tetraphthalate (plastics code 1, used for bottle manufacturing)

SI – Solomon Islands

SIDS – Small Island Developing State

SIDT – Solomon Islands Development Trust

SWM - Solid Waste Management

WASH – Water, Sanitation and Hygiene

YWCA – Young Women’s Christian Association



# 1 Introduction

This is the final report for the Best Practices element, delivered by WasteAid, as part of the Commonwealth Litter Programme (CLIP) in Solomon Islands. The purpose of this report is to identify the opportunities which exist for community-led initiatives reducing leakage of solid waste, and in particular, plastic, before these materials become marine litter. It will also:

- Identify the key players and their inter-relationships, existing options, approaches and recommendations established throughout the project life cycle.
- Identify key needs for each area in relation to training and capacity building that would enable local partners to take actions forward after the projects' lifetime.
- Present opportunities to set up community-based demonstration and pilot projects with a range of simple, low-cost or no-cost processes to prevent plastic leaking into the environment or to clean up polluted areas, as identified by the stakeholders.
- Evaluate existing pilot and full-scale activities (e.g. organic waste-recycling), as well as any opportunities to scale up where appropriate, documenting best practices in the local context where possible.
- Data on the gaps and opportunities identified in the stakeholder interviews and in the workshop with an assessment of current capacity to adopt the Action Plan included.

## 1.1 Background to the project

The United Kingdom's (UK) Department for Environment, Farming and Rural Affairs has funded CLIP, led in the UK through the Centre for Environment, Fisheries and Aquaculture Science (Cefas). The programme is supporting developing countries across the Commonwealth to develop national litter action plans focusing on plastics entering the oceans.

CLIP is a collaborative programme with partners across the Commonwealth to share expertise and find solutions to the environmental and socio-economic problems caused by litter in the marine environment. Working alongside existing local, regional and international stakeholders and conventions, and aiming to develop a network of specialist advisors, CLIP's main objectives are to:

- prevent and reduce marine litter and its impact on the marine environment, public health and safety
- reduce the knock-on impact of marine litter on economies and communities, including vital industries, such as tourism and fisheries
- remove litter from the marine environment where practical
- enhance knowledge and understanding of marine litter, both in terms of distribution as well as impacts
- support Commonwealth countries in the development, implementation and coordination of programmes for marine litter reduction
- develop management approaches to marine litter that are consistent with international best practice

This action falls under ‘actions to combat land-based sources, and outreach’ within the CLiP programme and will contribute to the development and implementation of national litter action plans, including a package of measures to reduce the quantity of waste entering the marine environment from Commonwealth countries.

## 2 Methodology

### 2.1 WasteAid approach

As an organisation, WasteAid focuses on solid waste management at the grassroots level in lower income countries. Our operational priorities reflect this focus and are as follows:

1. Understand the composition and trends for existing solid waste.
2. Identify strong local partners who are interested in becoming key players within delivering and advocating for improved solid waste management.
3. Identify potential end markets for recycled goods locally, regionally and internationally.
4. Understand the legislative environment, interest and flexibility of government in enabling community waste management.
5. Work with local partners to develop a participatory action plan.

Therefore, the methodology used for this project centres on gathering data which represents the community-based approaches to managing waste which could reduce or remove the amount of litter otherwise flowing into marine environments.

### 2.2 Project Approach

The project was broken into five phases. These are presented below:

1. Mobilisation
2. Literature review report
3. Stakeholder consultation
4. Stakeholder workshop and action planning
5. Reporting

#### 2.2.1 Mobilisation

Phase 1 was achieved and concluded with the submission of the Inception Report (attached in Appendix B), delivered by email to Thomas Maes, Programme Director on January 4, 2019. A Skype meeting was held between Thomas Maes and WasteAid CEO, Mike Webster and WasteAid Associate, Ms Nicole Garofano, the latter being responsible for the Vanuatu in-country fieldwork.

Following the Skype meeting a number of possible stakeholders were identified in collaboration with the other consultants used for other work packages and provided by Mike Webster from his own contact list from prior work in Solomon Islands

A timeline representing the project development work and in-country schedule is presented in Appendix A.

## 2.2.2 Literature review report

A comprehensive literature review report was submitted to Thomas Maes on January 29, 2019 to fulfil Phase 2 of the methodology. The report included a thorough review of developing country contexts as it relates to solid waste management as well as possible innovations as identified in the global literature to reduce plastic impacts. This is available in Appendix C.

## 2.2.3 Stakeholder consultation

Comprising the most significant component of the project, the Phase 3 in-country field work was undertaken in Honiara and Gizo. The original fieldwork plan had pencilled in a visit to Savo Island and Central Province. The first trip was cancelled due to rough seas making a crossing inadvisable, the second due to an increased focus on delivery of workshops meaning that the Gizo workshop was rescheduled.

One WasteAid project consultant, Mike Webster was allocated to conduct interviews, community discussions, and field visits. The consultant collected data over fourteen (14) field work days in Honiara and adjacent areas of provincial Guadalcanal.

The field work focused on inviting community stakeholders to offer their experience of current practice relevant to the management of solid waste generated in their communities. To ensure a cross reference of perspectives, the consultation also invited private sector, NGO and government representatives to participate. Recognising the community practice is determined by consumption, and the availability of services to manage the waste stream, it was important to include the private sector experience in how they contribute to the management of materials, as well as NGO activity in developing community capacity to manage their waste themselves. It was also important to consult varying levels of government to capture current legislation and the role of varying levels of government in delivering key services and legislation enforcement. This evidence provides useful comparison to the literature identified in Phase 2.

Stakeholders were identified using existing contact lists of the Consultant, contacts from the other consultants working on other work packages. Furthermore, there was close liaison with Development Services Exchange in Honiara, the umbrella body for Non-Governmental Organisations in Solomon Islands. They provided contact lists of their suitable and interested members.

Table 1 represents the number of interviews, group discussions, field tours, and workshops undertaken for the Solomon Islands field work and the representatives as per each stakeholder grouping. The field work schedule and contact list are presented in Appendix D.

Table 1: Stakeholders consulted in Solomon Islands field work

| Date<br>04/02/19      | Meeting Details |      |                |    |       |
|-----------------------|-----------------|------|----------------|----|-------|
|                       | Community       | NGOs | Private sector | UK | Local |
| Coordination meetings |                 | 1    |                | 1  | 1     |
| Interviews            | 3               | 10   | 1              |    | 3     |
| Field tours           | 3               |      |                |    |       |
| Workshop – Gizo       | 2               | 6    | 1              |    | 3     |
| Workshop - Honiara    | 3               | 11   | 2              |    | 3     |

The plan to evaluate existing project activities was limited due to the availability of stakeholders in Honiara and the poor weather in the country during those two weeks.

Best practice case studies for communities were documented throughout Honiara, Gizo and provincial Guadalcanal.

Interviews and community discussions were informed by a semi structured interview guide developed and submitted to Thomas Maes on February 3 for both Vanuatu and Solomon Islands. These questions are submitted in Appendix E. Notes recorded from interviews and community discussions are included in Appendix F.

#### 2.2.4 Demonstrating best practices

A variety of best practices were demonstrated to the community groups visited. Images of the materials shown, including films, can be found in Appendix G.

| Date     | Best practices discussed   |
|----------|--|
| 04/02/19 | <p><i>Development Services Exchange:</i> Community waste management, discussing which of their members interested in engaging and spreading solid waste best practices.</p> <p><i>Mothers Union:</i> crocheting of plastic, development of community composting and recycling of aluminium. Discussing opportunities to engage members and women groups in best practice.</p>  |
| 05/02/19 | <p><i>SI Literacy Association:</i> Discussion of waste best practices with interest in approaches to using bottles as eco-bricks, crocheting plastics. Discussed and effective promotion strategies within illiterate and marginalised communities - discussion of use of posters to share information.</p> <p><i>Honiara City Council:</i> Broad ranging discussion on waste, including development of waste strategy and discussion how they could support and work with communities to help them manage their own waste better.</p> |

|                 |   |
|-----------------|---|
|                 | Discussions on strategies to reduce litter, increase segregation of waste within communities and work with organic farmers to find an end use for compost.  |
| <b>06/02/19</b> | <p><i>Live &amp; Learn, Honiara:</i> Best practices discussed – interest in segregation of waste, crocheting of plastic, development of community composting.</p> <p><i>Kastom Gaden Association:</i> Depth of experience in composting and composting training – discussed opportunities to take this experience into river/streamside communities in Honiara. They experience a huge demand for quality compost through sup-sup garden and flower growing. Sharing of best practices – composting, charcoaling.</p> <p><i>PM: Shane Tutua – MD Zai Na Tina Organic Farm:</i> Discussed opportunities to set up recycling/composting social enterprises. Sharing of best practices – composting, charcoaling.</p>  |
| <b>07/02/19</b> | <p><i>Communities around with HCC:</i> Discussion with local communities on challenges they face and potential solutions Sharing of best practices: Community engagement; improved composting.</p> <p><i>Ranadi Dump Supervisor:</i> Discussion of best practices: Segregation and end-market development for PET plastic bottles.</p> <p><i>Senior Environmental Health Inspector HCC:</i> Extended discussion about challenges of waste collection, segregation in Honiara. Discussed opportunities to set up pilot zones in the upper reaches of the Matanikau on community wardens to discourage dumping in the streams and to increase local composting.</p> <p><i>Founder SI Women in Agriculture:</i> Discussed opportunities to engage women's groups on development of livelihoods and organic waste value chains, including composting and flower growing as a possible approach to set up small scale, local composting in upper reaches of Matanikau.</p> |
| <b>08/02/19</b> | <p><i>Honiara Youth Council:</i> Best practices discussed: composting, charcoaling, plastics weaving.</p> <p><i>SI Waste and Recycling Association:</i> Shared and discussed best practices with recycling of PET bottles, LDPE and HDPE plastics; pyrolysis.</p>   |
| <b>09/02/19</b> | <i>Vura Parish Mother's Union:</i> I gave a talk to a Mother's Union group largely located around the upper streams of Matanikau. Opportunities for waste livelihoods a how to engage different groups on improved SWM. Best practices discussed: prevention of open dumping and problems caused in terms of health and environment.  |
| <b>10/02/19</b> | <i>Talk to Upper Matanikau, Anglican Church of Melanesia:</i> Best practices discussed plastic weaving.   |
| <b>11/02/19</b> | <i>Workshop, Gizo:</i> Best practices discussed composting, charcoaling, animal feed production, vermiculture, eco-bricks, plastic weaving. There was discussion with the group to start their plans for the next two years – the outputs from this will be included in the draft report.   |
| <b>12/02/19</b> | <i>YWCA:</i> Their group makes a variety of products, pillows from old rice sacks and twisties, bags from old rice sacks. Their leader Jocelyn Lai is very keen to  |

|                 |  |
|-----------------|--|
|                 | <p>develop this further and there were discussions on how to scale up. Best practices discussed: plastic recycling; glass bottle recycling.</p> <p><i>Robenigeni Women:</i> Engaging in clean ups and interested in developing community based solid waste management. Best practices discussed: composting; plastic recycling; approaches to remote island communities.</p> |
| <b>14/02/19</b> | <p><i>Workshop, Honiara:</i> Best practices discussed composting, charcoaling, animal feed production, vermiculture, eco-bricks, plastic weaving. There was also discussion with the group to start their plans for the next two years – the outputs from this will be included in the draft report.</p>   |

### 2.2.5 Stakeholder workshop and action planning

The field work plan was amended when in-country further to recommendations from other consultants (TierraMar) and to a request from Pete Kohler (Cefas) in-country to increase the workshop element of the in-country activities. Accordingly, workshops were planned and held on the 11th February (Gizo) and 14th February (Honiara).

The agendas and attendance lists for each workshop are included as Appendix D.

The outcomes of each workshop and the participatory planning process which took place is discussed in Section 5. These fed directly into the Opportunities and Action Planning sections.

### 2.2.6 Reporting

Reporting has been conducted via email update during the project and this project. A summary of findings from the Gizo and Honiara workshop can be found in Appendix D.

## 3 Key findings from literature review

The literature review of Solid Waste Management (SWM) in the Solomon Islands leads to a number of conclusions<sup>i</sup>:

*Rapid urbanisation in Honiara and its environs:* This brings with it a number of associated challenges – informal communities, illegal quarters and settlers, illegal dumping and inaccessibility of communities to collection infrastructure, increasing consumer lifestyle and land tenure challenges.

*Lack of waste collection coverage in Honiara and widespread open dumping:* There is a need to address high rates of illegal dumping and burning of rubbish by expanding service coverage to all of Honiara City's population. Options for expanding coverage to peri-urban areas in Guadalcanal Provinces should also be assessed, given rapidly increasing settlement populations which are currently not provided with a service.

*Lack of waste disposal infrastructure:* There is a severe lack of capacity in major urban areas and difficulties in securing the land for final disposal sites because of very limited space. Meanwhile, there are growing urban populations and increasing and changing solid waste due to economic development

and development of consumer lifestyles. The impact of leakage into the natural environment is exacerbated due to the fragile and biodiverse environment including coral reefs and mangrove forests.

*Solid waste is a low government priority:* Budgets are low and action is confined to Honiara. Ad-hoc activities take place but there is not a sustained financial mechanism to ensure ongoing cleanliness and development of municipal collections and there is a lack of sustained cost recovery.

*Chaotic legislative structure:* Unlike many parts of the world, there is no one body responsible for oversight of environmental standards. Accordingly, waste is covered by a range of disparate pieces of legislation, leading to an un-strategic approach. The recent adoption of the National Waste Management and Pollution Control Strategy may lead to change, but this is not yet apparent in the literature. Furthermore, there is a lack of enforcement of existing regulation and open dumping, burning and littering are widespread.

*A reliance on donor-funded programmes:* Major renovations to the Ranadi, Gizo and Noro dumpsites have only taken place due to the intervention of donors, notably JICA. Furthermore, all activities have been funded or instigated by external donors, including awareness raising and provision of collection vehicles.

*Remoteness from export facilities and international markets:* Unless some kind of cheap, bulk transportation is implemented, the cost of reaching major secondary markets will always be prohibitive.

*Macro trends in packaging and materials:* There is an ongoing substitution by packaging manufacturers globally of reusable and biodegradable packaging for single use plastic. Where collection and disposal coverage is inadequate, this inevitably leads to increased leakage of materials into the environment.

### 3.1 Existing research and gaps

The research that exists is very Honiara-focused. There are questions about other urban areas; Gizo, Auki and the large rural population. There are questions about the extent of ocean leakage from micro sources in other urban areas, such as Gizo, Auki, and the from the majority of the population that are still rural. Furthermore, very little innovative research has been done amongst urban and rural communities around attitudes and approaches to community management of solid waste. There may be opportunities for NGOs interested in livelihoods and community health to develop and consider approaches for community organisation, artisanal recycling and value chains development.

## 4 Key findings from Solomon Islands field work

There were a number of key themes that were referred to repeatedly during the interviews. They have been grouped into the following:

1. The need to change behaviour around dumping and littering
2. Lack of access to formal collection and disposal
3. Development of markets for recyclable materials



## 4.1 The need to change behaviour around dumping and littering

In virtually every interview it was stated that there was little awareness of the negative impacts of littering and open dumping and an acceptance that this was part of urban life by much of the public. There had been repeated efforts by official sources to stop littering (the focus being on littering in public places such as streets and markets rather than domestic open dumping) with a regular focus on betelnut litter. <sup>ii</sup>There was a view that certain sections of the population just don't care, and these are the ones that need to be addressed.

Furthermore, it was noted by many that dumping into rivers, streams and directly into the sea was seen as an effective method of removing waste from the locale and burning of waste was actually seen as good practice by many. Such dumping led to conflict between upper and lower river communities as the latter suffered from the negative impacts of this behaviour. Open dumping was observed in Honiara, Noro, Munda, north-west Guadalcanal and Henderson (peri-urban Guadalcanal).

There was a repeated view that the unit of focus for behaviour change should be the household and within that the women, as they were generally responsible for household level waste management.

It was also generally agreed that sharing the public health problems, and the potential economic benefits of recycling business development were key messages to share. Environmental messages were important but only for key groups affected by a particular issue – e.g. coastal communities and fishermen for the impact of marine plastics.

A variety of mechanisms were noted to change behaviour – schools and churches were often repeated as key approaches to achieving this. As to communications channels, ensuring clear, easily understood approaches such as posters, leaflets, radio ads and social media were considered most effective.

The levels of open dumping were supported by observation of open dumping.



*Photo: Open dumping in provincial Guadalcanal*



*Photo: Sign warning of public health*



#### 4.1.1 Key Players and Relationships

There are a number of key players that have experience in changing behaviour within different locals in Solomon Islands. There is a depth of experience within the NGO sector around changing behaviour on a variety of related issues, notably around sanitation, handwashing and open defecation:

##### **Honiara**

*Learning and Ecological Activities Foundation for Children (LEAF):* Currently delivering an environmental education programme on behalf of Japanese Aid Agency JICA they are responsible for three environmental learning centres in Honiara including one at Ranadi Dump which is focussed on education around recycling.

##### **Gizo**

*Ecological Solutions Solomon Islands (ESSI)* – focusing on long-term, community-owned conservation initiatives in the West of Solomon Islands, working with local communities to map customary ownership of land and natural resources, and develop land-use plans that reflect cultural and biological values. They are keen to use their contacts to share learnings about community SWM.

##### **Solomon Islands wide**

*Literacy Association of Solomon Islands:* LASI focusses on improving literacy and sharing and spreading information with communities with low literacy levels. They have worked with a number of different international NGOs on developing communications campaigns that are visual, simple to understand and reach rural and urban populations.

*Live and Learn SI:* An NGO based in Honiara, they run community outreach and environmental programmes in rural areas across Solomon Islands. One of their thematic areas is “community based waste reduction and management” and part of their strategic vision is “develop community based waste reduction and management strategies.” However, their main focus until now has been on Community Led Sanitation and climate change. They are experience at engaging communities and public behaviour change

*Solomon Islands Development Trust:* A long established NGO based in Honiara, they focus on rural development and have stated a keen interest in developing community-led waste management.

*Mothers’ Union:* Mothers’ Union has been based in SI since the 1930’s and are associated with the Anglican Church. They have a number of activities including training workshops (nutrition, vocational skills) and have stated an interest in spreading information about improved SWM

*Churches and associated outreach opportunities:* 96% of the population of Solomon Islands is Christian, 70% of this are under 30. Multiple interviewees stated that working with church groups in communities is an effective approach to engaging a given locale, via announcements, fellowship groups, and other church-based networks.

#### 4.1.2 Training and capacity building needs:

During interviews and workshops, there have been repeated requests for a number of training packages to improve local capacity and awareness around SWM. Specifically these have included:

- Simple clear communications materials that can be used by multiple partners during outreach and educational activities, either as part of a self-standing campaign or to be added with other template materials;
- Educational campaigns within schools. LEAF have been doing some work but there is little organised and repeated environmental work in schools.
- Training the trainer sessions to build capacity within civil society in Solomon Islands on improved community SWM. During the consultant visit, two such workshops were undertaken but a strong appetite for more training and long-term mentoring was noted and requested, specifically focussing on:
  - Technical aspects of plastic recycling
  - Technical aspects of composting, charcoal making and organic waste management;
  - Understanding solid waste and changing behaviour
  - Development of recycling businesses

## 4.2 Lack of formal collection and disposal

HCC officials estimated that around 80% of waste was collected and the rest was dealt with informally. It was also noted in Honiara that dumping in streams that fed into the Matanikau River, dumping in the river itself and dumping on the shoreline were widely practiced household and commercial disposal strategies.

Physically accessing the upper river areas within Honiara is considered a challenge by HCC.

There are litter by laws but little enforcement by HCC. There have been areas where there have been crackdowns, notably in Honiara Port area . There had been lots of betelnut sellers and open dumping of waste but this has been reduced.

There was a widely held view within Honiara that HCC did not deliver a satisfactory service and that this led to widespread unhappiness, particularly amongst those negatively impacted by poor SWM. Bins that were provided are often left unemptied for extended periods and that in many cases there are problems with vermin scattering waste put out for collection.

Meanwhile, the only gazetted dumpsite in Honiara has around 5-8 years remaining lifespan. Investment via the JICA J-PRISM project into a semi-aerobic disposal system has run into problems due to repeated fires.

Beyond Honiara and other urban areas there is no solid waste management at all and people are left to dump, burn or bury their waste themselves.

#### 4.2.1 Key Players and Relationships

Within formal solid waste management, there is a clear legislative and operation structure. This has been covered at length in the literature review (attached in Appendix B), particularly at the national and regional governmental level and the policy making level. However, the interview sessions identified several clear players within the locales. There has been a focus on those organisations involved in operational delivery of waste collection and disposal, those that are in a position to host and those in a position to co-ordinate community waste capacity building.

##### **Honiara**

*Development Services Exchange:* This umbrella organisation co-ordinates NGOs and CBOs is keen to support any co-ordinated capacity building in Solomon Islands. It is in a position to host, train and support its member organisations to deliver various facets of community waste management.

*Friends of the City:* An entirely voluntary group and one largely managed via social media, it undertakes clean-ups along the main highway between Rove and Point Cruz, as well as at sporting events and along the Matanikau River. It has been commended by HCC and the Honiara City Mayor. They are a highly visible community organisation and have hence been identified as Best Practice (see Box 1 below). On interview with the leader Judah Sumai the long-term future is uncertain as there is a need for the leaders to monetise the group in some way.

### Best Practice Box 1

#### Judah Sumai – Friends of the City

Friends of the City (FOTC) is a group of activists led by Honiara resident Judah Sumai that run regular clean ups in Honiara, notably along the main highway between Rove and Point Cruz. Managed using social media and with over 4,000 followers on Facebook, it has developed into a movement to clean up Honiara but also improve waste and recycling in Solomon Islands generally.

They have been nationally feted as a movement to be repeated and offer an excellent example of volunteerism and community mobilisation, with positive com

ments in the national media from the Mayor of Honiara. Key challenges for the organisers going forward is how to develop a paid leadership staff, given the amount of time it takes. There is also interest in how to divert materials for recycling rather than dumping.



*Friends of the City undertake a cleanup on the Kukum Highway and Lawson Tama Stadium*



### Gizo

*WWF Solomon Islands – World Wide Fund for Nature:* The WWF Pacific Solomon Islands office have a strong focus on Community Based Resource Management. They are experienced at co-ordinating local groups and are keen to become involved in the oversight of any community SWM efforts in Western Province.

### Solomon Islands Wide

*Solomon Islands Development Trust (SIDT):* SIDT focus on rural development and have an interest in developing novel approaches to rural community SWM. Given the complete lack of waste collection and disposal outside of urban areas, there is a clear opportunity for this.

#### 4.2.2 Training and capacity building needs:

Given that collection and disposal tend to reflect weaknesses in municipal governance, the WasteAid approach is to develop community capacity to address their own waste issues and opportunities to address this have been identified:

- Co-ordination of NGOs to address different aspects of poor SWM, including the environmental and public health costs and the economic opportunities. There are also advocacy needs to address poor public policy in the area.
- Building capacity within the NGO sector and civil society to understand:
  - The environmental, economic and health impacts of poor SWM;
  - How to identify and create small scale waste and recycling projects that are appropriate to an island environment;
  - How to support and grow financially sustainable cost-recovery models for waste collection.
- Developing community-based solutions, within urban and rural environments, to reduce the negative impact of SWM and realise any potential economic benefits.

### 4.3 Challenges with end-markets for recyclable materials

The challenges faced by Small Island Developing State (SIDS) economies in finding end-markets for potentially recyclable materials, due to their remoteness and small scale, have been noted by various authors (see for example (Eriathamby *et al.*, 2014)<sup>iii</sup>). Such end-markets are key, as without them, there can be no financially sustainable way of collecting and recycling materials. Solomon Islands is no exception and in many cases it was observed that economic opportunities presented by recycling were not widely recognised and the need to develop sustained end-markets for a material to be successfully recycled was not understood. Particular examples were that:

- There are several materials, notably plastic and within that notably PET bottles, that had no secondary demand and were widely open-dumped. Indeed, PET bottle manufacturers had dumped PET bottles with no apparent end use planned at Ranadi dumpsite.



*Photo: PET bottles collected at Ranadi Dump with no end use*

- Organic waste was noted as a major issue (fitting with evidence from the compositional studies noted in the literature review, as well as other work carried out under CLiP). There is a well-developed tradition of composting within Solomon Islands, but this has traditionally been seen as a way of providing low cost solid conditioner from agricultural waste rather than a solution for urban-sourced food and other organic waste. Those engaged in composting have noted that they cannot keep up with the demand for high quality horticultural compost, from horticultural and flower growers. There are also experience composters keen to work with HCC to collect and process organic waste into compost. A pilot composting project based at Ranadi dump, using a shredder funded by a mining company has considered not to work due to the cost of electricity to run the shredder.
- There is one recycling company collecting material for export, BJS recycling. They currently pay SBD\$2/kg for aluminium and there is evidence of collection around Honiara, provincial Guadalcanal, Noro and Gizo. They are interested in collecting plastic for granulation, export and recycling but are unable to do this economically at the moment.



*Photo: Collection of aluminium cans for recycling - Western Province*

There is a significant interest and desire to develop artisanal recycling approaches and develop local recycling businesses, notably from the YWCA and Mothers' Union and from HYC a desire for technical support to develop recycling businesses. What to make, how to do it, how to market and sell it.

#### 4.3.1 Key Players and Relationship

There are several key players in the development of such end markets. Outside the remit of this study (focusing on community level players) are international recyclate buyers – notably of various types of plastic and metals. For the purposes of this study, there has been a focus on those that are in a position to influence the development of Island-level artisanal recycling:

##### **Honiara**

*Zai Na Tina Organic Farm (see Best Practice Box below):* Based at Burns Creek, this long-established organic farm has a depth of experience in large scale composting, a demand for ten tonnes of organic waste each year (and capacity to process much more) and a several hectare site on which to run a large-scale composting facility. There have been previous efforts to liaise with HCC to start a municipal



composting scheme but these have run into political difficulties. The proprietor of the Farm, Dr Shane Tutua, has expressed interest in revisiting these opportunities.

#### Best Practice Box 2:

##### Kastom Gaden Association – Community Composting / Zai Na Tina Organic Farm – large scale composting

Operating since the 1990s on adjacent sites at Burns Creek, East Honiara, these two sister organisations work to promote and demonstrate the benefits of organic agriculture and traditional Melanesian farming techniques. Whilst having traditionally focussed on rural agriculture, there are clear opportunities for KGA to be helping communities manage their own organic waste, whilst Zai Na Tina collects municipal waste for larger scale composting. KGA have stated that they are unable to keep up with demand for the compost that they produce (see below)



*Community composting demonstrated at Kastom Gaden Association*

**Honiara Youth Council :** HYC have already been supporting a number of youth entrepreneurs to recycle plastics including film and PET bottles. The president, Harry Olikwailafa, is keen to increase the range of materials collected, the capacity of their entrepreneurs to collect and reprocess materials and their technical experience to do so.

**Design and Technology Centre/Waste and Recycling Association Solomon Islands (see Best Practice Box below):** Lyndsay Teobasi, is developing a collection and reprocessing centre at Henderson, East Honiara. He currently collects from Woodford School and is working with Caritas New Zealand to develop a wood-fired pyrolysis system, converting waste LDPE plastic into fuel oil and gas<sup>iv</sup>. This is, however, not yet at a commercial stage as the technology is still under research.

**Best Practice Box 3:****Lyndsay Teobasi – Small Scale Plastics Pyrolysis – Design & Technology Centre**

Committed to finding an end market for plastics, Lyndsay Teobasi has already started collecting PET bottles and LDPE film. Whilst still in the early stages of development, his woodfired, small-scale pyrolysis container has potential to transform the treatment of plastics in Small Islands Developing States. Pyrolysis is a technique of heating plastic in a low oxygen environment. This breaks it down into syngas (this can be used for cooking) and fuel oil, also a possible heating or cooking fuel. Whilst Lyndsay Teobasi has a viable site and location and clearly some level of technical expertise, he is still testing the reactor and has not yet been scaled up or tested commercially.

**Gizo**

*Plasticwise Gizo (see Best Practice Box below):* Plasticwise Gizo have established themselves as a group making artisanal craft items from recycled plastic. They have stated that their current limitation is a site to work from. They have been working with Gizo Environment Livelihood Governance Association (GELCA) to develop waste livelihoods.

**Best Practice Box 4: YWCA and Plasticwise Gizo– plastic weaving**

There are two women-led organisations, working to turn plastic film wastes. They have a vibrant group that sells items in the market and are keen to share their skills more widely. Artisanal plastic weaving is an activity that can develop robust livelihoods and has been enacted in communities worldwide. For both groups their key challenge at the is finding a permanent site to work in, train and exhibit and sell their wares.



*Left: Purse made from ice blocks, Plasticwise Gizo / Right: Travel pillow made from rice sacks and stuffed with crisp packets*



## Solomon Islands as a whole

*Kastom Gaden Association (KGA):* Established for over 20 years, KGA support farmers using traditional farming techniques. From this core aim, they have developed significant skill and capacity in community composting and are interested in applying these skills to address urban organic waste.

*Young Women's Christian Association:* Led by Jocelyn Lai, these are a very dynamic group based in Honiara but working nationwide making a variety of products – pillows from old rice sacks and crisp packets, bags from old rice sacks. Originally developed as part of a waste livelihoods programme called *Sistas Save*, supported by NZAid to help develop livelihoods for marginalised women, they currently sell their materials at the Mere's Market.

## Malaita

*Robonigeni Women:* This is a small new group – women from Lau Lagoon in Malaita who are also working in Honiara. Engaging in clean ups

### 4.1.1 Training and capacity building needs

There is a strong desire to develop waste livelihoods for a variety of materials. Potential partners have highlighted a number of areas where they could use support:

- Technical support on recycling techniques, including plastic recycling and composting.
- Business development support, to help the various groups turn their ideas into sustainable business models.
- Opportunities for waste entrepreneurs to share their successes and learnings in an organised forum.

## 5 Key findings from workshops

Two workshops were held, one in Gizo (Western Province) on February 11 at the Gizo Hotel, and the other at Solomon Islands Development Trust in Honiara on February 14. Their aims were to:

- Outline the importance of solid waste management in terms, not only of reducing ocean litter, but also for global development more broadly;
- Demonstrating and sharing best practice for recycling organic and plastic waste at the community level;
- Providing the opportunity for stakeholders to develop outline two years plans.

### 5.1 Gizo

The agenda and attendance list are attached Appendix D, the presentations in Appendix G.

#### 5.1.1 Key Conclusions from the Workshop

There is already interest in Gizo and a level of organisation and mobilisation, largely driven by the impact of littering within Western Province. There are however significant challenges due to the

remoteness of much of the province and thus developing community waste management if possibly the only solution for many areas.

### 5.1.2 Technical capacity

Those organisations with capacity to recycle within the local include:

Plasticwise Gizo – although increasingly established their main challenge is a lack of working and display site. Were they given support to do this they could increase the volume of material collected for recycling.

GELCA are primarily a saving club but interested in developing women’s livelihoods based on plastics. They are keen to do so and are already working with Plasticwise Gizo.

Waster Management in Gizo have already started collected aluminium cans in Gizo and are selling them to people in Noro. These are shipped back to Honiara for onward sale to BJS recycling and international export. There are opportunities for them to spread collections further across the West.

### 5.1.3 Behavioural Change and Community Development

ESSI have experience in engaging communities around community issues, although waste would be new for them. They would develop community engagement approaches to ensure these are share within rural communities.

### 5.1.4 Co-ordination of different groups and lobbying for policy changes

WWF see their role as co-ordinating the different groups. The group already in informally organised but WWF have experience in bringing different groups together and co-ordinating them.

They are also driving the plastic bag ban by the provincial Government in Western Province and ensuring the timescales are adhered to, which should see a ban introduced by the mid-2020s.



*Photo: Gizo workshop: discussion on impacts of poor solid waste management*



*Photo: Environmental Impacts of poor solid waste management*



*Photo: Workshop participants with their certificates at the end of the workshop*

## 5.2 Honiara

The agenda and attendance list are attached separately in Appendix D and presentations in Appendix G. Due to high interest the venue was moved at the last minute to a larger venue, with the original target of 15 exceeded by almost double to 29.

### 5.2.1 Key Conclusions from the Workshop

There is significant interest within Honiara to support the city council in its aims of reducing materials being dumped at Ranadi dumpsite. There is an opportunity to develop a broad ranging strategy that includes collection and processing of organic waste and plastic waste at scale using existing stakeholders and using a variety of groups to develop livelihoods for marginalised groups recycling various materials.

There are a variety of skillsets already present within the locale of the City, covering technical, organisational and behaviour change aspects of improved solid waste. Were these marshalled they could represent a significant response to the problems caused by poor solid waste management in Solomon Islands.

### 5.2.2 Technical Capacity to recycle

There are a number of organisations and individuals with the expertise and the drive to address large portions of Honiara's waste stream.

- Dr Shane Tutua at the Zai Na Tina Organic Farm has the capacity and interest to process significant amounts of organic waste. This skill and interest could be used to start diverting segregated waste collected by Honiara City Council. One particularly simple approach could be for market waste (largely organic) to be brought his site for processing.
- Kastom Gaden Association has a long history of teaching and sharing skills around community composting, historically in rural areas. However, this approach could just as easily be practised in a pilot area of Honiara, for instance once identified as having significant leakage into the surround

streams and rivers. They are keen to develop a pilot area within urban Honiara, supporting a community to start local community composting and also demonstrating its use in local 'sup-sup' gardens. They would be supported by Live and Learn Solomon Islands who would incorporate the approach into their community environmental education programmes.

- Lyndsay Teobasi of Design Technology Centre/Solomon Islands Waste and Recycling Association has started collections of PET bottles, although end markets still represent a challenge. He is in the process of developing a wood-fired pyrolysis process from a previously used electrical one (the electrical aspect made it uneconomic in Solomon Islands and unusable in areas with no electricity) that processes LDPE, although he is adapting this to PET. This will produce fuel oil and cooking gas. If this technology can be made viable, it will be a game-changer throughout the South Pacific. He does require support and funding, although there has already been liaison with Caritas New Zealand, to develop and scale-up the process.
- The YWCA has already developed small scale plastics recycling activities – making reusable bags from old rice sacks, some plastics crocheting. They have also been working with aluminium and glass and reuse of PET bottles. They are organised and keen to develop this further. They currently struggle for sites and opportunities to sell their wares and with interest and support in this.
- People with Disability Solomon Islands has a long history of developing livelihoods for this traditionally marginalised group. They are keen to develop small-scale waste livelihoods around the recycling of PET bottles and other widely available plastic wastes.
- Honiara City Council recognise the problem of waste from satellite markets. They are keen to work with other stakeholders to set up community composting at these sites to locally process waste.
- Honiara Youth Council are already engaged in the demonstration of biogas at Solomon Islands National University. They are keen to develop a social-enterprise business model by which they can replicate this technology for use within informal settlements around Honiara.

### 5.2.3 Behavioural Change and Community Development

There are groups with long experience of changing behaviour around a number of issues, including gender issues, literacy and WASH. There are also well-established groups that focus on community development:

- Solomon Islands Development Trust focus on rural development. Outside of the main urban areas in SI there is simply no waste collection (this includes sizeable towns including Munda and Noro). Whilst waste arisings tend to be lower, and the organic fraction higher, there is a steady increase in the amount of non-biodegradable waste materials produced (notably plastic packing, including noodle packets and water bottles). Hence developing a workable model for rural communities is key – allowing rural communities to minimise the potential harm that open dumping causes (often then main method of disposal is directly into the sea) and realise any potential value from segregated materials through artisanal recycling.
- Robonigeni Women are a group based in Honiara but hailing from north-east Malaita, around the Lau Lagoon area. They are active in clean-ups in Honiara and would be keen to introduce best practice they have learnt in Honiara within their local in north-east Malaita.
- Solomon Islands Literacy Association are very experienced in engaging communities with a low level of literacy. They are keen to use their experience in developing material for areas with



challenges in open dumping including posters and educational materials to demonstrate best waste practice and promote opportunities.

#### 5.2.4 Co-ordination of different groups and lobbying for policy changes

Development Service Exchange have provided support and organisation for groups across Honiara. They provide a physical space for groups to come together and discuss and have a role in co-ordinating the different activities of group members. Furthermore, they have experience in co-ordinating lobbying for policy change at national government level (having recently had success with the Anti-Corruption Bill) and are keen to develop a national policy response to the waste crisis, starting with banning of plastic bags and then possibly bottles.



*Photo: Honiara Workshop Participants develop their two-year plans*



*Photo: Honiara workshop participants with their certificates*

## 6 Gaps and Opportunities in Existing Practice

There are several key points that should be noted, and from these gap and opportunities can be identified:

### 6.1 Gaps

There is a strong feeling that the time for research is over and that now practical support to help those organisations that are interested in developing the various activities in which they have an interest is key. To this end, technical support, model sites and centres of excellence and innovation must play a role in any future support to reduce ocean bound litter. There is a major need to develop capacity for PET bottle recycling – it is currently uneconomic given Solomon Islands' isolation and scattered geography. Key points to note are:

- Total lack of waste management
- Poor solid waste management is a global development problem
- Composting is not seen as a waste solution but as an agricultural input.

### 6.1.1 Total lack of waste management

For most people in SI there is no form of organized waste collection – they are left to dump, burn or bury their waste themselves. This means that for most people living in rural areas, community level waste and recycling is the only option. Indeed, in much of urban Honiara there are areas that either physically inaccessible to collection services or ignored, either because they are beyond the city limits and although part of the conurbation ignored by the City authorities. The city council estimate this at 80% but I would consider this an optimistically high estimate. The well understood difficulties of remoteness with material recycling in Pacific Islands make many materials that have a secondary value in other parts of the world valueless. Therefore sharing knowledge and getting the message into rural and peri-urban communities must be key.

### 6.1.2 Poor solid waste management is a global development problem

When the issue has been framed as such in discussions and in the two workshops there has been a renewed interest from a variety of players, particularly those interested in community development. It is a very new issue (having visited SI in 2005 and coming back in 2019 the difference in terms of open dumping is stark, particularly with PET bottles everywhere). Framing waste in way that appeals to different groups is important, even if ocean bound litter is the ultimate driver.

### 6.1.3 Composting is not seen as a waste solution, primarily free soil conditioner

There is a well-developed tradition of using compost in Solomon Islands as a cheap/no-cost soil conditioner. As urbanization increases, there is a need (and an opportunity) to source organic waste from parts of towns with poor waste collections. Such localized hubs may be one way of reducing the pressure on HCC and reducing open dumping. There is a huge amount of local composting knowledge and this should now be focused in urban as well as rural areas.

### 6.1.4 There are clear opportunities to improve SWM in Honiara and other urban areas the country as a whole, given:

- There is clear local and international interest in supporting Solomon Islands to address these issues;
- There is a range of capacities within the country which, if focused on SWM in a co-ordinated way could help address the issue

The detail of these opportunities is provided below. A number of opportunities have been identified for community-led initiatives reducing leakage of solid waste, and in particular, plastic, before these materials become marine litter.

## 7 Recommendations

Poor waste management is, in WasteAid's view, a symptom of weak governance. This is a common situation in many low-income countries where WasteAid works, hence our focus on identifying interested and capable organisations and building community capacity to improve solid waste management.

### 7.1.1 Develop NGO and CBO capacity in SWM in Solomon Islands

With civil society in Solomon Islands (as in much of the developing world) there is a clear need to develop local capacity and understand within SWM. Given the multi-faceted nature of the waste issues, with its need for public and community engagement, technical recycling and business development, there are clear roles for a number of different organisation. The steps to achieve this collaborative approach have been identified below:

- a. Identify a coordinating organisation in SI and a collaborative task force: Development Services Exchange (DSE) in Honiara have a long history of coordinating the NGO sector within Solomon Islands and are keen to take on this role. They are also keen to take a lead role on policy lobbying at regional and national government level, specifically focusing on a plastic bag ban.
- b. Deliver train the trainer sessions and awareness on the importance of improved SWM, approaches to community SWM and the benefits of waste livelihoods. This could be done at DSE for members, as well as in provincial hubs.
- c. Provide access to a range of supporting communications materials: Developing an understanding of community solid waste at the same level as other areas (notably education, gender empowerment and WASH) is important to support effective and relevant actions. Providing posters, stickers, leaflets, a schools pack and a localised version of the WasteAid toolkit, or such supporting material, underpinned by technical training and organisational workshops, is important to achieve this.
- d. Develop sites within Honiara and Gizo where groups can demonstrate, train on techniques and market their wares.

### 7.1.2 Develop urban composting capacity and training

It is important to start developing urban approaches to composting, given the high level of organic waste, the suitability of the Solomon Islands climate for composting, and the demand for compost. The steps to develop this are as follows:

- a. Work with Kastom Gaden Association to develop urban composting approach: It is important to use techniques that are appropriate to the types of organic waste produced within urban areas (typically a higher proportion of food waste); are appropriate for areas with a high population density and are easy to learn.
- b. Support pilot urban composting scheme: Working with a suitable community partners (churches have strong community links and a variety of associated youth and women's groups that are effective channels) to start delivering community composting hubs in areas underserved by traditional waste collections.
- c. Build capacity in a number interested organisations (typically livelihoods and environmental groups are interested) by delivering cascade training across Solomon Islands:
  - i. Churches
  - ii. Urban development groups
  - iii. Schools

### 7.1.3 Develop Plastic waste livelihoods techniques

There are a number of organisations working with artisanal plastic recycling techniques, but they need support to grow and can be used to share and cascade knowledge across the country,

- a. Support YWCA and Mother's Union in Honiara and Plasticwise in Gizo to become exemplar organisations: By providing them with a site to work, sell their wares and train others, these two organisations can lead on the delivery of plastic waste livelihoods across SI. By supporting them to be able to deliver business development training, technical training and mentorship they can support communities nationwide to start valorising materials locally.
- b. Work with Honiara Youth Council (HYC) to develop a youth movement to recycle plastic: HYC have already started developing some small-scale waste livelihoods programmes. With investment, training and mentoring there are opportunities to develop these further and create youth leaders in this area.

### 7.1.4 Develop organic waste collection at scale in Honiara

The Zai Na Tina organic farm has the capacity and space to start accepting organic waste from Honiara. This should be a priority and a focus for both partners and should be supported by this programme.

### 7.1.5 Develop model community waste management hub – urban

There are numerous areas within Honiara and the surrounding areas that do not receive regular waste collections from HCC. A number of these are adjacent to the upper Matanikau area with clear examples of open dumping into tributary streams. A comprehensive system of community waste management could be introduced. Such a local approach to capturing waste would reduce reliance on HCC collections, reduce open dumping and allow any benefits to be captured within the community. Targeting a community of around 1000 households, steps would include:

- Identify a strong, community-based organisation (typically a church associated group) who has the organisational capacity and interest to manage a local collection system.
- Identifying a site for bulking and collection of recyclables and to host a composting site. This should be more than 100 metres from the nearest dwelling but less than 500 metres, to ensure transport costs are negligible (and material can be carried using barrows). Church organisations might already have access to such a site.
- Engage the local community to:
  - Raise awareness of the impact of open dumping and the need to stop;
  - How to use a new collection system;
  - Persuade them of the potential need to pay a nominal amount to cover local collection of waste. This can be tricky and takes time but there is clear evidence (and in WasteAid's experience in other parts of the world, there is willingness to pay if the system works, the benefits clear and the levy reasonable – typically around SBD\$10/mth.)
- Start community-based collections, delivered by a member of the local community. This is important to show local economic benefit and if the collectors are locally known they can use local knowledge and reputation to persuade residents to use the system properly.



- Set up a system of community wardens, with a regular feedback system, to allow feedback on how the system is running, whether there are individuals or areas that are not working as they should.
- Potential cost recovery approaches for such a system is outlined below. Income can come from charges for services, onward selling of materials (notably aluminium) and sale of compost for horticulture.
- A centralised disposal area for non-recyclable waste could either be set up (and liaison with HCC when it needs emptying), or if funds allow a vehicle purchased take non-recyclable material to the Ranadi dump.

#### 7.1.6 Develop model community waste management hub – rural

A similar approach could be taken in a remote island communities. Given that these represent that vast majority of the SI population, and that the waste challenges are far great given the isolation, the following steps could be taken (Solomon Islands Development Trust, who focus on rural development, are keen to take on such a role):

- Identification and liaison with a suitable local group that are willing to manage the operations, are well-embedded within the local community and have a track record of holding funds and project management;
- Identification of key waste streams (typically 60% organic but a waste audit should be undertaken to confirm this);
- Identification of opportunities to reprocess the materials (potentially composting, potentially artisanal reprocessing of aluminium and eco-bricking for bottles, but this should be confirmed);
- Identification of a reprocessing location, this should be more than 100 metres from the nearest dwelling but less than 500 metres, to ensure transport costs are negligible (and material can be carried using barrows);
- Identification of a disposal site. It should be understood that there will be some non-recyclable waste (this is generally around 10% of the total). Further details on identification and choice of a site can be found at [wasteaid.org./toolkit](http://wasteaid.org./toolkit).
- Engage the local community to:
  - Raise awareness of the impact of open dumping and the need to stop;
  - How to use a new collection system;
  - Persuade them of the potential need to pay a nominal amount to cover local collection of waste. Within rural communities these could include a payment system as with the urban version above, or be taken on a volunteer basis on a rota as part of community services or in part payment or barter for other goods.
- Start community-based collections, delivered by a member of the local community. This is important to show local economic benefit and if the collectors are locally known they can use local knowledge and reputation to persuade residents to use the system properly.

#### 7.1.7 Advocacy for improved waste policy

Whilst this report focusses on community level action, there are number of actions that CSOs have indicated an interest in:

- a. Introducing a plastic bag ban. Development Services Exchange (DSE) in Honiara led on the successful civil society campaign on the Anti-Corruption Bill and are keen to repeat their success with a plastic bag ban in Honiara. A similar ban is working its way through the Provincial legislature in Gizo and is expected to become law by mid-2020.
- b. As identified in the literature review, PET bottles are arguably the major waste challenge in Solomon Islands. At the moment there are no end markets due the isolation and transports costs to reprocessing facilities in South East Asia. Accordingly, some kind of extended producer responsibility approach needs to be set up to create local value chains – either a deposit scheme or some kind of similar buy-back mechanism. CSO organisations are in an excellent position to campaign for such a system.

#### 7.1.8 Set up a waste livelihoods research centre

Small Island Developing States represent a major challenge to traditional recycling and waste management systems. Transport costs are significant to reach reprocessing facilities and transport costs within countries are too high to even reach bulking points prior to export. And the countries are too small to realise significant economies of scale. Accordingly new approaches are needed that realise value locally. Appropriate technology that can achieve this should be a focus of aid programmes and supported by such an effort. These should focus on non-organic (“dry”) recyclable materials, particularly:

- a. Aluminium and metals: Whilst aluminium has some residual value and there is some evidence of recovery, there are opportunities using simple smelting kits to create local cookware
- b. Plastic: There are multiple opportunities to develop local plastic recycling, including use of eco-bricks, pyrolysis or development of building materials.

## 8 Draft Two Year Action Plan

In WasteAid’s experience, ensuring partner buy-in for any plan is key to its relevance and success. The plan below was based on the planning elements of the Gizo and Honiara workshops and build upon national policy drivers and municipal priorities. It also assumes appropriate funding and support. It is strongly recommended that if this plan is to be delivered, a liaison and planning development process is undertaken, consulting potential partners and stakeholders before finalizing.

| Objective  | Activities  | Indicators  | Responsibility | Timescale*<br>(S,M, L) | Resources<br>/Cost  |
|--|---|---|----------------|------------------------|---|
| <b>Develop cohesive group to deliver integrate community SWM in Honiara and Gizo</b> | Identify co-ordinating group<br><br>Convene group and agree roles   | Meetings held<br><br>MOU signed and activities agreed | WasteAid, DSE  | S                      | Project manager and oversight<br><br>Selection of coordinating body |
| <b>Deliver programme of community SWM capacity building for CBOs</b>                 | One day sessions on importance of community SWM<br><br>Produce a community waste guide for SI                       | Attendance sheets<br><br>Feedback sheets              | WasteAid, DSE  | S                      | Trainer<br><br>Materials  |
| <b>Build CSO capacity - composting</b>   | Ongoing programme in Honiara, Gizo and other identified key centres to build CSO capacity around composting         | Attendance sheets<br><br>Feedback sheets              | KGA            | S                      | Trainer<br><br>Materials  |
| <b>Build CSO capacity – plastics</b>   | Ongoing programme in Honiara, Gizo and other identified key centres to build CSO capacity around plastics recycling | Attendance sheets<br><br>Feedback sheets              | WasteAid, DSE  | S                      | Trainer<br><br>Materials  |
| <b>Develop range of communications materials and distributed</b>                     | Schools packs, posters, flyers and car stickers.  | Final versions of materials                           | WasteAid, LASI | S                      | Materials   |

|   | Guides for CSOs   |   |  |   |                            |
|---|---|---|--|---|----------------------------|
| <b>Identify site for urban community waste pilot and deliver – Honiara and Gizo</b> | An area lacking any or reliable waste collections with acute impact of open dumping; strong local partners and identified site for bulking of materials and composting          | Location, project plan, tonnages collected                    | WasteAid, Mothers Union, WWF, Plasticwise Gizo | M | Site, equipment, materials |
| <b>Identify site for rural community waste pilot and deliver</b>                    | An area lacking any waste collections with acute impact of open dumping; strong local partners and identified site for bulking of materials and composting                      | Location, project plan, tonnages collected                    | WasteAid, SIDT, Robonigeni Women               | M | Site, equipment, materials |
| <b>Develop research into community waste</b>  | Identify difficult to dispose of or recycle materials, creating recycling technologies, testing business models, providing support and advise to practitioners and communities. | Site development, Amount of research; technologies developed. | WasteAid, SINU,                                | M | Site, equipment, materials |

\* S=short term (within 6 months); M=medium term (6-12 months); L = Long term (+12 months)

## 9 Appendices

Please find attached Appendices as separate files

### Appendix A: Timeline of Activities

| Date     | Meeting Details   |
|----------|---|
| 04/01/19 | WasteAid Inception Report delivered   |
| 10/02/19 | Skype Mobilisation Meeting held   |
| 28/01/19 | WasteAid Literature Review Report delivered   |
| 04/02/19 | AM: Development Services Exchange – Honiara – Jennifer Wate, General Secretary<br><br>PM: CEFAS, Peter Kohler and Julie Bremner<br><br>PM: Mothers Union, Pamela Abana, National President  |
| 05/02/19 | 10:00 am: SI Literacy Association, Priscilla Maeniuta, Director<br><br>14:00 Honiara City Council Nancy Jolo, Director of Corporate Services & Ella Rizwold, Environmental Health   |
| 06/02/19 | AM Arranged Gizo Workshop<br><br>AM: Live & Learn, Honiara - Elmah Panisi<br><br>PM: Kastom Gaden Association, Director Pita Tikai<br><br>PM: Shane Tutua – MD Zai Na Tina Organic Farm   |
| 07/02/19 | AM: Tour around Mbokenavera Ridge – peri-urban Honiara/Guadalcanal with Ella Rizwold, HCC<br><br>PM: Visit to Ranadi Dumpsite, Jo Kelesi, Dump Supervisor<br><br>PM: George Titiulu – Senior Environmental Health Inspector<br><br>PM: Roselyn Kabu – Founder SI Women in Agriculture |
| 08/02/19 | AM: Honiara Youth Council<br><br>PM: SI Waste and Recycling Association – Lindsay Teobasi<br><br>PM: Tour of peri-urban areas in Guadalcanal  |
| 09/02/19 | AM/PM: Training meeting: Vura Parish Mother's Union<br><br>PM: Rapid survey of coastal Guadalcanal to Visale  |

|                              |  |
|------------------------------|--|
| <b>10/02/19</b>              | Talk to Upper Matanikau, Anglican Church of Melanesia                                      |
| <b>11/02/19</b>              | Workshop, Gizo   |
| <b>12/02/19</b>              | AM: YWCA, President Jocelyn Lai<br>PM Robenigeni Women – Hilda Zolevene                    |
| <b>13/02/19</b>              | AM: JICA LEAF Programme<br>AM: Honiara CC Law Enforcement Team<br>PM: Workshop preparation |
| <b>14/02/19</b>              | All day: Honiara Workshop  |
| <b>15/02/19 and 16/02/19</b> | Observation of waste management practices in Munda and Noro                                |

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## Appendix B: Literature Review

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## Appendix C: Inception Report

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## Appendix D: Full field work schedule and contact list

D1: WasteAid Consultation Schedule

D2: Attendees for workshop

D3: Workshop Agenda (Gizo)

D4: Workshop Agenda (Honiara)

D5: Workshop Notes (Gizo)

D6: Workshop Notes (Honiara)

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## Appendix E: Interview Guide

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## **Appendix F: Summary of project diaries**

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## **Appendix G: Materials presented and films shown**

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## **Appendix H: Presentations**



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<sup>i</sup> Please see the Literature Review (attached as Appendix B), p. 52 *Chapter 5.14*

<sup>ii</sup> The areca nut, locally known as “betel nut” is widely bought, chewed as a stimulant and then spat out in Solomon Islands, and hence a leading source of litter in many towns.

<sup>iii</sup> See, for instance, Eriathamby, Agamuthu & Herat, Sunil. (2014). Sustainable waste management in Small Island Developing States (SIDS). Waste Management & Research : The journal of the International

Solid Wastes and Public Cleansing Association, ISWA. 32. 681-682.

<sup>iv</sup> Pyrolysis is the heating of materials in a low oxygen environment. It produces a gas (syngas) and an oil (pyrolysis oil). Syngas which contains typically significant quantities of methane, hydrogen, carbon monoxide, and dioxide. Pyrolysis oil can be used as a fuel oil or the precursor for a number of chemicals including pesticides.

