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Mid-term evaluation of the Kiribati Solid Waste Management Programme



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1

Abstract

The overall goal of the Kiribati Solid Waste Management (SWM) Programme – covering South Tarawa and Kiritimati Island – is to achieve ‘effective and sustainable SWM supporting the well-being of communities’. The Programme is currently in its second phase.

The purpose of this Phase 2 mid-term evaluation is to identify the outputs, impacts and outcomes of the SWM Programme and draw on this to inform decision-making aimed at selecting parts of the program to scale-up, to continue (with modifications where needed) or to discontinue where appropriate.

Overall, the SWM Programme has made a significant positive impact on South Tarawa. The Green Bag collection system is widely used, sustainable recycling for some materials is established, landfills are reasonably managed and the private sector is engaged. Reasonable progress has been made on awareness raising and education activities, and attitudes toward waste and littering are improving.

Ultimately, the Programme has significantly reduced the amount of solid waste being improperly disposed of on South Tarawa, with positive implications for human and environmental health.

The Programme appears to have made less of an impact on Kiritimati Island. While attitudes to waste are changing, there is still a long way to go. Further, while there are some crucial systems in place – such as a waste collection and a waste collection schedule – the SWM practices are very much still in their infancy.

We suggest New Zealand in partnership with the Government of Kiribati proceeds with further funding (Phase 3), as an exit at the end of Phase 2 may jeopardise the achievements from the investment to date. The key areas needing further support are transition to a single waste authority, increased financial sustainability, increasing the role of the private sector and leveraging other bilateral and regional funds. A future phase of support should include a clear exit strategy with a continuous shift in responsibilities to the Government of Kiribati and the private sector. It needs to be linked to a clear, integrated and sustainable business case using the full range of legal, technical and financial tools available.



2

Executive Summary

THE SOLID WASTE MANAGEMENT PROGRAMME

The Kiribati Solid Waste Management (SWM) Programme – covering South Tarawa and Kiritimati Island – aims to achieve ‘effective and sustainable SWM supporting the well-being of communities’. The Programme is currently in its second phase.

On South Tarawa, Phase 1 went from September 2011 to December 2015, and on Kiritimati Island from July 2012 to July 2016. This phase took a more practical hands-on approach and established services and systems for SWM. On South Tarawa, this included refurbishment of the landfills, introduction of the pre-paid rubbish collection system, referred to as ‘the Green Bag system’, support of the container deposit system to support recycling, and supply and maintenance of critical equipment. On Kiritimati Island, the dumpsites were rehabilitated and equipment was provided to the council collection system.

Phase 2, which commenced October 2016 on South Tarawa and a year later on Kiritimati Island, builds on the hands-on approach taken in Phase 1 and focuses on:

- ensuring existing solid waste management systems continue to be reliably delivered
- increasing the sustainability of existing systems, through a greater focus on sustainable financing of the system, focusing on cost effective approaches suitable for the Kiribati context and changing behaviours and building community level demand
- strengthening the enabling environment, including private sector development and central and local government ownership of solid waste management as a critical urban environment/health issue and enforcement of solid waste management regulations
- leveraging resources and mutual sharing of information and approaches with stakeholders and other donors.

THE PURPOSE OF THIS EVALUATION

The purpose of this Phase 2 mid-term evaluation is to identify the outputs, impacts and outcomes of the SWM Programme and draw on this to inform decision-making aimed at selecting parts of the program to scale-up, to continue (with modifications where needed) or to discontinue where appropriate.



KEY FINDINGS

South Tarawa

Awareness is increasing and behaviours improving

The SWM Programme has made a significant positive impact on South Tarawa. The Green Bags are widely used, collection points are getting installed, reasonable progress has been made on awareness raising and education activities and attitudes and behaviour toward waste and littering are improving. Ultimately, the Programme has reduced the amount of solid waste being improperly disposed of.

The collection service needs improvement

Reliability of collection services was highlighted as an obstacle to success for the project and most commonly cited as the key area where the project was failing to deliver. There are days with missed household collections, the collection route is inadequate and there are reported gaps in distribution of Green Bags to local stores. Further, Green Bags filled with organic contents are sometimes left behind by the Green Bag collectors which further undermine the system.

In addition to the Green Bag collector (Moel) the two local councils are still collecting waste from some households but with low levels of public satisfaction. Having three collectors result in confusion and duplication of both services and overheads, creating unnecessary costs and an inefficient service delivery. Moreover, the confusing and inadequate collection system has been coupled with a decreasing understanding of the Green Bag system.

Green Bags are presenting as litter

A clear unintended outcome of the Programme is that Green Bags have started to appear as litter on South Tarawa. The evaluation team find the two factors mentioned above – an inadequate and confusing collection system and a decreasing awareness of the Green Bag system – are two key factors contributing to Green Bags presenting as litter.

The Programme is still vulnerable to poor equipment management and maintenance

At the end of Phase 1, the poor equipment management and maintenance was highlighted as a key risk to the sustainability of the Programme. This evaluation finds that this is still the case. A lack of accountability measures in place (such as a performance agreements in the contracts), together with the provision of highly technical equipment, a lack of local capacity and the right capability, and limited provision of shelter against the harsh conditions, are all contributing factors to a continuous breakdown of equipment. This has had implications for both the collection of waste and the management of the landfills

Landfills are running reasonably well but maintenance tends to be reactive rather than pro-active

The landfills are running reasonably well, within the limitations of their design (lagoon style landfills). However, actual management by the councils in terms of



following the landfill management plans has slipped, in particular around conducting the required number of hours of compaction. Contributing factors include loss of skilled staff and critical equipment being operationally unavailable.

Organic waste management is a gap

There is still a lot of organic waste (green waste, cardboard and disposable nappies) being disposed of at the landfills. This is because there is currently a very limited system for organic waste management on South Tarawa. This has implications for landfill longevity and environmental performance as well as effective resource management. Current community outreach and education on organic waste, undertaken by Kiribati Red Cross Society on behalf of the SWM Programme, encourages separation and then the depositing of organic waste (food and green waste) in a single spot, where it can decompose.

While supporting backyard utilisation for green waste has many benefits, a full-scale system linked with agriculture is needed to substantially eliminate the negative impacts and realise the full benefits. An organic waste (green waste) collection trial has been implemented involving the two councils, but so far with little success. No action is currently being taken on cardboard and nappies.

There have been no additions to the recycling scheme and there are no efforts to control the type of materials entering Kiribati

While the recycling of aluminium cans and used lead acid batteries are still effective, the recycling of PET bottles has effectively been halted. The evaluation team also found that no other materials (such as e-waste and bulky wastes) have been added to the recycling scheme. Further, there are no current efforts aimed at controlling the types of materials entering Kiribati. This means that a lot of the imported materials are still entering Kiribati on a one-way ticket, rather than getting exported to recycling/repurpose facilities.

Kiritimati Island

The waste collection is inadequate

Rubbish collection is undertaken by the council, with support from the SWM Programme which has provided financial support and equipment. As on South Tarawa, the waste collection service is widely perceived as unreliable. It also only covers a proportion of the households (those who pay an annual fee of their wages). While a trial of the Green Bag system has been implemented, the awareness and utilisation of the Green Bag system remains very limited. Moreover, the collection truck provided under the New Zealand Aid Programme is in an urgent need of replacement. A new collection truck is in the process of being procured but has been delayed.

Dumping and burning is still prevalent

Burning of waste piles – at both formal and informal dumpsites – is pervasive. The largest and most heavily utilised formal dumpsite is the Tabwakea dumpsite or 'main dumpsite'. While the site was purportedly intended to receive council vehicles



only, it is also utilised by members of the public for waste disposal. The site is unfenced and while a day-time watchman has been employed, it is still operating very much as an uncontrolled dumpsite.

The bobcat provided is not being used

The New Zealand Aid Programme funded a bobcat during Phase 1 with the purpose of compacting waste at the dumpsites, but the evaluation team were told that it is deemed too small to manage the waste and is therefore not being used. Instead, the Ministry's wheel loader has been used for compaction, with the SWM Programme covering the cost of the fuel. However, since the Ministry uses the wheel loader for many other purposes, the compaction is done on an irregular basis and often with long intervals. The project is funding the purchase of a wheel loader to address this issue but, as for the rubbish collection truck, procurement has been delayed.

The recycling scheme has fallen over

The recycling scheme of aluminium cans has fallen over and as a result, aluminium cans has become part of the litter around the island. Moreover, the EYC Nursery – set up during Phase 1 with the purpose to utilise organic waste for fruit and vegetable growing – is not being utilised. As well as the rubbish collection, the recycling system and the EYC Nursery are all supposed to be run by the council.

Attitudes and awareness are slowly improving

Despite the poor apparent progress described above, consultations indicated that attitudes to waste are changing, albeit slowly. Awareness and clean-up activities have taken place, and a women's community committee has been established to discuss waste management and the use of the Green Bag. There also appears to be a relatively large interest in gardening and composting.

Stakeholder relationships has been formed

Despite the lack of formal planning, the Project Officer has been successful in building strong relationships with key stakeholders. This has manifested in the several Government arms working cooperatively towards the SWM Programme's outcomes.

Programme coordination, implementation and governance

Lack of programme coordination and oversight

The Programme has successfully recruited six project officers who all demonstrate good knowledge of the Programme and an enthusiasm for their roles. On South Tarawa, a Green Bag Task Force has been formed, as has a ban plastics committee. On Kiritimati Island a SWM committee has been formed.

The SWM Programme has failed to recruit a Programme Manager and the planned National SWM Committee has not yet been established. This, together with a lack of any detailed implementation plan or strategy, has resulted in a lack of programme oversight and coordination. This has in turn impacted on the Programme's effectiveness and efficiency, and monitoring and reporting.



CONCLUSIONS AND RECOMMENDATIONS

The evaluation team recommends proceeding with a Phase 3

Referring to the medium-term outcomes in the results framework, the evaluation team find that while more I-Kiribati participates in SWM, SWM services are not provided in a sustainable manner yet. While most activities under output 1 and 2 in the results framework have made reasonable progress (on South Tarawa and less so on Kiritimati Island) parts of output 3 have lagged behind.

This means that if the Zealand Ministry of Foreign Affairs and Trade (MFAT) were to withdraw its financial and facilitative support at the end of Phase 2, there is a risk of a reduction in the effectiveness of the SWM activities. Thus, it is recommended that New Zealand considers proceeding with a further phase of funding (for Phase 3). However, any future phase of support should include a clear exit strategy for the areas of support, and MFAT should continue to gradually hand over responsibilities to the Government of Kiribati.

Governance and implementation structures need to improve

In particular – to increase sustainability – more efforts need to be put toward programme coordination to improve communication, effectiveness and efficiency. A Programme Manager needs to be recruited (with efforts proportionally split between South Tarawa and Kiritimati Island) and efforts should be made towards setting up a national waste management authority (NWMA). Consideration should be given on whether to establish a community consultative committee under the NWMA. Moreover, the National SWM Strategy should be finalised and a communication, education and behaviour change strategy for the Kiribati SWM Programme should be written.

Sharing of resources between South Tarawa and Kiritimati Island should improve

Communication and sharing of resources and information should improve between South Tarawa and Kiritimati Island. Further, it is important to remember that South Tarawa and Kiritimati Island is more dissimilar than synergistic and activities need to be designed thereafter.

Continue to develop capacity and capability

In-country capacity and capability development must continue to improve through training and appropriate recruitment processes (so to ensure that SWM activities do not stand and fall with one person). Where there is a lack of capacity and capability, international support will continue to be needed in the foreseeable future.

Monitoring, reporting and contract management needs to improve

Monitoring and reporting needs to improve. And a clear system for tracking expenditure against budget needs to be developed and enforced. Contract management needs to improve by better aligning incentives with the desired project outcomes, and by including performance agreements.



Continue to support legal enforcement on South Tarawa

The SWM Programme should continue to support an increase in legal enforcement on South Tarawa. The evaluation team believes legal enforcement is further away from being an effective tool on Kiritimati Island.

A key focus should be to improve the collection system

A key focus area for the remainder of Phase 2 on South Tarawa should be to improve the collection of Green Bags and the awareness of the Green Bag system. The collection needs to be 100 percent reliable and all households using the Green Bag for waste disposal need to have access to the service.

On Kiritimati Island, the trial of the Green Bag system should continue – but with a greater focus on Tabwakea. If possible, MFAT should consider involving the private sector in the next roll out of the trial.

Postpone planned activities on outer islands

Finally, the evaluation team recommend postponing planned activities on outer islands. Instead, this can be re-assessed in the lead-up to Phase 3.



3

Assessment against DAC criteria and cross-cutting issues

RELEVANCE

The evaluation team find that the SWM Programme is relevant for beneficiaries, GoK's priorities as well as the New Zealand Government's priorities.

The SWM programme wishes to achieve an improved health of communities and reduced detriment to the environment, through reducing the amount of solid waste being improperly disposed of in Kiribati. This is strongly consistent with the Kiribati 20 year vision (KV 20) over 2016-2036, which aims to transform Kiribati into a wealthier, healthier and peaceful country.

A key focus of the KV 20 is also the aim to develop the tourism sector. GoK recognises that a clean environment is key to achieving this goal, and as a result, there has been a greater interest in this activity since the release of the KV 20 in 2016.¹

Further, all stakeholders engaged with in country – including members of the community – displayed a strong support of the activity and the outcomes it wishes to achieve.

The New Zealand Aid Programme is driven by a strong focus on improving health and well-being of communities in the Pacific. One of the cross-cutting issues is also addressing environmental issues. Therefore, this activity continues to be relevant.

EFFECTIVENESS

Overall – taking into account both Phase 1 and Phase 2 – the SWM Programme has provided significant benefits to communities on South Tarawa. All stakeholders engaged with noticed a significant improvement in SWM and have noticed a reduction in the amount of solid waste being improperly disposed of in Kiribati.

Looking at the three outputs in results diagram², most of the intended public and government-level SWM awareness raising activities (output 1) and SWM services (output 2) have been implemented and are up and running. And some projects to strengthen national and local level SWM enabling environment (including capacity

¹ See the 2017 GoK progress report

² ADD Phase 2 (also see Figure 1)



and capability development) have been delivered (output 3). Some activities are yet to be implemented and some of the ones already in place need to improve.

Phase 2 have had mixed success in achieving its intended short-term outcomes. The evaluation team lists their findings below.

- I-Kiribati have greater awareness of the importance of SWM, but that more can be done in this area.
- Some I-Kiribati have access to SWM services, but the service is not yet reliable or fully inclusive. There are also both gaps (organic waste management) and overlaps (several collectors) in the services provided.
- Governance is improving with task forces and committees being formed, but the Programme still lacks a Programme Manager and the NSWMC has not yet been implemented.
- Compared to Phase 1, the evaluation team find that some progress has been made in managing solid waste materials entering Kiribati – including the formation of the ban plastics committee and the trial on banning the ice bag in schools. However, no additional materials have been added to the recycling scheme.

A key unintended consequence of the Programme is that Green Bags are presenting as litter on South Tarawa. The evaluation team find that the low perceived value of the Green Bag and waste collection more generally, combined with the high sales incentive, low collection incentive, and confusion as to its correct utilisation are factors that are likely to have contributed to this issue.

Compared to South Tarawa, the Programme has had less of an impact on Kiritimati Island. Very few households are receiving a collection service by KUC, the trial of the Green Bag has so far been unsuccessful, the recycling scheme has stopped working, the EYC Nursery is not operating and dumping and burning behaviour is still prevalent. However, people report on changing attitudes to waste.

EFFICIENCY

The evaluation team concludes that the efficiency of the Programme is low since resources do not appear to be used in the best possible way to provide value for money. A key constraint is the failure to employ a Programme Manager which has resulted in a lack of programme oversight. This has led to few cost minimisation efforts and duplication of activities.

A key area of concern is the lack of monitoring of expenditure against programme budget lines. The evaluation team find that Kiritimati Island is likely to reach their budget prior to the completion of Phase 2. The evaluation team cannot provide a comment on how the Programme is tracking against the budget on South Tarawa as the evaluation team was unable to get expenditure data reported against the budget lines.



However, the evaluation team does note that the budgeted amount for the Programme as a whole is around \$2.7 million, but that the activity has an approved expenditure totalling \$4 million.

SUSTAINABILITY

Referring to the medium-term outcomes in the results framework the evaluation team finds that while more I-Kiribati is participating in SWM, the evaluation team does not find that the SWM services are provided in a sustainable manner yet. That is, if MFAT were to withdraw its financial and facilitative support at the end of Phase 2, there is a risk of a reduction in the effectiveness of individual SWM activities.

More efforts need to be put toward programme coordination to improve communication, effectiveness and efficiency. Further, contract management needs to improve to increase accountability and to align the incentives with the desired project outcomes. MFAT also needs to continue to gradually shift contract management to GoK. The Programme should also continue to support initiatives that strive to pay for themselves – such as the Green Bag system.

Ultimately, in-country capacity and capability needs to continue to improve through training and appropriate recruitment processes (so to ensure that individual SWM activities do not stand and fall with one person).

While training and appropriate recruitment processes can limit the need for international support over time, there are some parts of the Programme that are likely to need long term international support. This includes – but is not limited to – technical support from international mechanics and support for water quality testing. The skills of international mechanics will be needed as long as the SWM programme is dependent on equipment which requires these skills (currently the compactor trucks and the wheel loader).

Moreover, there appears to be increasing GoK awareness and support of the need for effective SWM systems – due to its direct link to public health and tourism. This buy-in from the GoK is critical for the Programme's long term sustainability which could eventually lead to a higher willingness to invest in waste management.

Further, as community awareness continues to increase, the management and demand for, and expectations of, better SWM practises will increase.

CROSS-CUTTING ISSUES

Given the activity's obvious link to improving the environment, the evaluation team focus their assessment on how the activity has addressed human rights and gender issues.

HUMAN RIGHTS

The ADD makes mention of poverty and hardship in Kiribati and highlights the importance of considering vulnerable groups at all stages of project implementation



but particularly with regard to the pricing of the Green Bag. Beyond a reference to the urban poor, vulnerable groups are not identified in the ADD.

From a human rights perspective, the sound management of waste is central to (a) the right to life, to survival and development (b) the right to physical and mental integrity (c) the right to health (d) the right to a healthy environment (e) the right to an adequate standard of living, including safe food, water and housing, and (f) the right to non-discrimination.³

A mainstreamed human rights approach should therefore articulate strategies to enhance accountability, participation, transparency and non-discrimination and to mitigate any disproportional impacts experienced by more vulnerable sectors of the community.

In the context of the Kiribati SWM Programme, participation and mitigation of potential negative impacts is of paramount importance. Vulnerable groups in the Kiribati context include those living with disability or impairment, residing in remote islands, at risk of stigma and/or discrimination and living in hardship. Women and children are also often included in this grouping.

With regard to access to and participation in SWM activities, the evaluation team has found mixed results.

On South Tarawa, barriers to participation in the Kaoki Maange initiative are mitigated by having multiple drop-off points across the island where appropriate waste types can be exchanged for money. The same is not the case on Kiritimati Island where there is only one point for drop off (which is currently not receiving materials) despite long distances between settlements and lack of public transport. Similarly, Green Bags are available for purchase at retail stores across South Tarawa. On Kiritimati Island the bags are available for sale only at the KUC or the Moel warehouse in Ronton. As such, barriers to participation in project activities need to be addressed in this location.

The pricing of the Green Bag has implications for participation. During consultations, community members expressed the view that the current bag price is reasonable, but that a price increase may be prohibitive for some.

In both locations, bags are made available free of charge (by the KRCS and MLPID) to individuals and groups on request and through direct outreach.

The design and location of Green Bag collection points, in some instances, may be a barrier to participation for people living with a disability, elderly and children. This can be mitigated through continued community consultation regarding the installation of collection points.

³ The International Covenant on Civil and Political Rights (ICCPR)



GENDER

The evaluation team observed that the Programme is performing well with regard to gender considerations but noted that there is room for improvement. It was observed that half of the project-funded positions (three of six) are filled by women.

In both locations (South Tarawa and Kiritimati Island) education and awareness activities have a minimum of one component that focuses exclusively on women. On South Tarawa the KRCS undertakes outreach and engagement directly with women through the Health Mother Committees. On Kiritimati Island the WCU has established a women's community committee at which discussions are held regarding waste management and the use of the Green Bag.

The recently established Green Bag Task Force is chaired by a woman and has a strong female membership. Information on gender is recorded in the surveys conducted by the project but findings do not appear to be sex disaggregated.

The Phase 2 ADD for the Kiribati SWM Programme notes the importance of equal access to services, employment and leadership opportunities for women, along with the necessity of ensuring safe physical environments for women and children. It stresses that awareness-raising activities must reach women and girls and references the link between SWM activities and improved personal and family health. The ADD further notes that, in Kiribati, women play a key role in cleaning and in the handling of hygiene products including disposable nappies and sanitary items. In addition to these issues, the Programme/the ADD could acknowledge the fact that women and men can have very different views of what rubbish is, on what methods of disposal are the most desirable or affordable, and how improvements to waste management can be best achieved.



4

Background

CONTEXT

The Republic of Kiribati has one of the smallest and most geographically dispersed land areas in the world, scattered across one of the largest Exclusive Economic Zones (EEZs). It comprises 32 low-lying atolls and one elevated coral island. The islands are split between three groups – the Gilbert, Phoenix and Line Islands. Kiribati is geographically isolated with scarce natural resources which limits its production capability and perpetuates a reliance on imported goods and services and international donor assistance. The total population of Kiribati is just over 116,000 and is predicted to increase 37 percent to just under 160,000 by 2040.⁴

Waste management in the context of Kiribati's development

The current level of development in Kiribati coupled with forecasted significant population growth means that Kiribati faces immediate and pressing development issues. Many of these issues such as unmanaged urbanisation, threats to local fisheries, poor sanitation and problems with freshwater provision are intimately linked to the country's management of solid waste.

As South Tarawa is already one of the most densely populated areas in the world, unmanaged urbanisation will have a major impact on waste management systems in this area. Freshwater resources are predicted to become even more scarce as they face both contamination from solid wastes and pollution and saltwater intrusion from sea level rise.⁵ Build-up of solid waste and pollution also affects coastal fisheries which are already under threat from over-fishing, mining and coastal erosion. Further, waste oil and other chemicals that contribute to pollution and littering are still a problem and hazardous e-waste and bulky waste (of old vehicles) both require improved managed collection and shipment out of Kiribati.⁶

Poor waste management also has implications for general health and wellbeing and is a contributor to major public health problems, particularly with regards to infants and children. As highlighted by NZ MFAT, specific health concerns include avoidable deaths in young children from diarrhoea and pneumonia and relatively high child mortality.⁷

⁴ <https://data.worldbank.org/country/Kiribati> (accessed 12 March 2019)

⁵ ADD Phase 2

⁶ Government of Kiribati Kiribati Development Plan 2016-19

⁷ ADD Phase 2



The state of solid waste management in Kiribati

Kiribati currently produces 0.86 kilograms of waste, per capita, per day.⁸ Generally speaking, this can be broken down into the categories of solid waste and hazardous waste. Solid waste includes solid or semi-solid material such as household refuse, natural waste (organics), commercial refuse (packaging, discarded equipment, building and demolition wastes) and other wastes containing metals (including vehicles), glass and plastics. Other materials such as electronics, medical waste (including pharmaceuticals) and heavy industry waste (oil/chemicals) are categorised as hazardous wastes in most national jurisdictions and under international multilateral environmental agreements (MEAs) such as the Basel, Rotterdam and Stockholm Conventions (BRS).

Solid waste is generally confined to urban areas. Waste generation rates tend to be much lower in rural areas since, on average, residents are usually poorer, purchase fewer store-bought products (which typically are wrapped in non-organic packaging). This is true of Kiribati, where significant issues with SWM are currently limited to South Tarawa and Kiritimati Island.

While waste management systems have improved in recent years, Asia Development Bank notes that as of 2014, only 38 percent of total waste was being collected and disposed of in South Tarawa, with 35 percent being illegally dumped on beaches and into the ocean.⁹ On Kiritimati Island, approximately one percent of waste is collected and properly disposed of, with illegal dumping also being a widespread issue.¹⁰

An increased focus on improving waste management systems in Kiribati is reflected in the national budget. Annual spend on waste management saw a significant spike in 2018 due to an increase in grants for waste-related projects relating to rubbish trucks, e-waste, public awareness, and waste collection and disposal. Various agencies and partners such as NZ MFAT, Pacific Regional Environment Programme (SPREP) and Japan International Cooperation Agency (JICA) provided funding and assistance for these projects.

Notably, in 2017, imported goods and services accounted for 92 percent of Kiribati's GDP indicating that the majority of non-organic solid waste is a product of imported goods.¹¹ Understanding the type and quantity of materials entering the country is of particular importance as it has implications for local recycling and waste management strategies.

⁸ <https://openknowledge.worldbank.org/handle/10986/17388>

⁹ Asia Development Bank Solid Waste Management in the Pacific: Kiribati Country Snapshot, 2014

¹⁰ ADD Phase 1

¹¹ <https://wits.worldbank.org/CountryProfile/en/KIR>



The need for effective solid waste management systems will increase

Population growth, economic development and urbanisation trends for the next 30 years – coupled with GoK’s focus on increasing Tourism¹² – suggest that the need for effective solid waste management systems on South Tarawa and Kiritimati Island will only increase.¹³ Poor waste management can have far-reaching environmental, economic and social impacts that hinder the development of small island developing communities such as Kiribati, further emphasising the need to manage waste effectively and efficiently in a way that is culturally sensitive and sustainable.

THE ACTIVITY

The goal is to support the wellbeing of communities

The overall goal of the Kiribati Solid Waste Management (SWM) Program – covering South Tarawa and Kiritimati Island – is to establish ‘effective and sustainable SWM supporting the well-being of communities’. The programme has proceeded in two main Phases: Phase 1 and Phase 2:

- Phase 1 focused on waste containment and kick-starting a collection system, on South Tarawa. We understand one landfill was full of uncompacted rubbish and the gates were locked; another landfill was being used as a fish farm. Councils had no collection vehicles; rubbish mounds were prolific as was burning to reduce waste piles. Wrecked cars were common. Therefore, Phase 1 focussed on starting up the waste management system. In South Tarawa, Phase 1 went from September 2011 to December 2015.
- Phase 2, the subject of evaluation, has been about embedding those systems, increasing awareness, specifically on maintaining the progress already achieved but extending the scope to include getting the beaches clean.

The first Phase in South Tarawa was considered successful

Previous internal reviews of Phase 1 have classified the activity as successful and concluded that it achieved the intended outcomes and had a big impact on the physical landscape in South Tarawa. We list the outputs achieved during Phase 1 in Table 1 below. Taken together, these outputs represent a very significant change in the manner waste is managed and thought about.

The first Phase in Kiritimati Island was not straightforward despite that success

The implementation of Phase 1 in Kiritimati Island was delayed by one year and lasted from July 2012 to July 2016. Overall, the programme included rehabilitation

12 Government of Kiribati Kiribati Development Plan 2016-19

13 ADD Phase 2



of the landfills, provision of equipment for rubbish collection, support of a recycling system of aluminium cans, and support for awareness raising activities.

Further, an initial collection of bulky wastes took place, but no further collection took place after the Kiribati Ports Authority (KPA) trailer became unavailable. Also, the Green Bag system was meant to be trialled, but it was never implemented. The project also hired a Ministry of Line and Phoenix Islands Development (MPLID) Project Officer. However, the officer resigned in June 2015 and the post remained vacant for 1.5 years – until the end of 2016. We summarise the outputs implemented during Phase 1 in Table 2 below.

The Activity Completion Report of Phase 1 lists the following main impacts of Phase 1:

- Improved rubbish collection since the Kiritimati Urban Council (KUC) had no rubbish collection truck prior to Phase 1 (both the rubbish collection truck and the collection and crushing of aluminium cans were placed at the KUC).
- Increased community engagement – particularly in the main urban centre of London where most people are employed and live in government houses
- Ongoing operation of the Kaoki Maange system by the KUC, using a recycling company in Honolulu
- Reduction in open dumping
- Regular compaction of the two dumpsites
- Progress through engagement of some households with gardening and composting activities
- Solid Waste Cleanup Partnership meetings were held monthly and lead by Project Officer

Ongoing challenges that remained by the end of Phase 1 included:

- Ongoing occurrence of illegal dumping and rubbish piles seen along the roadside
- Poor usage of rubbish containments
- Delay in rubbish collection due to breakdown of truck that takes time to repair due to unavailability of spare parts
- Unavailability of machinery for removal of dead cars
- Poor condition of the baler machine and the needs of special baler machine for PET bottle crushing
- Limited Kaoki Maange funds
- Lack of support and community engagement

Recommendations to address the challenges above included:



- Ongoing consultation programs to stop illegal dumping
- Enforcement of the existing acts such as Environment Act and the KUC by-laws
- Provision of another rubbish collection truck is required to cater for the increase in future demand of collection. A tipping truck would be more suitable than the one provided (with cubes).
- Increase in Kaoki Maange funds disbursed to the Council
- Employ a watchman at the dumpsites to address the problem of burning rubbish and dumping at the entrance gates
- Consider the provision of loader machine for compaction of rubbish. The bobcat machine provided by the project was viewed as not fit-for-purpose as the tyre was punctured and compaction of rubbish was reported to be difficult.
- Consider use of lock type bins, since the bins provided under the project were stolen/removed

A second Phase needed to further evolve waste management systems

However, since the activity had not yet reached a point where the SWM system could be handed over to Kiribati – New Zealand and the Government of Kiribati decided to engage in a second Phase of the programme.

The second Phase commenced in October 2016 and is expected to run until December 2020. The second Phase was delayed by almost one year due to delays in contract arrangements and recruitment.

Phase 2 builds on the hands-on approach taken in Phase 1 and focuses on:

- ensuring existing solid waste management systems continue to be reliably delivered
- increasing the sustainability of existing systems, through a greater focus on sustainable financing of the system, focusing on cost effective approaches suitable for the Kiribati context and changing behaviours and building community level demand
- strengthening the enabling environment, including private sector development and central and local government ownership of solid waste management as a critical urban environment/health issue and enforcement of solid waste management regulations



- leveraging resources and mutual sharing of information and approaches with stakeholders and other donors.¹⁴

There was a 1 year and 3 month gap between Phase 1 and Phase 2 in Kiritimati. Phase 1 ended in July 2016. Phase 2 commenced in November 2017 and is expected to run until December 2020. The aim of Phase 2 in Kiritimati Island aims to build sustainability of systems developed under Phase 2.

¹⁴ Phase 2 ADD



Figure 1 Infographic of Kiribati Solid Waste Management Programme

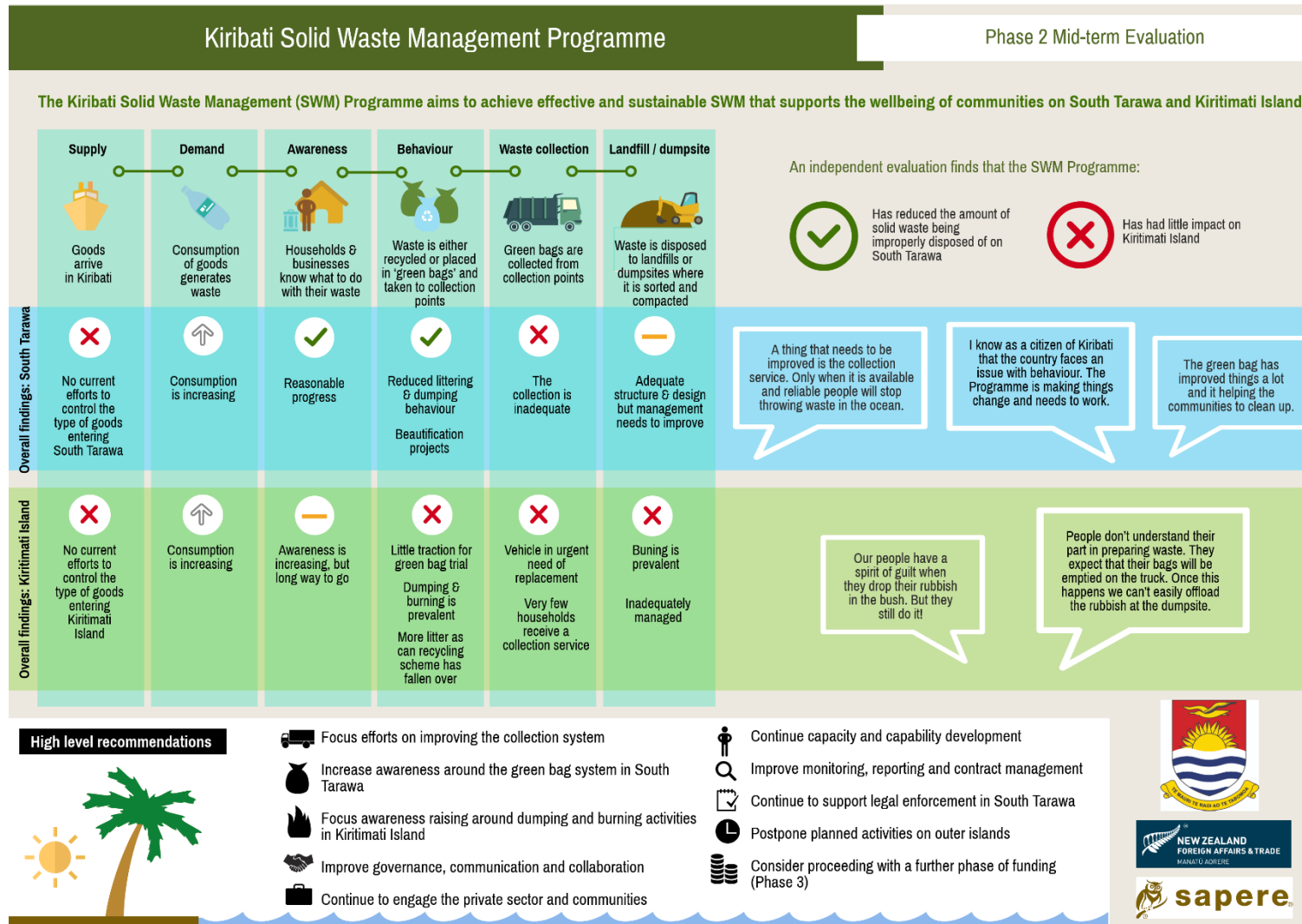


Table 1 Phase 1 – Outputs achieved in South Tarawa

Area	Outputs
Landfills	<ul style="list-style-type: none"> • Three landfills on South Tarawa rehabilitated and new infrastructure (fencing, site offices and compacting rollers) provided at all three landfills on South Tarawa. • SWM data collected daily in log books at each landfill • Landfills on South Tarawa surveyed and water quality monitoring data collected • Construction of Red Beach Park on reclaimed landfill completed, showcasing models for future land use
Public awareness programmes	<ul style="list-style-type: none"> • Public messaging, school excursions and community awareness-raising on landfills on South Tarawa • Promotion of the systems to women’s networks, schools and community groups through partnerships with local NGO’s. • Fashion shows, roadshows and conventional media (radio and newspaper) were also used to raise awareness.
Household waste collection	<ul style="list-style-type: none"> • A weekly household waste collection service introduced (the Green Bag system). The Green Bag service is operated by a private company (Moel) who is also responsible for procurement and distribution of the bags and routine maintenance of the collection trucks. • Household waste collection points built at strategic locations around Tarawa and monitoring indicates that the points are popular and regularly used.
Organic waste	<ul style="list-style-type: none"> • 40 compost bins and gardening equipment (spades and rakes) distributed to target communities for the composting of organic waste • Select schools participating in the Clean Schools Program, making compost, re-using materials and planting gardens
Public waste	<ul style="list-style-type: none"> • Provision of 2 tipper trucks for collection of public waste on South Tarawa • 2 maintenance garages built for urban councils to carry out services on collection vehicles • Trial of litter bins undertaken in key public locations
Recycling	<ul style="list-style-type: none"> • New baler procured for the crushing for export of PET material and 40 tonnes of PET exported • Over 400 vehicles and other bulky waste collected from urban areas and roadsides • Cabinet paper drafted for the establishment of a Bulky Waste Committee to facilitate export of the ferrous scrap • Non-recyclable hazardous materials transported and buried in a designated zone for hazardous materials in Nanikai Landfill
Governance & coordination	<ul style="list-style-type: none"> • Policy and decision makers brought together through regular meetings of the SWM Partnership • National Enforcement and Investigation Manual published and 20 ministry staff trained in its use



Table 2 Phase 1 – outputs achieved on Kiritimati Island

Area	Outputs
Landfills	<ul style="list-style-type: none"> • The Tabwakea Dumpsite was rehabilitated from an 'uncontrolled' dumpsite to a 'controlled' dumpsite and is getting regular maintenance to improve conditions and extend the life of the site. • Access road cleared and bund walls stabilised at Tabwakea Dumpsite • Compaction carried out at the Tabwakea Dumpsite and the Main Camp Dumpsite • Provision of a bobcat machine
Public awareness	<ul style="list-style-type: none"> • Conduction of several consultation programs held with schools and various community groups
Household waste collection	<ul style="list-style-type: none"> • Provision of a rubbish collection truck • Promotion of the use of rubbish containments through promotion of bags, containers, etc •
Organic waste	<ul style="list-style-type: none"> • Establishment of the EYC Gardening and Composting centre
Public waste	<ul style="list-style-type: none"> • Provision of public litter bins
Recycling	<ul style="list-style-type: none"> • The Kaoki Maange (Recycling) system of aluminium cans on Kiritimati Island recommenced in 2015 • Provision of a baler machine • Removal of bulky waste: around 60 vehicles ready for export on Kiritimati Island
Governance & coordination	<ul style="list-style-type: none"> • Solid Waste Cleanup Partnership meetings have been held on a monthly basis and lead by Project Officer. • There were two former Project Officers recruited however duration of work was very short as they resigned and took up other new permanent positions at other government institutions. • Council was selected to implement activities related to rubbish collection and recycling, the PVU was responsible for operations and maintenance of rubbish collection equipment. The Wildlife department carried out consultation and awareness programs. Also Agriculture, Health and the Lands departments helped with some parts of the implementation. The Ministry of Line and Islands also involved with key roles of supporting implementation and achievement of project's targets.



Phase 2 is split into three high level outputs

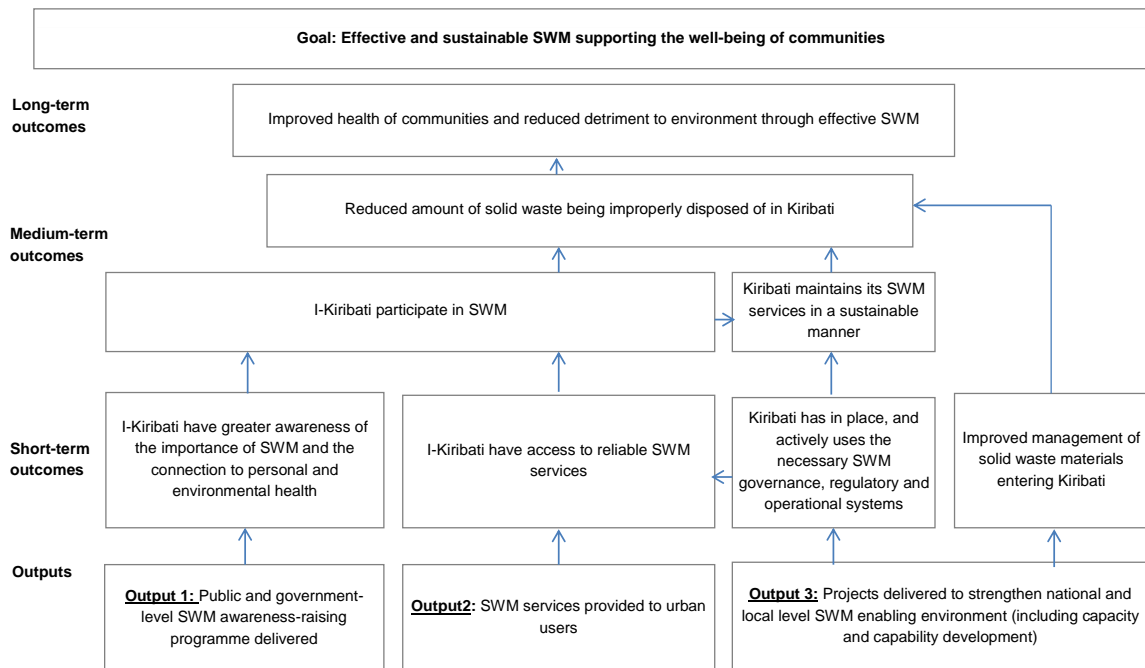
Figure 1 below shows the outcomes framework listing the three outputs and the short, medium and long term outcomes the SWM Programme is aiming to achieve.

The main Grant Funding Arrangement (GFA) between the MFAT and GoK states that:

- Output 1 (awareness raising) will be implemented by a non-government organisation working in consultation with GoK
- Output 2 (SWM services delivered to urban users) and output 3 (capacity and capability development) will be implemented by MFAT in partnership with GoK.

Output 1 is covered by a separate GFA with Kiribati Red Cross Society (KRCS), while Output 2 and 3 are covered in the GFA between MFAT and GoK. The GFA with KRCS was signed in January 2018 and covers the period until mid-2022 (two years after the end of Phase 2). Further, a part of Output 2 is also covered by a separate Contract for Services (CFS) between MFAT and Moel Trading Co, Ltd ('Moel'). This CFS was signed in September 2016, got extended in August 2018, and now ends in September 2019.

Figure 2 Results framework – Phase 2



Source: Phase 2 Activity Design Document

The total activity budget (including all three outputs and non-specific outputs) is \$2,924,500¹⁵, inclusive of all taxes (see Table 3). This can be compared to the whole-of-life MFAT budget of \$4,188,800 for Phase 1 (of which \$3,335,900 was spent – or 80 percent).¹⁶

The total budget for the outputs during Phase 2 is \$2,729,500 of which 17 percent is allocated to Kiritimati Island. As Kiritimati Island's population only make up 10 percent of the population covered by the SWM project – Kiritimati Island's budget share is relatively larger. The budget is 6 dollars per person per year in South Tarawa and 14 dollars per person per year in Kiritimati Island.¹⁷ Table 3 reports the New Zealand Aid Programme funding by year.

¹⁵ Unless otherwise stated, the currency is in Australian dollars

¹⁶ The evaluation team have not seen the previous CFS between MFAT and Moel, but the evaluation team assumes that the contracted amount for 2015 was \$56,000 (drawing on the ADD).

¹⁷ We use the original length of the activity (five years) for this comparison



Table 3 New Zealand aid programme funding by year (AUD)

	2015	2016	2017	2018	2019	2020	2021	2022	Total	Contract
Output 1										
Contractor and admin feeds	\$ -	\$ -	\$ -	\$ 32,400	\$ 32,400	\$ 32,400	\$ 32,400	\$ 32,400	\$ 162,000	GFA with KRCS
Overheads and assets	\$ -	\$ -	\$ -	\$ 8,400	\$ 8,400	\$ 8,400	\$ 8,400	\$ 8,400	\$ 42,000	
Green bag collection points	\$ -	\$ -	\$ -	\$ 20,000	\$ 30,000	\$ -	\$ -	\$ -	\$ 50,000	
Pre-school and Primary Education Resource Kits	\$ -	\$ -	\$ -	\$ 40,000	\$ 40,000	\$ 40,000	\$ -	\$ -	\$ 120,000	
Awareness Campaign	\$ -	\$ -	\$ -	\$ 30,000	\$ 20,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 80,000	
Clean the beach campaign	\$ -	\$ -	\$ -	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ -	\$ 20,000	
SWM promotion in two outer islands	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 10,000	\$ 5,000	\$ -	\$ 20,000	
SWM engagement and KAP surveys	\$ -	\$ -	\$ -	\$ 2,500	\$ -	\$ 2,500	\$ -	\$ -	\$ 5,000	
Total output 1	\$ -	\$ -	\$ -	\$ 138,300	\$ 140,800	\$ 108,300	\$ 60,800	\$ 50,800	\$ 499,000	
Output 2										
Funding to MOEL										
Purchase of green bag	\$ 50,000	\$ 50,000	\$ 100,000	\$ 100,000	\$ 100,000				\$ 350,000	CFS with MOEL
Maintenance	\$ 6,000	\$ 6,000	\$ 12,000	\$ 12,000	\$ 12,000				\$ 42,000	
Public waste management										
TUC/BTC - vehicles	\$ 210,000	\$ -	\$ -	\$ -	\$ -	n/a	n/a	n/a	\$ 210,000	GFA with GoK
Communications equipment	\$ 10,000	\$ -	\$ -	\$ -	\$ -	n/a	n/a	n/a	\$ 10,000	
Urban management officer, rubbish bins and basic safety equipment	\$ 33,000	\$ 33,000	\$ 33,000	\$ 33,000	\$ 33,000	n/a	n/a	n/a	\$ 165,000	
Landfill management										
Landfill internal works - cost of machine hire and fill	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	n/a	n/a	n/a	\$ 100,000	
Servicing and parts for Hyundai Loader (up to \$10,000/year)	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	n/a	n/a	n/a	\$ 50,000	
Renewal of assets (fencing repairs, signboards, offices) (up to \$10,000/year)	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	n/a	n/a	n/a	\$ 50,000	
Replacement cost of new loader				\$ 250,000		n/a	n/a	n/a	\$ 250,000	
MELAD project officers										
Waste minimisation and recycling officer and costed workplan (MELAD)	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	n/a	n/a	n/a	\$ 150,000	
Waste disposal officer and costed workplan (MELAD)	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	n/a	n/a	n/a	\$ 150,000	
Kiritimati Island										
MLPID SWM project officer salary	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	n/a	n/a	n/a	\$ 75,000	
Rubbish collection operational support	\$ 28,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	n/a	n/a	n/a	\$ 100,000	
Landfill internal works - cost of machine hire and fill and purchase; and new bulldozer if required	\$ 4,000	\$ 204,000	\$ 4,000	\$ 4,000	\$ 4,000	n/a	n/a	n/a	\$ 220,000	
Bulky waste collection (until levy is extended to KI)	\$ 2,500	\$ 2,500	\$ -	\$ -	\$ -	n/a	n/a	n/a	\$ 5,000	
Community engagement	\$ 3,100	\$ 3,100	\$ 3,100	\$ 3,100	\$ 3,100	n/a	n/a	n/a	\$ 15,500	
TA support for maintenance/waste systems and policy	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	n/a	n/a	n/a	\$ 50,000	
Total output 2	\$ 471,600	\$ 441,600	\$ 295,100	\$ 545,100	\$ 295,100				\$ 2,048,500	
Output 3										
MELAD project officer (enforcement)	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	n/a	n/a	n/a	150,000	GFA with GoK
Regional Partnership										
Airfares x 3	\$ -	\$ 4,000	\$ 4,000	\$ 4,000	\$ -	n/a	n/a	n/a	12,000	
Per diems x 50	\$ -	\$ 3,000	\$ 3,000	\$ 3,000	\$ -	n/a	n/a	n/a	9,000	
Staff training	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	n/a	n/a	n/a	5,000	
Strengthening SWM governance										
Finalisation of the NSWMS	\$ 2,000	\$ -	\$ -	\$ -	\$ -	n/a	n/a	n/a	2,000	
NSWMC meeting expenses	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	n/a	n/a	n/a	4,000	
Total output 3	\$ 33,000	\$ 39,000	\$ 39,000	\$ 39,000	\$ 32,000				182,000	
Non-specific outputs										
Monitoring (ASA, RF)	\$ 45,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 10,000	n/a	n/a	n/a	\$ 115,000	
Mid-term evaluation	\$ -	\$ -	\$ 80,000	\$ -	\$ -	n/a	n/a	n/a	\$ 80,000	
Total non-specific outputs	\$ 45,000	\$ 20,000	\$ 100,000	\$ 20,000	\$ 10,000	n/a	n/a	n/a	\$ 195,000	
Total activity cost	\$ 504,600	\$ 500,600	\$ 434,100	\$ 742,400	\$ 477,900	\$ 108,300	\$ 60,800	\$ 50,800	\$ 2,924,500	
Total output 1, 2 and 3	\$ 504,600	\$ 480,600	\$ 334,100	\$ 722,400	\$ 467,900	\$ 108,300	\$ 60,800	\$ 50,800	\$ 2,729,500	
Total output South Tarawa	\$ 442,000	\$ 248,000	\$ 384,000	\$ 692,300	\$ 427,800	\$ 108,300	\$ 60,800	\$ 50,800	\$ 2,264,000	
Total output Kiritimati Island	\$ 62,600	\$ 252,600	\$ 50,100	\$ 50,100	\$ 50,100	n/a	n/a	n/a	\$ 465,500	

Source: SWM GFA Phase 2, signed October 2016, KRCS GFA signed January 2018, and the Moel CFS, signed in September 2016.



EVALUATION PURPOSE AND DESIGN

This review will be used by both the Government of Kiribati and the Government of New Zealand in their decision making. The evaluation had dual purposes, of learning and accountability, to:

- identify learning and improvement, to identify areas where improvements can be made to the strengthen effectiveness and promote sustainability including suggestions for improving managing, implementing and achieving results during the second phase of the programme
- meet accountability requirements, to justify expenditure and demonstrate achievements to MFAT's partners, project stakeholders and the taxpayers in New Zealand.

The scope of the evaluation covers:

- Phase 1: focusing on the changes that the SWM Programme has brought about, whether directly/indirectly or intended/unintended, and how these might guide implementation of the remainder of Phase 2 (this falls under the objective 'Impact and Future direction')
- Phase 2: looking at the relevance, effectiveness, efficiency, sustainability and impact and future direction.
- South Tarawa and Kiritimati Island. It also takes into account relevant national and regional activities.

A mixed methods approach

The evaluation team employed a mixed-methods approach, comprising the following components:

- desk-based review and analysis of data and documentation, programme documentation, strategic documents, and relevant background analyses
- semi-structured interviews with project stakeholders, including GoK representatives and staff of SWM providers, community representatives, MFAT Post, other key non-state actors and key MFAT Wellington staff
- field site visits and rapid transects at the landfills/dumpsites and in communities across South Tarawa and Kiritimati Island, with direct observation of SWM and the infrastructural aspects of the Programme, including collection points
- review and analysis of the results framework (i.e. outputs and outcomes), from Activity results reporting and other relevant documentation, and data gathered in-country.

Further information on the number and type of stakeholders spoken with is provided in Appendix One.

Limitations in project reporting provided to the evaluation team

The formal project reporting available to the evaluation team was incomplete. In particular, the evaluation team was not able to receive detailed expense data for South Tarawa. Further, the GFA with Kiribati Red Cross Society (KRCS) calls for yearly progress reports with costed work plans and expenditure data and the CFS with Moel calls for quarterly progress reports of Green Bag sales, stock levels, operating costs and other relevant information. We received one progress report from KRCS (without expenditure data) and we were unable to get the latest quarterly report from Moel.

The GFA between MFAT and GoK calls for yearly progress reports on delivery of outputs, progress towards goals/outcomes, problems with implementation, expenditure data and any risks identified. The evaluation team received only one progress report covering October 2016 to October 2017. The progress report did not include actual expenditure and income compared against the work plans. Further, the report did not include an assessment against the results framework.

The lack of and incomplete documentation has been a limitation to the evaluation process and assessment of the effectiveness and efficiency criteria, and is raised as an issue of concern regarding the overall management of the project. More frequent reporting would help GoK monitor progress, make decision-making easier, improve awareness, justify budgeting and celebrate achievement in the Program. This is discussed in further detail in Chapter 4.



5

Findings – South Tarawa

We identify our findings in two sections, the first dealing with South Tarawa, the second dealing with Kiritimati Island. The two waste management systems have quite different challenges which are best seen in their local contexts.

THE WASTE COLLECTION SYSTEM

The Green Bag collection system is the centre-piece of the SWM programme, Trialled in 2012, now operated by Moel Trading Co, Ltd (Moel) – which is also a wholesale and retail company selected by a GoK led, open tender process in 2013. It is a pre-paid garbage bag system drawing on the user-pays principle. The aim of the Green Bag system is that it will eventually lead to the development of a fully self-funding garbage collection system for all the residents of South Tarawa. The income from the Green Bag sales is supposed to go straight to the collection truck operations and the revenues to finance the bag collection system are tied directly to the bag sales.

In Phase 1, the SWM Programme subsidised the whole Green Bag system. This included the purchase of trucks, Green Bags and covering for operational and maintenance costs.

In Phase 2, Moel stopped receiving support for the costs of operating the Green Bag collection trucks and crew in keeping with the transition to a locally based and managed system. Green Bag But the New Zealand Aid Programme has continued to support the purchase of Green Bags, maintenance and repair costs. The Programme has also purchased a new compactor truck. The 2017 Activity Monitoring Assessment (AMA) mentions that a timeframe is being drafted to hand over contract administration to the GoK in 2018. However, MFAT is still holding the contract with Moel.

The Green Bag system has had a significant positive impact

Providing a household garbage collection service has been a major step forward on South Tarawa. Nearly all stakeholders reported a noticeable difference since the Green Bag was implemented.

'The Green Bag has improved things a lot and it helping the communities to clean up.'

'The Green Bag system is a very good indicator of the change that has taken place'

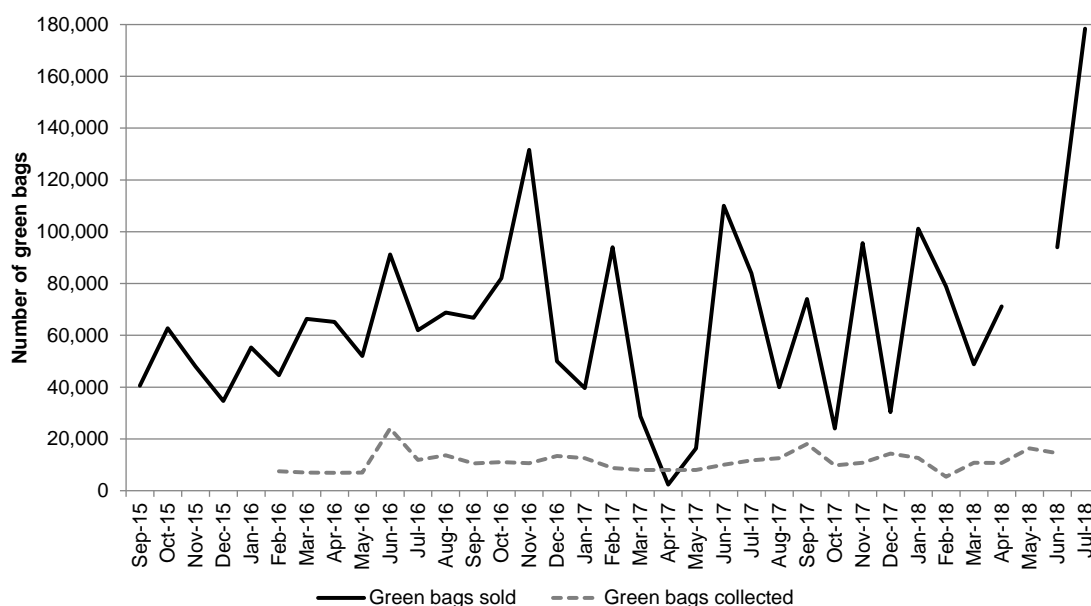


The latest sales data from Moel show that 178,400 Green Bags were sold in July 2018. This is significantly higher than any other recorded month and a 112 percent increase compared to July 2016. A rough estimate shows that this equals six Green Bags sold per household per week.¹⁸ However, also businesses and other organisations use the Green Bag. Thus, the weekly average Green Bag use per household is likely to be lower.¹⁹ Kiribati also celebrates the Independence Day in July, which may have contributed to the increased sales of Green Bags.

Figure 2

Figure 3 shows the monthly number of Green Bags sold vs collected between late 2015/early 2016 to July 2018. It shows that there is no correlation between the number sold and the number collected. The sales figures are quite variable across the months, while the number of Green Bags collected is quite stable. The average number of Green Bags collected is only about a fifth of the amount sold. Further below the evaluation team discusses potential reasons behind this gap.

Figure 3 Number of Green Bags collected by Green Bag truck vs. total number sold



Source: Sapere analysis; based on data collated by Moel

Note: Complete data (retail plus wholesale price sales) appears to be missing for three months

¹⁸ 178,400 Green Bags sold in July 2018 divided by 7,888 households on Tarawa (see table below) * 87% of households using Green Bag (as reported by a 2014 Green Bag survey)

¹⁹ One member of the community said that he bought on average five Green Bags every week – of which four he leaves out for collection.



The Green Bag imports are getting more frequent

Another way of looking at the increased use of Green Bags is by studying the imported amount. Since mid-2016, the time period between imports has gone from ten to four months.²⁰ Given that each Full Container Load (FCL) contains 481,200 Green Bags²¹ it means that the average monthly purchase of Green Bags has increased from around 48,000 to about 120,000 Green Bags.

Table 4 Interval between imports of Green Bags

Time period	Interval between months	Number of Green Bags (FCL)	Monthly average	Weekly average	Sales reported by Moel
May 2016-Feb 2017	10 months	481,200	48,120	11,191	738,000
Mar 2017- Aug 2017	6 months	481,200	80,200	18,651	352,077
Sep 2017-Feb 2018	6 months	481,200	80,200	18,651	404,000
Mar 2018- Aug 2018	6 months	481,200	80,200	18,651	-
Sep 2018-Dec 2018	4 months	481,200	120,300	27,977	-

Source: CFS between MFAT and Moel, and data reported by Moel

Having three collectors of waste has caused confusion

While the introduction of the Green Bag system has been very successful, it also introduced yet another waste collector to South Tarawa. Currently there are three waste collectors: the Green Bag operator (currently Moel), Teinainano Urban Council (TUC) and Betio Town Council (BTC). Having three collectors result in duplication of both services and overheads – causing unnecessary costs and inefficient service delivery.

One of Moel’s responsibilities is to collect the Green Bags (no matter what content is in them). However, Moel admitted to sometimes leaving Green Bags with organic content behind. TUC and BTC are responsible for waste collection from people who pay a fee to the GoK, which is later redirected to TUC and BTC. Despite this, BTC told the evaluation team that they collect all types of waste from all households – not just the government households paying the fee. They also sometimes collect Green Bags. TUC told us that they do not collect the Green Bag since this is not their responsibility. They also report on only collecting waste from households that are paying the fee.

Having three collectors collecting different kinds of waste from selected households create duplication of activities and confusion amongst service users. Many

²⁰ A Review of Activity and Progress Assessment of the Kiribati SWM Programme, undertaken in December 2018 by Pacific Reef Savers Ltd (hereafter referred to as the December 2018 review) reports on 18 months between imports in 2012.

²¹ The December 2018 review



stakeholders were unsure of the timing of collection, who collects what type of rubbish, and who the provider is – with growing ignorance that the Green Bag is part of a paid collection system. For instance, when speaking about the Green Bag, one stakeholder said:

'the council comes and collect it – they have one truck for the Green Bag and one truck for any rubbish'

This confusion also leads to uncertainty in terms of where the service users should turn when the system has failed with calls going to the councils, to Moel, to New Zealand High Commission (NZHC) and to the Ministry of Environment, Lands and Agriculture Development (MELAD).

Moel is not meeting their commitments in the CFS

Overall, the CFS between Moel and MFAT state that 'the outcome to be achieved is a reliable operation of the Green Bag households waste collection system on South Tarawa'.

We find that this has not been achieved due to days with missed household collections, an inadequate collection route, reported gaps in distribution of Green Bags to local stores and the fact that Moel sometimes leaves Green Bags behind if they contain organic materials. In Table 5 the evaluation team comment on the commitments undertaken by Moel in the CFS.



Table 5 Moel’s commitments made under the CFS

Commitment²²	Comment
Make available an uninterrupted supply of Green Bags to all retail shops throughout South Tarawa	Some stakeholders reported that their local store sometimes run out of Green Bags. There is no recent data looking at the distribution of Green Bags.
Collect Green Bags weekly from along the road side, including all feeder roads accessible to the collection vehicle and collection points on South Tarawa and deposit them to a designated landfill	<p>There are weeks with missed collections of Green Bags. In 2017 there were 33 days with no collection and in 2018 16 days with no collection. We are unsure if this data is based on self-reporting or if it has been put together by a third party. In the 2014 survey, 65 percent of the households that used the Green Bag said that the collection truck always came on the scheduled day of the collection.</p> <p>In 2017, the Green Bag truck was found by the Waste Disposal Officer to only run along the main road. Further, it was also discovered that Buota had been omitted from the collection schedule for almost 2 years. The evaluation team is unsure if Buota is now receiving the service. Further, the collection route on Tuesdays is too long, which means that some households routinely miss out on the collection.</p> <p>The evaluation team was also told that there is no set starting point for Moel (i.e. sometimes Moel start collecting from one end of the island and sometimes the other end). This means that the time of day for collection will vary significantly for households at the start and end of the island. People living in the middle would experience a relatively consistent time of collection.</p> <p>Moel also admitted to not collecting Green Bags with organic waste in them.</p> <p>The above was reflected in the evaluation team’s stakeholder engagement – with some interviewees being happy with Moel’s services and others not.</p> <p>The feedback received is further challenged by stakeholders’ overall confusion of how the</p>

²² From the GFA between Moel and MFAT

<p>Carry out routine maintenance on the collection vehicle, garage the collection truck/s and clean them on a regular basis and ensure operating staff are trained, have on board communications and comply with relevant Occupational Health and Safety standards</p>	<p>collection system works. This means that while one stakeholder may have been commenting on the Green Bag truck not being reliable – they may have been referring to the council collection or vice versa.</p>
<p>Ensure compactor truck/s are provided for collection of Green Bags. In the event of a breakdown Moel will use its best endeavours to source an alternative vehicle if necessary to provide continuity of service.</p>	<p>Information from one stakeholder within MELAD is that the new compactor truck (provided in December 2018) has not yet been cleaned and it is parked outside, without a shelter. The Green Bag Task Force has tasked Moel to build a roof/garage for the trucks and write a log book for maintenance.</p> <p>Expense data from Moel covering March 2016 to July 2018 shows an expense linked to maintenance 16 out of 29 months (55 percent of the months).²³</p> <p>Moel’s expense data covering March 2016-July 2018 shows an expense linked to truck-hire 12 out of 29 months (41 percent of the months).</p> <p>Stakeholders report that there are numerous times when the compactor truck has been broken, with no use of a replacement vehicle.</p>
<p>Publish a weekly collection schedule for households throughout South Tarawa, inform the public of any changes in the collection schedule</p>	<p>Feedback from stakeholders indicates that most households find out about the schedule via radio. There have been no changes to the schedule since the introduction of the Green Bag in 2012.</p>
<p>Share quarterly financial report with MFAT on the cost of operations & GB stock levels</p>	<p>As of July 2018, this has been achieved (according the updated GFA between MFAT and Moel)</p>
<p>Appoint a Green Bag contact person who will work cooperatively with MELAD and NZHC</p>	<p>The evaluation team is unsure if this commitment has been made. A contact person has been appointed.</p>
<p>Undertake procurement of bags in a competitive process</p>	<p>The evaluation team is unsure if this commitment has been made.</p>

²³ The average amount is \$850



The inadequate collection service results in illegal dumping

The Green Bag has become part of the litter since some Green Bags are being illegally dumped. Several stakeholders mentioned seeing Green Bags on the beach and in other public areas, and the evaluation team spotted multiple locations where Green Bags were a part of the litter.

Figure 4 Green Bags on the beach near Stewart causeway



Our findings show that the illegal dumping of Green Bags and waste is strongly linked to the unreliable, inadequate and confusing collection of waste.

'A thing that needs to be improved is the collection service. Only when it is available and reliable people will stop throwing waste in the ocean.'

The Enforcement Officer reported that when patrolling waste piles, the most common reason given for the formation of the waste pile is that the truck didn't collect the waste. Other stakeholders observed that when waste is not collected for a period of time after the scheduled collection, the bags are often disposed of in the ocean or on the beach.

Households who continuously miss the Green Bag collection also lose trust in the system.

'The Green Bag collection used to be regular and the times were announced on the radio. This is no longer the case. I no longer bother with putting the bags on the road. Instead I store my rubbish in a container and take it to the landfill when required, with assistance from others.'

Another stakeholder also told us that she usually goes to the landfill to drop of her own rubbish since she does not want it near her house for an extended period. This way she can also keep on re-using the Green Bags since she usually just empties out the contents.

Only households with access to a vehicle would be able to dispose their own rubbish at the landfill. In addition to this, it is only households with awareness about the harmful effects of dumping that would actually do it if the collection were missed. Other households would either leave the waste at the collection point or dump it. The latter is probably more likely to happen if it smells, attracts dogs and/or flies.'

'We see people using the Green Bag for fish and after that they throw it away. They try to re-use it but the bag breaks.' One community representative also said:

'we don't have problems with the smelly waste since we bury the smelly stuff'

Thus, it is likely that a part of the illegal dumping would take place irrespective of a reliable collection or not. This could be the case with nappies. An old superstition in Kiribati is that burning nappies will result in harm to the infant. Thus, the belief that the nappies may burn at the landfill could incentivise some households to bury them.²⁴

The evaluation team also believe that households living in deep areas on wider part of the island experience more dissatisfaction with collection since the collection truck is less likely to reach these areas (either due to the truck being too big for the roads or due to other reasons discussed in Table 5 above). Mention was made of the need for the new trucks to have a siren (as was once employed in the past) or loud haler so that households living further from the road are alerted to the fact that the truck has arrived.

While the majority of the interviewees expressed dissatisfaction with the collection system (either council/Moel or both), some interviewees also expressed a strong satisfaction with the collection services, or indicated that it is improving. Again, it is highly likely that the satisfaction is dependent on the residential location.

'I prefer to use the Green Bag since it will be picked up'

'The Green Bag collection is good. Only a few times they have missed the schedule.'

'Mostly it is going great. In the past there have been problems but it is getting more timely'

The Green Bag is sometimes referred to as the 'Moel shopping bag'

As already alluded to above, the Green Bag has become very popular on South Tarawa. As one stakeholder said:

'I think that the Green Bag is very famous!'

²⁴ The evaluation team discusses the problem with disposable nappies in a separate section below.



Other than using the Green Bag for containing waste the Green Bag are increasingly being used for other purposes. People described the Green Bag as being useful for shopping, carrying fish, packing belongings for overseas or inter-island travel, storing goods in the home and even as a raincoat!

This unintended multi-use of the Green Bag may be another reason for the gap in Green Bag sales and Green Bag collections. Households may use the Green Bag for other purposes until it breaks. Or they may use it for other purposes first and later for containing waste, creating a lag between Green Bag purchase and disposal.

The evaluation team believe that a key contributing factor that has enabled the Green Bag to become a multi-use bag is that it is sold for the same price as the usual shopping bag (20 cents). The Green Bag is also much larger and durable which gives the customers more 'bang for their buck'. In addition to this, Moel is providing the Green Bag at the checkouts making it convenient for customers shopping at Moel to choose the Green Bag over the usual shopping bag. One stakeholder said: 'the Green Bag is no longer for rubbish – it is for shopping'. Some interviewees also referred to the Green Bag as the 'Moel shopping bag'.

Usage of the Green Bag for purposes other than waste collection and containment should not be discouraged. After all, funds for the purchase of the bag contribute to the financial sustainability of SWM Programme. It also promotes reuse and at the same time reduces the use of the single-use shopping bag.

In terms of revenue to Moel it has shifted the revenue generated from the original shopping bag to the Green Bag. Due to the New Zealand Aid Programme covering all the costs of the Green Bag, Moel benefits from not having to buy the original shopping bag.

The Green Bag collection schedule has not been renewed

Despite the increased use of Green Bags, the Green Bag collection is still operating on the same schedule that was developed at the time of implementation in 2012. The collection schedule is supposed to run Monday to Friday, and it should cover every household on South Tarawa. As discussed in Table 5, the evaluation team finds that it is not continuously running Monday to Friday (reportedly due to vehicle breakdowns) and the collection does not adequately cover all households (on Tuesday's in particular).

The Green Bag Task Force has also asked Moel to provide a list of roads they cannot access with the truck – indicating that the route does not cover all households (or that there are some households that have to walk a long way to the nearest collection point). Revising the collection schedule/route has been a topic of discussion during the Green Bag Task Force meetings.



The councils' waste collection schedule appears to be ad-hoc

The councils' collection schedule is also supposed to run from Monday to Friday. However, several stakeholders told us that the council collection schedule is ad-hoc, meaning that they usually collect rubbish when people ask them to. One TUC community representative said that a condition for the council to come and collect their rubbish is that they themselves have to put the rubbish on the council truck. The same community group has previously also borrowed a truck from TUC for waste disposal, and gotten a volunteer to drive it.

The council have also started to use large containers, which they leave in certain areas for a few hours. This has been enabled by a recent provision of a collection truck by Korea. Large containers make it difficult to control the type of waste going in and to know where it originates.

The above shows that the council seem to be favouring a collection system without having people employed to put rubbish on to the truck.

The majority of stakeholders interviewed mentioned the lack of performance by the councils as a key constraining factor to an effective and efficient solid waste management on South Tarawa. This is also regularly cited in previous programme documentation.

Some stakeholders are in favour of a shared service system. In 2014 and 2018 Local Government New Zealand (LGNZ) produced reports proposing a Local Area Shared Service Scheme (LASS). The aim is to eliminate duplication, generate efficiencies and improve accountability.²⁵

The LASS proposed is a shared service system between the councils and private/community providers. In a 2018 report provided to the evaluation team LGNZ suggests that all household waste (civil servant and private housing) should be collected by a tendered Green Bag service and that the councils should be fully responsible for green (organic) waste, landfill management and public areas including emptying litter bins.

LGNZ has submitted an implementation plan for outsourcing the household collection services and provided a suggested budget. The budget estimates the cost for the councils if they were to be responsible for green (organic) waste collection, landfill management and public areas. LGNZ is currently waiting for the budget to be accepted and if it does, LGNZ will go to South Tarawa and help them implement the system. When speaking to LGNZ, their staff were hoping to go to South Tarawa in March 2019. If they do not hear back soon, the evaluation team was told that they would have to pull out.

²⁵ <http://www.lgnz.co.nz/assets/Uploads/Our-work/Kiribati-Waste-management-review.pdf>



The evaluation team were told by the Ministry of Internal Affairs (MIA) that LGNZ's proposal has been communicated to cabinet and that it has been 'approved in principal' – potentially starting with a six month trial. MELAD also told the evaluation team that they support the idea of a LASS system.

The evaluation team finds that the engagement undertaken by LGNZ, along with the competition introduced with the Green Bag system has made some stakeholders (e.g. the MELAD Waste Disposal Officers) realise the benefits of off-loading the solid waste collection from the councils to a single provider. However, LGNZ's proposal does not seem to take into account the councils' capabilities in both organic and SWM, which appear ineffective for long periods of time based on stakeholder feedback and previous reporting (this is also the reason the Green Bag system got established in the first place).

Rather than further involving the councils in household waste collection there are other possible ways for the council to be involved – e.g. via beautification projects or by distributing Green Bags to households who are already paying the fee.

There is a wide variance of opinion on the collection points

KRCS staff have been engaged to coordinate the construction and installation of Green Bag collection points, which are heavily utilised on South Tarawa. To date they have installed one collection point in Temwaiku and materials for two collection points in Te Kawai ae Boou (to be installed by the community members). A further five are ready for delivery at other villages on South Tarawa and 14 more are in production.

Over time, a number of different designs have been employed for Green Bag collection points. The different designs vary in cost and each has their own advantages and disadvantages. Consultations revealed a wide variance of opinion on these collection points, with no specific design determined to be superior than others. The advantages, disadvantages and cost of the four collection point styles are detailed in



Table 6 and images of the collection points can be found in Figure 5 Figure 5 Figure 5
Collection points

Stand-alone hat stand



Off-ground cage stand



Nail on tree



On-ground enclosed cage



Table 6 Collection points

Description	Estimated cost	Advantages	Disadvantages
On-ground enclosed cage	\$800	Can contain a larger number of bags than other options Bags can be easily placed in the enclosure – even by children and the elderly.	Comparatively expensive. Tends to collect waste at the bottom as bags that have not been tied up can be accommodated. Often utilised as a litter bin or populated with uncontained waste. Once bags pile over the top of the fencing, larger dogs are able to access the bags.
Off-ground cage stand	\$350	Good for medium-density areas (can accommodate between 7-8 bags).	Reported to be too high for some children and for elderly people who have a heavy bag to deposit. Can support bags that have not been tied up – resulting in waste deposits.
Stand-alone hat stand	\$140	Hanging bags by the handles encloses waste, even if the bag is not tied. One hook can support 8-10 Green Bags	Current design is too high for people depositing bags and for the garbage collectors, who have to break bags or bend the pins to access the bags.
Nail on tree	Circa 10 cents	Hanging bags by the handles encloses waste, even if the bag is not tied. Cheap and easy to install.	Requires a tree. Supports only a few bags at a time. People report that the nails fall out. Perceived as informal and therefore less desirable than a fixed structure.

The location of the collection points may lead to dumping

The evaluation team has identified three issues with respect to the location of the collection points.

1. **Private landowners not wanting a collection point near their home.**
KRCS pointed out that private landowners sometimes hinder the placement of collection points since they don't want it near their property. That is, visual pollution and bad smells would be offensive to people who reside in proximity to a collection point. The evaluation team believe that this problem is more likely to arise if the type of collection point installed is shared between many houses.



2. **People being told not place their rubbish at a collection point.** Some stakeholders said that there have been cases where people are being told off when they are about to place their rubbish at a collection point. The reason is the same as above – people don't want other people's rubbish in front of their houses. It is likely that this reluctance is exacerbated by the inadequate collection service and some households placing their rubbish out before the scheduled collection day.
3. **The collection point being too far away from households.** Some stakeholders said that it would be good to have a collection point closer to their house. It is likely that households that are nearer to the beach than a collection point are more likely to dump their rubbish due to the convenience factor.

AWARENESS RAISING AND EDUCATION ACTIVITIES

KRCS is delivering awareness raising and outreach activities

Public awareness-raising, education and behaviour change activities are crucial to the uptake, sustainability and success of the SWM Programme. Following an open tender process, KRCS was selected to deliver awareness raising and outreach functions for Phase 2 of the Programme. The GFA started in January 2018 and concludes in July 2022, a timeline that extends beyond MFAT's Phase 2 commitment.

The GFA specifies three specific outputs:

1. a public engagement and behaviour change campaign specifically targeting littering and cleaning the beaches and other public spaces on South Tarawa
2. SWM education and behaviour change programme targeted at pre-schools and primary schools
3. public engagement campaign specifically focused on two pilot outer islands close to Tarawa.

In addition to the component one outputs related to communication, education and outreach, the GFA also outlines a second component (project management) which incorporates data collection, monitoring and reporting. Two project officers have been employed by KRCS to undertake this work – an Awareness Officer and Education Officer. Both of these roles were recruited in July 2018.

Some communication and outreach activities for the SWM Programme are also conducted by staff at MELAD, specifically the Enforcement Officer and the Waste Minimisation Officer.

Good progress has been made

Good progress has been made on awareness-raising and education activities in the short period of time since the KRCS contract commenced.



The Awareness Officer has leveraged a pre-existing relationship with Health Mother Committees and is working closely with SMEC and the Ministry of Infrastructure and Sustainable Energy (MISE) to incorporate waste management messaging into their community visits as part of the South Tarawa Sanitation Improvement Sector project. This messaging focuses on the importance of compliance with the anti-littering aspects of the Environment Act. Beach clean-up campaigns have also been undertaken and awareness activities have taken place, primarily in the Bairiki area.

Activities planned for the coming months include the procurement (and branding) of drums for use as public bins, the installation of signage in public places and in schools, and an outer island visit to commence a trial education and awareness program. Plans are also underway to assist the Japan International Cooperation Agency (JICA) volunteer based at BTC with enforcement of the litter act, potentially by working with KRCS volunteers to blow whistles when people are seen to be engaging in littering behaviour.

Efforts are made to mobilise the KRCS network of volunteers to assist in awareness-raising and clean-up activities. However, the effectiveness of this approach has been hampered by the availability of volunteers – many of whom are already engaged in other KRCS outreach projects – and by the need to provide volunteers with appropriate training in advance of mobilisation.

The Education Officer has visited 12 primary schools and ten secondary schools to present on SWM principles and has run a successful 'quiz competition' for primary schools on South Tarawa on the topic of 'pollution and changes to the environment'.

A trial education kit has been produced with assistance from staff at the NZHC. The kit includes a large variety of resources and educational aids on waste management and recycling. Some of the materials have been produced for an I-Kiribati audience but many have not. The kit does not appear to include bespoke educational materials created by project-funded staff.

An excellent initiative that has been rolled out to three primary schools on South Tarawa is a 'challenge' for students to come up with novel low/no waste ideas for containing the popular 'ice' products (frozen bags of sugary cordial) which are known to contribute to large volumes of plastic litter.

A baseline survey was conducted in late 2018 at randomly selected households in all areas of South Tarawa. The results of the survey are anticipated early in 2019. Initial feedback from the 21 volunteers who conducted the survey is that people are still using the beach to dump their waste, including waste contained in Green Bags. Other than the survey, little work has been undertaken so far on data collection or monitoring with respect to awareness raising and education activities.



The understanding of the Green Bag system seem to have declined

A survey on Green Bag usage and awareness was undertaken in Phase 1 of the project (September 2014) by Foundation of the Peoples of the South Pacific Kiribati (FSPK). Results revealed relatively high rates of Green Bag usage (87 percent), good levels of understanding (71 percent) as to what materials should go into the Green Bag. Roughly half of the respondents noted that the Green Bag collection was unreliable.

This September 2014 survey, conducted across 2,639 households, provides a valuable baseline for Green Bag awareness and utilisation. In 2018, further surveys were conducted by both MELAD and KRCS.

Raw data obtained from the survey undertaken by MELAD in 2018 indicates that awareness and understanding of the Green Bag system may have declined. Of the 204 households surveyed in 2018, 57 percent of respondents indicated both awareness and understanding of the Green Bag system, and 43 percent had either never heard of the Green Bag system or had heard of it but didn't know what it is. Again, roughly 50 percent of respondents reported unreliable or no collection.

It should be noted that the validity of the MELAD 2018 results is heavily compromised by the fact that the survey questions were not identical and the sample sizes varied significantly. Results related to the reliability of collection services are complicated by the fact that three different waste collection services are in operation but no distinction is made as to which of the services are unreliable.

However, the indicative results showing a decrease in awareness of the Green Bag system support observations made by the evaluation team during its in-country visit. The team noted high numbers of bags in circulation but observed, in the course of consultations, relatively low levels of awareness on correct utilisation of the bag, confusion regarding the materials that should be contained in the bag and high levels of frustration around the reliability of collection. **An opportunity exists to shift the focus of education and awareness activities**

The evaluation team observed that activities undertaken to date tend to emphasise the importance of clean-ups, waste separation and compliance with the anti-littering regulations within the Environment Act. This observation was reinforced during community consultations, with community participants demonstrating an understanding of clean-up activities and waste separation, but not necessarily of Green Bag utilisation or the principles of the Green Bag system. One stakeholder said:

'Cleaning is not an issue – that is something they've always done. But managing it and putting it in the right place – that is the issue.'

Given the current deficiencies of the Green Bag system (discussed above) the evaluation team notes that there is an opportunity to shift the focus of education



and outreach activities to address issues related to Green Bag usage and to improve understanding of the Green Bag collection system. This would require amendments to the Position Descriptions of both roles which, in their current form, strongly emphasise enforcement of the Environment Act, specifically Section 12 on littering.

Public litter bins can be used to reinforce the Green Bag system

Public litter bins are an increasingly common sight on South Tarawa and, like Green Bag collection points, a variety of different vessels are being used for waste containment including drums, skips and wheelie bins. Green Bags are also being employed by shops and businesses in public areas and can be seen hanging from trees or outside shopfronts.

The procurement of public litter bins is a planned activity under the Kiribati SWM Programme. During consultations, staff from the NZHC showed images of some of the options being considered, most of which were of modern construction, similar to the style of public bins one might find in Australia or New Zealand. Project-funded staff at KRCS are also working on the purchase and installation of public litter bins and indicated that plans are underway to purchase drums from Koil, brand them appropriately and purchasing liners for the inside of the drums to assist with rubbish collection.

The evaluation team finds that it is in the best interests of the project, and to ongoing awareness and education activities, for any public bin system procured through the project to utilise the Green Bag in its design. This will reinforce the Green Bag as playing a central role in the waste collection system.

KRCS project officers demonstrate good knowledge of the project

Both KRCS project officers demonstrated good knowledge of the project, enthusiasm for their respective roles, and an understanding of the specific tasks required of them. They also demonstrated a clear understanding of the challenges faced, citing: an urgent need for professional development; transportation; timely reporting; improved coordination; forward planning; access to KRCS volunteers; training for KRCS volunteers; and poor/unreliable collection performance as impediments to their progress.



Figure 6 Design of a proposed signboard for installation at public locations on South Tarawa



Note: Text on the signboard reads: Keep Kiribati Beautiful | It is prohibited to litter | Dispose of your rubbish in the proper place | Keep using the Green Bag. It concludes with contact numbers for MELAD and KRCS and encourages the reporting of illegal activities.

A strong need for improved coordination and information-sharing

There appears to be a degree of crossover between the Awareness Officer and the Education Officer with some tasks being swapped or shared. The Education Officer, for example, is working closely on the installation of collection points and on signage, while the Awareness Officer is undertaking education activities in some instances.

This cooperative approach should be applauded and encouraged. Despite both being based at the same office they generally don't meet to discuss their work (other than the weekly KRCS staff meetings which have a broader remit than just the SWMP). Both officers, who were interviewed together, admitted that the joint interview process had been illuminating and had resulted in them learning more about each other's work. This suggests a strong need for improved coordination and information-sharing (discussed in more detail in the conclusions and recommendations chapter).

Some communication and outreach activities for the Kiribati SWM Programme are also conducted by staff at MELAD, specifically the Enforcement Officer and the Waste Minimisation Officer. Staff from MELAD and KRCS do not meet regularly, partly due to the fact that they are located on opposite ends of South Tarawa, but communicate by email from time to time. For example, they worked together to run a workshop for private bus owners to raise awareness of the littering act. Stickers were produced and 17 drivers agreed for the stickers to be installed in their vans



(see Figure 7). Plans are underway to run a similar workshop for Ministry bus drivers.

Figure 7 Sticker which will be put on busses



Note: This sticker, intended to be installed on buses, reads: Stop throwing rubbish from transport | Dispose of your waste properly or you will pay a fine

No over-arching strategy for communication, education and awareness activities

Progress with communication and outreach on South Tarawa is progressing at an adequate pace, but is hampered by a lack of capacity in the area of communication and awareness. In particular, staff in the MFAT-funded positions at KRCS have an understanding of what they need to do, are equipped with the relevant skills and exhibit a commitment to the task at hand, but lack the guidance to achieve this to the standard required. Both staff at KRCS emphasised the need for further capacity building and professional development to assist them to achieve their outputs.

Project communication materials, educational materials and campaign resources are being produced by multiple stakeholders (NZHC, MELAD and KRCS) in an ad hoc fashion. Project branding is often not applied, and is inconsistent when present. Messaging is variable and not tested prior to roll-out. With the exception of the recently introduced Green Bag Task Force monthly meeting, no regular meetings are scheduled to discuss awareness-raising activities.

With no overarching communication and education strategy, staff engaged to conduct awareness-raising and educational activities are operating in a strategic vacuum. Staff at both KRCS and MELAD would benefit enormously from the development of a comprehensive strategy and detailed implementation plan to guide activities for the remainder of Phase 2.



ATTITUDES AND BEHAVIOUR CHANGE

Attitudes toward waste and littering are improving

'I think the Solid Waste Program is working. I know as a citizen of Kiribati that the country faces an issue with behaviour. The Solid Waste Program is making things change and needs to work.'

Littering behaviour on South Tarawa, once prolific, is now widely perceived as negative, and corrective behaviours (and interventions) are increasingly common. Examples of this were evident during community consultations, some of which are outlined below.

1. One woman told a story of how she was disposing of a spoiled fish from a Green Bag on the ocean side of the island. She was about to empty the fish from the bag and was confronted by a man from the local village who, thinking she was emptying rubbish into the ocean – strongly berated her for what he perceived as the incorrect disposal of waste.
2. In some Eita communities, a fine system has been implemented and is rigorously imposed on any individual or family who engages in littering.
3. A growing number of communities are engaged in cleaning up the beaches and streets. The islet of Nanikai, once considered one of the dirtiest locations on South Tarawa, has been transformed into one of the cleanest. Nanikai was held up as an example by numerous stakeholders and its local leadership praised as a shining example of how things can change in a short period of time.
4. One stakeholder had also noticed that people are increasingly cleaning up after their picnics:

'Awareness is getting improved since after picnic, people clean up and before they used to just leave everything '

The change is not yet normative though, with people still engaging in littering behaviour when they sense that they are not being observed or when the circumstances would make it difficult to be called out on the behaviour.

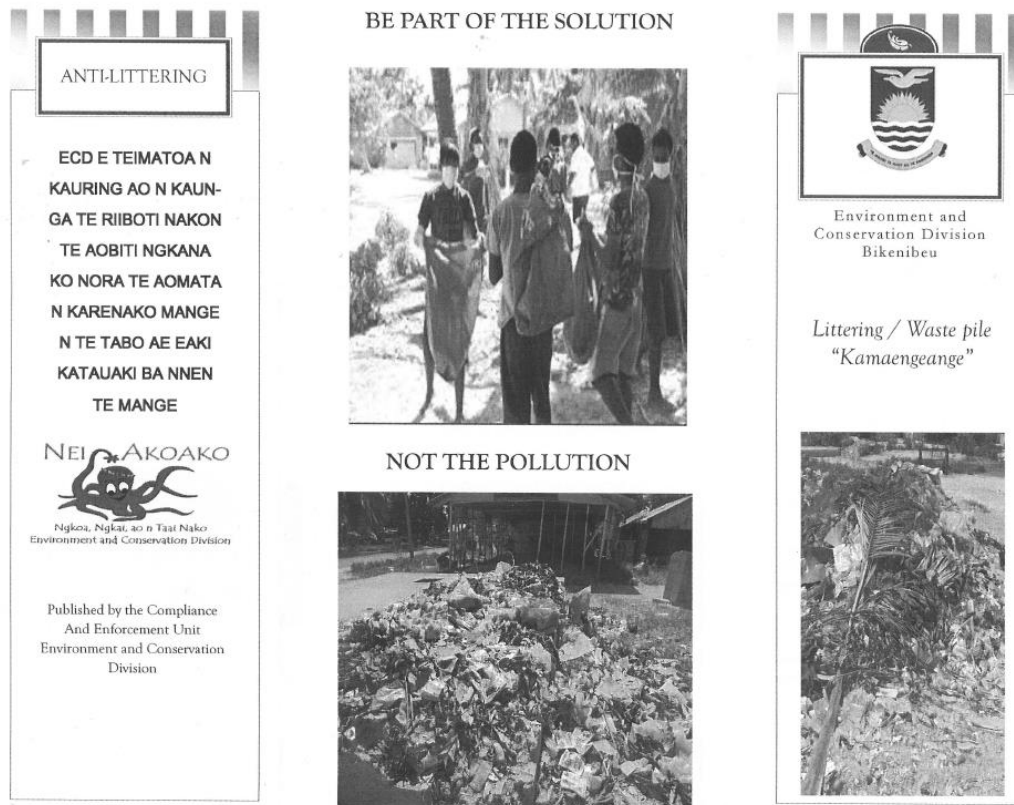
The Enforcement Officer at MELAD said that she observes relatively few people littering when she is wearing her uniform, but that she witnesses littering behaviour when she is off duty. She added that colleagues of hers that have been involved in enforcement for a long time have seen significant changes in attitudes to littering since Phase 1 of the program. Anecdotally, she understands that up to ten fines might be issued by an Enforcement Officer in the course of one patrol, but now it is relatively rare to witness littering.

Similarly, the number of complaints received on illegal disposals has increased slightly from eight in May-December 2017 to 12 in Jan- June 2018. It is believed



that this is not a result of increased dumping, but a result of increased reporting due to community outreach, conducted in 2018, on the anti-littering component (Section 12) of the Environment Act and the importance of reporting waste piles.

Figure 8 Flyer produced by MELAD to encourage compliance with the Environment Act and reporting of waste piles



Beautification projects are taking place

Another indication of changing attitudes to waste on South Tarawa is the number of beautification projects that have taken place and continue to take place. Many of these have emerged spontaneously, driven by passionate reputational leaders some of whom the evaluation team had the opportunity to meet.

Given that an expressed aim of Phase 2 of the project is to strengthen the enabling environment, the evaluation team considers it important to harness this community leadership by directly engaging with communities and individual leaders who are already mobilised to support the cause. Figure 8 shows a park that has been created by members of the Nanikai community, using recycled materials.



Figure 9 Park located on the Nanikai-Teoraereke causeway has been created by community members from recycled materials



There appear to be four main behavioural groups on South Tarawa

As outlined in the Results Framework (Figure 1), the central desired behavioural outcome of the project relates to participation in SWM. This measure has an ambitious target of 100 percent weekly participation in SWM by Year 5.

It is unclear as to which specific behaviours entail participation, but it can be reasonably assumed to comprise waste containment behaviours (i.e., containing waste in a Green Bag or an alternative receptacle) and correct waste disposal behaviours (i.e. putting waste out for collection or depositing it directly at the correct disposal site).

Through consultation and direct observation, this evaluation finds that there are four main behavioural groups on South Tarawa at present.

- **Group 1** comprises individuals who do not participate in solid waste management in any way. As a result of concerted efforts around public awareness and education over many years, this group is estimated to be relatively small. Individuals in Group 1 are more likely to be socially disadvantaged and to be squatting on public land or in maneabas, rather than residing at a permanent location.
- **Group 2** comprises individuals who participate in waste containment to some extent (or who utilise the Green Bag) but who are not participating in desired disposal behaviours. The evaluation team believes this group is the largest on South Tarawa at present and includes those individuals who purchase or



utilise the Green Bag but do not use the bag for waste containment or disposal.

- **Group 3** is comprised of those who participate in solid waste management as intended, and engage in appropriate waste containment and disposal behaviours. The size of this group is estimated to be larger than Group 1 but smaller than Group 2.

Crucially, a fourth group has also been observed.

- **Group 4** is comprised of people who participate in waste containment and who wish to (and intend) to participate in waste disposal, but whose efforts in this regard are thwarted by either inadequacies in the collection system or the actions of others. It also includes people who used to participate in correct waste containment and disposal but who no longer do so because of perceived (or actual) inadequacies. This appears to be a relatively small but increasing group. The following quotes, captured during consultation, provide an example of some of the factors that have resulted in the emergence of Group 4:

'I used to use the Green Bag all the time, back when the truck would come. Now I just burn my bags or put them in the shipping containers out the back.'

'We use the Green Bag and wait to hear for when the truck comes. Sometimes it doesn't come. Sometimes it comes on the wrong day. Sometimes the truck comes but we don't know that it is there. It's a distance to get to the road. The bags get so smelly we have to get rid of them.'

'I use the collection point for my Green Bag but it gets so big and lots of flies and bad smells when the truck doesn't come. The man who lives close to the bags get angry and throw them on the beach.'

LANDFILLS

As a part of Phase 1, the three landfills on South Tarawa (Betio, Nanikai and Bikenibeu) were remediated (including the installation of perimeter fencing and seawalls) and equipped with vehicles and machinery and environmental licencing.²⁶

²⁶ The 2000 – 2008 SAPHE Project funded the construction of the landfills at Betio, Nanakai and Bikenibeu. Having three landfills also provides operational redundancy enabling landfilling to continue if one or more sites are not operational. Given the linear nature of Tarawa it also helps limit excessive transportation time and costs as waste collected can be disposed of at the nearest landfill. Each of the landfills also has had a specific management/operational plan which includes planned disposal cell by cell in a sequence that ensures optimal use and access to the site and identifies the sequences of cell preparations, disposal, compaction and cover.



TUC is responsible for the management of Nanikai and Bikenibeu landfill, while BTC is responsible for the management of Betio landfill.

During Phase 2, funding is provided to support significant landfill management works (such as redevelopment of internal landfill bunds or repair to seawall damage). Phase 2 also provides technical advice (via LGNZ) on landfill management and long-term financial planning for design and construction of any proposed new landfills on South Tarawa.

Feedback from stakeholders indicates that the operation of the landfills is much better today compared to ten years ago as a result of the SWM Programme.. However, there are still a number of issues that needs addressing. As mentioned in the Phase 2 ADD – gains made in management of landfills are vulnerable to staff changes, lack of timely monitoring, insufficient asset maintenance and management and poor coordination of compacting. The evaluation team finds that most of these vulnerabilities have eventuated during Phase 2.

A reactive rather than proactive approach to maintenance

In general, the evaluation team finds that landfill maintenance has kept up with storm damage to the seawalls and damage to fencing. However, MELAD mentioned that more resilient materials should be considered in the long term (i.e. use of aluminium fence posts rather than steel).

MISE did however express concerns that funds provided for this are at a bare minimum and often go into repair only after damage occurs rather than in adopting an approach of preventative maintenance. This reactive approach may be more costly in the long run and it also runs the risk of a landfill breach where larger amounts of leachate and waste could enter the lagoon.

Landfill management vulnerable to equipment breakdown

The optimal use of the landfill space though through following the landfill management plan has recently been compromised through loss of skilled staff and the damage to critical equipment needed for compaction. The Council has then failed to 'catch up' on compaction when the equipment is available which means more landfill space is consumed per volume of waste disposed. TUC mentioned that there have been many instances (2-3 times last year) where they have had to close the landfills due to the equipment breaking down.

Feedback from staff at MELAD is that the management of the landfills have decreased over recent years, mainly due to a lack of skills of people in charge of the landfills.

'The management of the landfills is not going well. We have training each year and unfortunately it doesn't work. It doesn't seem to stick with them. There should be someone with more education and technical expertise that run the landfills.'

At the time of the field visit in January 2019, both Nanikai and Bikenibeu landfill had not been compacted for six months. Equipment and maintenance is discussed in further detail below.



Much of the waste going to the landfills is still organic

The issue of organic waste is a perennial problem on small islands of the Pacific and South Tarawa is no exception. An organic waste cell has been created at the Nanikai landfill but is at capacity. Organic waste here refers to green waste, cardboard and nappies.

Figure 10 Green Bags filled with green waste



The amount of organic waste entering the landfills is a concern because the co-disposal of organic waste in the landfills causes several negative impacts. This is due to the fact that green waste, cardboard and nappies:

- consumes valuable landfill space which impacts landfill longevity
- creates harmful organic leachates and greenhouse gases which has environmental and human health impacts
- co-mobilises harmful metals through the leachates which has environmental and human health impacts, and
- increases the risk of landfill fires which has environmental and human health impacts. Further, this creates a temporary loss of landfill services and may damage equipment and the site.

Environmental improvements of the landfills can be addressed by targeted reduction in organic materials (green waste, cardboard, nappies). Alternative arrangements need to be created for these waste streams, and the evaluation team discusses this in separate sections further below.



Large construction projects are a threat to landfill longevity

Large construction projects have not been required to make their own arrangements for disposal of demolition and construction waste. Instead they make 'unplanned' use of scarce landfill space.

Comments provided in the December 2018 review noted that Dai Nippon (a Japanese Company) recently disposed of large quantities of inert construction wastes that could have safely been used for land reclamation projects. Instead this was disposed of within Betio landfill where it has consumed valuable landfill space and will shorten the life of the landfill and can severely impact on landfill planning. The evaluation team is unaware of any current policies that require large construction projects to make independent arrangements for disposal of waste.

The impacts from the landfill leachate appear to be low

2014 reports by NIWA show that most contaminants of concern (organic materials and heavy metals) are at lower levels on the perimeter of the lagoon than they are on the inside of the landfill. That is, the walls act as a partial treatment system and are reducing the contaminant load to an acceptable level as it passes through the semi permeable wall.

Given that the Tarawa lagoon is also already heavily impacted directly through human effluent impacts, the current impacts from the landfill leachate appear to be low. However, it is possible to improve this in two ways:

- firstly, through better design for future lagoon style cells, which can improve the treatment capability of the walls
- secondly, and more importantly, by eliminating the organic load that the landfills receive with green waste diversion and reuse being a high-level target (see the following section on organic waste).

GREEN WASTE

The management of green waste is currently a gap

As discussed above – green waste entering the landfills has several negative impacts on the longevity of landfill, human and environmental health. Conversely, considerable direct and indirect benefits can be drawn from utilising green waste. This includes the use of green waste in mulch and in the production of compost – both for smaller and larger scale gardens. The former has been encouraged by several women's groups for gaining better productivity from bananas, coconuts and bread fruit already present through using 'coconut/banana circles'. Larger scale atoll market gardens – has been adopted by the Taiwanese Technical Mission.

Previously, JICA's Project for Promotion of Regional Initiative Solid Waste Management (J-PRISM) has provided support within organic (green) waste management, but Kiribati missed out on J-PRISM 2. Thus, since J-PRISM, there has been a lack of support within green waste management.



There is a growing awareness of the need for separating green waste

Communities on South Tarawa are highly motivated to collect green waste (such as leaves, grass and palm fronds) and have a desire for green waste to be disposed of. The SWM programme has contributed to a growing awareness of the need for separating green waste from household waste but, at present, green waste and household waste types are mostly intermingled at the point of containment.

Current community outreach and education on green waste, undertaken by KRCS through the project, encourages separation and then the depositing of green waste in a single spot, where it can decompose. This approach – a perfectly acceptable solution given the context – appears to be quite unpopular as the accumulation of garden waste near housing has negative social connotations. Also, from a public health perspective the informal green waste piles provide breeding areas for mosquitos during times of heavy rain, thus increasing the likelihood of vector borne disease transmission.

There is a demand for locally grown and affordable produce

Small-scale composting projects in atoll islands of the Pacific have a poor track record to date. The experience of the J-PRISM project has been that enthusiasm for composting is limited from the outset and very challenging to sustain. However, there appears to be a gradually increasing interest from communities on South Tarawa in growing fresh fruit and vegetables, and there is most certainly a demand for locally grown and affordable produce.

'Because we got introduced to gardening we are thinking of separating their rubbish but usually we mix everything'

The demand for produce is demonstrated by the success of a recent short-term initiative called Waste Exchange. Through this initiative, undertaken in collaboration with the Taiwan Technical Mission (TTM) and MELAD, participating villages (operating on a rotating basis) can collect plastic waste in a Green Bag and exchange this for an item of fresh produce from the TTM. The program has only operated once so far and it was during the school holidays when the boarding schools were closed, which resulted in excess of rations produced by the TTM.

The very popular and highly subscribed program was mentioned many times in community consultations and has the obvious benefits of improving access to nutritious food as well as encouraging waste collection and clean-up. A disadvantage is that the initiative has introduced a further element of confusion as to the correct use of the Green Bag. During consultations, one stakeholder from Nanikai stated:

'I am sorry that we have been using the Green Bag incorrectly. We thought it could contain all waste for collection. We didn't realise that it is only for plastics and that we need to take it to MELAD for a cabbage.'



Green waste collection trials have been implemented

MELAD – led by the Waste Minimisation Officer – has been working with the two councils to run a green waste collection trial. Selected villages can have their organic waste collected on Wednesdays (TUC) and Saturdays (BTC). The green waste is transported to an informal green waste disposal site (essentially a plantation plot close to the airport) which is managed by the Temaiku Farmers' Cooperative Association.

In Betio the trial enjoyed some initial success but collection is no longer taking place. Lack of enthusiasm from the responsible council (BTC) has been identified as the key obstacle for the success of this trial.

In the TUC council area, the collection component of the trial has also broken down, but the Farmers' Cooperative has entered into an agreement with TUC that allows them to collect the organic waste directly. It is understood that the Farmers' Cooperative offered to collect green waste in the BTC council area also but that this offer was rejected. The Waste Minimisation Officer's work plan include procuring a new shredder for TUC – with an estimated cost of \$50,000.

The Farmers' Cooperative values the green waste, but indicates that improper segregation is still a major issue and that much of the organic waste left for collection is contaminated with household waste and plastics. However, by undertaking the collection themselves, the Farmers' Cooperative is better able to segregate the waste at the point of collection.

CARDBOARD WASTE

Currently, all cardboard is considered rubbish in Kiribati and the evaluation team found no evidence of any ongoing projects looking at recycling cardboard. Most of the cardboard waste generated would be from commercial enterprises and businesses which are able to dispose of this waste for free to landfill given there is no gate fee where it contributes to the organic waste load. Thus, there is currently little incentive for businesses to take action on the responsible management of cardboard.

A number of options exist for the re-use of cardboard

There are some successful examples of cardboard re-use which could be considered in Kiribati. Paper recycling in Fiji (South Pacific Waste Recyclers) is able to use different grades of cardboard and paper. This could be a potential export market for cardboard and paper from Kiribati. The business case would need to be reviewed and it would require cardboard to be included in the Kaoki Maange system. This is to provide the necessary funding stream for collection, baling and export.

There is a potential to use the existing plastic baler already in use for PET by Kiribati Recyclers at the MRF. Cardboard, as a low value material, is also eligible for free shipping via the Moana Taka scheme run by Swire Shipping and is also a



targeted material under the Pacific Regional Infrastructure Facility (PRIF) regional recycling study.

In addition to exploring subsidised collection and export, there are also artisanal approaches for using cardboard to make 'barbeque briquettes' as replacement for imported briquettes which are typically made of coal.

This has been conducted as a side business by the Majuro Atoll Waste Company in RMI and was very popular both on price point (the cardboard briquettes were provided at a lower cost) and performance. Moreover, the lack of wood and other combustible materials increased the viability of the cardboard briquettes. The cardboard briquettes were also 'exported' to the atoll of Ebaye.²⁷

Similar to RMI, combustible materials are in a similar short supply in Kiribati. This, together with the high unemployment rate and low technical requirements for making the briquettes makes this a viable option for Kiribati. It would convert a problematic waste into a resource and eliminate the negative environmental impacts, reduce reliance on fossil fuel imports, increase the longevity of the landfills and create jobs. With respect to the latter, it presents an income generation opportunity and an opportunity to engage vulnerable groups (as outlined below in the cross cutting-issues section).

DISPOSABLE PLASTIC NAPPIES

Disposable nappies are a problematic waste stream

In addition to green waste and cardboard, the third waste stream of interest is disposable plastic nappies. Disposable nappies are a problematic waste stream since they add a significant effluent load that is potentially harmful to the lagoon environment and humans. The proliferation of nappies is due to the convenience factor. The alternatives are limited either to cloth nappies (traditional or modern versions) or compostable nappies which are not readily available in Australia or New Zealand, and are unknown in the Pacific at the moment.

In the Kiribati context, the issue of disposable nappies in the waste stream poses a unique problem.

In the first instance, the unpleasant smells associated with this waste type deter people from retaining nappies for weekly collection. On South Tarawa some communities report that their favoured method of disposal is to bury them on the beach (where they eventually disperse into the marine environment, along with the receptacle used to contain them). When nappies are retained for weekly collection, but the collection is delayed or absent, bags containing nappies are – anecdotally –

²⁷ In RMI, there have been concerns that the emissions from such briquettes could have health concerns due to glues, dyes and other synthetics in the cardboard. However emissions testing to compare the cardboard briquette with commercial imports was commissioned by the EU funded PacWaste Project and conducted by the University of Queensland found the cardboard briquettes were as safe as the commercial briquettes (see https://www.sprep.org/attachments/pacwaste/PacWaste_Technical_Report_Briquettes.pdf)



swiftly disposed of (by dumping) to eliminate the offending odour. This behaviour is believed to partly be responsible for the proliferation of Green Bags in the lagoon and illustrates how critical it is to have a reliable and regular collection system that reaches as many households as possible.

Secondly, soiled nappies that are contained in Green Bags are attractive to dogs and result in bags being broken and waste being scattered. On South Tarawa, dogs regularly scavenge nappies from collection areas, dig them up where they are buried and shred the contents adding to litter lost to the environment and creating a human and environmental health nuisance. Bag design systems and collection points in Tuvalu, RMI, Kiribati and a number of other countries have attempted to address this by having bags that can be tied off the ground to attachment points, having platforms off the ground or various forms of cages to prevent dogs reaching the bags.

Thirdly, and crucially, cultural views around the disposal of nappies (namely, that burning nappies will result in harm to the infant) deters some segments of the population from disposing of nappies to the landfill (or dumpsite) due to fears that they will be burned. This phenomenon was particularly apparent on Kiritimati Island where piles of nappies were seen deliberately disposed of outside of the main dumpsite to prevent them from being burned.

Consistent with comments for other organic wastes, the Tarawa Lagoon landfills would benefit in their environmental performance if such a concentrated source of organic matter was not disposed of within the landfill. However, with human effluent routinely disposed of directly in the lagoon it is unknown if there would be a higher impact from human effluent with or without disposable nappies, without further investigation.

It is also worth noting that the disposal to landfill of nappies containing faecal matter is categorised by the World Health Organization (WHO) as open defecation. Disposable nappies are also difficult to utilise in composting systems, and due to their complex plastic content it is also not cost effective to incinerate plastic nappies.

There are now some jurisdictions such as Vanuatu who are making moves to ban disposable plastic nappies as part of a wider action against other forms of single use plastic. As discussed further below – this has also been discussed by the plastics ban committee in Kiribati.

EQUIPMENT AND MAINTENANCE

Damage to the wheel loader has slowed the compaction of landfills

Currently the SWM project provides a wheel loader with foam filled tyres for compaction of waste at the three landfills. This is an essential and specialised component of the project needed to ensure correct and frequent compaction of the landfill site.

The loader provided is under the operational management of the Plant and Vehicle Unit (PVU) who rent it at a subsidised rate of \$NZD95 an hour to council for landfill



compaction, and during periods where it is not needed for landfill compaction it is rented out for commercial rates for \$NZD350.

According to PVU, the rental to council runs at a loss once fuel and other costs are taken into account and the income from renting the loader out for other uses is small due to low demand. Conversely, when the loader has been rented out for other uses it has sustained damage to the foam filled wheels (potentially due to coral extraction) and most recently to the torque convertor as the vehicle was bogged.

These incidents resulted in the wheel loader being unavailable for its primary purpose and have compromised landfill operations. Inexpert maintenance may also further compromise the operational efficacy and longevity of the wheel loader.²⁸

The compactor trucks provided to Moel are not fit-for-purpose

The SWM programme has now provided five compactor trucks for the operator to use in collecting Green Bags. Three second-hand compactor trucks were procured in 2012 and are now all at end of life. More recently, two new trucks were procured from MANCO Engineering. The first was put into service in May 2015. The second was recently commissioned in November 2018. The first of these new trucks is already showing serious signs of corrosion to the hopper, identified following operational problems with the compactor unit on the truck. This is due to a combination of poor care, maintenance and inadequate design. The design faults are being rectified.

With the increased number of Green Bags used for containing waste, having two operational vehicles allows concurrent collections and provides some 'redundancy'. That is, if one compactor truck requires work the other compactor truck can still be made available.

Given the SWM Programme has already invested in a new compactor truck and repairs of the older vehicle it is appropriate that support to ensure the operational integrity is maintained given previous problems. As with the wheel loader this should include training in care and maintenance and international expert backstopping.

However, unlike the wheel loader the compactor truck is not essential equipment. Instead, 'caged' flatbed vehicles could be used which have the advantage of lower capital expenditure, are multiple use, have a lower operational cost and are simpler to repair so 'down time' is lessened.²⁹

Flatbed vehicles do carry less bags than compactors but with labour costs being so low on South Tarawa the benefits of a compactor truck (a labour saving device) vs a simpler vehicle are unlikely to be justified. Smaller trucks will also help to address

²⁸ See the December 2018 review

²⁹ Flatbed vehicles used for collection of pre-paid garbage bags are for example used in Port Vila and Santo in Vanuatu.



the access issues with smaller feeder roads that are currently resulting in collection at some houses being missed. This also supports the International Labour Organisation (ILO) principle in using labour intensive technology to provide more jobs.

KAOKI MAANGE

Kaoki Maange targets ULABs, aluminium cans and PET bottles

The Kaoki Maange or recycling system currently targets three materials: used lead acid batteries (ULABs), aluminium cans and PET bottles.³⁰ It is run by the private company Kiribati Recyclers Ltd, located in Betio. Apart from general coordination support via the Waste Minimisation Officer, no direct support has been provided to the Kaoki Maange system during the Phase 2 of the Programme.

The evaluation team were told that there are four collection points on South Tarawa where the type, quantity and value of recyclables are recorded. A newly introduced part of this system is that the operator now requires a stamp on their receipt from MELAD before money is released to them. This provides MELAD with better information on what is being recycled as previously they had struggled to get sufficient data from Kiribati Recyclers Ltd.

PET recycling has been put to a halt

The recycling system for ULABs and Aluminium cans remains effective, but for PET the recycled material is currently valueless and is unable to be exported. This is the same situation in many other countries (including Australia and New Zealand) due to China effectively banning the importation of PET.

As a result, baled plastic stockpiles are building up in the open at the Materials Recovery Facility (MRF), with exposure to dirt and dust causing continuous deterioration. Some of the bales have vegetation growing through them (see figure 10) and some bales have been burnt. It is unclear how this has happened but the site is not completely secure with a breach in the fence on one side.

This problem with open air storage partially exists since there is a build-up of bulky metal surrounding the site, which prevents the operator from using shipping containers for secure storage.

³⁰ The ULABs and aluminium cans are quite valuable with an FCL typically worth \$20,000. This is profit on top of the 1 cent per container provided to the operator by the container deposit levy (CDL). In many Pacific Island countries ULABs and Aluminium cans are successfully collected and exported without a CDL system (Tonga, Samoa, Solomon Islands, RMI, Vanuatu) as these materials are profitable to recycle even when they are not subsidised as part of a CDL.



Figure 11 Bales with PET bottles at the MRF on South Tarawa



A few possible avenues for PET bottles

Because of the lack of immediate markets for the baled PET and the lack of space for storing it, the December 2018 review suggest that the bales can be used for 'internal walls' at the landfills. This would be done to facilitate vehicle movements. The value of this to landfill operations is unclear. Landfill engineers could consider whether there would be any benefit compared to the loss of valuable landfill space. Using PET for internal walls should be limited to PET bales that are damaged and unable to be considered for future recycling. It should also only be used as an interim measure as it otherwise would undermine the CDS system where materials meant for export are landfilled without any recycling benefit.

There are other possible avenues for PET that could be explored through assessing their costs and benefits. One possibility is a recent Swire Shipping pilot shipment (under the Moana Taka scheme with the Secretariat of the Pacific Regional Environment Programme, SPREP) of PET being shredded and exported to Visy Plastics in Sydney as a potential feedstock.

There are also proposals by Coca Cola Pacific to establish a PET and washing facility in Fiji to produce commercial PET flake, which is a valuable commodity. The PRIF is also moving toward the next phase of considering potential regional recycling hubs and materials including PET.

There has been an increase in the import of glass bottles

There used to be a higher levy on glass bottles, but Kiribati Recyclers Ltd. reported that this levy for some reason has been removed. As a result, beverages in glass



are less expensive to import than aluminium which means more glass bottles are entering Kiribati – resulting in more waste going to the landfill since this is not part of the Kaoki Maange system.

BULKY WASTES

There is a problem with bulky waste

South Tarawa, like other small Pacific Island Countries, has a significant waste problem with end-of-life (EoL) vehicles, white goods (refrigerators, freezers, and washing machines) and electronic equipment.

Old junk vehicles are being stockpiled for export at the MRF (which is shared with the Kaoki Maange recycling system). During the first phase, 800 tonnes of bulky scrap waste were collected.³¹ Since then a lot more bulky waste (at least over 3,000 tonnes) has entered the MRF. The bulky waste at the MRF is crowding the site and making operations for recycling difficult.

Figure 12 EoL vehicles at the materials recovery facility at Betio port



MELAD offer a collection service to collect bulky waste around South Tarawa. However, the evaluation team was also told that the KBA collects bulky waste, and that there is no coordination of activities with MELAD.

MFAT has recently launched a tender for removing bulky waste

With current low scrap metal prices the cost to export exceeds the value of the material unless this has a system subsidy or is funded by other means. In January

³¹ Data received during interview with the waste minimisation officer

2019, MFAT together with GoK, launched a tender with the goal to engage a supplier/operator to collect, process and export the Bulky and Scrap Waste on Kiritimati Island and South Tarawa.³² The deadline for submission of responses closed 1 February and the evaluation team has been told MFAT received a number of responses which are currently being reviewed. The Request for Proposals included inviting methodologies that could be replicated on four other countries in the Pacific with similar stockpiles of ferrous scrap.

Other possible avenues for managing bulky waste

As mentioned in previous documents and reviews³³, there is also potential to add vehicles to the existing deposit and refund legislation under the Special Fund (Waste Materials Recovery) Act 2004. This would require car importers to pay a deposit on arrival to cover vehicle scrapping costs.

The back loading project under SPREP, Moana Taka (mentioned above) is another possibility. Moana Taka permits free shipping for low value waste. However, handling fees, insurance and other costs still have to be covered. This was used for a single scrap steel shipment from Samoa to Australia and proved to be problematic. It is unknown if it could be used to support scrap metal movement from Kiribati.

PRIF is also investigating regional recycling potentials in the Pacific and this includes bulky metal. Since Fiji currently does have steel production, this is a possible Pacific location where such materials might be viably sent in the future. There are also a number of niche markets that take certain grades of scrap.

Developing quality sorting and loading across Kiribati would increase the value of the exports and increase the weight of the shipping load, thereby decreasing the danger of loads being rejected. Moreover, if specialist waste brokers can be linked with this approach it could increase the potential shipping points since waste brokers would be able to provide market advice.

PLASTIC WASTE

Plastic litter is common

Plastic litter is a common sight in the lagoon, washed up on beaches and as road side litter throughout the populated areas. However, it is clear that the various activities around South Tarawa have contributed to a reduction in plastic litter.

As mentioned above, effective activities include the Kaoki Maange system (which has incentivised PET collection), the Green Bag system (which, other than collecting household waste also is unique in the Pacific since it is displacing most single use plastic shopping bags on South Tarawa) and clean up actions by certain

³² MFAT launched a similar tender in 2014/2015 which was unsuccessful.

³³ See for instance the December 2018 review



communities (such as Nanikai community), awareness raising activities³⁴ and enforcement efforts. Also the waste exchange programme conducted between TTM and MELAD has proved successful in reducing plastic litter.

A trial to eliminate the icebags in schools

The Waste Minimisation Officer funded by the Programme has been tasked with initiating discussions around banning single-use plastics, and to start drafting legislation around this. The Waste Minimisation Officer is collaborating with other implementation partners on this task, for instance by working together with the Education Officer to trial plastic banning in schools. The primary aim has been to try eliminating the icebag.

A few schools have participated in the trial, where the ice bag has been banned and alternatives have been introduced. Alternatives include filling cups and PET bottles with a drink – and this has been sold to students for 50 cents.

A plastics ban committee has been formed

The Waste Minimisation officer has also been part of establishing a ban plastics committee, which is receiving a lot of support from the GoK. The initial focus of the GoK and the committee is to ban single use plastic shopping bags (the Green Bag as a 'multi use bag' is exempt). This is likely to be followed by banning the 'icebags', and disposable plastic nappies which are commonly landfilled via the Green Bag collection but are also commonly dumped and buried on beaches or pulled from garbage collection points by dogs.

³⁴ For instance, in addition to the awareness raising activities undertaken by KRCS, the maritime training school has been promoting keeping Kiribati 'Clean, green and blue'. The fishermen's society expressed a strong support of this campaign.



Figure 13 shows a billboard near the airport which encourages people to bring their own shopping bag. Given that the Green Bag has largely replaced the single use shopping bag, this kind of message – which is perfectly relevant in most countries – becomes less relevant on South Tarawa. Instead, it may cause some confusion around whether the Green Bag (often referred to as the Moel shopping bag as mentioned above) will be included in the ban.



Figure 13 Billboard on banning the single use plastic bag installed near the airport



GoK has adopted ambitious targets to reduce plastic waste

At the UN Ocean Conference in June 2018, Kiribati through its partner the Phoenix Islands Protected Area (PIPA) Trust committed to support a ban of single-use plastics. It has also joined the global Clean Seas campaign, launched in February 2017 by UN Environment to eliminate micro plastics in cosmetics and drastically reduce single-use plastic by the year 2022.

Kiribati also recently passed the Maritime Act 2017, which provides for the prevention of pollution to the marine environment and matters related to the implementation of international conventions.

There is a lot of international support covering plastic waste

Action on plastic in the Pacific has become high profile in recent years, with Fiji leading the way at the UN oceans conference in 2017. Pacific leaders have been committing to work together under the *Blue Pacific* continent theme to eliminate marine litter. Bans and other forms of action on plastic are now in place or about to be rolled out in Commonwealth of the Northern Mariana Islands (CNMI), Fiji, Palau, the Republic of the Marshall Islands (RMI), Samoa and Vanuatu.

Support is also flowing in to the Pacific in support of such policies through initiatives such as the United Kingdom’s Commonwealth Clean Ocean Alliance (CCOA) and Commonwealth Marine Litter Project, the World Banks Blue Economy and ProBlue



projects and regional projects targeting land based (EU PacWaste Plus) and ship based (AfD) sources of marine litter.

The plastics ban committee on South Tarawa can engage with those Pacific countries that have taken action on plastic, or are planning to do so. Vanuatu is an obvious partner with a very successful first stage ban, which is soon to be followed by a second stage ban on disposable plastic nappies (as mentioned above).

Project resources are also available for rapid 'Technical Assistance' in support of actions against marine plastic via the United Kingdom's Commonwealth Clean Ocean Alliance (CCOA) of which Kiribati is a member. The Australian Government recently announced it would also support Pacific Island Countries in developing action on plastic via the Australia Pacific Oceans Plastic Project.

E-WASTE

E-waste is increasing

As is the case with many other countries across the world, Kiribati has an increasing proliferation of electronic and electrical goods (such as computers, mobile phones, iPad, printers, and photocopiers). Increasing use of such technology, high obsolescence due to limited repair capabilities and the need for newer models has resulted in an increased accumulation of e-waste.

For recycling, e-waste needs to be disassembled into plastic, metal and mixed fractions. This is a labour intensive but low technology process that is well suited to the Pacific Islands. This process converts e-waste to e-scrap which potentially has high value. However, the remoteness of the islands couple with low volumes generated means the development of a viable business case in Kiribati is challenging.

In Phase 1 of the SWM Programme, management of e-waste is addressed through the identification of a storage facility for e-waste, the organisation of a process for retrieving e-waste in consultation with councils and the establishment of an ongoing schedule that covers these objectives.

A FCL of e-scrap is waiting to be exported

The evaluation team were informed that a FCL of e-scrap has been filled and is waiting to be exported. However, money is needed for export.

Apart from general coordination support via the Waste Minimisation Officer, there has been limited support for e-waste during Phase 2. The reason was that SPREP was considered likely to continue to provide funding support in this area. However, as mentioned in the December 2018 review, the PacWaste project under SPREP was finalised in March 2018 without exporting the materials stored.



6

Findings – Kiritimati Island

OVERALL FINDINGS

Solid Waste Management practices are very much still in their infancy

While there are a number of similarities between South Tarawa and Kiritimati Island, the two locations are far more dissimilar than synergistic. SWM practices are very much still in their infancy on Kiritimati Island and progress towards desired waste containment and collection behaviours is very poor. In fact, the evaluation team find that many of the issues discussed in the Frazer Thomas report – from March 2011 – still apply.

Key challenges for the success of SWM activities on Kiritimati Island include entrenched dump and burn behaviours (and large tracts of vacant land and scrub that make it easy to conceal these behaviours), limited infrastructure, and an apparent reticence on the part of communities to pay for services – including waste collection. Demographic factors impacting on the uptake of SWM activities include low population numbers, low socio-economic status, very high unemployment and lack of mobility (either private vehicles or public transport).

The SWM Programme on Kiritimati Island have strong support

Despite the challenges, there are a number of enabling factors that augur well for progress in SWM. Most importantly, the Ministry of Line and Phoenix Islands Development (MLIPD) and its Minister are strongly supportive of the SWM Programme and of waste management initiatives more generally. This is especially so given the ambitious plans for tourism development on the island as outlined in the KV20 (2016-2036) development blueprint for Kiribati.

Kiritimati Island is also targeted for population expansion and commercial growth, with plans being discussed for:

- residential expansion in Poland and Main Camp
- urban consolidation in Ronton and Tabwakea
- a potential fish processing plant in Ronton, and
- a new port, potentially in Poland or Ronton.



Such expansion will have an impact on SWM and there appears to be a strong incentive to 'get ahead of the ball' on waste management before planned population expansion and industrial growth.

A number of clean-ups have been funded on the island by PIPA, whose vision is to develop tourism in the Phoenix Islands using natural beauty and ecological attractions as drawcards for tourists interested in fishing, bird watching and diving. Kiritimati Island, while not part of the Phoenix Islands, is seen as a gateway for tourists to Kanton Island.

EU has allocated Euro 250,000 toward the development of an Integrated Land Use Plan (ILUP) for Kiritimati Island. Work commenced on the formulation of this plan in October 2018 and is currently in its fourth draft. EU has indicated an intention to fund some of the activities outlined in the ILUP. The nature and value of this support is not yet known.³⁵

Phase 2 of the Kiribati SWM Programme commenced in late 2017 with the employment of a Project Officer, based at MLPID, to support and report on activities. As on South Tarawa, effectiveness and coordination is impeded by the lack of any detailed implementation plan or strategy.

Despite the lack of formal planning, the Project Officer has been successful in forging strong reciprocal relationships with key stakeholders. This has manifested in the different areas of the MLPID and other Government arms working cooperatively towards project outcomes. A SWM Committee has been formed and meetings are held every three months on average.

THE WASTE COLLECTION SYSTEM

Rubbish collection services are operational

Rubbish collection is undertaken by the Kiritimati Urban Council (KUC), with support from the Kiribati SWM Programme which has provided financial support and equipment. Collection is undertaken by a team of four people from the KUC comprising one driver and three collectors. Collection is available to all households provided an annual service fee is paid. The service fee was recently increased from \$39 to \$50 per annum. Schedules for waste collection are clearly displayed on billboards alongside the roadside (see Figure 13).

The waste collection service is widely perceived as unreliable. Of note however, is that the schools report very reliable collection and a strong willingness on the part of the council to come and assist with waste management activities on request.

³⁵ Data provided at an ILUP workshop, which the evaluation team attended while visiting Kiritimati Island



Figure 14 The schedule for the waste collection service, operated by the KUC, is advertised on billboards located by the roadside



The reliability of collection is heavily dependent on whether any suitable vehicles are in an operational state. There are two vehicles that can be used for collection – the Kiribati to Boboto truck (provided through the project and discussed in more detail below) and another vehicle, provided by Taiwan.

The KUC reports that both trucks incur major maintenance costs and that private vehicles have had to be rented (or borrowed from Koil) on occasion to minimise disruption to the service. While mechanics are available on the island, lengthy delays are experienced when new parts are required.

The rubbish collection vehicle is in urgent need of replacement

The vehicle being used for collection is in very poor condition and is visibly un-roadworthy, with large parts of the containment areas having rusted away. Metal sheeting has been placed at the base of the containment area to try to minimise the amount of waste lost through the holes.

The truck has three sections. The rear section no longer has any door and the first two sections have a lower door only. This severely limits the volume of waste that can be transported without spilling out. The open section of the truck is used by the collectors to store bulky items such as coconut palm branches and large boxes.



The style of vehicle is fundamentally unsuitable for waste collection as it is difficult to load, offload and offers no protection against windblown waste. Whilst driving behind the truck, significant volumes of loose waste were observed flying from the back of the vehicle. In this respect, the waste collection vehicle is also serving as a waste dispersal vehicle.

Figure 15 Waste collection vehicle provided by MFAT



The vehicle is clearly branded 'Kiribati te Boboto' and prominently displays the NZ Aid Programme identifier. Whilst perfectly appropriate, the branding of a vehicle so clearly in a state of disrepair does pose a reputational risk to the Programme.

Procurement for a new waste collection vehicle (and a wheel loader to assist with managing the dumpsite) is underway but there have been delays in making progress.

Utilisation and awareness of the Green Bag is very low

A trial of the Green Bag has been ongoing since May 2018. A container of Green Bags was brought in by Moel, around 2,000 of which have been given to the KUC to sell to interested individuals for a cost of 20 cents. The evaluation team saw no evidence of the KUC actively promoting or distributing Green Bags for collection. There was some confusion, on the part of KUC, as to its roles and responsibilities with regard to the SWM Programme in general and the Green Bag in particular.

Bags are handed out by staff from MLPID and the Wildlife Conservation Unit (WCU) as part of education and awareness activities, including to schools. On request, the evaluation team was able to purchase bags from the Moel Warehouse in Ronton (at a cost of 20 cents per bag) but this was clearly an unusual event as it took some time for staff to locate the bags.

During the one week visit, a total of 12 utilised Green Bags were seen. Two Green Bags were seen at the main (Tabwakea) dumpsite, three were observed being picked up for collection, and seven bags were observed at the Junior Secondary School (JSS) (see Figure 15).



Figure 16 Utilisation of Green Bags at the Junior Secondary School



The most visible aspect of the SWM Programme is the collection points that can be observed at 14 locations, all of which are located on the main road in the Ronton area (see Figure 16). . In comparison to South Tarawa, the collection points do not appear to be well utilised, with the majority of collection points empty or containing only a few items. This apparent poor utilisation may be due to a number of factors including low volumes of household waste generated, the retention of waste intended for collection in the household or elsewhere on the property, or dumping of waste.

Figure 17 Collection point in Ronton



Some awareness of the Green Bag system was observed but most people interviewed associated the Green Bag system as an initiative exclusive to South Tarawa. Those individuals who had heard of the Green Bag mentioned the radio as being their source of information (Kiritimati broadcasts radio for about an hour each day – after which they switch to the South Tarawa channel).

Waste containment behaviours pose an obstacle to effective SWM

During discussions with KUC, issues around the proper containment of waste were raised as a major challenge.

‘People don’t understand their part in preparing waste. They expect that their bags will be emptied on the truck. Once this happens we can’t easily offload the rubbish at the dumpsite.’

This phenomenon was clearly evident during observation of the Monday morning waste collection service covering the East Ward of Ronton village. During the observation, waste containment methods and vessels were recorded and are reported in Table 7.

Table 7 Vessels left for collection

Vessels left for collection	Number collected
Drums or bins (lifted and emptied)	3
Rice sacks (emptied into truck)	19
Rice sacks (whole bag collected)	8
Black garbage bags (whole bag collected)	11
Plastic shopping bags (whole bag collected)	18
Piles of loose household waste	8
Piles of green waste	6
Cardboard boxes containing loose waste	14
Green Bags	3

Garbage collectors were observed having to pick up piles of waste by hand – including e-waste, broken glass, and old white goods – and put them on the truck. This is very unpleasant (not to mention hazardous work). The collectors were not wearing any form of Personal Protective Equipment (PPE). High visibility vests and gloves were reportedly provided to the three collectors recently but these are not being worn.

When waste was contained, the most commonly utilised vessel for waste containment was the rice bag which accounted for 72 percent of the total contained waste vessels. However, on collection, many community members request that the bags are emptied onto the truck and returned to them for future use. Of the 27 rice bags left for collection, 19 were emptied into the truck and the bags returned to community members.



This practice has implications for waste handling (as loose waste is difficult to offload) and litter in the environment (as loose waste is dispersed from the collection vehicle). It also creates a reluctance to relinquish bags, a factor that has potential implications for the uptake of the pre-paid bag system (from both a financial and attitudinal perspective).

Of the plastic bags used as a waste containment vessel, over half (56 percent) were plastic shopping bags which are distributed free of charge from retail outlets, and 34 percent were large black plastic garbage bags. During the collection, only three Green Bags were observed – all of which were collected from a single household.

Figure 18 Example of waste put out for collection



AWARENESS AND BEHAVIOUR CHANGE

Attitudes to waste are changing – but there is a long way to go!

Despite the poor apparent progress, consultations indicated that attitudes to waste are changing, albeit slowly. One stakeholder recalled how school and village clean-ups had previously involved the mass relocation of waste to the other side of the road. While this behaviour is still apparent in some areas, such as in the residential areas of East Ronton, stakeholder interviews would suggest that it is less prolific than in the past.

'There is a big change. The amount of waste has increased but less is being littered.'

Another stakeholder noted that, for the first time, there was little-to-no clean up needed after last year's Independence Day celebrations.



Community engagement and education activities are taking place

The (WCU and the Agriculture Office have been engaged to conduct public awareness and education activities to support the SWM Programme. This component has been allocated a budget of \$10,000.

The key contact person at WCU was off-island at the time of the evaluation visit, but discussions were held with other representatives from WCU. The WCU reported that a women's community committee has been established at which discussions are held regarding waste management and the use of the Green Bag. Some clean-up activities, mostly centred around Tabwakea, have taken place as a result of this outreach. Awareness activities have also taken place at schools, including a competition related to waste separation and re-use.

Other awareness and education activities initiated so far by WCU include radio announcements (purchased for one month) and a Green Bag float at the beauty contest.

Burning and dumping of waste is still prevalent

The most common method of waste disposal on Kiritimati Island is dumping and burning. Unlike South Tarawa, Kiritimati Island has large tracts of vacant land and scrub which make it relatively easy to conceal waste. Many stakeholders observed that dumping waste was commonplace but that there was a growing negative association with the behaviour.

"Our people have a spirit of guilt when they drop their rubbish in the bush. But they still do it!"

The evaluation team was also told that people still dig holes and bury waste – still mixing green waste and solid waste in the pits. However, one stakeholder said that he had noticed an improvement in terms of people only putting green waste into the pits.

Waste collection is undervalued and there is a reticence to pay for it

Despite the fact that only council is supposed to deposit waste at the dumpsites, private businesses and individuals tend to take their own waste to the dumpsite (or to dump and burn it either on site or in an area out of view).

'Why should I pay for waste collection when I can get rid of it myself for free?'

This harks to a more widespread challenge of encouraging people to pay for any type of service. Figures obtained from the authors of the EU-funded ILUP indicate that 80 percent of the total population are in arrears on lease payments and water bills and that 25 percent of the population have their electricity supply cut off in any given month due to non-payment of bills.



There is a growing interest in gardening and composting

Many stakeholders raised an interest in gardening and many were already engaging in gardening activities.

'People are more interested in gardening since it is expensive to buy veggies'

The Agriculture Office work in schools and teach students about gardening and how to sort out waste. Through one programme they visit farmers and teach the students how to make compost. They also produce compost and have been selling it to people. One rice bag full of compost is sold for five dollars, and according to the Ministry they sell on average they sell 50 bags per week.

'Lots of people buy it, especially those in Ronton who have difficulty getting compost in other ways'

Sometimes they run out of compost, indicating that supply is not enough to meet the demand. The reason that they cannot keep up with demand is due to a lack of pig manure.

The Agriculture Office also uses human manure. The human manure is retrieved from the Hazardous waste dumpsite past the airport, where the sewage is disposed. After about two weeks – when the sewage has dried – they go there to collect it. The Agriculture Office does have access to a small shredder (as shown in Figure 18) and the staff usually collects green waste from around the office. They also sell seeds, which are bought from JMB (a food and hardware store).

Figure 19 Shredder and compost at the Ministry of Agriculture



THE EYC NURSERY

The EYC Nursery is not being utilised

The EYC Nursery was set up during phase 1.³⁶ The idea of the EYC Nursery was that organic waste should be collected, shredded and used within the centre to grow fruit and vegetables, and sell seedlings to households. The council was tasked with the operation of the centre and it is located next to their office in Tabwakea. The indented outputs for Phase 2 with respect to the EYC Nursery include the following:

- monitoring use and operation of the centre once completed, e.g. sale of seedlings
- supporting education campaigns on the use of green waste
- funding to Agriculture/WCU for tools, tables and perhaps a groundwater storage tank for the EYC Nursery

The EYC Nursery was not operating at the time of the field visit. Stakeholders told us that initial training with members of the council had taken place, but no activity has taken place since then. The Agriculture Office expressed an interest in taking over responsibility of the Nursery.

DUMPSITES

The dumpsite at Tabwakea is adequate for present waste volumes

There are currently two general dumpsites that are in use on Kiritimati Island – a main dumpsite (located at Tabwakea) and one smaller informal site at Main Camp. Poland also has a dumpsite, but stakeholders informed us that it is not being used.

The largest and most heavily utilised dumpsite is the Tabwakea dumpsite or 'main dumpsite'. The KUC waste collection trucks use this site only to deposit waste. While the site was purportedly intended to receive council vehicles only, it is also utilised by members of the public for waste disposal. The site is unfenced and while a day-time watchman has been employed, it is still operating very much as an uncontrolled dumpsite.

Anecdotally, the site is visited after hours and in the evening by members of the public who dump waste indiscriminately and start fires. There was clear evidence of burning at the site and of waste piles dumped outside of the proper dumpsite.

Organic waste and loose (uncontained) household waste were the predominant waste types observed at the site (

³⁶ The budget was \$19,600 but it ended up costing 21,700. The reason for the overrun was that more consultations were carried out than originally budgeted for.



Figure 20). Access to the site itself and to the tipping face is impeded by waste that has been deposited without apparent forethought.



Figure 20 Outlook over Tabwakea dumpsite



The bobcat provided is not being used

MFAT funded a bobcat during Phase 1 with the purpose of compacting waste at the dumpsites, but the evaluation team was told that it is deemed too small to deal with the waste and is therefore not being used. Instead, the bobcat is used by MLPID for clearing land and making it ready for lease.

Instead, MLPID’s wheel loader has been used for compaction – both at the Tabwakea and main camp dumpsite. When borrowed, funding under the SWM Programme is used to reimburse MLPID for the fuel costs. However, since MLPID uses the wheel loader for many other purposes, the compaction is done on an irregular basis and often with long intervals. The project is funding the purchase of a wheel loader to address this issue. Once the wheel loader is brought in to pile up and compact the waste, more space will be available on a more regular basis.

Waste is still being burnt at the dumpsites

Burning of waste piles is pervasive (see Figure 20). It would appear that the burning is being done by community members, not by council employees, and is being done with the intention of reducing the volume/impact of the waste in the environment. This strongly suggests the need for education campaigns around the human and environmental health impacts of improper waste disposal and burning.

Fencing, signage and more rigorous supervision of the site would reduce the impact of improper use. However, a likely by-product of such measures is an increase in the incidence of indiscriminate dumping and burning in the surrounding areas.



Figure 21 Evidence of burning at Tabwakea dumpsite



Dumping was prevalent in the areas surrounding the official dumpsites, so much so that in locations such as Main Camp it was difficult to identify the official dumpsite (see figure 21). The road to the Tabwakea dumpsite is littered with small household waste piles (such as disposable nappies).

Figure 22 Main camp dumpsite



KAOKI MAANGE

The Kaoki Maange scheme is operated by KUC and run through the private company Kiribati Recyclers Ltd on South Tarawa.³⁷ The can crusher was relocated from Kiribati Recyclers' previous agent JMB Enterprises³⁸ and is currently located in the new KUC Market building in Tabwakea. The Phase 2 ADD lists the following outputs with respect to the Kaoki Maange system:

- monitoring the KUC operation of the Kaoki Maange system and providing TA support when required
- funding for crushing equipment repairs as required
- technical support for lead acid battery recycling advice.

The Kaoki Maange system is currently at a halt

In November 2018, the Kaoki Maange system was put at a halt and it was still not operating at the time of the visit in February 2019. Drawing on the Phase 1 activity completion report it appears that the aluminium recycling scheme has had problems in the past as well. The reasons given included the poor capacity of the baler machine and the limited funds allocated to KUC.

Limited funds were given as the reason to why the scheme has completely stopped. Until they get adequate funding to cover the payment of the cans and the shipping costs, they have decided to stop the system. The evaluation team was told that KUC have been unable to reach Kiribati Recyclers and they are unclear of what the next step is.³⁹

While some businesses are waiting for the scheme to start again (and thus still are collecting and storing aluminium cans) aluminium cans were continuously sighted alongside roads as litter.

Moreover, the original budget under Phase 2 included funding for a new baler machine, but was in 2018 allocated to the procurement of the wheel loader. Thus, the poor capacity of the baler machine is likely to remain unsolved for the remainder of Phase 2.

Further, in the documentation provided to the evaluation team, there is little to no monitoring of KUC's Kaoki Maange operations. And the evaluation found that lead acid batteries have not been included in the Kaoki Maange system.

³⁷ The legal structure only allowed for a single Recycling System Operator (SWM TA Review of Kiritimati Island SWM Initiative Implementation, 2013)

³⁸ JMB enterprises used to be running the Kaoki Maange scheme. However, JMB suffered a financial loss since the international price for scrap aluminium fell significantly before JMB managed to export the cans.

³⁹ When the scheme was running, cans were refunded at four cents each to the public, and the contract between MLPID and KUC agreed to pay KUC five cents for each can bought (thus, KUC receives one cent for each can bought).



Figure 23 Aluminium cans being stored at the back of JMB in main camp



LEGAL ENFORCEMENT

Kiritimati Island is excluded from parts of the environmental act

Many stakeholders cited the fact that Kiritimati Island is left out from the Environmental Act. However, not everybody appears to be aware of that it is just the littering section that excludes Kiritimati Island.

Mixed messages around a by-law on littering

Further, the evaluation team received mixed messages around whether a by-law on littering is on its way. The MLPID Minister was under the impression that a KUC is currently in the process of finalising a bylaw on making littering illegal. However, when speaking with KUC the process seemed to have halted since the clerk believed they are in need of a Technical Assistance to help them finalise the bylaw.

One stakeholder placed little hope in law enforcement on Kiritimati Island.

'I think we are a long way from law enforcement. There are many other things that need enforcement so garbage is probably the last thing on the list'

Confusion around who is enforcing the environmental act

There was also confusion around who is responsible for enforcing the environmental act on Kiritimati Island. Staff at MLPID believed it was the WCU's responsibility – while staff at the WCU believed it to be MLPID's responsibility.

END OF LIFE VEHICLES

The outputs under the SWM Programme, as listed in the ADD Phase 2 document include:



- financial support for vehicle collection until the implementation of the levy system
- monitoring PVU's progress and encouraging them to continue to seek out people willing to give up their vehicle for free is part of the role⁴⁰
- ensure the Kiritimati Island vehicles are included in recycling schemes for South Tarawa.

The collection is working well

The collection of the vehicles is working well. The project officer is currently receiving help from the heavy machineries unit and KPA to collect the EoL vehicles. This is done in a very cost effective way since KPA and Heavy Machineries are offering their services for free. The only cost to the SWM Programme is the cost of the fuel.

The collection is done on a regular basis and depends on how many households are willing to have their cars collected. The collection takes place when five to six cars have been identified. At the time of the field visit in February 2019 the project officer was underway with collecting EoL vehicles and placing them at the port (Figure 24).

Figure 24 EoL vehicles being transported to the port



⁴⁰ There is no longer PVU branch on Kiritimati Island. PVU's activities have instead been absorbed by MLPID.



7

Findings – Programme coordination, implementation and governance

GOVERNANCE

A NSWMC has not yet been established

During Phase 1 reporting was done to the SWM Partnership which was made up of MELAD, MPWU and PVU, BTC and TUC, MHMS, NGO's and private sector organisations.

For Phase 2, the ADD and the GFA between MFAT and GoK plans for a National Solid Waste Management Committee (NSWMC) to be formed. The NSWMC would be the body responsible for monitoring, implementation and progress of the national SWM strategy.⁴¹ MELAD would act as the secretariat with core members including MFED, MHMS, MIA, the councils, MPWU, and any other stakeholders. The Committee would be the highest level working group for coordination of SWM in Kiribati. This Committee has not yet been established and the evaluation team is not aware of any work being done in order to progress the formation of the committee.

Instead, the evaluation team noted the formation of many different committees or task forces tackling different aspects of SWM. This includes the Green Bag Task Force – discussing issues related to the Green Bag system, and the ban plastics committee – which is discussing the ban of single-use plastics. The 2016 ACA also mentions a SWM planning group at National Economic Planning Office (NEPO).

The 2017 GoK progress report (as well as the 2016 ACA) notes the issue of having many different committees set up and emphasises the need for a consolidation of these committees to improve the coordination and alignment of efforts. GoK also mention that this should be a priority for the following year (2018).

MELAD also highlighted the importance of establishing the committee:

'Our thinking is that the activities are not properly coordinated... It would be easier if everything is in one spot.'

'Knowing what is happening is a challenge'

⁴¹ The aim is to finalise the national SWM strategy during Phase 2.



They also mentioned that there are some arrangements in place between MELAD and MIA is not currently working (it is unclear exactly what arrangements).

The above feedback is somewhat contrary to the 2017 GoK progress report. The report notes that the different ministries are collaborating well and supporting each other. The progress report also notes that the relationship with MFAT is good, but that the coordination with other projects still depends on the goodwill of people to share information. Further, to keep costs down and avoiding past mistakes – the report notes a planned collaboration between MLPID and MELAD. However, feedback from staff at MLPID is that the communication between MLPID and ministries on South Tarawa is minimal.

'There is little communication with Tarawa, we only exchange emails every now and then'

Moreover, the delay in the implementation of both Phase 1 and Phase 2 – reportedly due to slow use of funds, changes in staffing and lengthy procurement and contracting procedures – is further evidence of inadequate governance structures.

The SWM Programme Manager has not yet been appointed

The Phase 2 ADD states that a SWM Programme Manager will be responsible for the following:

- day to day contract management requirements
- coordinating programme implementation
- collecting monitoring data as well as coordination of monitoring by implementation partners, including creation of reporting and data collection templates and training staff training responsible for data collection
- monitoring of procurement
- provision of formal updates on project progress
- lead recruitment and make sure gender equality is adhered to.

The Programme Manager has not yet been recruited and this has resulted in poor performance with respect to the above. The evaluation team was unable to find out why the Programme Manager was never recruited (perhaps there was nobody in charge of this task).

IMPLEMENTATION

Implementation enabled by NZHC and the MFAT funded project officers

In absence of a Programme Manager, two staff at NZHC have taken over many of the tasks above – while still juggling tasks within their actual roles. The Programme Management role has also been supported to some extent by the Senior



Environment Officer at ECD, who manages two of the three programme-funded staff at MELAD.

Further, to help with implementation against the three outputs in the results framework, the SWM Programme has recruited a number of project officers. The evaluation team finds that Phase 2 has been successful in recruiting the project officers mentioned in the ADD. That is, Phase 2 now funds six project officers: a waste disposal officer at MELAD; a waste enforcement officer at MELAD; a waste minimisation officer at MELAD; an education officer at KRCS, an awareness raising officer at KRCS, and a project officer at MLPID. Three of the six officers are women.

The evaluation team understands that the SWM Programme previously funded an urban management officer role at MIA. This role has now turned into a permanent role at MIA – no longer funded by the SWM Programme. As a part of output 3, the Phase 2 ADD mentions that there should be a gradual shift of funding for project officers from MFAT to GoK so that project salaries are funded by GoK at the end of the 5 year period.

Table 8 summarises their respective roles, as described in the ADD. Each officer is linked to one of the three outputs of the SWM Programme.

Table 8 Project officers

Output	Title	Agency	Responsibility
1	Community Education Officer	NGO	Create education kits; facilitate installation of new Green Bag collection points; implement community engagement campaigns
1	Community Awareness Campaign Manager	NGO	Oversee comprehensive clean-up campaigns and other initiatives, lead community and government engagement; monitoring and reporting
2	Waste Minimisation Officer	MELAD	Implement actions to reduce waste generation; reduce use of plastic bags; reuse waste; implement organic waste collection and processing; monitor recycling programs; monitoring and reporting
2	Waste Disposal Officer	MELAD	Support implementation of a LASS; install public waste litter bins; monitor collection systems and disposal of waste; manage landfills; monitoring and reporting
2	SWM Project Officer	MLPID	Implement Kiritimati Island solid waste management work plan; monitoring and reporting
2	Urban Management Officer	MIA	Support improved efficiency in SWM by BTC, TUC and KUC; support investigation of a LASS for SWM; coordinate waste minimisation in outer islands



3	Waste Enforcement Officer	MELAD	Coordinate strengthening of the Joint Enforcement Team, public engagement on enforcement, apply the Environment Act; monitoring and reporting
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Overall, the project officers demonstrated good knowledge of the project, enthusiasm for their respective roles, and an understanding of the specific tasks required of them. The roles of most of the project officers are described in the ADD, and the evaluation team find that their work plans and actual work are well aligned.⁴² There are some discrepancies between the work plan and actual work undertaken by the Enforcement Officer. The work plan has no budget for waste pile monitoring, or applying fines – but the interview with the enforcement officer revealed this work is being undertaken.

The Waste Disposal Officer’s role involves installing and promoting public waste litter bins. However, the work plan does not include any budget for this. Also the Waste Minimisation Officer has a budget line in the work plan – with the aim to install litter bins at businesses. However, again, no budget has been assigned to this line.

There is evidence of some overlaps in the work plans. The Waste Disposal Officer, as well as the two officers at KRCS, is all tasked with installing Green Bag collection points. However, the budget against this item is \$250 for the Waste Disposal Officer, and \$30,000-\$50,000 for the Awareness Raising and Education Officers.⁴³

The evaluation team is unable to comment on how each project officer is tracking against their work plans’ budgets since this information has not been provided to the evaluation team. The officers placed at MELAD submitted their work plans in March 2018. However, no progress reports have been submitted since then. A progress report was received from the Education Officer covering July-December 2018, but the evaluation team has been unable to access the expenditure data.

Involvement of private sector on South Tarawa but not on Kiritimati Island

On South Tarawa, the Kaoki Maange and Green Bag system are both run by a private operator. The ADD states that learnings from South Tarawa show that the private sector involvement has been effective in driving change. For instance, the councils have reacted to the competition introduced by the Green Bag system, by wanting to improve their collection system. The ADD also notes there is growing recognition by the GoK that the private sector can have a role to play in the delivery of public services.

⁴² The evaluation team has not seen the work plan of the Education Officer

⁴³ The budget assigned in the work plan is \$30,000, and \$50,000 in the GFA.



Despite this, the operation of the Green Bag and the Kaoki Maange system has been placed at KUC instead of with the private sector. The evaluation team cannot find any document describing the rationale behind this.

Due to lack of data, it is difficult to know whether the private sector is less prevalent (proportionally) on Kiritimati Island compared to South Tarawa. However, feedback from stakeholders points towards a growing private sector. Many businesses have also started to notice increased competition, and more businesses from South Tarawa are expanding to Kiritimati Island. The GoK will soon also release new leases for businesses.

FINANCIAL MANAGEMENT

The financial management is inadequate

Overall, the evaluation team finds that the financial management of the SWM programme is poor. There appears to be nobody in charge of tracking the expenses against the budget on South Tarawa. Consequently, the evaluation team was unable to get data on what have been spent to date in and are thus unable to comment on how the Programme is tracking. The evaluation team was however able to get expense data from the Project Officer on Kiritimati Island.

A shift in responsibility from MFAT to GoK in budget allocation

Some progress has still been made compared to Phase 1. The 2017 progress report by GoK notes the shifts in responsibility from MFAT to GoK through the process of which the funds are now allocated. MFAT transferred funds to GoK on 28 October 2016 – eight days after the GFA was signed. These funds were later warranted by NEPO and allocated to implementing Ministries in February 2017. This process change is viewed as more efficient and ministries had – to that point – never been out of funds.

However, engagement with MELAD points to this no longer being the case. MELAD mentioned experiencing delays from NEPO's end and that they have to keep on chasing them for funds. When speaking with NEPO, they say it usually takes two days to process the warrant – and the process is initiated by ministries providing their work plans. NEPO noted that sometimes the work plans exceed the budgeted amount.

The budget allocation is based on a 'first come first serve' approach

NEPO works on the basis of 'first come first serve', which means that a ministry that submits their work plan first is more likely to get a warrant for the work plan. When the budget paid by New Zealand is met, NEPO will stop issuing warrants,



which means that it is not possible to exceed the budget.⁴⁴ In 2018, MLPID submitted their work plan in January and MELAD in March.

The 'first come first serve' budget allocation process shows that there is no prioritisation of activities. Further, having several ministries producing separate costed work plans was raised as a challenge in the GoK 2017 progress report. Due to this process, they were unable to present a combined costed work plan linked to the output budget lines in the GFA.

This, along with the absence of a Programme Manager, is likely to be a key reason of the poor financial oversight on South Tarawa (South Tarawa has two implementing agencies – MIA and MELAD – while Kiritimati Island has one – MLPID). There seem to be nobody in charge of reviewing the budget allocation against the budget lines in the GFA. In the progress report from 2017, only aggregated expenses was reported against the Ministries' budgets. MELAD had to that date spent \$57,300, while MIA and MLPID had spent \$0.

There are discrepancies between the key documents and contracts

The final budget for the SWM Programme is different depending on what document you look at. Looking at the three GFAs/CFS (with GoK, Moel and KRCS) the budget for output 1, 2 and 3 sum up to \$2,729,500. In the Phase 2 ADD the budget for output 1, 2 and 3 sum up to \$2,557,000 – a difference of \$172,500.

One reason behind this discrepancy is that the cost for the Green Bag scheme has been more expensive than envisioned in the ADD. In the ADD the cost for the Green Bags is estimated at \$50,000 per annum or \$250,000 for the five years. However, in the CFS between Moel and MFAT (covering May 2016-September 2019), the budgeted amount is much higher over a shorter period of time. The total funding over this period is estimated at \$392,000.

The reason behind the increased cost is due to the increased sales of Green Bags. As noted above, the import of FCLs has gone from one shipment every ten months in 2016/17 to one shipment every four months. In addition to this:

- New Zealand provided Moel with a second compactor truck in December last year and the evaluation team has not seen the cost of this truck in any of the budgets
- the cost of Green Bags has been left out from the budget for Kiritimati Island – both in the ADD and in the GFA.

Other observations made are that the yearly costs for some of the outputs does not sum up to the total. The evaluation team believes this may be due to a typo made with each iteration of the ADD. The evaluation team was also provided with several

⁴⁴ For further information on this issue – see the December 2018 review



different versions of the Phase 2 ADD – all named 'FINAL'. This means that key project staff may be using different versions.⁴⁵ The evaluation team also note that the budget excludes the costs for a Programme Manager.

The evaluation team is also of the understanding that while the GFAs together state that the maximum cost of Phase two is \$2,729,500 – the activity has been approved expenditure totalling \$4,000,000.

Expenses at risk of exceeding the budget on Kiritimati Island

The budget for the Phase 2 SWM Programme on Kiritimati Island is \$456,650. This number is based of documents provided by the project officer on Kiritimati Island. Again, this budget is slightly different from the budget provided in the GFA – which sums up to \$465,500.

The left-hand axis in Figure 25 shows expenses as of 31 December 2018.⁴⁶ The right-hand axis shows how much has been spent as a proportion of the budgeted amount. The evaluation team have also received a more detailed breakdown of the budget provided in Table 16 (see appendix)**Error! Reference source not found..** Drawing on this information, the GFA and the Phase 2 ADD, the evaluation team makes the following observations.

- As of 31 December 2018, only 15 percent of the budget had been spent. This is largely due to a delay in procurement the tipping truck and the wheel loader. 72 percent of the budget (\$330,000) has been allocated to 'fixed plant and equipment' – but only 6 percent has been spent to date. The wheel loader and the tipping truck (both new trucks) are expected to cost \$310,000 in total. One enforcement vehicle has already been purchased for \$19,000.
- Six out of ten budget categories has spent more than 50 percent of the budget. Given that the project has only run for a third of the time – there are many budget categories that risk running out of funds before the completion of Phase 2.
- The fuel and maintenance category relates to the enforcement vehicle. 93 percent has already been spent meaning the funds for this will more than likely not last for the remainder of the time.
- 94 percent of the advertisement/media budget has already been spent leaving little room for additional campaign and awareness raising activities.
- 40 percent of the wages has been paid over a third of the time, indicating that the wage budgeted for is too low.

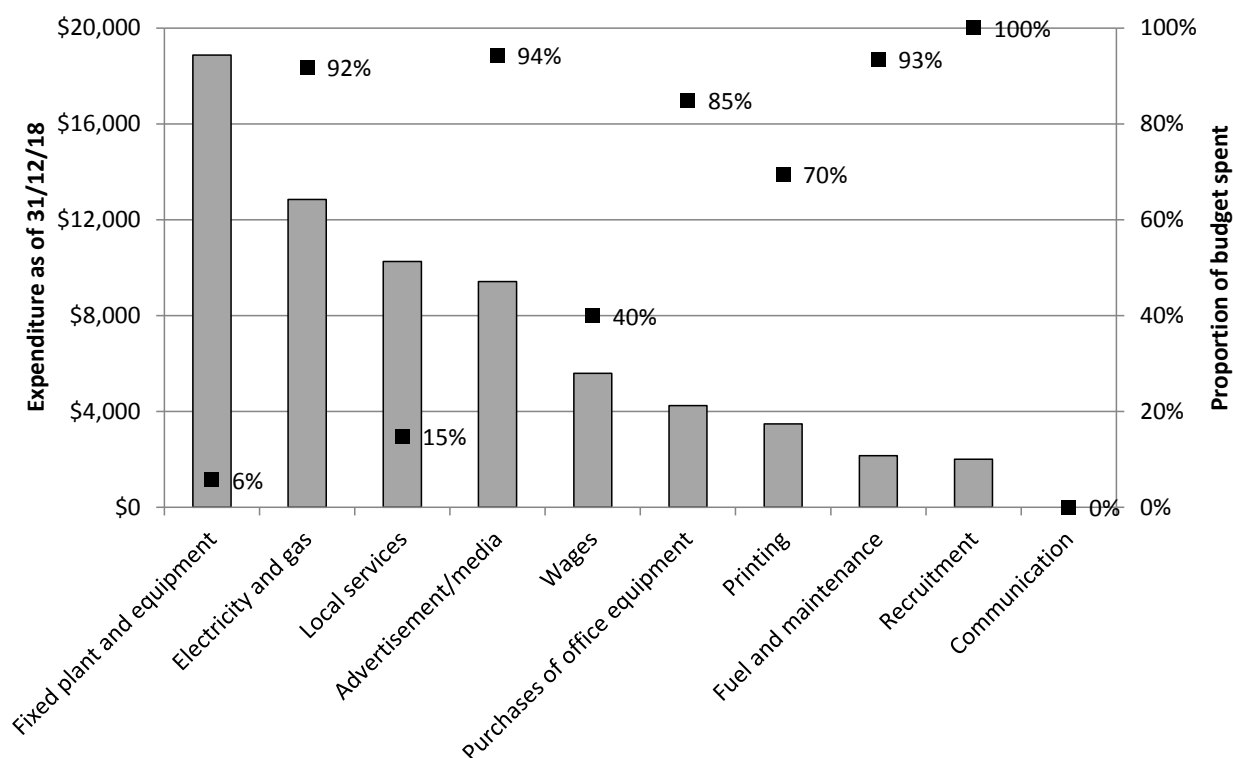
⁴⁵ The evaluation team is using version that was sent through in pdf format, rather than word format.

⁴⁶ Appendix 2 includes a table with the exact figures.



- The purchase of Green Bags (which falls under local services) has been estimated at \$40,000 for one FCL in Table 16 – compared to the budgeted amount of \$50,000 on South Tarawa. This needs to be checked since the shipping costs are unlikely to be cheaper to Kiritimati Island than South Tarawa. Also, as mentioned above – the purchase of Green Bags has been left out in the GFA between MFAT and GoK.
- The budget allowed for in Table 16 **Error! Reference source not found.** is \$452,150. The budget in the GFA between MFAT and GoK is estimated at \$465,500 and the budget provided in the ADD is also \$465,500 – but only in the body of the report. In Appendix E the ADD states that ‘Support for Kiritimati Island described below allows for up to AUD\$355,300 over a period of 3 years’.
- The accompanying notes to the budgeted amounts in Table 16 seldom translate to the actual amount. It appears to be confusion between one off costs (such as vehicle purchase) and ongoing costs (such as wages). When the evaluation team instead uses the notes to calculate the actual budget – it is nearly \$57,000 higher (\$519,000 compared to \$452,000).

Figure 25 Expenditure to date and proportion of budget spent on Kiritimati Island



Source: based on data provided by the project officer on Kiritimati Island



VALUE FOR MONEY ANALYSIS

Better value for money with better coordination and oversight

A value for money assessment is made based on the following questions:

1. Are the results worth the investment (on the basis of number of people reached, the intensity and sustainability of results, and factors of inclusion of the most vulnerable)?
2. Could the same results have been obtained for fewer inputs?
3. Could better results have been obtained with the same resources? ⁴⁷

Overall, the evaluation team finds that while the Programme has resulted in significant positive impacts, better results could have been achieved for fewer inputs.

Are the results worth the investment?

Overall, the evaluation team considers that the results are worth the investment. Phase 1 and 2 has contributed to large improvements in SWM – in particular on South Tarawa. The amount of waste going to the landfills, the number of Green Bags being put out for collection, cleaner beaches and communities doing spontaneous clean ups are all examples of the positive change that has taken place.

Cleaner public spaces benefits all – including the most vulnerable and it also have large flow on effects to public health and economic growth (such as via increased tourism and increased productivity from a healthier population). It also reduces the negative impact on the environment and climate. Thus, investing in improved solid waste management will indirectly lead to investments in other sectors.

Could the same results have been obtained for fewer inputs?

The evaluation team finds that costs could have been minimised if a Programme Manager had been appointed from the start of Phase 2. A poor oversight of the budget and activity makes it difficult to identify where cost savings can be made. Moreover, the formation of a NSWMC will enable better coordination, management and a more efficient implementation through streamlining of activities.

Specific examples of where cost savings could have been made include the provision of less expensive and more fit-for-purpose rubbish collection vehicles.

Could better results have been obtained with the same resources?

The evaluation team finds that the recruitment of a Programme Manager and the formation of the NSWMC will also result in *better* results – with *fewer* resources. For

⁴⁷ OECD, n.d. Value for Money and International Development: Deconstructing Some Myths to Promote More Constructive Discussion, Consultation Draft.

instance, if less technical and fit-for-purpose vehicles would have been provided, it is likely that there would have been fewer stand-down periods of the collection truck, and hence less disruptions to the waste collection.

Improvements could have been made to the contract management. New Zealand currently reimburses Moel for the cost of each FCL, while Moel makes money of each Green Bag sold. This creates an incentive for Moel to sell as many bags as possible. Moreover, there is no performance agreement in the contract with respect to the bag collection, or vehicle maintenance.

If Moel had a monetary incentive to collect Green Bags, it is likely that fewer Green Bags (with organic content in them) would be left behind and that the collection service would improve.

GREEN BAG COST ANALYSIS

Green Bag price unchanged since its introduction

The price for the Green Bag has remained unchanged since its introduction in 2012. It is sold for 20 cents retail and 15 cents wholesale. The unit cost per bag is estimated at 11.9 cents, GST inclusive.⁴⁸ New Zealand covers the cost of the Green Bags, plus \$6,000 per shipment to cover for maintenance costs. Thus, the total cost is \$56,000 for each full container load (FCL) – containing 481,200 Green Bags.⁴⁹

750,000-1 million bags to break even at current prices and expenses

Table 9 shows a scenario analysis, based on different costs and number of FCLs imported. Excluding expenses, Moel makes \$72,000-\$96,000 for each FCL sold⁵⁰, depending on the split between retail and wholesale sales. Moel's total monthly expenses for the operation of the system were on average \$4,000 dollars between March 2016 and July 2018. Including the cost of the FCL (on average \$51,100 dollars), the total yearly expenses would be just over \$150,000 if two FCL were imported (see Table 9). If all these bags were sold within the year (around 960,000 bags) Moel's profit would be between -\$5,500 and \$42,600 if they also covered all expenses.

The analysis shows that at two FCLs, Moel still risk running at a loss if they cover all expenses. If the price were to increase to 25 cents minimum, they are highly likely to always make a profit – even if the quantity sold decreases to one FCL/year. However, important to note is that these scenarios assume that their expenses remain the same. Given that the collection effort will need to increase, the expenses will to do the same.

⁴⁸ Between March 2016 and July 2018 the average price per FCL was shipment was \$51,068 for 481,200 Green Bags. This equals 10.6 cents per bag. GST is 12.5 percent – making the total cost 11.9 cents. The cost of the FCL is in US dollars – so the actual cost is sensitive to the AUS-US exchange rate.

⁴⁹ See the December 2018 review

⁵⁰ Calculated on 481,200 Green Bags



Table 9 Costs and profits of running the current Green Bag system (excluding purchase of trucks)

	1 FCL/year	2 FCL/year	3 FCL/year
Number of bags	481,200	962,400	1,443,600
Expense FCL	\$ 51,068	\$ 102,136	\$ 153,204
Other expenses	\$ 47,726	\$ 47,726	\$ 47,726
Total income 15 cents	\$ 72,180	\$ 144,360	\$ 216,540
Total income 20 cents	\$ 96,240	\$ 192,480	\$ 288,720
Total income 25 cents	\$ 120,300	\$ 240,600	\$ 360,900
Total income 30 cents	\$ 144,360	\$ 288,720	\$ 433,080
Total income 40 cents	\$ 192,480	\$ 384,960	\$ 577,440
Profit 15 cents	-\$ 26,614	-\$ 5,502	\$ 15,610
Profit 20 cents	-\$ 2,554	\$ 42,618	\$ 87,790
Profit 25 cent	\$ 21,506	\$ 90,738	\$ 159,970
Profit 30 cents	\$ 45,566	\$ 138,858	\$ 232,150
Profit 40 cents	\$ 93,686	\$ 235,098	\$ 376,510

Source: Sapere analysis; based on data provided by Moel. All calculations exclude purchase of vehicles, but include all other costs.

Willingness to pay linked to understanding of the Green Bag system

It is important to remember that depending on how price sensitive the Green Bag customers are – the amount sold may decrease with an increase in price. Other than household income being an obvious factor determining the willingness to pay for a Green Bag – the evaluation team found that the willingness to pay is likely to be linked to the understanding of the Green Bag system. In particular, the evaluation team found that people showed a stronger willingness to pay for the Green Bag when the rationale for the user-pays system was clearly articulated.

Further, the amount sold also depends on the substitutes. While some consumers may go back to using the single use plastic bags, this may be prevented if the single use plastic bag is banned. There is also a risk that some households will go back to burn and dump behaviours.

It is currently free to dispose waste at the landfills

Another risk with increasing the price is that households and businesses may to a greater extent try circumvent the cost of the Green Bags by taking their waste straight to the landfills where they can dispose of waste free of charge. LGNZ mentions the implementation of a landfill gate charge to prevent commercial businesses (and others) from doing this:



'If the cost of the bag and landfill gate charges are set correctly (and waste collection is consistent), businesses will use the bag service rather than go to the landfill themselves'⁵¹

REPORTING AND MONITORING

Reporting and monitoring has fallen behind

In addition to inadequate reporting of financial data, there is a lack of overall programme reporting and monitoring. Again, a key reason is likely due to the fact that a Programme Manager never got recruited. The Phase 2 ADD states that the Programme Manager should be in charge of overseeing the results framework, including establishing missing baseline data; create reporting and data collection templates; training staff responsible for data collection; and for coordinating the overall monitoring. In absence of a Programme Manager, the evaluation team understands that the majority of these tasks have been shifted to staff at NZHC. MFAT has also been tasked with undertaking annual monitoring assessments (AMAs). One AMA was produced for South Tarawa in 2017, and none has been completed since then. No AMA has been produced for Kiritimati Island yet.

Further, all project officers have been tasked with programme monitoring and reporting. The evaluation team are unsure of the details of this task – but are aware of some data collection and monitoring that has taken place. For instance, the waste disposal officer is monitoring the number of Green Bags entering the landfills and the enforcement officer is collecting data on waste enforcement activities. The waste minimisation officer has collected data on the amount of bulky waste at the MRF and across South Tarawa. KRCS have also started to collect survey data. There is no quantitative monitoring or reporting done on Kiritimati Island.

The ADD also mentions that an annual sustainability assessment (ASA) should be undertaken by an independent contractor and focus on measures put in place under the ADD to improve the self-sustainability of systems. There has been no ASA undertaken to date.

The lack of monitoring applies to all activity areas on Kiritimati Island. There is nobody monitoring the illegal dumpsites and nobody monitoring the Green Bag trial. No data is collected on awareness raising activities. KUC and MLPID report that there is monitoring of the rubbish at the landfill sites. It is unclear whether this reporting is quantitative.

The government is currently getting ready to lease out land closer to Tabwakea landfill on Kiritimati Island. As a result of this, one stakeholder raised the need to monitor the water lens at Tabwakea landfill to make sure there is no contamination

⁵¹ <http://www.lqz.co.nz/assets/Uploads/Our-work/Kiribati-Waste-management-review.pdf>



of the water lens. He believed this was less of a concern at the Main Camp dumpsite since the amount of waste is less and it is currently quite isolated.

More work needs to be done on the results framework

The purpose of the results framework should be to capture relevant, simple and robust indicators of the SWM Programme's success. However, the evaluation team finds that the design of the results framework and the reporting against it is currently inadequate. Although, it is important to keep in mind the difficult environment in Kiribati, and that a lot of resources and time would need to be directed towards establishing baseline estimates and reporting of outcomes. This has further been challenged by the lack of a Programme Manager.

Our observations are listed below and they are based on the most recent results framework provided to the evaluation team, which is dated 2017 but includes one measure from 2018.

- **Some indicators are missing/could be added.** The indicators related to the outcome 'I-Kiribati have access to reliable SWM services' does not cover an equity measure. That is, it does not capture the fact that the same communities may often miss out on a collection. There are also no indicators capturing the number of collection points or public litter bins installed, and the number of staff trainings that have been undertaken.
- **Some outcomes could be better tailored to the SWM Programme.** For instance, the outcome 'I-Kiribati has greater awareness of the importance of SWM and the connection to public health' could be extended to also capture awareness around the Green Bag scheme and the importance of separation of wastes.
- **The reporting doesn't always relate back to the indicator.** For instance against the indicator: 'No./percent of people on South Tarawa with improved basic sanitation' there is a measure saying: '53 percent of BTC and 54 percent of TUC population receive a regular collection service by the council'. Moreover, some reporting is done with longer explanations of progress made, without a quantitative estimate relating back to the baseline/target.
- **Many measures are reused in the reporting.** Repetition of estimates appears several times in the results framework. For instance, the measure above is repeated three times against three different indicators.
- **Some indicators are duplicated.** The indicator 'staff capacity and capability development plan' appears twice in the results framework.
- **The results framework is not specifically targeted against the SWM Programme.** Instead, it is more focused on capturing the SWM in general, which makes it difficult to measure the SWM Programme's success. For instance, it is unclear why the results framework is reporting on the reliability of the council collection, when this is not a part of the SWM Programme.



- **It is unclear who the target population is.** The results framework mixes phrases such as 'population', 'residents' and 'urban users'. It is unclear what the difference is. Further, the evaluation team understands that Poland is excluded from the services provided on Kiritimati Island. This should be made clear.
- **Some indicators have the wrong denominator.** Some indicators refer to the proportion of residents rather than proportion of service users. For instance: 'percent of South Tarawa and Kiritimati Island residents who indicate existing services run according to set schedules'. This estimate gives an inadequate indication of how the services are improving, since the denominator is the population, rather than the number of service users.
- **The indicators could better capture the performance of the outputs.** For instance, the awareness raising component is wider than the production of school kits and community events. This should be captured in the results framework.
- **The indicators covers both Kiritimati Island and South Tarawa, but the estimates only South Tarawa.** Combining the two islands into one framework creates a great deal of confusion and makes the framework not fit-for-purpose. Especially given the differences in outputs between the two islands.
- **Little progress has been made.** In total, there are 31 indicators against the 11 outputs and outcomes. Around nine indicators lacks clear baseline estimate and very few indicators have been reported against. Reporting is also taking place against indicators which have no agreed baseline estimate.
- **There are no references.** Where reporting against baseline estimates have been done – there is no reference to the year and source. Further, it is currently difficult to know whether progress has been made or not (since it is unclear whether these indicators in results framework have been looked at). If there has been no progress with respect to an indicator, this should be noted (e.g. if there hasn't been a staff capacity and development plan developed, there should be a note saying that no progress have been made, together with a date).

PROGRAMME COORDINATION AND ALIGNMENT

The design of the Programme has aligned well with other activities

Overall, the evaluation team finds that Phase 1 and 2 has effectively taken into account what other development partners are doing in country – to avoid overlaps and gaps. Identifying synergies, gaps and overlaps enables a more effective future direction of MFAT's resources.

For any future support, it is important to continue to identify areas of focus by other development partners and that communication and information sharing continues to take place.



Regional waste projects are entering their second phases

Many regional waste projects now entering their second phases. This includes the EU Funded PacWaste Plus and Agence Française de Développement (AfD's) second Phase on solid waste. This is combined with a heavy regional and international focus on marine litter, plastic waste and regional recycling (including the UK government, World Bank, Pacific Region Infrastructure Facility (PRIF) and International Union for Conservation of Nature). Thus, the resources for waste and pollution management are increasing by a magnitude.

Stakeholder engagement is valuable

Stakeholder engagement is valuable since there may be waste programmes in other countries suitable for replication in Kiribati. Examples include RMIs production of cardboard BBQ briquettes, Fiji's modification of wood chippers to produce shredded PET and Tuvalu's successful green waste diversion approaches.

Equally, learnings from the Kiribati SWM Programme should be shared with other countries looking at developing their SWM practices. The Programme has been running for a very long time, and has been carried out in a very challenging environment (economically, logistically and geographically) which provides an extremely valuable source of approaches, information and experience.

More effective engagement structures can be developed

What is most critical is to develop a more effective coordination mechanism and engagement structures both at the national and regional level. Improved knowledge exchange is one of the components under output 3.

MFAT with its well-established presence in Kiribati is well placed to support this at the national level while its membership in CROP agencies (including SPREP) and more importantly the PRIF (which includes ADB and EU) assists at the regional level. Appendix 3 shows a list of potential partners for GoK and MFAT and lists some regional projects which may be of interest to MFAT and GoK.



8

Lessons Learned

Realising the importance of capability and capacity development

The design of any activity needs to take in to account the capacity and capability environment in Kiribati. Thus, an activity needs to find the right balance between utilising in-county staff, identifying areas where there are opportunities for development and areas where external expertise is needed.

A key strength of the Programme is the increased use of local staff – in particular the recruitment of the project officers. However, the success of the SWM Programme is still vulnerable to staff changes and skill shortages. This is particularly the case in more technical areas – such as landfill management. Any future support should place more efforts to training staff, and developing recruitment processes with proper hand-over procedures.

Recognising local constraints

The SWM has been less successful in recognising local constraints. For instance, Kiribati has a very harsh climatic environment, which impacts life span of field equipment and infrastructure. This, coupled with limited technical skills, creates significant vulnerabilities for a continuous operation of equipment. Despite this, the SWM Programme has purchased expensive technical equipment which has been left outside without proper shelter (e.g. the compactor trucks). This has been coupled with a lack of asset management, maintenance and timely repairs – often due to a lack of the right technical skills and/or incentives.

Using a labour intensive approach

One key opportunity in Kiribati is the availability of cheap labour. Thus, rather than investing in expensive capital that is more likely to break down and which requires specialist technical skills (e.g. the compactor trucks) – a cheaper and more reliable investment is often to utilise less technical equipment, which requires higher labour input. This also supports the International Labour Organisation’s principle of using labour intensive technology to provide more jobs.

Tailoring approaches to within-country contexts

It is important to recognise that what works in one context does not necessarily work in another. This is particularly true when providing support to outer islands.

As discussed above, Kiritimati Island and South Tarawa are far more dissimilar than synergistic. For instance, the lack of land and abundance of people on South Tarawa makes it difficult to conceal dumping behaviour, while the large tracts of vacant land and scrub make it easy to dump rubbish on Kiritimati Island. Kiritimati



Island also don't have a problem with dogs, which means that installing the same collection points as on South Tarawa – which has been designed to keep rubbish out of reach from dogs – might not be a cost effective solution on Kiritimati Island. Conversely, it is important to identify where previously developed concepts can effectively be applied without any modification – since this will generate significant cost savings. One area where this might be true is the design of posters, templates and other awareness-raising materials.

At the core of the above is ensuring information sharing is taking place.

Recognising the importance of communication and coordination

The SWM Programme has failed to recruit a Programme Manager, as well as to establish the NSWMC. This has led to inefficiencies and a lack of programme oversight. Any future support need to focus on establishing systems that enables better communication and coordination.

Recognising the importance of information sharing, collaboration and networking

Sharing of information needs to be done within the country (across islands and within islands). This will have significant benefits in terms of cost and time savings, and avoidance of duplication of activities. It is also likely to increase staff morale.

A strength of the SWM Programme is that its design has taken into account the activities of other donors in-country – in order to reduce duplication of activities and gaps. However, the SWM Programme and GoK can further benefit from increased networking, collaboration and information sharing with other PICs.

Recognising the importance of creating the right incentives

Contract management needs to improve. For instance, the CFS with Moel creates an incentive to sell as many Green Bags as possible. This is also what has happened since more and more Green Bags are being sold, while the collection of Green Bags has remained flat.

There are also no penalties if Moel fails to meet the commitments in the contract. This has led to poor vehicle maintenance. The CFS also includes a clause where MFAT covers service/vehicle repairs over \$1,000. This would create an incentive for Moel to only undertake repairs that exceeds the \$1,000 mark.

Future contracts needs to be designed so that the right incentives are created and aligns with the overall programme objectives (and cultural context). The contracts also need to find a balance between penalties and rewards.

Understanding and embedding cultural aspects in the design of activities

The SWM Programme has successfully embedded cultural aspects in the design of activities. For instance, during our stakeholder engagement it very quickly became clear that I-Kiribati is very fond of competitions and dramatisations. KRCS have effectively embedded these elements in the design of their activities and they have



also started to realise that public shaming elements can be incorporated to reduce littering behaviour.

Involving the private sector and communities

The SWM Programme has shown that the involvement of community organisations and the private sector has been a very effective and efficient way of implementing SWM services. Conversely, where the private sector or communities have not been involved in the implementation process, the implementation has been less successful (one example being the waste collection system).

Increasing efforts on data collection and reporting

Data collection and monitoring should be undertaken in relation to all support provided. For instance, on Kiritimati, nobody is monitoring the Green Bag trial. This makes it incredibly difficult to know the outcomes and impacts of the trial and in turn questions the overall purpose of the trial. Thus, in the same way as a vehicle should not be procured without ensuring maintenance will be undertaken, a trial should not be implemented without ensuring that it will be properly monitored.

Remembering version control of programme documents

The evaluation team has received many different versions of documents and it has been difficult to decipher which is the latest version. The fact that different project staff has sent us different documents, means that project staff may be working from different documents. This was the case for the Phase 2 ADD. Further, the results frameworks and many of the surveys carried out don't have dates in the documents. Some of the documents have a date included in the electronic naming of the file (which is not helpful if you are working off a printed version).



9

Conclusions and Recommendations

OVERALL CONCLUSIONS

The SWM Programme has made a significant positive impact on South Tarawa. The Green Bags are widely used, good progress has been made on awareness raising and education activities, and attitudes toward waste and littering is improving. Ultimately, the Programme has reduced the amount of solid waste being improperly disposed of.

However, it appears to have made less of an impact on Kiritimati Island. While attitudes to waste are changing on Kiritimati Island, there is still a long way to go. Further, while there are some crucial systems in place – such as a waste collection and a waste collection schedule – the SWM practices are very much still in their infancy.

On South Tarawa, the evaluation team finds that most of the Programme's success is a residue from the activities undertaken during Phase 1. While Phase 2 has enabled a continuation of these activities – and also ramped up a few of them (in particular awareness raising), the evaluation team finds that there are a few key constraining factors that has reduced the Programme's progress. These are:

- an unreliable and inadequate collection system
- decreased awareness around Green Bag utilisation and the Green Bag system
- no system in place for proper management of organic waste
- a lack of coordination and programme oversight
- a lack of accountability and community ownership.

There are a number of enhancements that could be made to the project during the remainder of Phase 2, to increase its effectiveness and efficiency, and improve its chances of long-term success.

It is recommended that New Zealand considers proceeding with a further phase of funding (for Phase 3), as an exit at the end of Phase 2 may jeopardise the achievement of results from the investment to date, which need further support to



be fully 'bedded in'. However, any future phase of support should include a clear exit strategy for the areas of support.

Below the evaluation team outline their recommendations, split between South Tarawa, Kiritimati Island and overall programme coordination, implementation and governance. For each recommendation the evaluation team comment on the recommended timing (Phase 2 or 3) and who (MFAT, GoK and/or a third party) should be responsible for addressing the recommendation. Where possible, the evaluation team provide a rough, indicative estimate of the cost implications. Where there is a lack of information or the underlying factors are too uncertain, the evaluation team provide high level comments on where additional costs are likely to arise. The recommendations are summarised in Appendix 5.

FUTURE DESIGN AND SUPPORT – SOUTH TARAWA

Improve the collection service

The Green Bag itself is very well known and widely utilised – but not only for its intended purpose. Less than a fifth of the Green Bags end up in the landfill via the Green Bag collection truck. This strongly suggests a lack of linkage between Green Bags and waste containment/management which, combined with problems in the collection system, is contributing to leakage with numerous Green Bags found abandoned or dumped, located in waste piles, floating in the lagoon and washed up or buried on beaches.

Moel is very motivated to sell Green Bags, as this is the point at which they receive all of the revenue. Collection is not subject to same incentives, which may explain why the effort level for collection has not increased. To address this issue the evaluation team suggests that any future contract should be designed so that there is also a financial incentive to collect all the Green Bags and dispose them at the landfill, and not just to sell them.

A performance agreement should be included in any future CFS with Moel (or any other service provider) – with penalties – if the requirements of the contract are not being met. Further, a regular audit is needed to ensure that the collection system is working as it should.

The additional cost of the above is largely related to extra staff needed for Moel to increase collection effort and record bag collection through an agreed recording system. Additional smaller vehicles may also be needed to service less accessible feeder roads with costs being covered by Moel (from the revenue from increased bag sales).

If the reimbursement model shifts from the import of bags to bag collection, there would also be a need for audit of the system which should already have been occurring for the current contract. Further, with the plans to migrate contract management to ECD, this can be a task covered by their officers with this being up to a 0.1 to 0.25 FTE for personnel. This can logically be carried out by the Waste



Disposal Officer position which is already funded by MFAT with the value of the audit function being \$4,000 to \$7,000 plus potentially transport costs.

Recommendation 1: Make amendments to future CFSs. Any future contract should be designed so that there is a financial incentive to collect Green Bags as well as selling them.

Timing: The current CFS runs until 31 August 2019. Thus, the recommendation above can be implemented during Phase 2.

Estimated cost: Small cost associated with revising the contract, which should be done by MFAT.

Recommendation 2: Enforce the current contract conditions and include a performance agreement in any future CFS.

Timing: Phase 2

Cost: Labour cost involved from revising the CFS. The costs associated with monitoring and reporting will increase. Contract revision should be led by MFAT.

Recommendation 3: Introduce a regular audit of the collection system (to show that all feeder roads are serviced and all bags are collected weekly)

Timing: Phase 2

Cost: The labour value would be around \$4,000-\$7,500 per annum, plus transportation costs, using existing project officer positions (e.g. the Waste Disposal Officer).

Increase the awareness about the Green Bag system

The awareness around the Green Bag system needs to increase. Thus, focus of education and outreach activities should be shifted to address issues related to Green Bag usage and to improve understanding of the Green Bag collection system. This would require amendments to the Position Descriptions of both roles placed at KRCS which, in their current form, strongly emphasise enforcement of the Environment Act, specifically Section 12 on littering.

Community engagement and information dissemination can be encouraged through the creation of a Green Bag hashtag and the set-up of social media accounts for the Green Bag collection system. In the absence of a dedicated project website, social channels would provide a space through which activities can be promoted, questions and complaints can be addressed, and good news stories and positive project outcomes can be disseminated.

Communities should be encouraged to hold the collection service accountable through reporting, social media etc. One option is to establish a 'hot line' which service users can call or text when the collection service is found inadequate. The number should be printed on the bags themselves to encourage utilisation.



Youth groups can be mobilised to form a Green Bag army or similar. Funding would be needed for uniforms, meal allowance and training. It can be done within villages or for South Tarawa as a whole. Another option is to start a Green Bag village fund which provides small grants to villages to organise events/initiatives to reduce litter and encourage the correct use of the Green Bag.

The single greatest resource for encouraging desired behaviour is the Green Bag itself. Messaging should be developed, tested and printed on the bag to encourage correct eventual use. The agreed messaging should list the types of waste that can go in the bag and explicitly direct people to fill the bag with waste and make it available for collection.⁵² The Kiribati te Boboto slogan is very well recognised (and should be retained) but needs to be supplemented with waste management references.

Further, there should be increased awareness around what is included in the price. It is important that people understand the waste collection is not free. I.e. they need to understand that the Green Bag system is a paid collection service and without it no collection will occur.

<p>Recommendation 4: Shift the focus of education and outreach activities to address issues related to Green Bag usage and to improve understanding of the Green Bag collection system.</p> <p>Timing: Phase 2</p> <p>Cost: Small cost to MFAT associated with revising KRCS Position Descriptions</p>
<p>Recommendation 5: Utilise the Green Bag itself to increase awareness</p> <p>Timing: Phase 2</p> <p>Cost: Increased printing cost and cost involved with developing the additional text which should go on the bag. Should be led by KRCS.</p>
<p>Recommendation 6: Plan and implement a targeted campaign on Green Bag utilisation</p> <p>Timing: Phase 2</p> <p>Cost: Labour cost involved. Should be led by KRCS.</p>
<p>Recommendation 7: Set-up of social media accounts for the Green Bag collection system.</p> <p>Timing: Phase 2</p> <p>Cost: Labour cost involved. Should be led by KRCS.</p>

⁵² Other messaging could be that the Green Bag should be tied. The schedule can also be printed on the bag, along with a message promoting that the home of the Green Bag is the landfill.



Recommendation 8: Establish a 'hot line' which service users can text when the collection service is found inadequate.

Timing: Phase 2

Cost: There would be labour costs involved with monitoring the complaints and recording the data. This task could be placed with one of the MFAT founded project officers.

Recommendation 9: Mobilise youth groups, alternatively start a Green Bag village fund, providing small grants to villages for Green Bag events/initiatives.

Timing: Phase 2

Cost: Funding would be needed for uniforms, meal allowance and training and will depend on the number of youths involved. The size of the fund could be around \$200 per village. There are around 300 villages on South Tarawa. Thus the maximum cost of setting up the fund would be \$60,000. Should be led by KRCS.

Increase the price when the collection is reliable and valued

The Green Bag system may already be self-sustaining with figures showing five bags are sold for every bag collected by Moel. A price increase to 25 cents per Green Bag could therefore potentially cover all current operational costs as well as future capital costs. Though, this should be fully analysed to confirm the business case. Thus, an independent review of the business case is needed to ensure that all capital expenditure and operational expenditure is covered for a sustainable system.

However, the evaluation team finds there is no justification for a price increase until the Green Bag collection improves and people have (re)gained full trust in the system.

Recommendation 10: When the collection meets contracted conditions (all bags collected weekly from all feeder roads), increase the price of the Green Bag and reduce MFAT's support to the provider.

Timing: Depends on when the collection is fully effective. If the collection service improves during Phase 2 (and satisfaction and awareness of the system increases), the price can increase during Phase 3 – meaning MFAT can withdraw its support to Moel in Phase 3.

Cost: The cost currently incurred of \$56,000 per FCL would be removed. The cost increase should be informed a business case analysis, implemented by Moel, in corporation with KRCS's awareness raising work.

Recommendation 11: Undertake a business case analysis of the Green Bag system

Timing: Phase 2



Cost: Around \$20,000-\$30,000 (depending on the extent of the review and whether an independent firm will be used).

Improve the management and the longevity of the landfills

While the management of the landfills have seen a significant improvement since the start of the SWM Programme, there are current management and maintenance issues that need to be addressed.

Recommendation 12: Introduce a policy requiring large developmental construction projects such as runway and road projects to make independent arrangements for disposal of such wastes as part of the overall project plan. Landfill space should not be used.

Timing: Phase 2

Cost: Needs to be proposed by GoK (MELAD could address this when issuing Environmental Licences for projects). MFAT can provide support (which would involve labour cost).

Recommendation 13: Integrate maintenance schedules in the landfill plans

Timing: Phase 2

Cost: Needs to be proposed by GoK. MFAT can provide support (which would involve labour cost).

Recommendation 14: Consider introducing a landfill gate charge for commercial wastes

Timing: Phase 3

Cost: Needs to be led by GoK, MFAT can provide support

Efforts also need to increase in terms of controlling the organic waste entering the landfills (including an approach for managing green waste, cardboard and nappies – described below).

Develop an approach for green waste management

The current actions on green waste are fragmented with limited effectiveness. To mitigate the negative impacts and enhance the potential positive benefits, a parallel, systematic and integrated approach for green waste needs to be developed.

As part of such a system, there is potential to strengthen links between with the Temauku Farmers' Cooperative Association interest to 'duplicate' compost production and market garden capabilities, current JICA expertise in this area (school gardens), previous support from the Australian Commonwealth Institute of Agricultural Research and underutilised equipment from the previous JICA programme.



LGNZ has suggested that the councils should be responsible for the collection of organic waste, but this evaluation shows low confidence in the councils capability and interest to do this reliably. Instead, this could be an area that MFAT/MELAD may consider supporting but in cooperation with other donor projects focused on this area such as the EU funded PacWaste Plus Project, the UNDP/SPC Ridge to Reef Project and potential UK, JICA World Bank and ADB funding lines.

Another possibility is connecting and potentially further developing the 'Waste Exchange' pilot idea and the various initiatives by NGOs and women's groups (i.e. Catholic Women) along with JICA's current work in schools.

In the interim, it needs to be accepted that without a separate green waste system that households and others will dispose of some green waste to landfill. Because of this, waste collectors from Moel need to follow a 'no Green Bag should be left behind' policy and stop the practice of not collecting Green Bags containing organic waste. Every time this happens it undermines the success and sustainability of the Green Bag system on South Tarawa.

Recommendation 15: Collect all Green Bags – even those containing organic waste. Introduce a 'no Green Bag should be left behind' policy in the CFS.

Timing: Phase 2

Cost: Moel's responsibility. No additional cost to MFAT except for small labour cost involved in revising CFS.

Recommendation 16: Continue education and awareness on waste separation and the need to divert organic waste from the landfill. Support this campaign by including messaging on the Green Bag to explain that organic waste should not be included in the bag.

Timing: Phase 2

Cost: Utilise existing education and awareness mechanisms, led by KRCS.

Recommendation 17: Consider formal and consolidated support to the Farmers' Cooperative to continue green waste collection and roll out to the whole of South Tarawa. This includes relocating the shredder from BTC to the Farmers' Cooperative. Alternatively provide another (with operational maintenance support and fuel).

Timing: Planning in Phase 2 but support in Phase 3 (unless supported by other projects).

Cost: Relocation costs for the existing shredder, or purchase of a new shredder plus fuel (\$10,000). Transport support for green waste collection and drop off (\$6000). Has the potential to be multi-donor but needs to be proposed by GoK. Encourage KRCS to promote the service as part of their ongoing awareness and education activities.



Consider removing cardboard from the waste stream

Cardboard and paper are major waste types which are currently not included in any deliberate processes in Kiribati. This means there are currently no efforts towards diverting cardboard and paper from the landfill where they contribute to significant environmental harm and consume valuable landfill space in a similar manner to green waste.

However it does have the potential to be valuably utilised as a substitute for imported BBQ fuels that are based on fossil fuels, to generate jobs. It is also potentially an exportable recyclable if all of the current tools including CDL, subsidised back loading and regional initiatives are used.

Recommendation 18a: Consider piloting the RMI cardboard briquette initiative

Timing: Phase 3

Cost: Not enough information to comment on costs. There is a potential to utilise regional projects with a focus on waste management, recycling and reuse such as the EU funded PacWaste Project

or

Recommendation 18b: Consider adding cardboard to the Kaoki Maange system and investigate the business case for export of cardboard to regional markets such as Fiji, utilising shipping subsidies such as Moana Taka and regional initiatives to improve recycling such as those being conducted by the PRIF.

Timing: Phase 3

Cost: MFAT could provide support (labour cost involved)

Start addressing the problem with disposable plastic nappies

The issue of disposable nappies in the waste stream poses a unique problem in Kiribati. Given the complexity of the issue, and the potential negative impact that this waste type has on SWM practices in Kiribati, the evaluation team recommends addressing this directly in Phase 3.

Firstly, the SWM Programme should collaborate with WASH programmes operating in-country to encourage community-led solutions to nappy containment and disposal. At the household level, this may include promoting the use of nappy buckets made from breakfast cracker containers. At the community level it may be possible to establish secure nappy waste containment areas. More broadly, the issue may be improved through increased frequency of collection.

In areas where concern around the burning of nappies is high, efforts should be made to ensure that waste reaching the landfills or dumpsites is not burned. Equally, this fact should be communicated to communities.

Any action on the disposable nappy waste stream should be preceded by extensive consultation with women. While disposable nappies are a luxury item for many, they are also an important time and labour-saving device for women.

Recommendation 19: Collaborate with WASH programs



<p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Should be led by MFAT and GoK.</p>
<p>Recommendation 20: In areas where concern around the burning of nappies is high, efforts should be made to ensure that waste reaching the landfills or dumpsites is not burned. This fact should be communicated to communities.</p> <p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Could be led by GoK and KRCS, with support from MFAT.</p>
<p>Recommendation 21: Any action on the disposable nappy waste stream should be preceded by extensive consultation with women.</p> <p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Should be led by KRCS.</p>
<p>Recommendation 22: Continue to ensure collection points are effective in preventing dog access and also consider dog control measures</p> <p>Timing: Phase 3</p> <p>Cost: Dog control measures are already covered by the council. Could be led by KRCS (collection points) and GoK/the councils (dog control measures)</p>
<p>Recommendation 23: Conduct targeted community engagement and awareness in 'nappy hotspot zones' to promote proper disposal using the Green Bags. Also provide education on the impacts when these are improperly disposed of into the environment.</p> <p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Could be led by KRCS, with support from MFAT.</p>
<p>Recommendation 24: If dumping behaviours continue despite collection improvements and education/awareness, conduct targeted enforcement campaigns</p> <p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Could be led by GoK and KRCS, with support from MFAT.</p>

Improve the management and maintenance of equipment

Overall, it appears that the economic benefit to PVU of leasing the wheel loader out to third parties is not worth the operational risk and actual repair costs from the damage that has occurred through these activities.

Further, the evaluation team finds that investing in less technical equipment for waste collection would have suited the environment in Kiribati better. However, given that the equipment has already been provided, it is appropriate that support to ensure the operational integrity is maintained.

Recommendation 25: Consideration should be given to exclusively reserving the wheel loader for landfill operations, but at commercial prices that provides an



acceptable return to PVU in providing this service. The operational integrity of the wheel loader should be prioritised to ensure operational works at the landfills are conducted as scheduled.

Timing: Phase 3

Cost: Not enough information to comment on costs. Should be led by MFAT in collaboration with GoK.

Recommendation 26: Consider procuring appropriate expert backstopping by international mechanics to ensure quality of work and to provide training for general maintenance to PVU mechanical staff

Timing: This should be an ongoing arrangement and can start in Phase 2

Cost: Labour cost involved. Should be led by MFAT.

Recommendation 27: Include a performance agreement in any future CFS to ensure regular maintenance

Timing: Phase 2

Cost: Small labour cost involved with revising CFS. Should be led by MFAT.

Continue to increase community engagement and ownership

Community ownership and engagement is critical to the long term sustainability of the Programme. Increasing community consultative efforts will lead to an increase in ownership and engagement.

Communities and reputational leaders should be engaged in problem assessment and campaign testing. Communities should also continue to be consulted to determine which of the collection point styles best suits their needs. Further to this, the garbage collectors should be consulted prior to the design and installation of any new models.

Given the wide variety of different views on collection points and the different advantages and disadvantages, the evaluation team concludes that no uniform approach to collection points can be undertaken. Moreover, regardless of the structure used, an opportunity exists for signage to be erected at collection points to:

- identify the point as the place to put the Green Bag
- to reinforce messaging around what should go into the Green Bag and
- encourage reporting of waste piles or non-collection.

Recommendation 28: Engage communities and reputational leaders in problem assessment and campaign testing

Timing: Phase 2

Cost: Could be carried out under the KRCS contract.

Recommendation 29: Continue to consult communities about the type of collection point they prefer, being sure to articulate the advantages and



disadvantages of each design. The garbage collectors also need to be consulted prior to the design and installation of any new models.

Timing: Phase 2

Cost: Would be carried out under the KRCS contract. The evaluation team suggest that communities would be able to choose from having many cheap collection points – or a few expensive ones.

Recommendation 30: Utilise the collection points to put up signage

Timing: Phase 2

Cost: Labour and capital costs associated with developing and printing signs. Should be led by KRCS and the GFA would need to be updated.

Target behaviour change efforts

Findings on attitudes and behaviour change are generally very positive and indicate that substantial progress has been made. However, the emergence of Group 4 is cause for concern. Efforts should be made to:

- a) prevent further Group 3 individuals moving into Group 4, and
- b) transition Group 4 individuals back into Group 3.⁵³

Some tactics for engaging individuals in different stakeholder groups are outlined in Table 10.

Recommendation 31: Identify existing behaviours and make targeted efforts to engage these groups in better SWM practices (see suggested tactics in Table 10)

Timing: Phase 2

Cost: Should be led by KRCS. Could potentially be carried out within the existing GFA.

Table 10 Tactics for engaging different stakeholder groups

Group 1	Group 2	Group 3	Group 4
Engage through direct outreach. Provide with free bags and support for rubbish removal as required.	Will eventually be reached through continued public awareness and education activities. Implement nudge tactics such as	Efforts need to be made to retain this group. Tactics include: Improvements to collection reliability; Reward (through	Need to shift this group back to Group 3 through demonstrable improvement in collection (100 percent reliability); incentives for

⁵³ See descriptions of groups 3 and 4 on page 49



<p>messaging on bag to promote correct usage.</p> <p>This group will be motivated by enforcement and the threat of enforcement.</p>	<p>acknowledgement) for participation; Likely to respond favourably to increased frequency of collection.</p>	<p>participation (through acknowledgement); increased education and awareness; enforcement; avenues to voice concerns; community led problem assessment.</p>
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Acknowledgement of efforts – to encourage social and collective responsibility – can be done in a number of ways. One way could be by creating signage for sites that have been cleaned up. The signs could indicate the date that the clean-up took place, the names of the community or organisations that participated, and encourage passers-by to keep the area clean. Additionally, clean-up sites could be monitored weekly and data recorded on how long they were kept clean.

Recommendation 32: Acknowledge efforts to encourage social and collective responsibility, e.g. via putting up signs at areas that have been cleaned up

Timing: Phase 2

Cost: Small labour and printing cost involved. Should be led by KRCS and the GFA would need to be updated.

Recommendation 33: Monitor sites that have been cleaned

Timing: Phase 2

Cost: Labour cost involved. Should be led by KRCS and the GFA would need to be updated.

Mobilise a team of volunteers

KRCS volunteers have played a key role in implementing outreach and awareness activities to date but access to this resource is limited due to numerous competing demands on their time. Thus, efforts should increase around mobilising a pool of volunteers that can be drawn on when required.

Recommendation 34: Mobilise a team of volunteers, not just from KRCS but from other organisations and NGOs that can be drawn on when required.

Timing: Phase 2

Cost: Provide volunteers with a half-day training session and uniform, in addition to transportation and meal allowances. Could be led by MFAT, in collaboration with KRCS.



Develop fit-for-purpose education material

Existing education kits should be enhanced through the creation of bespoke content that reflects the current South Tarawa context. A large number of materials need not be produced. Instead it is preferable for the kits to contain a small number of carefully tailored resources rather than a large number of items that are not context-specific. A suggested starting point would be to commission a colourful and professionally produced flip chart detailing the rationale for the Green Bag collection system and proper use of the Green Bag with an accompanying exercise sheet through which messages can be reinforced and assessed.

Ministry of Education also expressed a wish of supplying schools with gardening tools (so that the students can learn by doing – instead of just reading about gardening). This might be something for MFAT, or another implementation agency, to consider.

Recommendation 35: Develop educational materials that better reflect the South Tarawa context.

Timing: Phase 3

Cost: Labour and print costs involved. Should be led by KRCS and could potentially be carried out within the existing contract.

Recommendation 36: Consider providing gardening tools to schools to promote learning-by-doing

Timing: Phase 3

Cost: Cost expected to be negligible. Should be provided by MFAT.

Consider modifying tariff lines

The tariff system should be designed to support material that has a higher recyclable value. I.e. place higher tariffs on material that has a low recyclable value (and thus are harder to export) and lower tariffs on material that has high recyclable value (and thus are easier to export).

Kiribati Recyclers mentioned that glass could be included in the Kaoki Maange system. While this could be considered, the evaluation team finds that a more cost-effective way to reduce glass waste (which is a low-value recyclable) is to support increased import of aluminium (a higher value recyclable material) since this is already part of a successful system (this has been done in RMI).

Recommendation 37: Consider modification of tariff lines to ensure higher tariffs for glass where there is an aluminium equivalent

Timing: This should be an ongoing arrangement and can start in Phase 2

Cost: Would be led by GoK, MFAT could provide support. Labour cost involved.



Investigate recycling options

Kiribati Recyclers should also, potentially with help from MFAT, other donors or GoK, investigate other PET recycling options through Moana Taka trial (Pleass Beverages, Visy Australia, SPREP), Coca Cola Amatil Fiji and PRIF.

Moreover, the best avenues for a sustainable bulky waste and e-waste management system include funded systems linked to a viable business case which collects revenues from a deposit system. This should be combined with a system for sorting and preparing scrap, utilisation of regional back loading arrangements such as Moana Taka, and linkages to potential regional markets supported by PRIF.

Potential sources of funding for the e-scrap export could include the next stage of SAICM or the EU funded PacWaste Plus project funding. However, as funding would be modest (\$2000 to \$3000) and release of funds from other projects is likely to be slow, this could potentially be expedited under the current MFAT project.

MFAT should draw on learnings from the tender process to consider if the tender approach is preferable, or if support should be given in developing a Kaoki Maange style system for those materials which become bulky metal wastes.

Kiribati should also actively engage with donors and projects that are offering support on related activities.

Recommendation 38: Consider expansion of the Kaoki Maange system to cover more materials (cars, other forms of metal, white goods, electric and electronic and other beverage containers). This should be done via a business case review of the costs and benefits.

Timing: To consider in Phase 2 and if supported covered in Phase 3

Cost: Has the potential to be multi-donor but needs to be proposed by GoK. Analysis can be carried out by MFAT and GoK, in collaboration with Kiribati Recyclers Ltd. Labour cost involved.

Recommendation 39: Secure MRF to prevent damage to materials and preserve quality

Timing: Phase 2

Cost: Should be led by Kiribati Recyclers Ltd

Recommendation 40: Investigate other PET recycling options through Moana Taka trial (Pleass Beverages, Visy Australia, SPREP), Coca Cola Amatil Fiji and PRIF

Timing: Phase 3

Cost: Could be led by GoK and Kiribati Recyclers Ltd. MFAT could provide support

Recommendation 41: With respect to bulky waste, engage with:

- other pacific islands who have recently developed deposit systems for vehicles such as the Cook Islands and/or acquired processing equipment such as RMI and Tuvalu



- the Moana Taka scheme (Swire Shipping/SPREP) to see whether shipping assistance for low value scrap is possible
- the PRIF to see whether regional recycling may be relevant to bulky metal management in Kiribati

Timing: Phase 3

Cost: Engagement could be undertaken by MFAT and GoK. Labour cost involved.

Recommendation 42: With respect to e-waste, engage with:

- the Moana Taka system to reduce system costs and connect with the PRIF regional recycling hub investigations to enhance regional collaboration and approaches for e-waste
- incoming regional projects with a focus on e-waste such as the EU funded PacWaste Plus, UNEP/SPREP GEF Waste project and SAICM.

Timing: Phase 3

Cost: Engagement could be undertaken by MFAT and GoK. Labour cost involved.

Continue efforts to reduce single use plastics

While Kiribati – principally through the SWM Programme – has already taken significant actions on plastics, plastic leakage is still highly prevalent both through incomplete collection of waste, an insufficient amount of public litter bins and from littering activities.

Further work is needed to close the gap in these areas through system improvements and ongoing community engagement and awareness raising to change normative behaviour. Moreover, more work should be done to (a) prevent plastics from being imported through bans, selective tariffs and other disincentives and (b) manage plastics that are imported so that it is not lost to the environment (referred to as leakage) or burnt (which produces unacceptable contaminants subject to the Stockholm Convention).

The leakage needs to be understood through quantitative examination of the waste streams (including those in the environment). Then action needs to be taken to reduce the import of problematic plastics (items that are most commonly found in the environment) that are most easily replaceable or are the hardest to recycle. This information can then be further integrating circular economy principals into materials and waste management using existing examples in the Pacific.

Kiribati should actively engage with donors and projects that are offering support on plastic waste reduction policy development and related activities.

Recommendation 43: Consider changes to tariff systems, the container deposit system (Kaoki Maange) and other import systems to reduce the import of single use and low value plastics and maximise the collection, recycling and export of high value plastics



<p>Timing: Phase 3</p> <p>Cost: Needs to be proposed by GoK. MFAT can provide support (which would involve labour cost)</p>
<p>Recommendation 44: Integrate and further develop elements such as the 'Waste Exchange' which have strongly tapped into action on plastic waste.</p> <p>Timing: Phase 2</p> <p>Cost: Could be led by GoK in collaboration with TTM. MFAT could provide support.</p>
<p>Recommendation 45: Utilise specific TA support on plastic policy development such as that provided by the UKs Commonwealth Clean Ocean Alliance and Australian Governments Pacific Plastic Project</p> <p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Should be led by GoK, could be supported by MFAT or other donor.</p>
<p>Recommendation 46: Engage with incoming regional projects with a focus on plastic waste such as the EU funded PacWaste Plus (land based sources), AfD project (Marines sources), World Bank (ProBlue) and network with related bilateral projects (UK funded Vanuatu Plastic Reduction Project)</p> <p>Timing: Phase 2</p> <p>Cost: Labour cost involved. Engagement could be undertaken by MFAT and GoK.</p>

FUTURE DESIGN AND SUPPORT – KIRITIMATI ISLAND

Improve collection services

The collection service on Kiritimati Island is operational, but unreliable and not comprehensive. The reliability of the current services can be expected to improve with the arrival of the new collection vehicle. However, there needs to be an emphasis on the importance of vehicle maintenance and care.

Recommendation 47: Fast track procurement of tipping truck (and remove project signage from old truck). Once the tipping truck has arrived, conduct training in maintenance of the tipping truck.

Timing: Phase 2

Cost: Labour and travel cost involved. Should be led by MFAT. The training could be done by Harry Langley (the Waste Disposal Officer).

Improve health and safety

The collectors are not wearing any form of PPE. High visibility vests and gloves were reportedly provided to the three collectors recently but these are not being worn.

Recommendation 48: Provide the waste collectors with PPE and make sure they



are wearing the gear.

Timing: Phase 2

Cost: Cost associated with purchase of PPE. Should be led by MFAT.

Improve dumpsite usage and management

The dumpsites are currently inadequately used, with households and businesses taking their waste to the dumpsites without direction. This means that dumping takes place in a suboptimal way within the dumpsites. There are also cases where dumping is taking place outside of the designated area. Further, the compaction of the dumpsites is irregular and the procurement of the wheel loader has been delayed.

Recommendation 49: Install signage at dumpsites and surrounding areas to discourage dumping outside of the designated area and to strongly discourage burning (citing human health impacts of burning).

Timing: Phase 2

Cost: Small labour and printing cost involved. Should be led by MFAT, via the project officer.

Recommendation 50: Fast track procurement of wheel loader and once it arrives undertake training in maintenance.

Timing: Phase 2

Cost: Labour and travel cost involved. Should be led by MFAT. The training could be done by Harry Langley (the Waste Disposal Officer).

Recommendation 51: Conduct training in dumpsite management (this may include options of green waste management – e.g. whether to reorganise Tabwakea dumpsite to incorporate a green waste cell).

Timing: Phase 2

Cost: Labour and travel cost involved. Should be led by MFAT. The training could be done by Harry Langley (the Waste Disposal Officer).

Recommendation 52: Consider installing a fence and gates at Tabwakea dumpsite

Timing: Phase 3

Cost: Expected to be quite large. Could be considered by MFAT, or another donor.

Increase education and awareness activities

Service utilisation is unlikely to increase without concerted public awareness and education activities. Education and awareness activities have taken place but at the present scale are unlikely to impact on Green Bag utilisation or waste containment and collection behaviours. The current resourcing of education and awareness is not



sufficient to address the entrenched behaviours around littering, dumping, burning, waste containment and collection.

Recommendation 53: Focus efforts on negative impact of dump and burn behaviour and the importance of waste containment

Timing: Phase 2

Cost: This may or may not fit within the existing budget. Should be led by GoK, with support from MFAT.

Recommendation 54: Resource awareness and education activities appropriately

Timing: Phase 3

Cost: The budget would need to be looked at again for phase 3

Continue the Green Bag trial

While the construction of collection points has taken place exclusively in Ronton, Tabwakea was identified as an area where the Green Bag system is most likely to succeed. In contrast to Ronton, Tabwakea has very few subscribers to the KUC waste collection service. Dumping, burning and burial of waste are widespread as a result and few people have access to a vehicle.

Recommendation 55: Continue the Green Bag trial but focus efforts on Tabwakea in the first instance and make Green Bags available to small retail outlets in Tabwakea. Make sure the trial is monitored.

Timing: Make a decision at end of Phase 2 as to whether Green Bag activities should continue in Phase 3. As part of this, put together a business case.

Cost: It is unlikely that the Green Bag system will be financially self-sustaining in Phase 3. Thus, if the Green Bag system gets fully implemented in Phase 3, it is likely it will require support from MFAT.

Recommendation 56: Start installing collection points in Tabwakea and use the same community consultation methods as undertaken on South Tarawa.

Timing: Phase 2

Cost: Cost depends on the type and quantity of collection points installed. Should be led by MFAT.

Get the Kaoki Maange system up and running again

KUC has put the Kaoki Maange system at a halt due to payment problems. The evaluation team was unable to find out why KUC are not receiving enough money to run the system, and where the money from the levy payed at import is going.

Recommendation 57: Investigate the reasons behind why the Kaoki Maange system has stopped working and provide support to get it running again.



Timing: Phase 2

Cost: Labour cost involved. This should be led by MFAT, in collaboration with Kiribati Recyclers Ltd and KUC

Continue to encourage use of green waste

The majority of the waste at the dumpsites is green waste. Moreover, the EYC nursery is currently not utilised and there is a relatively large interest for gardening activities.

Recommendation 58: Consider handing over the responsibility of the EYC Nursery to the Agriculture Office. They have expressed an interest and would be able to hit the ground running.

Timing: Phase 2

Cost: Little to no additional cost. This should be led by MFAT, in collaboration with KUC (who needs to be on board)

Recommendation 59: Continue to support education campaigns on the use of green waste

Timing: Phase 2

Cost: Little to no additional cost. Led by the Agriculture Office, with support from MFAT.

Start addressing the issue of disposable plastic nappies

As for South Tarawa, the evaluation team recommends that the issue with disposable nappies is addressed directly in Phase 3 of the project. Similarly, the SWM programme should collaborate with WASH programmes, increase awareness around the issue and ensure that proper disposal using the pre-paid Green Bag bags.

Recommendation 60: Collaborate with WASH programs

Timing: Phase 3

Cost: Labour cost involved. Should be led by MFAT and GoK.

Recommendation 61: Efforts should be made to ensure that waste reaching the landfills or dumpsites is not burned. This fact should be communicated to communities.

Timing: Phase 3

Cost: Labour cost involved. Could be led by GoK and KRCS, with support from MFAT.

Recommendation 62: Any action on the disposable nappy waste stream should be preceded by extensive consultation with women.



Timing: Phase 3

Cost: Labour cost involved. Should be led by KRCS.

Recommendation 63: Promote proper disposal using the Green Bag system (if the Green Bag trial continues). Also provide education on the impacts when these are improperly disposed of into the environment.

Timing: Phase 3

Cost: Labour cost involved. Could be led by KRCS, with support from MFAT.

FUTURE DESIGN AND SUPPORT – PROGRAMME COORIDNATION, IMPLEMENTATION AND GOVERNANCE

Recruit a Programme Manager

A key constraint to the effectiveness and efficiency of the SWM is the lack of programme coordination and project oversight. The evaluation team strongly support the recommendations in the December review of recruiting a Programme Manager as soon as possible. The Programme Manager recruited on South Tarawa should also take regular visits to Kiritimati Island (e.g. 1-2 months a year)

Recommendation 64: Appoint a SWM Programme Manager and place the position within a GoK ministry (e.g. ECD).

Timing: Phase 2

Cost: In one version of the Phase 2 ADD, the cost of the Programme Manager was estimated at \$100,000 per annum. This should be led by MFAT.

Recommendation 65: The SWM Programme Manager (if employed) should take regular visits to Kiritimati Island

Timing: Phase 2

Cost: In addition to the above there would be travel costs involved.

Establish a National Waste Management Authority

The evaluation team strongly recommend establishing a National Waste Management Authority (NWMA).⁵⁴ The evaluation team believes there would be significant benefits of having all waste management systems gathered. These benefits include improved programme oversight, coordination and easier access to information which in turn would result in more efficient use of resources and thus improved effectiveness.

⁵⁴ Instead of calling it a National Solid Waste Management Committee (as in the GFA and ADD) the evaluation team believes that 'solid' can be removed and 'committee' can be replaced with 'authority'.



However, with less than two years remaining of Phase 2, the evaluation team believes this should be the key aim for Phase 3. In the meantime, 'a pseudo waste management authority' should start to be developed within MELAD which in Phase 3 would form the basis of the NWMA.

MELAD already have three MFAT funded positions, their procurement unit already manages the Kaoki Maange contract and MFAT intend to get them to manage the Moel contract. If the Programme Manager position gets filled, the evaluation team recommends placing this position at MELAD. The evaluation team also recommend placing the two KRCS project officers at MELAD.

Recommendation 66: Start forming a 'pseudo' National Waste Management Authority within MELAD

Timing: Phase 2

Cost: Labour cost involved. This should be led by GoK, with support from MFAT.

Recommendation 67: Establish a National Waste Management Authority

Timing: Phase 3

Cost: Labour cost involved. This should be led by GoK, with support from MFAT.

Consider establishing a Community Consultative Committee

The evaluation team suggests adding a sub-branch to the NWMA with a Community Consultative Committee. It is proposed that this committee – comprised of reputational rather than positional leaders – is managed and coordinated by the KRCS and can assist to:

- advise on initiatives taken place within communities
- advise on problem spots and challenges
- propose new ideas
- help to develop messaging and shape campaigns and
- mobilise support for initiatives arising from the project.⁵⁵

The evaluation team also recommends considering the appointment of a Communications and Outreach Adviser (either project funded or through VSA) to oversee all awareness raising and educational activities.

⁵⁵ Ideally, the committee should be given responsibility for allocating small grant funding (amounts of up to \$200) for community led initiatives on waste management that align with the project (mentioned above). The committee should ideally meet every month, staggered with Green Bag Task Force meetings, and chaired by KRCS who would be tasked with reporting to the taskforce on committee proceedings.



Recommendation 68: Consider establishing a Community Consultative Committee under the NWMA. Until the Community Consultative Committee is established, regular monthly meetings should be held between all staff working in project-funded positions at KRCS and MELAD.

Timing: Phase 3

Cost: Labour cost involved. Should be led by GoK, with support from MFAT.

Recommendation 69: Consider the appointment of a Communications and Outreach Adviser

Timing: Phase 3

Cost: Labour cost involved. Should be led by MFAT.

Keep the existing committees

The evaluation team recommends that the Green Bag Task Force, Ban Plastics Committee on South Tarawa and the SWM Committee on Kiritimati Island continue to operate. Once the NWMA is formed, these should sit under the NWMA.

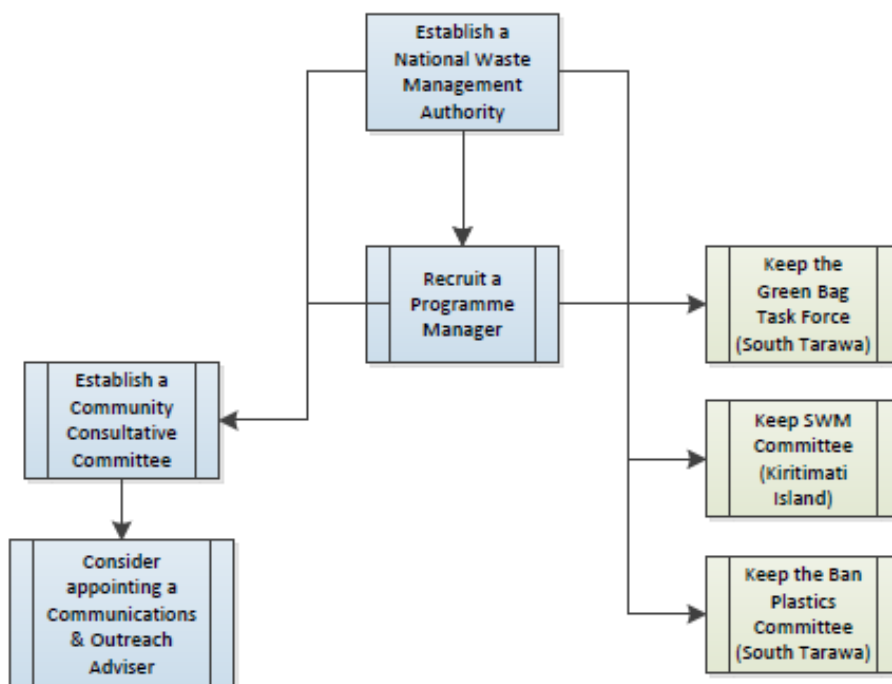
Recommendation 70: Keep the Green Bag Task Force and the Ban Plastics Committee on South Tarawa and the SWM Committee on Kiritimati Island

Timing: Already in place

Cost: No additional cost

Figure 26 Summary of recommendations 64-70





Start developing strategy documents

Project communication materials, educational materials and campaign resources are being produced by multiple stakeholders (NZHC, MELAD and KRCS) in an ad hoc fashion. Project branding is often not applied, and is inconsistent when present. Messaging is variable and not tested prior to roll-out. With the exception of the recently introduced Green Bag Task Force monthly meeting, no regular meetings are scheduled to discuss awareness-raising activities.

With no overarching communication and education strategy, staff engaged to conduct awareness-raising and educational activities are operating in a strategic vacuum. Staff at both KRCS and MELAD would benefit enormously from the development of a comprehensive strategy and detailed implementation plan to guide activities for the remainder of Phase 2. The over-arching aims of the strategy should be to:

- improve understanding of the Green Bag collection system including the rationale for a user-pays approach, with an emphasis on equity, resilience-building and long-term sustainability
- ensure correct 'eventual' utilisation of the Green Bag
- increase community engagement/empowerment through the community stakeholder committee recommended above, community led problem assessment and mobilisation of funds.



The Communications and Outreach adviser would work with MELAD and KRCS staff to develop the overarching communication and education strategy along with a detailed implementation plan, with clear targets. The position descriptions of the project officers at KRCS would need to be amended to reflect the aims of the strategy.

Moreover, effective coordination of Phase 2 activities on Kiritimati Island is impeded by a lack of any implementation plan or strategy. These are tasks which would ideally be undertaken by a Programme Manager.

Recommendation 71: Develop a comprehensive communication, education and behaviour change strategy, along with an implementation plan

Timing: Phase 2

Cost: Labour cost involved. Should be led by MFAT (via the Communications and Outreach adviser, if appointed), in collaboration with KRCS and GoK.

Recommendation 72: If resources are invested into the creation of a communication and outreach strategy for the South Tarawa include in the TOR a sub-strategy and implementation plan for Kiritimati Island.

Timing: This should be the focus during Phase 3

Cost: Labour cost involved. Should be led by MFAT, in collaboration with GoK.

The draft national SWM Strategy has not yet been finalised. The SWM Programme Manager should lead the finalisation of this strategy (as mentioned in the Phase 2 ADD), which the NWMA would be responsible for implementing.

Recommendation 73: Finalise the National SWM Strategy

Timing: Phase 3

Cost: Labour cost involved. Should be led by GoK, with support from MFAT (via the Programme Manager).

Improve programme monitoring and reporting

More efforts need to be directed towards reporting and monitoring on Kiritimati Island and South Tarawa. The information should be provided in a clear, simple format so that it is easy to review the progress. Coordination and consolidation of existing information should be done, along with a review of the results framework.

Recommendation 74: Consolidate all the existing data relating to the SWM Programme.

Timing: Phase 2

Cost: This would be a part of the Programme Manager's role

Recommendation 75: Review the existing results framework and develop two separate results frameworks for Kiritimati Island and South Tarawa

Timing: Phase 2



<p>Cost: Labour cost involved. Should be led by MFAT in collaboration with GoK.</p>
<p>Recommendation 76: Enforce monitoring and progress requirements</p> <p>Timing: Phase 2</p> <p>Cost: This would be a part of the Programme Manager's role</p>
<p>Recommendation 77: Undertake procurement of the Annual Sustainability Assessment</p> <p>Timing: Phase 2</p> <p>Cost: Depends on the extent of the review and independent firm used. Procurement should be done by MFAT.</p>

Start tracking expenditures against overall programme budget lines

The evaluation team was unable to review how much have been spent to date compared to the Programme budget lines on South Tarawa. This is a serious issue and should be addressed as soon as possible.

<p>Recommendation 78: Link and track the ministries' budgets and expenditures to the overall programme budget</p> <p>Timing: Phase 2</p> <p>Cost: Labour cost involved. Could be carried out by NEPO.</p>
<p>Recommendation 79: Remove the fist come first serve approach and instead make sure the ministries stick to their allocated budgets</p> <p>Timing: Phase 3</p> <p>Cost: Labour cost involved. Could be carried out by NEPO.</p>

Continue to hand over responsibility from MFAT to GoK

NZHC/MFAT is currently carrying too much load and this continues to undermine the future sustainability of the Programme. MFAT has gradually been transferring responsibilities and resources to the GoK. The evaluation team strongly support this approach.

The next step could be to transfer the next CFS with Moel to MELAD, where MFAT assists in writing up the contract and setting up the systems around it. MFAT can also start to gradually hand over the funding for the project officers to GoK, so that the project salaries are funded by GoK.

<p>Recommendation 80: Continue to migrate responsibilities and resources from MFAT to GoK</p> <p>Timing: Phase 2</p> <p>Cost: Cost saving, but additional labour cost to MFAT from hand-over phase.</p>
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Continue capacity and capability development

Communication and outreach on South Tarawa is progressing at an adequate pace, but is hampered by a lack of capacity in the area of communication and awareness.



For instance, staff in the MFAT-funded positions at KRCS have an understanding of what they need to do and a commitment to the task at hand, but lack the capacity and guidance to achieve this to the standard required. Both staff at KRCS emphasised the need for capacity building and professional development to assist them to achieve their outputs.

The SWM Programme should continue to develop local capacity and capability. Recruitment processes should be developed with proper handover mechanisms so that new staff quickly can get up to speed.

As a part of improving monitoring and reporting, training needs to be carried out to ensure correct use of templates.

Recommendation 81: Build capacity of project-funded staff by providing professional development training in (but not limited to) project management, monitoring and reporting.

Timing: Phase 2

Cost: Could potentially fit within the existing budget and should be led by MFAT.

Recommendation 82: Review the recruitment processes so that proper handover systems are in place

Timing: Phase 3

Cost: Labour cost involved. Should be led by MFAT.

Increase value for money

There is an opportunity for cost savings if implementation partners on South Tarawa share their knowledge, outputs and experience with their counterparts on Kiritimati Island. For instance some of the resources developed on South Tarawa can effectively be shared with Kiritimati Island – such as posters, stickers and education kits.

Recommendation 83: Improve the collaboration and information sharing efforts between implementation partners on South Tarawa and Kiritimati Island.

Timing: Phase 2

Cost: This would lead to cost savings. A strategy for information sharing should be incorporated in the communication, education and behaviour change strategy.

Encourage GoK to migrate all waste systems to the private sector

On South Tarawa, part of the problem with the collection system is due to having multiple providers and systems (Green Bags, rice bags, other bags) which makes it unclear from the community perspective who is responsible for collection of what, when and where. Community feedback highlighted the confusion in this area which then leads to dumping of waste into the environment when collections fail to occur in time from either council or Moel.



Experiences within Kiribati and from other parts of the Pacific show that the private sector is more suited to providing SWM services. Thus, the evaluation team strongly believes that the way forward is to solely rely on the private sector for waste collection and waste management in general – including the collection and disposal of organic waste, and the management of the landfills.⁵⁶

Landfill compaction could be a private contract managed by MELAD/ the NWMA. Funding of this could be connected to (a) a landfill gate fee for commercial wastes and (b) a proportion of the Green Bag revenue that are both 'pooled' with MELAD/NWMA. This can be costed as part of the business case studies needed for the Green Bag system.

Moreover, the evaluation team believes that making KUC responsible for the Green Bag system is a key area of concern to the sustainability and success of the Programme on Kiritimati Island. Rather, greater efforts should have been placed into trialling a system with a private provider. KUC appear to lack engagement with Green Bag related activities and have not participated in the active promotion or sales of the bag. Moreover, there appears to be some confusion, on the part of KUC, as to its roles and responsibilities with regard to the Kiribati SWM Programme in general and the Green Bag system in particular. The evaluation team was also unable to find out where the money from the sale of Green Bags is going.

The evaluation team does however recognise that a shift to a private provider is made difficult since KUC have already been selected as an implementation partner and has already been provided with (or are in the process of soon getting) new equipment and gear for running the collection system. Nevertheless, the evaluation team does believe MFAT should consider the costs and benefits – taking into account long term effects – of trialling the Green Bag system with a private provider.

Recommendation 84: Encourage GoK to migrate all waste systems to the private sector. This includes consideration of the cost and benefits of migrating:

- the compaction and management of the landfills to the private sector
- the Green Bag trial on Kiritimati Island to the private sector
- the Kaoki Maange scheme on Kiritimati Island to the private sector.

Timing: Phase 2

Cost: Needs to be led by GoK, MFAT can provide support

Recommendation 85: If the migration of the Green Bag trial to the private sector

⁵⁶ However, the evaluation team recognise that the decision of privatisation is beyond the control of the SWM programme.



is not feasible, improve the engagement and coordination with KUC. They need to be on board and informed about the importance of collecting all Green Bags (no matter where they are) and to actively work to distribute the Green Bags. A performance agreement needs to be developed so KUC can be held accountable.

Timing: Phase 2

Cost: Labour cost involved. Would be led by MFAT, with support from GoK

Recommendation 86: Follow up on where the money from the sales of the Green Bags is going

Timing: Phase 2

Cost: Labour cost involved. This could be a responsibility of the Programme Manager.

Postpone outer island activities

MFAT should focus its efforts on improving the systems already in place during Phase 2 on South Tarawa and Kiritimati Island. Any outer island activity should be postponed and re-assessed in the lead-up to Phase 3. This includes Output 3 in the MFAT-KRCS GFA.

Recommendation 87: Postpone planned activities on outer islands and re-assess whether to proceed along these lines in the lead-up to Phase 3

Timing: Lead-up to Phase 3

Cost: Cost saving, but additional labour cost from assessment. It is MFAT's responsibility to do the re-assessment in the lead up to Phase 3.

FUTURE DESIGN AND SUPPORT – CROSS CUTTING ISSUES

Recommendations for addressing gender issues

Direct outreach to women could be expanded, particularly on South Tarawa. During consultations, the evaluation team noted that both AMAK and Catholic Women were keen to be more closely involved.

Recommendation 88: Increase consultations with women's groups

Timing: Phase 2

Cost: Could be carried out within the existing GFA with KRCS

Surveys and other forms of monitoring conducted through the Programme should include a section on gender analysis. The team understands that sex-disaggregated data is collected but not analysed from a gender perspective. Such an exercise may reveal important gender distinctions on SWM behaviours and attitudes that can then be addressed through education and outreach activities.

Recommendation 89: Start analysing data from a gender perspective



Timing: Phase 2

Cost: Could be carried out within the existing GFA with KRCS

To reduce barriers to the economic empowerment of I-Kiribati women, the Programme may wish to propose a mechanism for the implementation of women-centred sustainable waste management and resource recovery activities which have the potential to be developed into income-generating activities. This may be possible through the provision of small grants seed funding which is proposed through the community consultative committee. On that note, care should be taken to ensure that the proposed community consultative committee is comprised of at least 50 percent women.

Recommendation 90: Consider introducing income-generating activities with the aim to empower I-Kiribati women

Timing: Phase 3

Cost: May be possible through the provision of small grants seed funding which is proposed through the community consultative committee

The proposed communication, awareness and education strategy should identify women as a specific stakeholder group and include a gender sub-strategy to 'consider how to mobilise women to be leaders and educators in mobilising behaviour change around solid waste management' as articulated in the ADD.

Recommendation 91: Include a gender sub-strategy in the proposed communication, awareness and education strategy

Timing: Phase 2

Cost: Labour cost involved. Should be led by MFAT (via the Communications and Outreach adviser, if appointed), in collaboration with KRCS and GoK.

Care should be taken to ensure that the proposed community consultative committee is appropriately gender balanced and diverse.

Recommendation 92: The establishment of any new committee should be gender balanced and diverse

Timing: Phase 3

Cost: Should be led by MFAT, in collaboration with KRCS and GoK

Recommendations for addressing human rights issues

Any increase to the price of the bag should be preceded by extensive community consultation and efforts made to ensure that a cost increase would not impact on the ability of vulnerable groups to participate.

Recommendation 93: Ensure that a price increase would not impact on the ability of vulnerable groups to participate. This analysis would need to be included in the Green Bag business case analysis.



Timing: Phase 2

Cost: Included in the business case analysis cost estimate (around \$20,000-\$30,000, depending on the extent of the review and whether an independent firm will be used).

Through KRCS and MLPID, the project should continue to make Green Bags available free of charge to people and communities for whom the price of the bag is a barrier to participation.

Recommendation 94: Continue to make Green Bags available free of charge for certain groups

Timing: Phase 2

Cost: There might be a cost increase if more free bags are made available. Should be led by KRCS and GoK.

On South Tarawa, squatter and maneaba communities are considered highly vulnerable from a human rights perspective. It is also understood that these communities have low levels of participation in formal SWM activities due to lack of permanent address, lack of education and awareness, lack of employment opportunities, limited access to transport and very limited disposable income. Additionally, these communities are more likely to be residing on land that is not covered by an official rubbish collection service.

This report recommends that this group is targeted through direct outreach and assistance provided with solid waste removal as required. Overall, vulnerable communities should be identified and efforts made to reach them through inclusion of an appropriate sub-strategy in the proposed communication, education and awareness strategy. It is recommended that the current process of community consultation and choice is maintained with the installation of collection points.

Recommendation 95: Develop a sub-strategy on how to target efforts in vulnerable communities in the proposed communication, education and awareness strategy.

Timing: Phase 2

Cost: Labour cost involved. Should be led by MFAT (via the Communications and Outreach adviser, if appointed), in collaboration with KRCS and GoK.

Consider introducing income-generating activities aimed at vulnerable groups. In the event that a recycled paper briquette scheme is implemented, such an initiative would be highly suitable as an income-generation activity for identified vulnerable groups, including those living with a disability.

Recommendation 96: Consider introducing income-generating activities aimed at vulnerable groups

Timing: Phase 3



Cost: Could be led by another donor. MFAT could provide support (labour cost involved)

On Kiritimati Island, efforts should be made to ensure that Green Bags and Kaoki Maange collection points are more accessible. Focus should also be on providing a collection service to more residents. Further, it should be made clear that Poland is excluded from the SWM Programme.

Recommendation 97: Increase accessibility to waste management services on Kiritimati Island

Timing: Phase 2

Cost: Not enough information to provide a comment on costs. This should be led by MFAT.



Appendices

APPENDIX ONE: STAKEHOLDER LIST

The evaluation team engaged with 82 stakeholder groups in total, 33 on South Tarawa, 24 on Kiritimati Island, and 25 stakeholders located elsewhere. The stakeholders are listed in the table below.

Table 11 List of stakeholders

Name	Organisation	Date
South Tarawa		
Michael Upton, Nigel Ewels, Ross Craven, Lailai Takfai	New Zealand High Commission	21 January 2019
Clerk Mikari Ooka and Mayor	Teinainano Urban Council	22 January 2019
Jonathan Mitchell	Ministry of Finance and Economic Development – National Economic Planning Office	22 January 2019
Reei Tioti	Ministry of Environment, Lands and Agricultural Development – Lands Division	22 January 2019
Teuea Tebau	Ministry of Infrastructure and Sustainable Energy	22 January 2019
Ms Teaboraaoi Raurenti & Tekiataake Boia	Ministry of Public Works and Utilities – Public Vehicle Unit	22 January 2019
Nemani Tebana	Ministry of Information, Communication, Transport & Tourism Development – Tourism Division	22 January 2019
Not available	Catholic Women’s Centre at Teaoaraereke	22 January 2019
Dephew Kanano	Kiribati Red Cross Society	23 January 2019
Maria Taua & Ioteba Tokanikai	Kiribati Red Cross Society	23 January 2019
Regina, Teewa, Meere	Ministry of Internal Affairs	22 January 2019
Willie Maen	Moel Trading Company	23 January 2019
Narumi Kudo	JICA representative	23 January 2019
Derek Andrewartha	One Stop	23 January 2019
Clerk Akoia & Mayor	Betio Town Council	23 January 2019
Tawaria Komwenga	Ministry of Health and Medical Services	24 January 2019
Tukabu Teroroko & four other members	Phoenix Island Protected Area	24 January 2019



of staff		
Eritibete Timiti & five other members of staff	Ministry of Education	24 January 2019
Akka Rimon	Asian Development Bank/World Bank representative	24 January 2019
n/a	The Taiwanese Technical Mission	24 January 2019
KHFA director	Kiribati Health Family Association	24 January 2019
Andrew Hodges	Australian High Commission	24 January 2019
Rick Steele	ChildFund	24 January 2019
David Kakiakia	ChildFund	24 January 2019
Linda Uan	Nei Tabera Ni Kai Video Unit	24 January 2019
Erimeta Barako	AMAK Women Centre	25 January 2019
Teema Biko & Tauleia Pulefou	Ministry of Environment, Lands and Agricultural Development – Environment and Conservation Division	25 January 2019
Harry Langley	Ministry of Environment, Lands and Agricultural Development – Environment and Conservation Division	25 January 2019
Whayhkaan Yeeting	Ministry of Environment, Lands and Agricultural Development – Environment and Conservation Division	25 January 2019
Raitiata Cati	Ministry of Environment, Lands and Agricultural Development – Environment and Conservation Division	25 January 2019
Four community leaders	Betio Waste Committee Group	26 January 2019
Five community leaders	Teinainano Waste Community Group	26 January 2019
Four representatives	Fishing Focus Bairiki group	26 January 2019
Kiritimati Island		
Maketara Ioane Toomi, Tapaeko Awaira, Burennata Betero, Rodney Edwards	Ministry of Line and Phoenix Islands Development – Planning Office	30 January 2019
Hon. Mikarite Temari	Ministry of Line and Phoenix Islands Development – The Minister’s Office	30 January 2019
Not available	Ministry of Health and Medical Services	31 January 2019
Not available	Wildlife Conservation	31 January 2019
Tenikatang	Lands Management Division	31 January 2019
Ioannatu T	Ministry of Line and Phoenix Islands Development – Water Unit	31 January 2019



Ereti T	Ministry of Line and Phoenix Islands Development – Tourism office	1 February 2019
Taratau K	Ministry of Line and Phoenix Islands Development – Fisheries Office	1 February 2019
Kabure O	Heavy Machinery Mechanic Unit	1 February 2019
Bwakaa	Ministry of Line and Phoenix Islands Development – Power Division	1 February 2019
Maraki Bokai	Kiritimati Island Urban Council	1 February 2019
Mapuola Iosua	Kiribati Provident Fund	4 February 2019
Taan Teraira	Ministry of Line and Phoenix Islands Development – Agriculture Office	4 February 2019
Not available	Kiribati OIL Company Ltd.	4 February 2019
Not available	Kiribati Port Authority	4 February 2019
Not available	JMB Enterprises Ltd	4 February 2019
Shalvin Kumar	Punjas	5 February 2019
Not available	Triple T	5 February 2019
Not available	Sunset Hotel	5 February 2019
Not available	Pet Fish & Resort	5 February 2019
Not available	Ikari House	5 February 2019
Not available	Tennessee Primary School	5 February 2019
Not available	Junior Secondary School	5 February 2019
Dr Rod Nixon	Contractor to EU	4 February 2019
Other		
John Claasen	Kiribati Development Manager, MFAT	14 January 2019
Frances Sullivan	Local Government New Zealand	15 January 2019
Alice Leney	Contractor to MFAT	15 January 2019
Julie Hall	National Institute of Water and Atmospheric Research	16 January 2019
Jonathan Fletcher	Contractor to MFAT	12 February 2019
Bradley Nolan	PacWaste Plus	19 February 2019
Anthony Talouli	SPREP	19 February 2019
George Stirret	World Bank	30 January 2019
Thierry Nerval	SPC	14 February 2019
Nick Valentine	World Bank	15 February 2019
Jack Whelan	PRIF	24 February 2019
Rikaw Kodani	JICA/JPRISM2	19 February 2019
Faafetai Sagapolutele	JICA/JPRISM 2	1 February 2019
Sharon Lane	DFAT	18 February 2019
Julian Wright	DFID	10 February 2019
Stephen Harris	CCOA	20 February 2019
Thomas Maes	CEFAS	21 February 2019



Briony Coulson	DEFRA	21 February 2019
Adrian Nicole	European Union	8 February 2019
Andreja Vidal	European Union	11 February 2019
Ron Textar	Vanuatu Government	20 February 2019
Moriana Philip	RMI EPA	22 February 2019
Walter Kaua	Tuvalu Government	23 February 2019
Evan Williams	Pacific Consulting	16 February 2019
Walter Pleass	Pleass Beverages	20 January 2019



APPENDIX TWO: DATA

Table 12 Number of population and households on South Tarawa – 2015 data

Village	Households	Population
Tanaea	24	149
Bonriki	457	2,865
Temwaiku	621	3,992
Causeway	248	1,893
Bikenibeu	1,026	7,558
Abarao	263	1,762
Eita	502	3,388
Tangintebu	25	155
Taborio	207	1,298
Ambo	411	2,776
Banraeaba	288	2,072
Antebuka	240	1,626
Teaoraereke	709	5,085
Nanikai	166	1,154
Bairiki	402	3,172
Betio	2,291	17,356
Total	7,880	56,324

Note: data obtained from Kiribati's 2015 population and housing census

Table 13 Kiritimati Island: budget and expenditure as of 31 December 2018

	Spent as of 31/12/18	Budget	Budget left	Proportion left
Fixed plant and equipment	\$ 18,878	\$ 330,000	\$ 311,123	94%
Electricity and gas	\$ 12,846	\$ 14,000	\$ 1,154	8%
Local services	\$ 10,256	\$ 69,350	\$ 59,094	85%
Advertisement/media	\$ 9,421	\$ 10,000	\$ 579	6%
Wages	\$ 5,587	\$ 14,000	\$ 8,413	60%
Purchases of office equipment	\$ 4,242	\$ 5,000	\$ 758	15%
Printing	\$ 3,476	\$ 5,000	\$ 1,524	30%
Fuel and maintenance	\$ 2,150	\$ 2,300	\$ 150	7%
Recruitment	\$ 2,000	\$ 2,000	\$ -	0%
Communication	\$ -	\$ 5,000	\$ 5,000	100%
Total	\$ 68,857	\$ 456,650	\$ 387,793	85%

Note: Data obtained from the planning office at MLPID



APPENDIX THREE: LIST OF STAKEHOLDERS FOR FUTURE ENGAGEMENT

Table 14 Regional partners as identified by the evaluation team

Institution	Project	Waste Type	Focus Area	Value
European Union	PacWaste Plus 2019-2022 15 Countries (inc Kiribati) SPREP SPC USP	Solid Waste Recyclables Organic Waste Bulky Waste Disaster Waste Plastic Waste Hazardous waste Healthcare Waste Asbestos E-waste	Data Systems Infrastructure Capacity Building Awareness Monitoring	€17 Million
AfD	Regional Solid Waste Initiative (Part 2) 2019-2022 15 Countries (inc Kiribati) SPREP	Used Oil Marine litter/plastics Disaster waste	Data Systems Infrastructure Capacity Building Awareness Monitoring	€3 Million
GEF/UNEP	Inform Project 2017-2020 14 Countries (inc Kiribati) SPREP	SDG/MEA Focus	Data Systems Reporting	USD 4.3 Million
GEF/UNEP	TBA 14 Countries (inc Kiribati) SPREP	UPOPs Chemicals Pesticides Mercury	Data Systems Infrastructure Capacity Building Awareness Monitoring	USD 20 million
JICA	JPRISM2 Regional Solid Waste Initiative (Part 2) 2019-2022 15 Countries Exc Kiribati except for training	Solid Waste	Regional Training	USD 10 Million
PRIF	Regional Material and recycling investigations 15 Countries (inc Kiribati)	Recyclables	Data Systems	Unknown
United Kingdom	Commonwealth Clean Ocean	Plastic	Technical Assistance	£10 Million



	Alliance (CCOA) Technical Assistance Facility (TAF) CCOA Members (inc Kiribati)			
Australian Govt	Pacific Plastics Program 14 Countries (inc Kiribati) SPREP	Plastic	Technical Assistance	Unknown
World Bank	Various under development (inc Kiribati)	Solid and hazardous wastes	Data Systems Infrastructure Capacity Building Awareness Monitoring	Unknown

Table 15 Example projects in other PICs

PIC/organisation	Project	Organisations
Vanuatu	Plastics Strategy & Ban	Government UK Support
RMI	Plastics Ban and Cardboard Utilisation	Government
Samoa	Plastics Ban Healthcare Waste Management	Government World Bank Support
Tuvalu	Single Waste Management Authority Green Waste Diversion Piggery Waste Utilisation	Government EU Support UN Support
Cook Islands	Bulky Metal Legislation and Systems (Cars) E-waste export Green Waste Utilisation	Government Private Sector
Tonga	Single Waste Management Authority	Government
Fiji	PET Processing for export	Private Sector
World Bank	Various under development (inc Kiribati)	Solid and hazardous wastes
ADB	Various under development (inc Kiribati)	Unknown



Table 16 Phase 2 budget – Kiritimati Island

ACTIVITIES	Budget	Notes	Evaluation team comment
Collection			
Collection Points	\$25,000	Designed for Green Bags. Target is 300 collection points in Ronton, Tabwakea and Banana	This is \$10,000 dollars cheaper than the cost of one FCL on South Tarawa
Green Bag System	\$40,000	Purchase of bags. Recommend 1 FCL est cost AUD40,000. KUC to order if the operator.	
Green Bag Collection Truck	\$60,000	One tip truck	
Truck maintenance and repairs	\$2,000	For the current and new collection trucks operated by KUC	
Equipment	\$5,000	Personal Protective Equipment, rakes/shovels. Based on boots, vests, hat, gloves, glasses, rake and shovel per person per year.	
Disposal			
Dumpsite Rehabilitation	\$7,000	New bund walls, tip face, gate, log book printing and kiakia. Clean up along access road.	\$100 x 52 weeks x 3 years =\$15,600
Signs	\$5,000	Tabwakea/Maincamp Dumpsite, Hazardous Waste, Green Bag, Karekea Kiritimati Te Tikauarerei	
Fuel	\$5,000	Based on AUD100/week for three years.	
Loader or excavator for landfill work	\$250,000	To be confirmed	
Minimisation			
End of Life Vehicle Collection	\$2,000	Fuel and flat rack costs for clearing away EOL vehicles in Ronton	
Baler	\$-	Original budget was \$40,000 but cost has now been allocated to the wheel loader	
Awareness			

Green Bag promotion	\$10,000	Posters, stickers, school program, radio spots for three years @ \$10,000 p.a.	\$10,000 p.a. x 3 years = \$30,000
Beautification	\$2,000	Seed funding for cleaning contracts between KUC and communities. Based on \$50/month for R/T/B for three years	\$50 x 12 months x 3 years = \$1,800
Kiritimati te Tikauarerei Competition	\$2,000	Green Bag promotion and competition. Funds for additional bags, fuel, promotion (radio, banners etc.), and prizes (bins, rakes, shovels, wheelbarrows, gardening supplies)	
Enforcement			
Enforcement Vehicle	\$20,000	Vehicle to be badged with stickers	
Fuel and maintenance	\$2,300	Fuel at \$50/fortnight for three years. \$1000 p.a. for maintenance	\$50 x 26 weeks x 3 years = \$3,900 for fuel \$3,900 + (\$1000 x 3) = \$6,900 in total
Operational			
Project Officer	\$14,000	Based on \$12,000 p.a. (plus 30percent)	\$12,000 x 3 years = \$36,000 \$36,000 x 30percent = \$46,800
Communications	\$500	Based on cost of basic phone and \$5 recharge per week for three years	\$5 x 52 weeks x 3 years = \$780
Support committee meetings	\$350	Based on \$30/meeting and 12 meetings per year for 3 years.	\$30 x 12 meetings x 3 years = \$1,080
TOTAL	\$452,150		Alt. \$518,960



APPENDIX FOUR: HEALTHCARE WASTE MANAGEMENT

The situation surrounding healthcare and medical waste management remains problematic on South Tarawa. This is despite the recent focus on healthcare waste management (2014-2017) under the EU funded PacWaste project, which conducted baseline surveys and gap analyses in both South Tarawa and Kiritimati Island. PacWaste also developed an implementation plan, healthcare waste management training and installation of a healthcare waste incinerator at Tungaru (Inciner8 unit). Due to PacWaste's previous involvement, healthcare waste has not been covered by Phase 2.

The Inciner8 unit is no longer operational as it was damaged prior to installation. Exposure and substandard housing were contributing causes of this, with the unit now corroded and probably beyond repair.⁵⁷

As a result, healthcare waste is now removed from the hospital (which presents a chain of custody and infection risk for waste workers and the public) and is burnt at low temperature in 200 litre steel drums in an isolated location using diesel as an accelerant. This approach does not disinfect the healthcare waste. However, the dioxins and furans identified in Kiribati National Implementation Plan (NIP) are a result of the low temperature burn. This does not meet Best Available Techniques (BAT) and Best Environmental Practices (BEP) requirements under the Stockholm Convention. The successor project to the EU funded PacWaste Project known as PacWaste Plus⁵⁸ will continue to have a focus on healthcare waste, though the specifics are unknown at this time.

It is recommended that GoK and MFAT should engage in the upcoming PacWaste Plus inception meeting to be held in Nadi, Fiji in May 2019.⁵⁹ The evaluation team was advised that there will potentially be a whole of hospital improvement plan which, given the higher-level sector engagement, may be an opportunity for GoK to prioritise healthcare waste to a level where introduced systems and equipment can be maintained at an appropriate level and input from incoming projects, such as EU, JICA and WHO can be coordinated to contribute to this.

It is clear that project-based approaches have repeatedly failed to deliver a sustained and ongoing improved management of healthcare waste management for Kiribati with this pattern likely to be repeated without being set into a clear system of improvement being prioritised by GoK.

New regional projects such as PacWaste Plus will be an opportunity to provide further training and equipment but can only contribute to improved healthcare

⁵⁷ This is similar to what happened with 2 Mediburn Units provided by the World Health Organisation prior to the inciner8 unit and a Japanese medium temperature incinerator which was provided even prior to this.

⁵⁸ <https://www.sprep.org/circular/cir1909introduction-of-the-pacwaste-plus-project> (accessed 12 March 2019)

⁵⁹ <https://www.sprep.org/publications/pacwaste-plus-pre-inception-workshop> (accessed 12 March 2019)

waste management within a GoK led framework or the 'build break build' cycle will continue without a sustained improvement.

Recommendations:

- Encourage GoK (via MoH) to lead the improvement of healthcare waste management
- A GoK led approach should be developed that secures sufficient ongoing human resources and funds
- The incoming MFAT hospital project may be an opportunity to activate GoK prioritisation and coordinate with other related projects (notably EUs PacWaste Plus)
- Engage with incoming regional projects with a focus on healthcare wastes



APPENDIX FIVE: SUMMARY OF RECOMMENDATIONS

Table 17 Summary of recommendations specific to South Tarawa

Recommendation	Responsibility
Phase 2	
Make amendments to future CFSs. Any future contract should be designed so that there is a financial incentive to collect Green Bags as well as selling them.	MFAT
Enforce the current contract conditions and include a performance agreement in any future CFS.	MFAT
Introduce a regular audit of the collection system (to show that all feeder roads are serviced and all bags are collected weekly)	MFAT
Collect all Green Bags – even those containing organic waste. Introduce a ‘no Green Bag should be left behind’ policy in the CFS.	MFAT/Moel
Shift the focus of education and outreach activities to address issues related to Green Bag usage and to improve understanding of the Green Bag collection system.	MFAT/KRCS
Utilise the Green Bag itself to increase awareness	KRCS
Plan and implement a targeted campaign on Green Bag utilisation	KRCS
Engage communities and reputational leaders in problem assessment and campaign testing	KRCS
Set-up social media accounts for the Green Bag collection system.	KRCS
Continue education and awareness on waste separation and the need to divert organic waste from the landfill. Support this campaign by including messaging on the Green Bag to explain that organic waste should not be included in the bag.	KRCS
A parallel, systematic and integrated approach for green waste needs to be developed. Consider formal and consolidated support to the Farmers’ Cooperative to continue green waste collection and roll out to the whole of South Tarawa. This includes relocating the shredder from BTC to the Farmers’ Cooperative. Alternatively provide another (with operational maintenance support and fuel). Encourage KRCS to promote the service as part of their ongoing awareness and education activities.	GoK/KRCS/MFAT or other donor
Consider procuring appropriate expert backstopping by international mechanics to ensure quality of work and to provide training for general maintenance to PVU mechanical staff	MFAT
Introduce a policy requiring large developmental construction projects such as runway and road projects to make independent arrangements for disposal of such wastes as part of the overall project plan. Landfill space should not be used.	GoK

Integrate maintenance schedules in the landfill plans	GoK
Continue to consult communities about the type of collection point they prefer, being sure to articulate the advantages and disadvantages of each design. The garbage collectors also needs to be consulted prior to the design and installation of any new models.	KRCS
Utilise the collection points to put up signage	KRCS
Identify existing behaviours and make targeted efforts to engage these behavioural groups in better SWM practices	KRCS
Integrate and further develop elements such as the 'Waste Exchange' which have strongly tapped into action on plastic waste.	GoK/TTM/MFAT
Secure the material storage area to prevent damage to materials and preserve quality	Kiribati Recyclers Ltd
Consider modification of tariff lines to ensure higher tariffs for glass where there is an aluminium equivalent	GoK
Mobilise youth groups, alternatively start a Green Bag village fund, providing small grants to villages for Green Bag events/initiatives.	MFAT/KRCS
Mobilise a team of volunteers, not just from KRCS but from other organisations and NGOs that can be drawn on when required.	MFAT/KRCS
Acknowledge efforts to encourage social and collective responsibility, e.g. via putting up signs at areas that have been cleaned up	KRCS
Undertake a business case analysis of the Green Bag system	MFAT/independent reviewer
When the collection meets contracted conditions (all bags collected weekly from all feeder roads), increase the price of the Green Bag and reduce MFAT's support to the provider.	MFAT/Moel/KRCS
Phase 3	
Consider expansion of the Kaoki Maange system to cover more materials (cars, other forms of metal, white goods, electric and electronic and other beverage containers). See report for suggested partners to engage with.	MFAT/GoK/ Kiribati Recyclers Ltd
Consider piloting the RMI cardboard briquette initiative or include cardboard in the Kaoki Maange system	GoK/donor to be confirmed
Start addressing the issue of disposable plastic nappies	MFAT/GoK/KRCS



Investigate other PET recycling options through Moana Taka trial (Pleass Beverages, Visy Australia, SPREP), Coca Cola Amatil Fiji and PRIF	GoK/MFAT/ Kiribati Recyclers Ltd
Consideration should be given to exclusively reserving the wheel loader for landfill operations, but at commercial prices that provides an acceptable return to PVU in providing this service. The operational integrity of the wheel loader should be prioritised to ensure operational works at the landfills are conducted as scheduled.	GoK/MFAT
Consider introducing a landfill gate charge for commercial wastes	GoK/MFAT
Develop educational materials that better reflect the South Tarawa context	KRCS
Utilise specific TA support on plastic policy development	GoK
Consider providing gardening tools to schools to promote learning-by-doing	MFAT

Table 18 Summary of recommendations specific to Kiritimati Island

Recommendation	Responsibility
Phase 2	
Fast track procurement of tipping truck (and remove project signage from old truck). Once the tipping truck has arrived, conduct training in maintenance of the tipping truck. This could be done by Harry Langley.	MFAT
Start installing collection points in Tabwakea and use the same community consultation methods as undertaken on South Tarawa.	MFAT
Fast track procurement of wheel loader and once it arrives undertake training in maintenance. This could also be done by Harry Langley.	MFAT
Install signage at dumpsites and surrounding areas to discourage dumping outside of the designated area and to strongly discourage burning (citing human health impacts of burning).	MFAT/project officer
Focus efforts on negative impact of dump and burn behaviour and the importance of waste containment	GoK/MFAT
Conduct training in dumpsite management (this may include options of green waste management – e.g. whether to reorganise Tabwakea dumpsite to incorporate a green waste cell). Again, this could be done by Harry Langley.	MFAT
Provide the waste collectors with PPE and make sure they are wearing the gear.	MFAT
Continue the Green Bag trial but focus efforts on Tabwakea in the first instance and make Green Bags available to small retail outlets in Tabwakea. Make sure the trial is monitored.	MFAT



Investigate the reasons behind why the Kaoki Maange system has stopped working and provide support to get it running again.	MFAT/ Kiribati Recyclers Ltd /KUC
Consider handing over the responsibility of the EYC nursery to the Agriculture office.	MFAT/KUC
Continue to support education campaigns on the use of green waste	MFAT/GoK
Phase 3	
Consider installing a fence and gates at Tabwakea dumpsite	MFAT
Resource awareness and education activities appropriately	MFAT
Start addressing the issue of disposable plastic nappies	MFAT/GoK

Table 19 Summary of recommendations specific to programme coordination, implementation and governance

Recommendation	Responsibility
Phase 2	
Appoint a SWM Programme Manager and place the position within a GoK ministry (e.g. ECD). The Programme Manager (if employed) should take regular visits to Kiritimati Island.	MFAT
Enforce monitoring and reporting requirements.	MFAT
Consolidate all the existing data relating to the SWM Programme.	MFAT
Link and track the ministries' budgets and expenditures to the overall programme budget	GoK/MFAT
Remove the first come first serve approach and instead make sure the ministries stick to their allocated budgets	GoK
Develop a comprehensive communication, education and behaviour change strategy, along with an implementation plan. Include in the TOR a sub-strategy and implementation plan for Kiritimati Island.	MFAT/KRCS/GoK
Until the Community Consultative Committee is established (below), regular monthly meetings should be held between all staff working in project-funded positions at KRCS and MELAD.	KRCS/GoK
Follow up on where the money from the sale of the Green Bags is going on Kiritimati Island	MFAT
Encourage GoK to migrate all waste systems to the private sector (on Kiritimati Island and South Tarawa)	MFAT
If the migration of the Green Bag trial to the private sector is not feasible, improve the engagement and coordination with KUC. They need to be on board and informed about the importance of collecting all Green Bags (no matter where they are) and to actively work to distribute the bags. A performance agreement needs to be developed so KUC can be held accountable.	MFAT/GoK



Review the existing results framework and develop two separate results frameworks for Kiritimati Island and South Tarawa	MFAT
Build capacity of project-funded staff by providing professional development training in (but not limited to) project management, monitoring and reporting.	MFAT
Start forming a 'pseudo' National Waste Management Authority within MELAD	GoK/MFAT
Improve the collaboration and information sharing efforts between implementation partners on South Tarawa and Kiritimati Island.	GoK/MFAT/KRCS
Finalise the National SWM Strategy	GoK/MFAT
Undertake procurement of the annual sustainability assessment	MFAT
Continue to migrate responsibilities and resources from MFAT to GoK	MFAT
Postpone outer island activities and re-assess whether to proceed along these lines in the lead-up to Phase 3	MFAT
Phase 3	
Establish a National Waste Management Authority	MFAT/GoK
Consider establishing a Community Consultative Committee under the NWMA.	MFAT/GoK
Consider the appointment of a Communications and Outreach Adviser	MFAT
Consider introducing a landfill gate charge for commercial wastes	GoK/MFAT
Review the recruitment processes so that proper handover systems are in place	MFAT



Table 20 Summary of recommendations specific to cross cutting issues

Recommendation	Responsibility
Phase 2	
Increase consultations with women's groups	KRCS
Continue to make Green Bags available free of charge for certain groups	KRCS/GoK
Increase accessibility to waste management services on Kiritimati Island	MFAT/GoK
Include a gender and a vulnerable group sub-strategy in the proposed communication, awareness and education strategy	MFAT/GoK/KRCS
Start analysing data from a gender perspective	KRCS
Ensure that a price increase would not impact on the ability of vulnerable groups to participate. This analysis would need to be included in the Green Bag business case analysis.	MFAT
Phase 3	
Consider introducing income-generating activities with the aim to empower I-Kiribati women and aimed at vulnerable groups	MFAT
The establishment of any new committee should be gender balanced and diverse	MFAT

