

INTRODUCING MODERN REUSABLE NAPPIES INTO VANUATU

A TRIAL STUDY

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Introducing modern reusable nappies into Vanuatu – a trial study

A research paper by Savvy Vanuatu, Mamma’s Laef Vanuatu, and Bambino Mio

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Cover photo: *Baby wearing Mamma’s Laef Vanuatu reusable nappy, Pango village © Mamma’s Laef Vanuatu*

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Glossary

Acronyms		Nappy terminology	
BM	Bambino Mio	Throughout this report, we will use the following terms to describe different kinds of nappy:	
DEPC	Vanuatu Department of Environmental Protection and Conservation	Nappies	Any absorbent material worn by babies to contain faeces and urine
EWB	Engineers Without Borders	Napkins	Traditional reusable cloth nappies fastened with a safety pin or snaps
MLV	Mamma’s Laef Vanuatu	MLV nappies	Modern reusable cloth nappies made by Mamma’s Laef Vanuatu
SV	Savvy Vanuatu	Diapers	Single-use disposable nappies made from plastic and wood pulp

EXECUTIVE SUMMARY

Plastic pollution is destroying our natural environment, contributing to the climate crisis, and damaging human health and livelihoods. Disposable diapers are a particularly problematic form of plastic pollution, as they cannot easily be recycled and in countries that lack a formal waste management system can become a vector for disease within local communities. Modern reusable nappies present a solution that supports a sustainable circular economy, using substantially fewer raw materials and producing less carbon emissions and waste.

The Pacific island nation of Vanuatu suffers disproportionately from the twin emergencies of climate change and plastic pollution. Demonstrating global leadership, the Vanuatu Government banned single-use plastic bags in 2018 and straws and polystyrene containers in 2019 as part of a three-stage ban on single-use plastics. At the same time, the Government announced their intention to ban disposable diapers, following the discovery that they are the largest component of Vanuatu's waste stream, accounting for 27 per cent of the nation's rubbish.

Diapers have only been commercially available in Vanuatu since the early 2000s, and many communities – particularly those in rural areas – still use traditional cloth napkins for at least part of the time (or in many cases nothing at all). Prior to the announcement of the ban there were very

few modern reusable nappies available in Vanuatu, and none made locally.

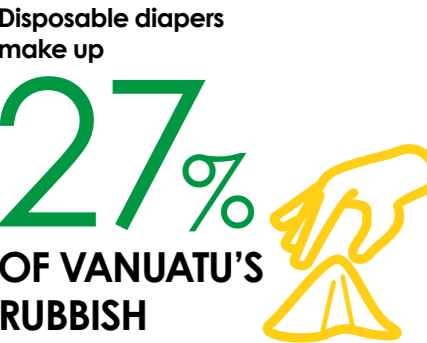
This trial scheme tested the viability of reusable nappies made by a Ni-Vanuatu-owned social enterprise, Mamma's Laef Vanuatu (MLV), as a solution that could meet the needs of local communities, reduce pollution, and save families money. In producing their nappies, MLV aims to support the Government's goals in reducing plastic pollution by converting diaper users to reusable nappies, and stemming the switch to diapers in rural communities by providing a modern reusable option that works better than existing traditional napkins.

The MLV nappy trial ran in three diverse Efate communities, with 59 participants who each received education and free MLV nappy trial packs sufficient to cover the two-week trial period. Participants undertook a survey before and after the trial period to assess their usage of diapers, napkins and the MLV nappies, and any barriers to the uptake of modern reusable nappies.



There were some challenges with regards to recruiting Community Champions in each village, understanding of the materials and instructions provided, as well as poor weather. In addition, this study had low participation from people in salaried employment and did not include participants from an urban centre (the range being from peri-urban to rural).

Based on usage patterns found in this study, it's likely that Vanuatu is using



at least 7 million disposable diapers per year, not including families that use diapers part time or those brought in by tourists.

The vast majority of participants liked the MLV nappies and said that they would buy them, although the latter was lower than the former (96 per cent to 85 per cent). The most likely reason for the lower number of people who would be prepared to buy is the perception of the high cost of MLV nappies compared to diapers and traditional napkins. Participants also identified drying time as a barrier to adoption, along with a few reporting a poor fit on their babies. Low water access or increased washing time was not a significant barrier to using MLV nappies for the majority surveyed.

Following this study, support for a ban on diapers ranged from 55 to 80 per cent across the three villages, and only 5 per cent were opposed (down from 14 per cent before the trial started). Support was higher in rural communities.

This study suggests that introducing MLV nappies across Vanuatu would have the strong support of local communities. In so doing, the Vanuatu Government would be meeting their plastic pollution reduction aims, whilst also supporting the emergence of a home-grown industry, the creation of local jobs, and reducing reliance on foreign imports.

Recommendations for the Vanuatu Government

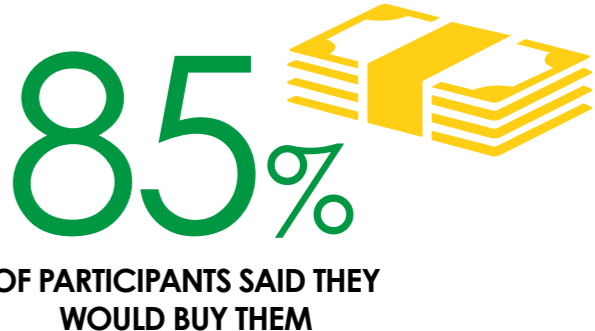
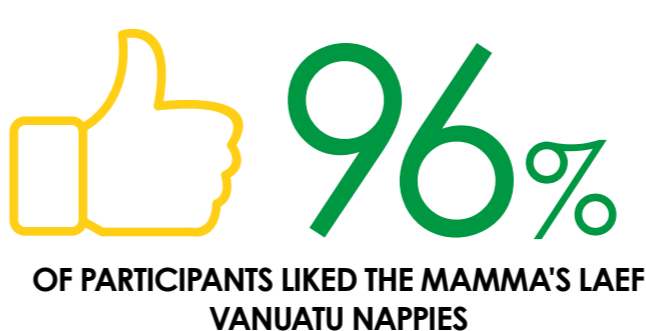
- 1 Develop a roadmap in collaboration with stakeholders that will provide the public with reassurance and a clear timeline and targets for phasing out diapers
- 2 Work with donors and partners to roll out a nappy education programme across Vanuatu
- 3 Introduce a Baby Box scheme integrating MLV nappies
- 4 Undertake research and plan interventions to improve hygiene practices
- 5 Explore financial structural support arrangements to make reusable nappies more affordable

Furthermore, it would support 13 of the *UN Sustainable Development Goals*, including Responsible Production and Consumption (Goal 12), Clean Water and Sanitation (Goal 6), Decent Work & Economic Growth (Goal 8), Life Below Water (Goal 14), and Partnerships (Goal 17). The replacement of single-use

Recommendations for MLV

- 1 Improve training and recruitment procedure for Community Champions
- 2 Improve and expand education offering
- 3 Work with others such as Engineers Without Borders on solutions to aid quick drying
- 4 Re-look at sizing both in terms of how it is communicated and design
- 5 Develop payment options that can allow payments to be spread over time
- 6 Examine efficiencies in production, design and raw materials suppliers to drive further cost savings

disposable diapers with MLV nappies in Vanuatu also aligns with *Vanuatu 2030: The People's Plan* policy goals and objectives, particularly Blue-Green Economic Growth (Goal Environment 2), Quality Health Care (Goal Society 3), and Create Jobs and Business Opportunities (Goal Economy 4).



INTRODUCTION

The plastic pollution crisis

Over the last few decades, plastic has become a pervasive part of modern life. It is an amazing material: durable, robust, light, and cheap. Globally, we are producing over 400 million tonnes of plastic per year, and this is due to double over the next decade¹. Unfortunately, we are now seeing a cost to using this incredible product. Plastic pollution is fuelling climate change, destroying our marine environment, and harming the poorest people on the planet.

Climate change

Both the production and disposal of plastic is contributing to climate change:

- Around four per cent of global oil and gas is used to fuel plastic production, and this is predicted to rise to 20 per cent by 2050²;

- Plastic comprises a growing proportion of municipal solid waste, which was responsible for around five per cent of global carbon emissions in 2016 – and this is set to rise³;
- In several countries carbon emissions from open burning of waste are known to be up to five times higher than the nation's reported anthropogenic CO₂ emissions⁴.

Marine litter

The UN Environment Programme has conservatively estimated the cost of plastic to the marine environment at around US \$40 billion and growing⁵. Each year, up to 12.7 million tonnes of plastics leach into the oceans⁶, and by 2050 we could see more plastic than fish in the seas⁷.

Plastic pollution can harm marine life in several ways⁸:

- Entanglement, whereby creatures are trapped or constricted by pieces of plastic;
- Ingestion, whereby pieces of plastic are eaten, causing obstructions or lacerations, as well as reduced stomach capacity and appetite;
- Interaction, whereby creatures collide with, are obstructed by, or smothered with plastic, leading to damage and increased disease.

These impacts threaten the long-term viability of reef ecosystems including reef-based fisheries, which are important for people living in coastal communities.

Human health

Every 30 seconds, one person dies from impacts caused by mismanaged waste.⁹ Plastics are a major component of global waste streams, accounting for around 12 per cent of municipal solid waste by weight globally⁴ – which, as they are generally very lightweight, indicates that the proportion and volume of plastic items must be much higher.

Mismanaged waste affects human health in the following ways⁹:

- Blocking waterways and drains, causing flooding and the spreading of waterborne diseases;
- Creating a breeding ground for flies, mosquitoes and vermin;
- Doubling the incidence of diarrhoeal disease for people living near rubbish dumps;
- Creating air pollution through burning, which increases the risk of heart disease, cancer, respiratory problems and damage to reproductive and nervous systems;
- Causing landslides of waste, known to kill hundreds of people every year.

International response

Governments around the world have responded to the plastic pollution crisis through setting ambitious targets for reducing the consumption of virgin plastics. For example, the European Union's *Circular Economy Action Plan* introduces bans on some single-use plastic items, as well as the introduction of Extended Producer Responsibility obligations¹⁰. The UK governments' plastic packaging tax will apply to all plastic packaging with less than 30 per cent recycled content from 2022¹¹. Many Pacific Island nations, whose tourism and fisheries economies are heavily affected by plastic pollution, have introduced bans on single-use plastic



Disposable diapers make up 8 - 10 tons of rubbish per day at the Bouffa Landfill.

“Every 30 seconds, one person dies from impacts caused by mismanaged waste, of which a major component is plastic”

items such as bags and food and drinks containers¹². At a meeting of the UN Environmental Assembly in March 2019, governments of more than 150 countries pledged to significantly reduce single-use plastic packaging by 2030¹³.

Similar efforts have been announced by local and regional governments across the globe, as well as by NGOs and businesses.

For example, many cities have banned straws, plastic bags, and food and drinks containers; Microsoft has pledged to be carbon negative by 2030 and to have negated all of its historic carbon emissions by 2050¹⁴; and the Ellen MacArthur Foundation has brought together 250 international companies under the New Plastic Economy Global Commitment to promote a circular economy for plastics¹⁵.



Truck loading off rubbish at the Bouffa Landfill, Port Vila. On average the dumpsite receives 57 tonnes of rubbish per day.

Nappies

Disposable diapers

Disposable diapers³ and other single-use Absorbent Hygiene Products (AHPs) make-up around one per cent of plastic production globally¹⁶. Every day, 250 million diapers are used around the world¹⁷, which equates to over 90 billion per year. The global market for diapers is valued at around US \$43 billion, with an expected growth to US \$52 billion by 2024¹⁸.

Like all single-use plastics, diapers are a significant problem for the environment. A recent report on the results of nearly 20,000 coastal and seafloor volunteer clean-ups from 86 countries found that diapers were the 25th most common item of marine debris on the seafloor, and the 39th on land¹⁹. There is also concern that increasing demand for disposable diapers may be fuelling deforestation²⁰, as wood pulp accounts for around a third of diaper raw material by weight.

Diapers are also a particular cause for concern for human health, when disposed of insecurely (e.g., where there is no formal waste management) as people living close to rubbish dumping grounds can be exposed to faecal matter, which is a major vector for diarrhoeal disease. In children under five years old, diarrhoea is the second leading cause of death²¹. Plastic diapers have also been linked to health concerns due to the variety of chemicals contained in diapers²², and from over-heating (which is a risk factor for the development of testicular cancer)²³.

“Eco” diapers

So-called “eco” diapers are cashing-in on consumer concerns about the environment and are gaining in popularity, despite in

many cases being just as bad - if not worse - for the environment than regular diapers. For example, around 600,000 hectares of agricultural land produced just 1.6 million tonnes of bio-plastic in 2013, less than 0.5 per cent of global plastic demand²⁴. Scaling up production of bio-based – often marketed as “natural” or “plant-based” – plastics could therefore compete with agriculture, driving biodiversity loss and climate change²⁵.

Disposable diapers are the
25th
**MOST COMMON ITEM OF
MARINE DEBRIS FOUND ON
THE SEAFLOOR GLOBALLY**



Disposable diapers account for 27 per cent of Vanuatu's rubbish

a. Throughout this report the term “diaper” will refer to single-use disposable plastic nappies

Reusable nappies

Across the world and throughout cultures, babies have been swaddled or wrapped in reusable materials for centuries²⁹. In the 1940s, mother Marion Donovan invented the modern reusable nappy when she used a shower curtain to create a waterproof cover for her cloth nappy, replaced safety pins with plastic “snaps”, and created an insert for an absorbent panel inside³⁰. Today, reusable nappies tend to come in two forms: the all-in-one, whereby the absorbent fabric inner is attached to the plastic cover, and the two-piece, in which the inner and the plastic cover are separate. With both types, many parents often also use a separate liner to ease removal of waste.

Use of modern reusable nappies is on the rise, with many international firms reporting sales increases of 50 per cent or more over the last few years as families seek more environmentally friendly alternatives to disposables³¹. In the United Kingdom (UK), several local government councils now offer financial incentives to new parents to try reusables, as the costs to authorities of dealing with diaper waste is too high³².

Costs and benefits of diapers vs reusables

A 2019 report by Zero Waste Europe³³ looked at the usage and impact of diapers, menstrual products, and wet wipes across the EU, and found that:

- Around 33 billion disposable diapers were used, resulting in 6.7 million tonnes of waste;
- If just 20 per cent of babies switched to reusable nappies full time, over one million tonnes of waste could be prevented per year;
- The use of disposable diapers was responsible for around 3.3Mt of CO₂



Sample of Vanuatu made reusable nappy by MLV, 2020.

- equivalents, which is around 1 per cent of the total carbon emissions for Italy;
- Families could save up to €2,000 each by switching to reusable nappies, and more if they use reusables for more than one child.

Based on average UK usage data, using reusable nappies for one child results in a 98 per cent reduction in raw material consumption compared with using disposable diapers³⁴. Although it's likely that the number of diapers used per day may be fewer in Vanuatu (due to cost and the fact that many still use traditional napkins), there are likely to still be major raw material savings.

In terms of raw material usage, waste

generation, marine litter, and costs to municipalities and individuals, and potential for toxicity, reusables perform better than disposables. However, some assessments have highlighted that the energy and water use associated with reusables nappies could be higher due to washing³⁵. In countries where electric washing machines are used this will have a higher impact on the associated carbon emissions. In developing countries, there may be more of a concern in relation to water scarcity and hygiene. Other concerns that have been raised include potential increase in labour – most likely for women – associated with extra washing, and the relatively high upfront cost of reusable nappies compared to diapers (although over the long term they are far cheaper).



Figure 1: Map of Vanuatu and its location within the Pacific

Vanuatu

Socio-economic context

Located in the southwestern Pacific Ocean 1,200 kilometers from Fiji and 2,350 kilometers from Eastern Australia, Vanuatu is an archipelago with 80 islands. Made up of six provinces and a total land area of 12,200km², the population is currently estimated at just over 307,000 with around three quarters of people living in rural communities³⁶. The capital Port Vila is on Efate Island in the center of Vanuatu.

Renowned for its exceptional cultural and linguistic diversity, Vanuatu has over 108 living languages, which is more per unit area than any other country. Whilst Vanuatu's national languages are English, French and Bislama (a historical creole language), over 80% of the population can speak three or four languages including traditional languages³⁷.

The World Bank's Socio-Economic Atlas for Vanuatu³⁸ states that Ni-Vanuatu tend

to follow a traditional way of life and have a high reliance on subsistence living, with many reliant on sales of fish, handicrafts and crops for income rather than salaries or wages. In particular, few women are in salaried employment and Vanuatu remains a male-dominated and patriarchal society³⁹. Traditional knowledge, *kastom* economies and governance (traditional chiefs at village, island and national levels) and Christianity are all highly valued and contribute to a peaceful democratic nation. Vanuatu was ranked the fourth happiest nation in the world according to the 2016 Happy Planet Index, attributed to the tight-knit and resilient communities which underpin Vanuatu society⁴⁰.

Poverty levels are variable but in general low, and economic inequality is low. Those living outside urban centres are generally without electricity, piped water and sewerage. In most council areas, less than two per cent of people are hooked up to

the main electricity grid, although up to 50 per cent have access to solar power. An average of 12 per cent rely on natural water sources such as rivers and springs for their drinking water, although this can be as high as 70 per cent in some areas. Outside cities and provincial hubs, people do not have access to flush toilets and instead use pit latrines, or in some cases no toilet at all³⁷.

Despite internet access being patchy outside of the cities, Ni-Vanuatu are avid consumers of social media, with Facebook being particularly important.

Environment and plastic pollution

Vanuatu's islands are recognised as a biodiversity hotspot alongside the Solomon Islands and Papua New Guinea as part of the East Melanesian Islands Hotspot, due to the high degree of biological diversity and endemism present in the region. Vanuatu is home to near-pristine rainforests, and 15 species of bird and several mammals found nowhere else in the world⁴¹.

Vanuatu has been named the nation with the highest disaster risk, due to its high exposure to extreme natural events and rising sea levels caused by climate change⁴². In 2020, the island nation was hit by Category 5 Tropical Cyclone Harold, which left up to 70 per cent of buildings damaged in the second city of Luganville⁴³, and was the second-strongest cyclone in Vanuatu's history, following Cyclone Pam in 2015⁴⁴.

Like many small island states that import most of their consumer products, Vanuatu has suffered from visible plastic pollution in recent years. In 2019, Vanuatu generated an estimated 5,700 tonnes of plastic waste, of which 60 per cent was burned, buried, dumped, or thrown into rivers, bushes and the ocean⁴⁵. This is due to the fact that waste collection systems do not exist or are fairly ad hoc in rural areas⁴⁶. Data from 2013 suggests that

“We are all looking towards Vanuatu as a leader in this space, and are impressed by their commitment to protect our environment, ocean and people of Vanuatu and the Pacific”

David Loubser, Pacific Ecosystem Based Adaptation to Climate Change Project Country Manager, Vanuatu

open burning of waste, of which plastic is a large part, contributes around 1.2 times Vanuatu's estimated anthropogenic CO₂ emissions⁴. Plastic waste is responsible for 75 per cent of the litter found on Vanuatu's beaches, and microplastics are known to have been ingested by 38 per cent of reef fish, 60 per cent of pelagic fish and 50 per cent of crabs⁴⁵.

People interviewed by Asia Pacific Waste Consultants as part of their 2018 waste data report⁴⁵ complained that they had limited options to deal with plastic waste, and didn't understand what they should be doing with it. Although several people expressed frustration at the lack of a proper means of disposal and

the consequent level of littering, many weren't aware of the crisis of ocean plastic pollution and didn't therefore understand how practices such as burying on beaches or throwing plastic waste into rivers were problematic.

Vanuatu's diaper problem

Disposable diapers were introduced to Vanuatu's consumers in the early 2000s and are available to purchase from large supermarket chains, Chinese trade stores or community outlets. They can be purchased individually or in larger packs. A variety of brands are available with the majority of products sourced from China, France or Australia. Diapers are popular with working women and families for their

convenience, and in some communities that have limited access water for washing^b.

Prior to the introduction of diapers, consumers used reusable napkins^c: either square towelling “cloth napkins” or lightweight muslin “Chinese napkins”. These napkins are still available for purchase from Chinese trade stores but are generally not available in larger supermarkets. These traditional napkins are washable but are not waterproof, and are therefore sometimes used with plastic pants (*pilchers*). These can be very hot to wear and cause baby nappy rash given Vanuatu's tropical climate. Historically, and in some communities today, some families do not use any kind of nappies

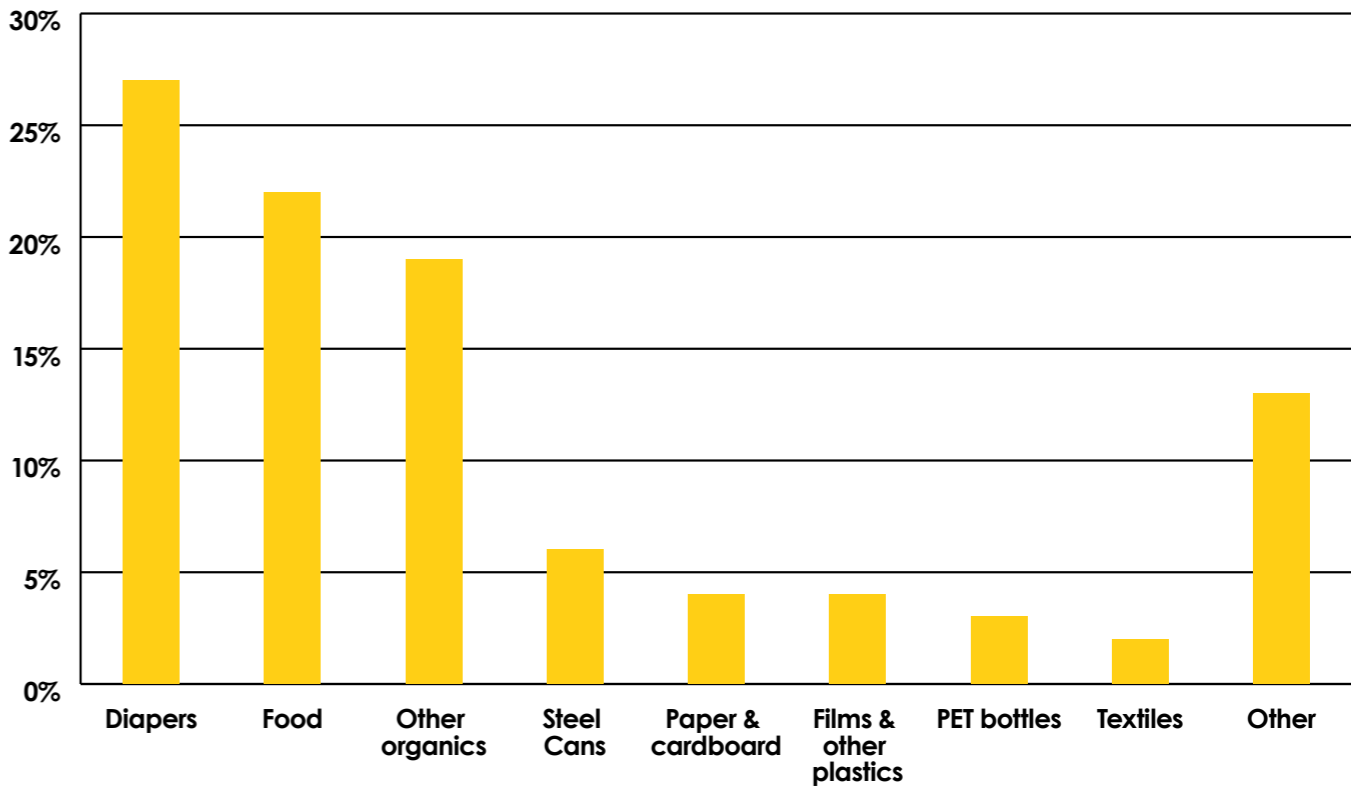


Figure 2: Composition of Vanuatu's waste stream by item. Diapers are the most prevalent single item. Source: APWC, 2018⁴⁵.

b Personal communication from Jack and Mary Kalsrap, Mamma's Laef Vanuatu, November 2020

c Throughout this report, the term “napkin” refers to traditional reusable cloth nappies

“Some mothers bury their diapers on the beach at low tide. That way when the tide comes up, it will take the diapers out with it.”

Ni Vanuatu Interviewee, Best Practices Vanuatu Commonwealth Litter Programme 2019

and babies wear underwear or nothing at all. This practise is adopted due to affordability, access to stores, *kastom* (custom) preferences and/or community practices.

There is little infant health and hygiene education and information available for parents about the best use of nappies with their babies. For instance:

- how often it is recommended to change different kinds of nappy
- how to correctly dispose of diapers
- how to correctly dispose of baby waste in reusable nappies
- how to treat nappy rash
- how to hygienically wash reusable nappies

In the capital Port Vila, the municipal dumpsite (Bouffa Landfill) receives around 57 tonnes of rubbish every day, on average 8-10 tonnes are disposable diapers. Observation shows that over 60% of the Bouffa Landfill has already been used up^d.

The 2018 APWC report found that 27 per cent of waste in Vanuatu is comprised of diapers⁴⁵. This compares to a figure on 18 per cent in Port Vila from 2014,⁴⁷ indicating that the problem is getting worse. In Lelepa, where there is no waste management system, 19 per cent of the population surveyed said they throw diapers directly into the sea. Several people explained that they thought the practice of

burying diapers at the shoreline was good because it removed the pollution from the immediate community:

Global leadership

“As the ocean is vital to the livelihoods of Ni-Vanuatu, the Government has developed a vision for the ocean – to conserve and sustain a healthy and wealthy ocean for the people and culture of Vanuatu, today and tomorrow”

Vanuatu Department of Environmental Protection and Conservation, 2018⁴⁸

Protection of Vanuatu’s *solwater* (ocean) is vital to the livelihood of Ni-Vanuatu. The importance of sound ocean governance is enshrined in *Vanuatu’s National Ocean Policy*⁴⁹, its *National Environment Policy and Implementation Plan 2016-2030*⁵³, and *Vanuatu 2030: The People’s Plan*³⁵.

Recognising the threat of plastic pollution to its marine environment, the government of Vanuatu has announced tough measures to reduce single-use plastics across the nation. In July 2018, a ban was introduced on single-use plastic bags, polystyrene takeaway boxes, and – in a world first - also plastic straws⁵⁰. In December 2019, Vanuatu followed this up with a ban on other items such as plastic cutlery, plates, stirrers, cups and plastic flowers⁵¹. These bans already appear to be having an effect, with fewer plastic items being reported littering beaches.

At the same time as announcing the ban on single-use plastic bags, disposable containers, and straws, the Government began on another world first: by announcing its intention to ban disposable plastic diapers and initiating an extensive national public consultation process⁵². Through these measures, Vanuatu has become a world leader in tackling the scourge of plastic pollution.



There is little infant health and hygiene education and information available for parents about the best use of nappies with their babies.

d Personal communication from Sandy Mwetu, Waste Management Officer for the Port Vila City Council, November 2020

The way forward

MLV nappies – a solution

In response to consumer feedback throughout Vanuatu, the need for locally made modern and affordable reusable nappies for both adults and babies was identified. With assistance from Bambino Mio (see below), Mamma’s Laef Vanuatu (MLV) developed prototypes and tested these on a small number of babies in early 2020. MLV started manufacturing a reusable baby nappy system from early 2020 and are now testing their new prototypes in community settings, and starting to market and sell their products in Vanuatu.

Alongside the environmental benefits of modern reusables compared to disposable diapers outlined above, via the creation of a local industry for reusables MLV nappies could benefit the economy through job creation and reduce reliance on foreign imports. Additionally, families will make significant cost savings over the long-term.

Introducing modern reusable nappies to Vanuatu also aligns with several national and international policy objectives, including:

- The UN’s *Global Goals for Sustainable Development*, notably:
 - Sustainable Cities and Communities (Goal 11)
 - Responsible Production and Consumption (Goal 12); and
 - Life Below Water (Goal 14)
- The *Vanuatu National Environment Policy and Implementation Plan 2016-2030*, Policy Objective 3: Waste Management and Pollution Control⁵³
- *Vanuatu 2030: The People’s Plan*⁵¹, Vanuatu’s national sustainable development plan, notably:
 - Promote healthy lifestyle choices and health seeking behaviour to improve population health and well-being (SOC 3.3)

- An economy which fosters sustainable growth and development through low impact industries and modern technologies to ensure the well-being of future generations (ENV 2)
- Reduce waste and pollution through effective waste management and pollution control (ENV 2.4)
- Protect vulnerable forests, watersheds, catchments and freshwater resources, including community water sources (ENV 4.2)
- Protect biodiversity and ecosystems and their significant role in our culture, society and environment (ENV 5.1)
- Promote financial literacy and consumer empowerment (ECO 1.9)
- Create an improved business environment with a stable regulatory

framework, which promotes competition, protects consumers, attracts investment and reduces the costs of doing business (ECO 4.1)

- Increase the number of decent, productive employment opportunities, particularly for young women and men and people with disabilities (ECO 4.5)

Why a trial?

The idea to run a trial scheme to test the acceptability of MLV nappies across different communities arose at a meeting between the Vanuatu Department for Environmental Protection and Conservation, Mamma’s Laef Vanuatu, Bambino Mio, UNICEF, and the Vanuatu Environmental Science Society in Port Vila in December 2019.

MLV nappy covers, inserts, and liners



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“Mamma’s Laef products represent a good investment in our country. Vanuatu-made products are really important as they build value in our economy, provide work opportunities for Ni-Vanuatu people and to keep the money within our economy,”

Falvianna Rory, Senior Industry Officer (Large Scale Manufacturing) Department of Industry, Vanuatu

The trial aims to address the following questions regarding the use of MLV nappies, which have been identified via initial consultation with communities and from comments on social media in Vanuatu:

- Additional washing and drying time, which could pose logistical challenges due to a lack of access to fresh water in some communities, as well as increasing the amount of time and labour dedicated to childcare duties for carers (predominantly women) and working families
- High relative upfront costs of MLV nappies and poor understanding of the higher cost of disposables over time
- Poor understanding of how to use and care for the MLV nappies and appropriate hygiene and waste management practices, which could be low in areas where diaper use has become the norm
- Buy-in from citizens who may be unsure about whether MLV nappies are for them

Organisations involved

Mamma’s Laef Vanuatu (MLV) is the first locally owned social enterprise to



start producing modern reusable nappy products in Vanuatu. Pango Village based entrepreneurs Mary and Jack Kalsrap are the co-founders of MLV, with New Zealander Belinda Roselli. Together, they have worked tirelessly to develop MLV into an enthusiastic social enterprise with a goal of becoming self-sustainable. The local manufacturing business was first developed in 2015, as a solution to access and provision of locally made reusable menstrual products. MLV also manufactures reusable breast pads, baby blankets, face masks, adult nappies and menstrual pads.

Founded by husband and wife team Guy and Jo Schanschieff in Northampton, UK in 1997, Bambino Mio (BM) has grown to become an international market leader and one of the leading brands in the reusable nappy industry, selling in over 50 countries worldwide. In line with their purpose-led business model, BM also supports worldwide causes to provide sustainable nappy alternatives to parents and families, helping to reduce pollution from single-use plastic and empowering communities to develop sustainable local businesses. BM has lent financial, technical, and communications support to the trial project through advising on nappy designs and manufacturing expertise, facilitating access to cost-effective off-shore materials, and creating branded educational and marketing tools for MLV to use to promote the trial, educate communities and start retailing their locally-made product.

BM and MLV commissioned Savvy Vanuatu (SV), a communications and marketing agency based in Port Vila, to work with them to design and implement the community research project about the nappy trial running from late September to November 2020, media services, and film production. Previously, SV collaborated with MLV in 2019 on community research about marketing their menstrual products.

Engineers Without Borders (EWB) also contributed sanitation and waste management technical expertise to the community trial with a focus on observing and strengthening community sanitation and waste management solutions. They will be assessing the data from this report to build on their assessment of technologies that could assist the successful adoption of modern reusable nappies throughout Vanuatu. EWB’s Vanuatu Program is supported by the Australian NGO Cooperation Program (ANCP), funded by the Australian Government, as well as the New Zealand Aid Programme.



Belinda Roselli, Jack Kalsrap, and Mary Kalsrap of Mamma’s Laef Vanuatu

METHODOLOGY

Aim and Objectives

The aim of this community research project was to test the MLV reusable nappy products in three different Efate Island communities with 60 families and document their perspectives over a two-week community trial in early November.

Project objectives were to:

- Learn about current consumer practices regarding diapers
- Learn about community waste management practices regarding diapers
- Identify key consumer challenges in using the current prototype of MLV’s reusable product
- Improve MLV’s product prototype based on consumer feedback
- Establish consumer demand for MLV reusable nappies
- Establish where consumers prefer to purchase the MLV products
- Identify MLV’s ideal customers
- Learn if participants supported the Vanuatu Government’s proposed diaper ban before the trial; and if their views changed after they tested the products
- Present consumer market research to the Government of Vanuatu to assist with informed decision making regarding sustainable solutions (i.e., MLV reusable nappies) as an alternative to disposable diaper use.



Figure 3: MLV nappy trial process and timeline

Community Trial Participants



Figure 4: Efate island, Vanuatu, showing all three community trial locations at Eton, Eratap and Pango.

60 participating families were chosen by the Community Champions (see right), 20 each from three villages on Efate island. The communities were chosen to be as representative as possible of the different conditions found across communities throughout Vanuatu, whilst remaining accessible for the project team.

Eton Village is located on the east coast of Efate island 38.94 km from the capital Port Vila (about 20 minutes' drive) with a population of 3,518 plus people⁵⁴. It has popular swimming spots and

community revenue comes from tourism and commercial farming. Many people commute daily to Port Vila for work or to sell fruit and vegetables in the main Market House. The village water supply comes from rainwater, rivers, and underground wells. The people have a mixed traditional and modern lifestyle.

Eratap Village is located on the south coast, approximately 15 minutes' drive from Port Vila, with a population of 6,640 people⁵⁴. Many people commute daily for work or to sell produce in the main

Market House. Despite their close location to the capital, the community does not have good water access, and relies on an old underground water pump that only operates for a few days during the week.

Home to MLV, **Pango Village** is a suburb of the capital located on the south west coast about five minutes from central Port Vila. It has a population of 2,326 people⁵⁴. The community has access to excellent water supply and is at an advantage of accessing better services and delivery compared to Eton and Eratap Villages.

Materials and education provided

MLV nappy packs

Each participating family was given an MLV nappy pack to trial. This included:

- A lidded plastic bucket with a laundry soap bar to soak and wash the nappies
- Pictorial instructions with step by step information in Bislama, English, and French on how to use and wash the nappies hygienically (see Appendix A)
- 16 liners, 16 inserts, and 6 covers. Families with babies aged 1-5 months were given the small size nappies, and families with babies aged 6-24 months were given toddler size nappies. (Note: MLV nappies are adjustable to fit different baby sizes)

Community Champions

To assist with introducing the new MLV nappy products into the three communities, 'Community Champions' were chosen to ensure culturally

acceptable and effective communication with trial participants.

The MLV selected Community Champions were:

- Eton - Margaret Frank
- Eratap - Tina Kalosin
- Pango - Glenda Malas

The Champions attended a full-day workshop with MLV, SV and EWB on Thursday, 24 September to prepare them for the community trials. MLV trained them in the use of the nappy products, SV on survey process, and EWB on effective sanitation and waste disposal.

The Champions were responsible for each selecting 20 families from their village to participate in the community trials, conducting before and after surveys, and in supporting their participating families

with information about: product use, hygienic waste disposal, the nappy trial and research process, and how the research would be used.

Community Workshops

MLV, SV and EWB visited the three communities on Monday, 12 October to deliver the MLV nappy trial packs and start the two-week community trials.

Across four workshops in the three communities, the MLV team demonstrated how to use their three-part reusable nappies for the participating families with the Champions. They talked about how to hygienically wash the nappies and dispose of baby *toti* (faeces), as per the provided MLV pictorial step by step instructions in Bislama, English and French (see Appendix A), and answered the participants' questions.



Community Champions Tina Kalosin (left), Glenda Malas (center) and Margaret Frank (right).

Survey Design

Both the BIFO (before) and AFTA (after) surveys were designed by SV in collaboration with MLV, BM and EWB. English is a third language in many cases in Vanuatu, so the surveys were first drafted in English and then translated into Bislama, Vanuatu's most common language. Surveys were pre-tested with volunteers to estimate the survey completion time and ensure they were easy to understand.

Most questions were multiple choice with an option to choose one answer or choose multiple answers, and the last question was open ended asking "any more comments?".

Not all of the questions were compulsory. See Appendix B for the BIFO survey and C for the AFTA survey.

- The BIFO surveys were conducted as interviews by the Champions with the participants, and had 32 questions that investigated:
- Participant demographics
 - Their baby's age
 - Their nappy use
 - How much they spend on nappies
 - What their waste disposal practices were
 - If they supported the proposed disposable diaper ban

- The AFTA surveys were conducted as interviews by the Champions and the MLV team with the participants, and had 42 questions that investigated:
- Usage rates
 - Washing and drying procedures
 - How they disposed of waste
 - What they liked or didn't like about the MLV reusable nappies
 - If they supported the proposed disposable diaper ban after trialing the MLV reusable nappy product.



Participants from Eton village filling out their survey forms

RESULTS

BIFO (before) survey

Personal information

In total, 59 participants completed the BIFO and AFTA surveys, 20 from each of Eton and Pango and 19 from Eratap.

Key facts:

- All but one of the participants were female
- 92 per cent were involved in gardening or as market vendors, and personal micro-businesses and only 8 per cent were in salaried employment
- 74 per cent were under 30 years old (47 per cent were 24-29, 24 per cent were 19-23, 14 per cent were 30-34, 12 per cent were 35-39, and 3 per cent were 15-18)
- Six of the participants have a disability
- 97 per cent of participants had completed primary school, with over 60 per cent finishing their education at high school, 11 per cent technical colleges and 5 per cent University
- There were 26 babies aged one to five months and 33 babies aged six to 24 months
- Most participants had more than one child at home, with 41 per cent having three or more

Current nappy usage

Before the trial started, 69 per cent of participating families overall were using diapers (with 32 per cent doing so exclusively), especially in the communities of Eton and Pango, but they also had the highest number using cloth napkins too. The community of Eratap used equal amounts of diapers and Chinese napkins (see Figure 5). The top sales locations for participants to purchase diapers and napkins are Au Bon Marche and Chinese shops, respectively.

Ease of access to the product and price are the key factors for those who use Chinese napkins, ease of use is the key factor for those using diapers, and all three – as well

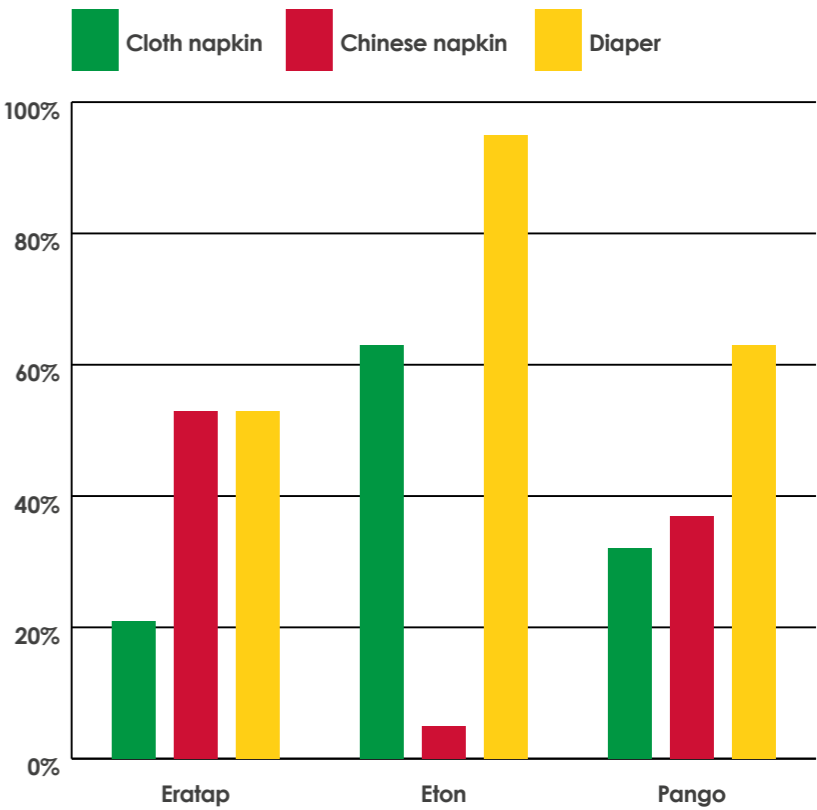


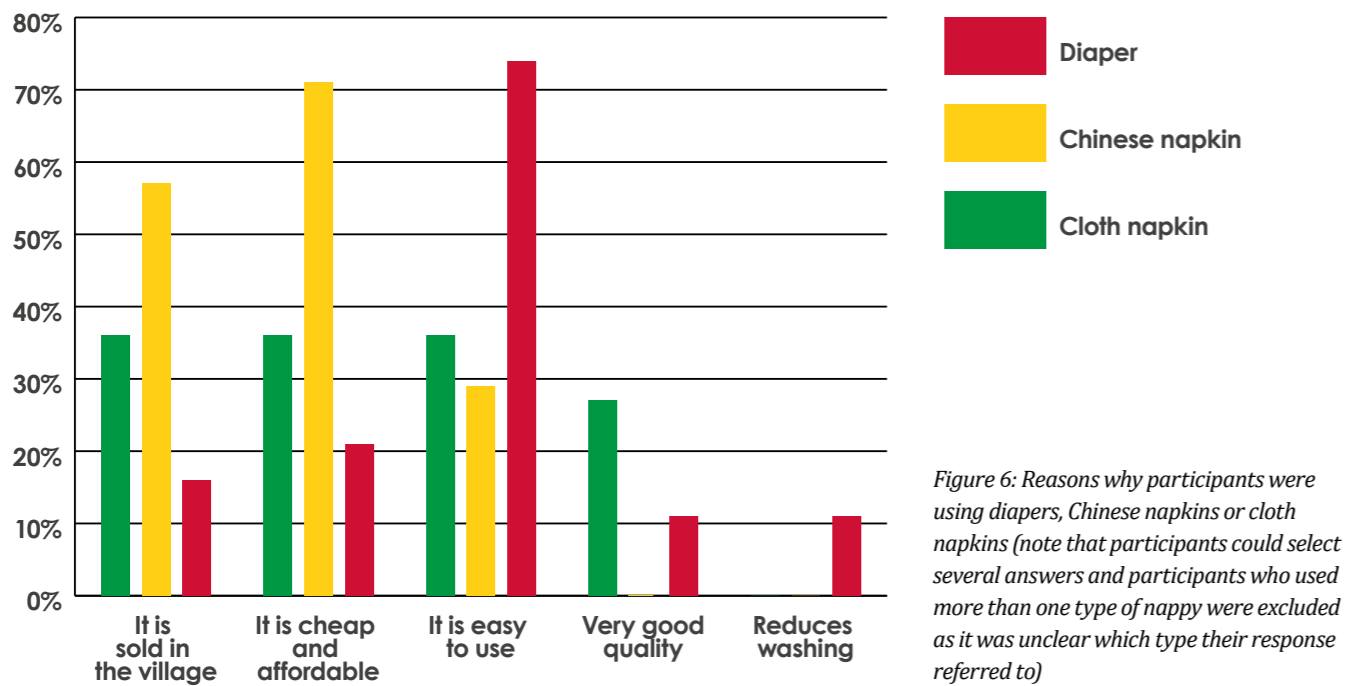
Figure 5: Percentage of participants using diapers, Chinese napkins, and cloth napkins prior to the start of this trial (note that participants could select several answers)

as to a slightly lesser extent quality – are a factor for those using cloth napkins (see Figure 6). Only three participants mentioned water access or washing time as a factor in their decision.

Of those who purchased Chinese or cloth napkins, 55 per cent said they spent 400VT, 44 per cent 1000VT pack and 7 per cent source the napkins at different price points. Of those who purchase diapers, 42 per cent purchase one diaper at a time for 50VT, 38 per cent pay 780VT for a 48 pack, and 12 per cent buy 12 diapers at a time for 250VT. Only 51 per cent of participants purchase their nappies themselves, with 20 per

cent or fewer doing so exclusively across all three villages. In Pango and Eratap, husbands are solely responsible for nappy purchases for 45 and 37 per cent of participants respectively, with their parents being exclusively responsible for purchases for 32 per cent of Eratap participants.

A very high number (64 per cent) of participants reported only changing their baby one to three times per day. As can be seen in Figure 7, those using diapers changed their children the least often, and those using Chinese napkins changed them the most.



Waste disposal and washing

Approximately 39 per cent of the participants use pit latrines (bush toilets) with only 27 per cent using flush toilets. Only 58 per cent of the families have good water access, with the rest sourcing rainwater, water from wells, and saltwater.

Participants dispose of napkin waste and diapers in a variety of ways, and there are clear and distinctive patterns in each community. The yellow plastic bags provided by Port Vila Municipal Council are the preferred method of disposal for those living in Pango, with 40 per cent and 75 per cent saying that they dispose of napkin waste and diapers in this way respectively. In Eton, 80 per cent bury napkin waste and 65 per cent throw diapers into the pit latrines. Pit latrines are the preferred method of disposal for residents of Eratap, with 63 per cent and 79 per cent disposing of napkin waste and diapers in this way respectively. Two participants who use napkins said that they dispose of faeces into the ocean/river/creek, and three participants that used diapers said that this was a normal disposal method.

Participants using napkins used two buckets (40 litres) of water on average to wash them, with 23 per cent using one bucket and ten per cent using three buckets.

MLV nappies and the diaper ban

The majority of participants had not heard about MLV nappy products, although there was a big difference between the three communities. In Eton, none of the participants had heard of the products, whereas in Mamma's Laef's home village of Pango, 75 per cent had heard of them.

When asked about the proposed ban on diapers, over 80 per cent of participants across all three communities had heard about it, with 81 per cent in favour and 14 per cent not in favour. However, although Eratap and Pango showed 89 per cent and 90 per cent approval respectively, there was slightly decreased support in Eton, at 68 per cent.

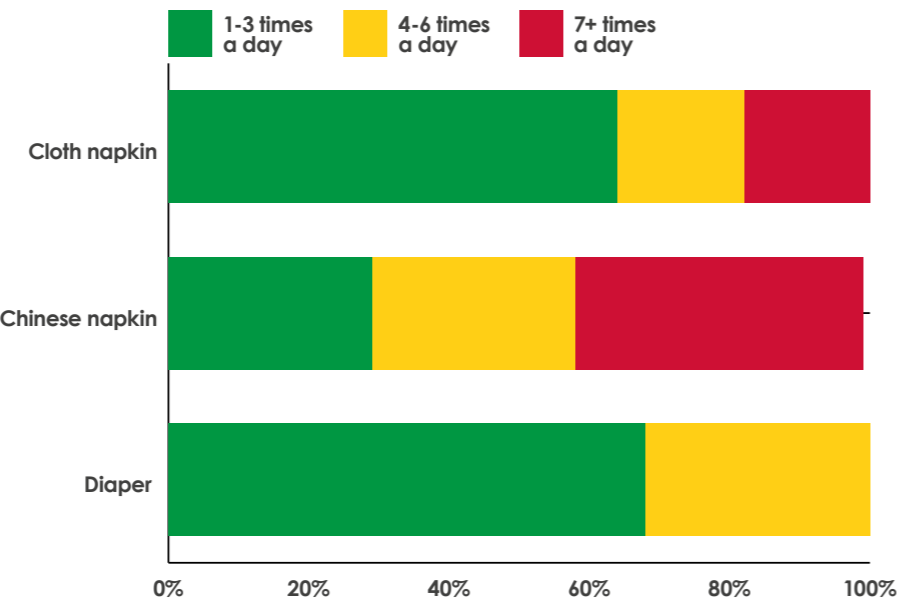


Figure 7: Number of changes per day, by type of nappy (note that participants who used more than one type of nappy were excluded as it was unclear which type their response referred to)

AFTA (after) survey

Again, a total of 59 participants answered the survey, with 20 each from Pango and Eton and 19 from Eratap.

MLV nappy usage

Overall, 53 per cent of participants used the MLV nappy products every day and 39 per cent used them a few times. There was a difference in usage between the three villages, with 65 per cent of residents of Eton using them every day compared with 53 per cent in Eratap and just 40 per cent of residents of Pango village.

Of those who used the MLV reusable nappies a few times or less, factors identified by participants that limited their usage were (note participants could choose multiple issues):

- The products took a long time to dry (33 per cent)
- Their babies did not like using the product (18 per cent)
- It was not the right size for their baby (15 per cent)
- Lack of water access (11 per cent)
- It was hard work (5 per cent)

The responses differed significantly by village, with drying time being the single biggest factor preventing use in Eton and Pango (57 and 42 per cent respectively), and baby's perceived preference and water access being the main factors in Eratap (44 per cent and 33 per cent respectively). It's worth noting that 19 per cent of those who did use the products every day also noted the long drying time.

In terms of the number of nappy changes per day:

- 59 per cent of participants changed the MLV nappies one to three times a day
- 34 per cent participants changed the MLV nappies four to six times a day

Waste disposal and washing

Most participants disposed of the waste from their MLV nappies in some kind of toilet system, however a significant number in Eratap buried the waste underground and in Eton many people used a soakaway system:

- Pit or Ventilated Improved Pit: 38 per cent
- Flush toilet: 35 per cent (75 per cent in Pango)
- Bury underground: 21 per cent (47 per cent in Eratap and none in Pango)
- In the ocean: Just one person in Pango
- Soakaway system: 45 per cent in Eton and none in Eratap and Pango

In the BIFO survey, the most common places to dispose of napkin waste was to bury it underground, dispose in bush toilets and via rubbish collection (yellow plastic bags) for the Port Vila Municipal Council waste facility. Results from the AFTA survey show that the education provided by MLV had an impact, with 90 per cent of participants now using toilets to dispose of their waste, and an almost 50 per cent reduction in those disposing of it in the environment (see Figure 8). Around 20 per cent of participants continued to bury the waste underground however, and one person threw their nappy waste into a river (down from 2 in the BIFO survey).

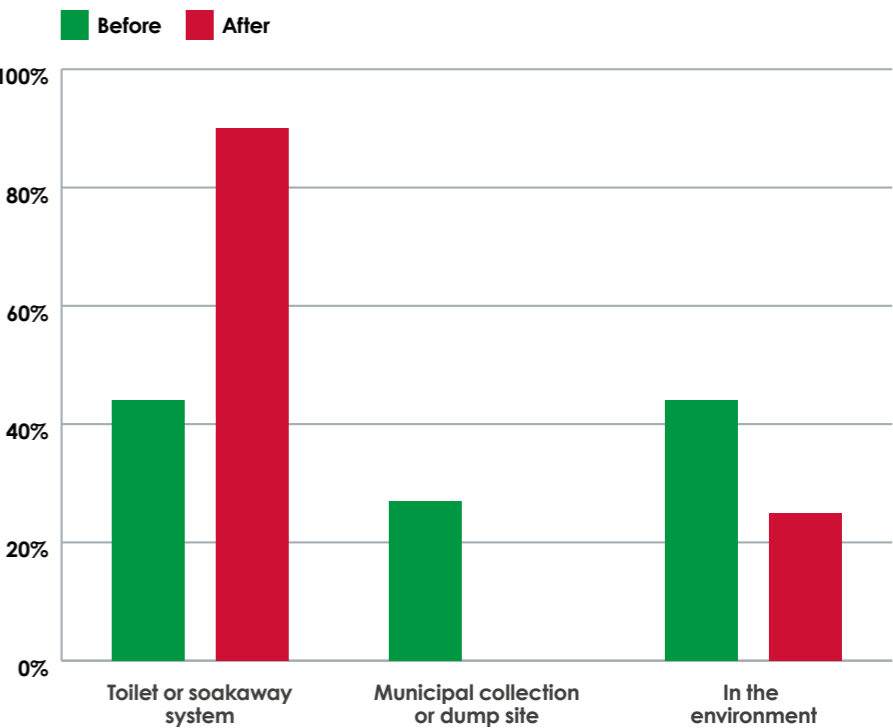


Figure 8: Disposal methods used for nappy waste before and after MLV education on best practises. Note that participants could select more than one answer.

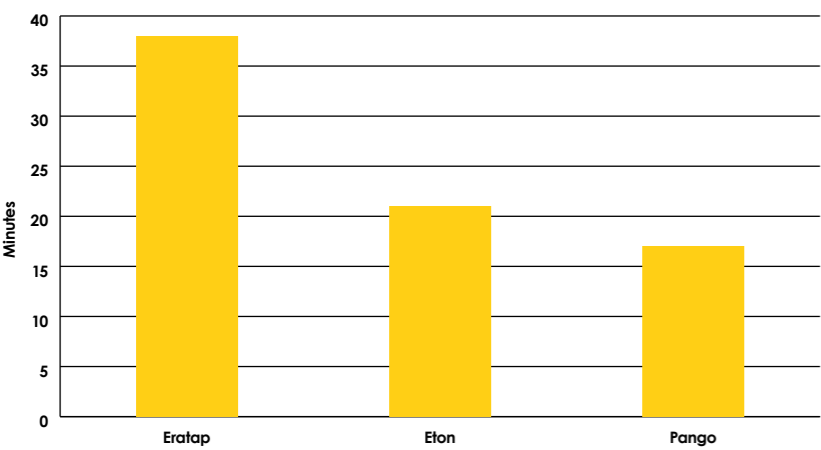


Figure 9: Average time taken in minutes per day washing MLV nappies by community

90 per cent of the participants used the MLV washing procedures to clean their nappies, with 95 per cent washing by hand using a bucket. 96 per cent used freshwater only. On average, participants were spending 25 minutes per day washing their nappies, although there was a difference in the amount of time taken to wash the nappies by community, with Pango residents taking 17 minutes, Eton residents 21 minutes, and Eratap residents 38 minutes.

There were only five participants who said they did not use the washing procedure provided by MLV, all from Eratap. A further seven (all from Pango) indicated reasons that they may not have used the recommended procedure. Taking these as a group, six said they had no water access, three that the instructions were too complicated and three that their “housegirl” did the washing.

Participants that used washing machines to do their washing had access to Unelco power in the communities of Eratap and Pango. Just eight per cent of participants would hire someone to wash their nappies for them.

In terms of drying times, in sunny weather 60 per cent said on average it took half a day for the nappy products to dry and 35

per cent said it took a full day. In cloudy and rainy weather these figures were 28 per cent and 20 per cent for a half day and 46 per cent and 59 per cent for a full day respectively.

On average, participants recalled that it had rained for 3.6 days during the course of the two-week trial. However, those who stated that drying their reusable nappies took a long time said that it had rained on average slightly more times, at 4.1 days, with those who did not state drying time as a problem saying it had rained for an average of 3.4 days.

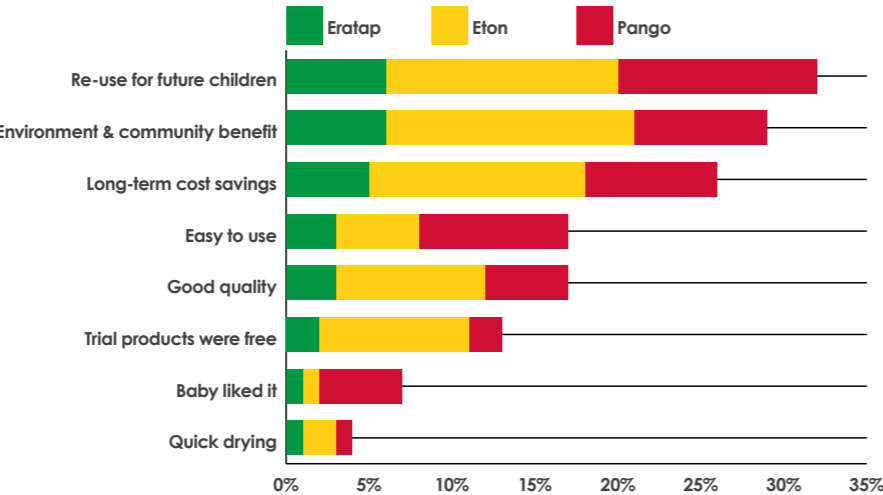


Figure 10: Reasons why participants liked the MLV nappies (note that participants could choose more than one answer)

Feedback and Financials

All but two participants – 96 per cent – said that they liked the MLV products. The two that didn’t were both from Eratap, and one had issues with water access and the other thought that the product was not good quality. 95 per cent of the participants would recommend MLV nappies to other people to use.

The fact that the nappies could be reused for future children, the benefits to the environment and the local community, and the long-term cost savings compared to diapers were the top reasons given for participants’ approval of the MLV nappies (see Figure 10).

85 per cent said that the snaps cover was easy to use. Of those who didn’t, the majority of people thought the covers were too tight (8 people) or that it didn’t hold the nappy for very long (7 people).

During the two-week MLV nappy trial, most families said they thought they had saved between VT500 - VT2,100 and they could see the financial benefits of using MLV reusable nappy packs. On average, participants thought they had saved

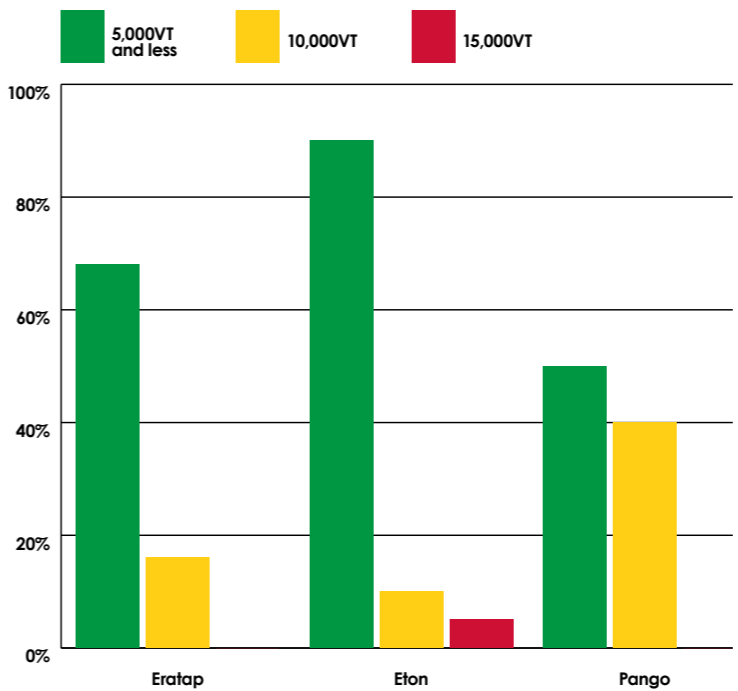


Figure 11: Proportion of participants willing to pay different amounts for MLV nappies, across three communities.

around 1,000VT over the course of the trial, although two people thought they hadn’t saved anything.

The majority of participants (69 per cent) would prefer to spend 5,000VT or less on MLV nappies, although there were 13

people willing to pay up to 10,000VT and one person willing to pay up to 15,000VT. This means that the average price that participants would be willing to pay for MLV nappies is just over 6,300VT. However, there were significant difference by village, with 40 per cent of Pango residents stating

that they would be prepared to pay up to 10,000VT (see Figure 11).

85 per cent of participants said that they would buy the MLV nappies. 12 per cent (7 people) said they thought the MLV nappies were too expensive. Just two people said that they preferred diapers and two people said they didn’t have time for the washing. Just one person highlighted water access as the issue. All but two participants, 97 per cent, said that they would be more likely to buy the MLV nappies if the costs could be spread over time.

Diaper ban

After undertaking the community trial, 68 per cent of participants said they supported the diaper ban, 6 per cent did not support the ban, and 20 per cent were not sure about the ban. Just one person from each community said they were opposed to the ban. The biggest changes in opinion since the BIFO survey are the 39 per cent decrease in support for a ban in Pango, which now has 40 per cent who say they are not sure. On the other hand, support has increased in Eton, with an 83 per cent reduction in those saying they are opposed to a ban and a 23 per cent increase in support (see Figure 12).

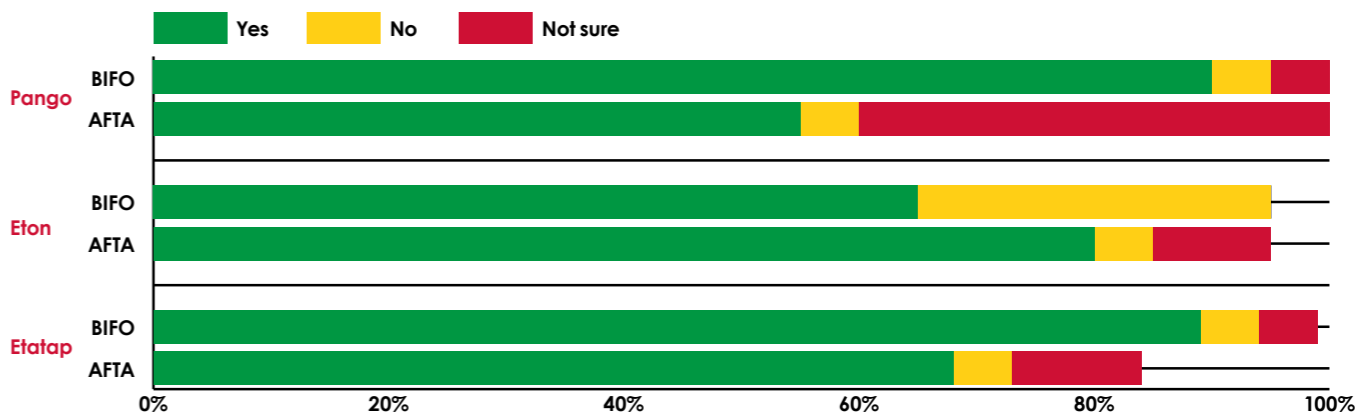


Figure 12: Support for the diaper ban in the BIFO (before) and AFTA (after) surveys.

DISCUSSION AND CONCLUSIONS

Discussion

Survey Errors

A few errors have been identified that may affect the survey results, which can mostly be attributed to the interviewers and/or participants misunderstanding the questions and terminology. For instance:

- Participants were supposed to only answer questions applicable to their situation. However, in some cases participants answered all questions. For example, only those participants who indicated that they used a washing machine should have also answered the question about the washing machine's power source, but many people answered this question who had said they didn't have a washing machine.
- In some cases, participants did not distinguish between 'nappies', 'napkins' and 'diapers' and this caused confusion in some parts of the survey, notably the questions around how much was spent on nappies.
- Many participants use a combination of disposable diapers, cloth napkins and/or Chinese napkins, so when asked for the reasons for choosing the type of nappy that they used, it was unclear to which product they were referring.
- Under the "Other" option for questions, most participants selected the option and left it blank or inserted an answer that is a repetition of an available choice.
- Au Bon March, Port Vila's biggest supermarket sells only diapers and not napkins, so it should have not been listed as an option in question 18 of the BIFO survey.
- For BIFO survey question 32 and 33, the participants had heard of MLV nappies "from a friend" which is most likely the Champions during their scoping and community work. It should have been made clear that the question

referred to whether they had heard about MLV nappies prior to the start of the trial project.

Challenges

Recruitment of Community Champions and participants

MLV relied on their network of contacts to recruit the Community Champions, who in turn recruited the participants. Very close to the trial start date, one of the selected Champions pulled out, leaving MLV to find a replacement Champion in a different village. Although a new Champion and village was found, this did not give much time to ensure that the new Champion had the right support and was able to recruit participants in time. Overall, it was not easy to find the right people who were prepared to commit the time and energy to be Community Champions for this trial study.

Communication and understanding

There were several issues around communication that posed a challenge, such as:

- The terminology used to try and differentiate between diapers, napkins and MLV nappies was new to participants, many of whom are used to referring to everything as either diapers or nappies.
- Many of the participants were not educated to a very high level, and this

may have caused challenges around literacy, especially as in some cases the Community Champions left the written surveys with participants for them to complete on their own, rather than working through it with them. The survey was designed to be conducted in Bislama as an interview by the Champions and MLV team.

- There was a lot to teach the Community Champions and the participants, and not much time to do it in, and this may have resulted in misunderstandings around various aspects of the trial e.g., how to fit the MLV nappies.

Weather

It rained a lot during the two weeks which means that the participants' nappies would have taken longer to dry. However, this amount of rain is not unusual in Vanuatu during the rainy months, and therefore these are challenges that communities already face where traditional napkins are still used, and will face if they switch to MLV nappies permanently. For some participants with no water access, extra rain was a good thing and meant they could collect water to wash their MLV nappies.

Limitations

This trial was designed to give a good indication of the acceptability of MLV products to a broad range of families living across Vanuatu. As such, villages

were chosen that were different from each other with regards to how urban or rural they were, their access to water and other services. However, there were several limitations with this study:

- Due to logistical considerations, the three villages were all on the main island of Efate, and so although two of our villages are classed as rural, they would not have the same lifestyle as Ni-Vanuatu living in some of the more remote islands that lack an urban centre.
- Although in choosing peri-urban Pango village on the outskirts of Port Vila we had hoped to include several working families, in the end the vast majority of our participants were not in salaried employment. Therefore, the results of this survey may not reflect the views of working families.
- At two weeks, the trial period was relatively short. It's possible that a longer trial period would have yielded different results as parents and babies became more familiar with using MLV nappies.

Water, Sanitation and Hygiene (WASH)

Waste management

The disposal of diapers and nappy waste is of concern in Eton village. Here participants have a designated area at the beach where they bury the community's diapers. There has been no confirmed assessment of the environmental and health impacts from this practice for the community.

Results in the AFTA survey show that there was a decline in the number of participants (at all community trial locations) burying their nappy waste, although it was not totally eliminated, particularly in Eratap village. Therefore, although it seems that the MLV nappy trial has helped to educate communities on good disposal practices, further education is needed.

"I am very happy to be using this local product because it helps to save a lot of money. I want to thank Mamma's Laef for producing this nappy to help jobless mothers."

Participant, Pango village

Changing nappies

Results in the BIFO survey showed that a very high number (64 per cent) of the participants only changed their babies' diapers or napkins one to three times per day. On average, those using just diapers were changing them 2.9 times per day, those using just cloth napkins were changing them 3.5 times per day, and those using Chinese napkins were changing them 5.1 times per day.

Although the sample size for this comparison was small (as those who indicated that they used a combination of different kinds of nappies were excluded), the observed financial expenses – with 46 per cent of participants saying they spend 50VT or 100VT on diapers per time (i.e. buying one or two per day) further indicates that many participants are only changing their babies' diapers once or twice a day. The situation is particularly pronounced in Eton, where 85 per cent of participants indicated that they were buying just one or two diapers at a time. This is a concerning result as leaving babies in soiled nappies for a prolonged period of time can lead to nappy rash, sores and other skin conditions. Observations from within the communities further suggests that leaving a diaper on for too long may restrict a baby's waist from growing properly, compared to reusable nappies.

Water access

Looking at the proportion of participants who mention reduced washing in their reasoning for choosing diapers (see Figure 6), and the fact that just one person mentioned water access as a reason for not buying MLV products, it does not appear that this is a very significant factor in people's decision-making process. Communities with limited water access like Eton and Eratap still supported the diaper ban and understood the benefits for their finances, health, community and environment of using the MLV products.

MLV products and pricing

Products

The overwhelming majority – 96 per cent – of participants said that they liked the product and 86 per cent said they would be willing to buy it. However, the MLV nappy prototypes had a few issues with sizing. A few families returned to using diapers as the sizes they were given were too small or too big for their babies to use. Others found the liner and insert too small or not thick enough to hold baby waste for a longer period. Additionally, concerns were raised about the bulkiness of the product, especially when worn under clothes.

Pricing

The main reason for the discrepancy between the number who said they liked the product and those that said they would

buy it could be the price, as this was the most popular reason why participants indicated that they would not buy the MLV nappies. Currently, a starter kit of MLV nappies containing 38 products (i.e., 16 liners, 16 inserts, and 6 covers) will retail for 20,000VT. Most participants indicated that they want to invest an amount of 5,000VT or less on MLV nappy products. It's not clear whether participants saw this price as acceptable for one MLV nappy, or for a set sufficient for one baby. All but two participants indicated that they would be more likely to buy MLV nappies if costs could be spread over time, indicating that a community microfinancing or purchase payment plan for MLV nappy sets could remove a barrier to entry for some families.

It's also worth noting that as a new product to the market, the value of MLV nappies may not yet be fully understood

by families, who may be prepared to pay more once they understand the product better. Financial literacy may also be an issue, as many people may not understand quite how much more diapers are costing over the long term compared to reusable nappy options.

Support for a diaper ban
The three communities have slightly different perspectives when it comes to the diaper ban. Some commentators have assumed that rural communities that are at more of a disadvantage accessing services such as electricity and water would not support the ban, but this does not seem to be the case.

Despite the overwhelming majority of participants liking the MLV nappies, after the trial fewer participants reported being in favour of a ban than beforehand.

However, there was also a decrease in the number of people opposed to a ban, with a higher proportion afterwards saying they were "not sure". A shift in their perspective could be due to several reasons:

- Realization about the amount of work required to wash reusable nappies
- Current view that it is an expensive product due to a lack of financial education on the benefits and cost savings of using the products
- Social media pressure and influence (Note: there was considerable negative social media commentary regarding the ban during the trial period).

It is notable that in the more rural communities of Eratap and Eton there is high support (with support having increased in Eton), whereas support is lower in Pango, where social media may have had more of an influence.



Participants want to invest an amount of VT5,000 or less on MLV nappy products.

Conclusion

Based on a current average birth rate of 22 births per day⁵⁵, Vanuatu has around 8,000 births per year. If we assume a third of these babies use diapers exclusively, at an average rate of 2.9 disposable diapers per day for 2.5 years, that equates to around 7 million disposable diapers per year⁶. These figures do not include any diapers used by families who use them part-time, or those brought onto the islands by tourists. Under a future scenario that saw hygiene practises improve so that babies' diapers were being changed at a rate comparable with the UK, and the adoption of diapers continued to increase to cover 50 per cent of the population, Vanuatu could see is usage of diapers increasing to over 15 million per year within the next few years.

The vast majority of participants who took part in this trial liked the MLV nappies and would use them for their children. Based on the responses to this survey, it is possible that with the right incentives and education, the majority of families could switch to MLV reusables.

The introduction of reusable nappies to Vanuatu via the MLV social enterprise model has the following benefits:

- Environmental:**
- Reduction in the use of single-use plastics, resulting in fewer natural resources used and fewer carbon emissions created during the manufacturing process
 - Reduction in the quantity of waste and plastic pollution produced

- Economic:**
- Considerable financial savings for

- families and government
- Creation of a home-grown manufacturing industry with products available locally
- Job creation for local people

- Educational:**
- Communities are educated on best hygiene practices
 - Greater awareness of sustainability issues
 - Improved financial literacy

Additionally, it touches on at least 13 of the internationally agreed UN Sustainable Development Goals, in particular:

- Clean Water and Sanitation (Goal 6);

- Decent Work and Economic Growth (Goal 8);
- Responsible Production and Consumption (Goal 12);
- Life Below Water (Goal 14);
- Partnerships (Goal 17).

The primary barriers that remain to the uptake of MLV nappies are as follows:

- Drying times (a problem for 25 per cent)
- Sizing and perceived baby preference for other options (a problem for 15 per cent)
- Upfront cost (a problem for 12 per cent)

Recommendations for overcoming these barriers are included in the section below.

"I am happy to have the Mamma's Laef product, it helps a lot of women around the communities to use the reusable nappy. It is easy to use, good quality and helps save money to buy other babies' needs at home."

Participant, Pango village



Baby trialing the MLV reusable nappy cover over a disposable diaper.

e In our study, 32 per cent of participants said they used diapers exclusively, at an average rate of 2.9 diapers per day. We don't have data for the average age at which babies in Vanuatu are out of diapers, but the standard figure used internationally is 2.5 years. This means one baby in Vanuatu would use 2,646 diapers per year, and Vanuatu in total would use 6,986,100 diapers per year taking into account just those who exclusively used diapers and assuming that hygiene practises do not improve to increase the number of diapers used per day.

RECOMMENDATIONS

For the Vanuatu Government

Based on the findings of this report, we suggest that the Vanuatu Government take the following next steps:

1. Roadmap

Since the ban on disposable diapers was announced in 2018, there have been a couple of dates given for when the ban would come into effect, a couple of consultations, and lots of speculation. This study found that a surprising number of people in more rural locations didn't know about the proposed ban – although they were supportive when they learnt about it. In order to give citizens and businesses confidence, it is important that the Vanuatu Government work with stakeholders to develop a roadmap towards reducing dependence on disposable diapers in urban areas and stemming the tide of change from traditional napkins to diapers in rural areas. This roadmap should be accompanied by a clear communications plan that provides the public with reassurance in the form of an authoritative voice from government asserting the benefits of modern reusable nappies and the problems with diapers.

2. Education

The Government should work with MLV and other partners such as Wan Smol Bag to ensure that an education programme around nappies is rolled out across the country. There is a low awareness of hygiene best practice as well as financial literacy to understand the benefits of reusable nappies as opposed to diapers. Whilst traditional napkins are still in use across many of the islands, this is a good opportunity to convert communities to modern reusables such as MLV nappies, which are higher quality and can stem the gradual tide of conversion to diapers. Such an education programme will likely



JACK KALSRAP, MAMMA'S LAEF VANUATU

"It is important that the Vanuatu government work with stakeholders to develop a roadmap towards reducing dependence on diapers, accompanied by a clear communications plan"

require the support of donor and strategic partners.

3. Collaboration

There are lots of opportunities for collaboration, including primarily with MLV but also the organisations listed above under the collaboration recommendation for MLV. In addition, the government should investigate the introduction of a Baby Box scheme as a collaboration between the Department for Health and the Department for Environmental Protection and Conservation, as well as other strategic partners. MLV have submitted an application to GEF for a pilot study that would see baby boxes (containing post partem and breastfeeding pads for the mother and MLV nappies and a cotton blanket for the baby) delivered to 215 families in Santo and Port Vila. This initiative would meet environmental as well as infant and maternal health goals, and with support from donors and the

Government could become a flagship initiative for Vanuatu to be proud of.

4. Research

This study has uncovered a couple of concerning findings which need further investigation and intervention by government. These are the practices of burying diapers and nappy waste in the ground and on beaches (and to a lesser extent dumping them in the bushes, waterways or the ocean), as well as the fact that many babies seem to be having their diapers changed only once or twice per day. Both of these practices will have health implications that need addressing, and both can be remedied by education.

5. Financial

The government should explore financial structural support arrangements to make reusable nappies more affordable for consumers, including VAT exemption, and duty exemption for the importation of napkins.

For Mamma's Laef

Based on the findings of this report, MLV should investigate the following actions:

1. Community Champions

Given the difficulty with recruiting Champions for this trial, it would be worth looking again at the incentives that Champions were offered for their participation, as well as ensuring that there is a longer training period during which Champions can become fully familiar with the products and how best to use and care for them.

2. Education

- Ensure that people understand how to use and care for the product and that any future Community Champions, sellers or trainers have themselves received comprehensive training and feel very confident about all aspects of product use and care.
- Education sheets that come with starter packs, and any training given in person should include information around drying procedures as well as washing, to help families get their MLV products dry during rainy season.
- MLV may also want to undertake more consumer and health awareness to educate consumers about the ideal practice for changing nappies so they have realistic expectations about how long an insert should be used for and how frequently nappies should be changed.
- Financial literacy would also be another useful area for MLV to focus on, as many participants did not seem to appreciate the full savings of MLV products compared to diapers over time.

3. Collaboration

There is lots of scope for working with other organisations to improve the communication and enabling environment

for the uptake of MLV products, including for example: Unicef to incorporate best practise WASH guidelines regarding washing MLV nappies; Engineers Without Borders to develop solutions to help MLV nappies to dry quickly during rainy or cloudy weather; and Wan Smol Bag and Health Promotions Vanuatu on community outreach and education.

4. Sizing

Several families struggled with the MLV nappies being too tight or too loose. Rather than sizing the products as "newborn", "small" etc, it might be easier for families to choose the correct size if measurements such as weight are given as guidelines for the different nappy sizes. Further prototype improvement based on feedback from this study may also be useful.

5. Payment options

Cost was a barrier to purchase for many families, and although financial literacy

education would be beneficial, it may also be worth investigating payment plans or microfinancing schemes that would enable families to pay for their MLV nappies over time. Alternatively, MLV could investigate a "nappy library" scheme that would enable families to rent nappies for a lower price than upfront purchase, on the condition that they are returned in good enough condition to be rented out again to other families.

6. Cost-effectiveness

With the support of BM, MLV should review and resource raw material suppliers based on higher quantity requirements to reduce the cost of materials, and look at re-engineering the product to ensure the most cost-effective design (and best fit, in line with point 4). Efficiencies in production should also be investigated. These measures will all help MLV to bring their price down and to scale up effectively to meet demand throughout Vanuatu.



GINA KAITIPIEL, STARLIGHT PHOTOGRAPHY

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Introducing Modern Reusable Nappies Into Vanuatu – A Trial Study

Introducing Modern Reusable Nappies Into Vanuatu – A Trial Study

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APPENDICES

A. Pictorial step by step instructions in Bislama, English and French



	BISLAMA	ENGLISH	FRENCH
1	Bifo yu changem bebe nappy yu mas wasem hans blo yu.	Before you change baby nappy, wash your hands.	Avant de changer la couche de bébé, lavez-vous les mains.
2	Emia nao emi napi, cava, inset mo laena.Foldem inset 3 taem.	This is the nappy – the cover, the insert, the liner. Fold the Insert into 3.	Voici la couche : une culotte de protection, un insert et un voile de protection. Pliez l'insert en 3.
3	Putum bebe long napi, mo pulum fored, i go antap. Pulum gud ol saed blong napi i stret gud mo sarem baten blong napi.	Lay baby on top of the nappy and pull up the front. Pull the sides around and fasten the snaps or the Velcro.	Mettez la couche sur bébé. Tirez sur le devant et sur les côtés. Mettez les boutons pressions ou les scratches.
4	Emi Nao. Mekem sua se napi i strong gud be i no taet tumas long bebi.	Voilà. Make sure the nappy is firm but not too tight on baby.	Le tour est joué ! Vérifiez que la couche soit bien ajustée et pas trop serrée.
5	Taem blong jenisim bebi, mekem sua su yu karemoat gud laena from ples ia nao ol sitsit i stap long em.	When it is time to change the baby. Make sure you remove the liner where most of the poo will be sitting.	Au moment de changer bébé, enlevez le voile de protection qui contient la majeure partie du caca.
6	Yu karemaot gud sitsit long laena mo putum long toilet.	Safely dispose of the poo into a toilet.	Jetez le caca dans les toilettes en toute sécurité.
7	Putum wota insaed long baket we i gat lid long em. Putu mol toti laena, inset mo cava (sipos i wet wet o toti). Afta we yu draonem mo rinsimaot ol toti laena, inset etc. sakem toti wota i go long toilet.	Place water in bucket with lid. Soak the dirty liner, insert and cover (if it is wet or dirty). When soaking is finished, safely dispose of the water down the toilet.	Remplissez un seau d'eau (le seau doit avoir un couvercle.) Trempez le voile et l'insert sales, ainsi que la culotte de protection si elle est humide ou sale. Dès que le trempage est terminé, jetez l'eau dans les toilettes en toute sécurité.
8	Taem yu redi blong wasem napi, inset, mo laena, karem fres wota long baket mo wasem gud.	When ready to wash the nappy, insert and liner, get fresh water in bucket and wash properly.	Au moment de laver la couche, l'insert et le voile, remplissez un seau d'eau et lavez-les correctement.
9	Emi impoten tumas blong putum toti wota blong napi cava, inset mo laena long toilet. No putum toti wota lo drae toilet.	It is important to safely dispose of any water you have used to soak or wash the nappy cover, insert and liner.	Il est important de vider l'eau qui a servi à faire tremper ou à laver la culotte de protection, l'insert et le voile, en toute sécurité.
10	Emi from se man I save sik sipos i tajem toti wota we i gat sitsit long em.	Put the dirty water into the flush toilet. This is because people can get sick if they touch the water with poo in it.	Videz l'eau sale dans les toilettes. Cela évite que des gens soient en contact avec de l'eau souillée par du caca et puissent tomber malades.
9	Yu mas rimemba oltaem blong wasem han blong yu aft ayu takemaot o wasem napi.	Always remember to wash your hands afterwards.	Lavez-vous toujours les mains après avoir changé la couche.
10	Skwisimaot wota mo hangem long laen blong klos blong san i kasem cava mo laena bambae i drae kwik taem.	Squeeze out as much water as possible. Hang on the clothes line in the sun. The cover and liner will dry quickly. The insert takes a little longer to dry.	Essorez la couche pour enlever autant d'eau que possible. Étendez-la au soleil. La culotte de protection et le voile sécheront rapidement. L'insert peut prendre plus de temps à sécher.
	Inset bae i tekem taem blong I drae. Taem i drae foldem mo redi blong yusum bakeken.	Once dry – fold and get ready to use again. Enjoy.	Dès que tout est sec, pliez et utilisez de nouveau. Simple et efficace !

B. BIFO survey questions



Survey questions to ask participants before they start using the Mammas Laef nappy products.



Interviewer:
Date:

PERSONAL INFROMATION	
1	What is your name?
2	Are you: <input type="checkbox"/> Male <input type="checkbox"/> Female
3	What island are you originally from?
4	What is the name of your village? <input type="checkbox"/> Pango <input type="checkbox"/> Eratap <input type="checkbox"/> Eton
5	What is your age? <input type="checkbox"/> 15-18 <input type="checkbox"/> 19-23 <input type="checkbox"/> 24-29 <input type="checkbox"/> 30-34 <input type="checkbox"/> 35-39 <input type="checkbox"/> 40+
6	Do you have a disability? <input type="checkbox"/> Yes <input type="checkbox"/> No
7	At what level of education did you finish at? <input type="checkbox"/> I did not attend school <input type="checkbox"/> Primary school <input type="checkbox"/> Secondary school <input type="checkbox"/> Vanuatu Institute of Technology (VIT)/ Australia Pacific Training Coalition (APTC) etc. <input type="checkbox"/> University of the South Pacific (USP) <input type="checkbox"/> Other.....
8	Are you working? <input type="checkbox"/> Full time <input type="checkbox"/> Part time <input type="checkbox"/> Not working
9	Where are you working? <i>You may choose multiple answers.</i> <input type="checkbox"/> Gardening/ market vendor <input type="checkbox"/> Small business <input type="checkbox"/> Private company <input type="checkbox"/> Government department <input type="checkbox"/> Non-governmental organization (NGO) <input type="checkbox"/> Regional Seasonal Worker (RSE) <input type="checkbox"/> Other.....

10	How many children do you have? <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5+
INFORMATION ABOUT YOUR BABY	
11	What is your relationship with the baby? <input type="checkbox"/> Mother <input type="checkbox"/> Father <input type="checkbox"/> Grandmother <input type="checkbox"/> Grandfather <input type="checkbox"/> Aunt <input type="checkbox"/> Uncle <input type="checkbox"/> House girl <input type="checkbox"/> Sister <input type="checkbox"/> Brother <input type="checkbox"/> Other.....
12	How old is your baby? <input type="checkbox"/> 1-5 months <input type="checkbox"/> 6-24 months
NAPPY AND DISPOSABLE DIAPER	
13	What product(s) are you using on your baby? <i>You can choose multiple answers.</i> <input type="checkbox"/> Cloth nappy - new/ old <input type="checkbox"/> Chinese towel nappy - new/ old <input type="checkbox"/> Disposable diaper <input type="checkbox"/> Other.....
14	Why do you prefer using the product(s) that you have chosen above? <i>You can choose multiple answers.</i> <input type="checkbox"/> It is sold in the village <input type="checkbox"/> It is cheap and affordable <input type="checkbox"/> It is easy to use <input type="checkbox"/> Very good quality <input type="checkbox"/> Other.....
15	How many times a day do you change your baby's nappy/ diaper? <input type="checkbox"/> 1-3 times a day <input type="checkbox"/> 4-6 times a day <input type="checkbox"/> 7+ times a day
16	If you are using 'nappy' products, where are you purchasing from? <i>You can choose multiple answers.</i> <input type="checkbox"/> Local supply/ community member <input type="checkbox"/> From the local shop <input type="checkbox"/> ABM supermarket <input type="checkbox"/> Chinese store

	<input type="checkbox"/> Other.....
17	How much are you spending on the nappy products? <input type="checkbox"/> 600VT (4 pack) <input type="checkbox"/> 1000VT (12 pack) <input type="checkbox"/> 2000VT (24 pack) <input type="checkbox"/> Other.....
18	If you are using ' disposable diaper ' products, where are you purchasing from? <i>You can choose multiple answers.</i> <input type="checkbox"/> Local supply/ community member <input type="checkbox"/> Local store <input type="checkbox"/> ABM supermarket <input type="checkbox"/> Chinese store <input type="checkbox"/> Other.....
19	How much are you spending on the disposable diaper products? <input type="checkbox"/> 50VT (per diaper) <input type="checkbox"/> 100VT (for 2 diapers) <input type="checkbox"/> 250VT (12 diaper pack) <input type="checkbox"/> 780VT (48 diaper pack) <input type="checkbox"/> Other.....
20	Who is purchasing the nappy/ diaper products for you? <i>You may choose multiple answers.</i> <input type="checkbox"/> Myself <input type="checkbox"/> My husband <input type="checkbox"/> My wife <input type="checkbox"/> My parents <input type="checkbox"/> Other family members <input type="checkbox"/> Other.....
TOTI BLONG NAPPY MO DISPOSABLE DIAPER	
21	What type of toilet are you accessing: <input type="checkbox"/> Pit latrine (bush toilet) <input type="checkbox"/> Ventilated improved pit (VIP) <input type="checkbox"/> Flush toilet <input type="checkbox"/> Other.....
22	Do you have access to water? <i>You may choose multiple answers.</i> <input type="checkbox"/> Yes, I do have access to good water supply <input type="checkbox"/> I use rainwater/ wells <input type="checkbox"/> Salt water <input type="checkbox"/> River/ creek <input type="checkbox"/> No, I do not have access to enough water <input type="checkbox"/> Other.....
23	If you are using the ' nappy ' products, where are you disposing the poop? <i>You may choose multiple answers.</i> <input type="checkbox"/> Rubbish dump <input type="checkbox"/> Pit latrine (Bush toilet)

	<input type="checkbox"/> Ventilated improved pit (VIP) <input type="checkbox"/> Flush toilet in the house <input type="checkbox"/> Community toilet - flush toilet/ bush toilet <input type="checkbox"/> Into the bushes <input type="checkbox"/> Bury in the ground <input type="checkbox"/> In the ocean/ river/ creek <input type="checkbox"/> Soakaway system <input type="checkbox"/> Other.....
24	How much water/ salt water are you using to clean your used nappies? <input type="checkbox"/> 1 bucket (20 litre) <input type="checkbox"/> 2 bucket (40 litre) <input type="checkbox"/> 3 bucket (60 litre) <input type="checkbox"/> Other.....
25	If you are using the ' disposable diaper ' products, where are you disposing it? <i>You may choose multiple answers.</i> <input type="checkbox"/> Yellow plastic bag <input type="checkbox"/> Pit latrine (Bush toilet) <input type="checkbox"/> Ventilated Improved Pit (VIP) <input type="checkbox"/> Flush toilet <input type="checkbox"/> Into the bushes <input type="checkbox"/> Bury in the ground <input type="checkbox"/> Rubbish dump <input type="checkbox"/> Into the ocean/ creek/ river <input type="checkbox"/> Other.....
26	Is there a rule on where and how to dispose of disposable diapers and nappies in your community? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I'm not sure
27	If your answer was ' yes ,' what is this rule? <i>You may choose multiple answers.</i> <input type="checkbox"/> Dispose at designated areas <input type="checkbox"/> Remove poop from the diaper/ nappy before throwing out the remains <input type="checkbox"/> Disposal into the ocean/ river/ creek is not allowed <input type="checkbox"/> I'm not sure <input type="checkbox"/> Other.....
MAMMAS LAEF VANUATU	
28	Have you already heard of Mamma's Laef reusable nappy products? <input type="checkbox"/> Yes <input type="checkbox"/> No

29	If your answer was 'yes' where did you hear about Mamma's Laef reusable nappy products? <i>You may choose multiple answers.</i> <input type="checkbox"/> Facebook <input type="checkbox"/> Market <input type="checkbox"/> From a friend <input type="checkbox"/> From a community workshop <input type="checkbox"/> Other.....
30	Are you aware the Vanuatu government will ban disposable diapers at the end of the year? <input type="checkbox"/> Yes <input type="checkbox"/> No
31	Do you support this ban? <input type="checkbox"/> Yes <input type="checkbox"/> No
32	You may add any additional comments here.

Your personal information will be kept confidential. Mammass Laef will use all the information you provided above for report writing. For more information follow Mammass Laef Vanuatu on Facebook.

Thank you very much for agreeing to take part in the Mammass Laef survey and nappy trial!

C. AFTA survey questions



Survey questions to ask participants after they have used the Mammass Laef nappy products.

Interviewer:
Date:

PERSONAL INFORMATION	
1	Have you done the 'BIFO' survey? <input type="checkbox"/> Yes <i>(please complete the survey)</i> <input type="checkbox"/> No <i>(thank you, you do not need to complete the survey)</i>
2	What is your name?
3	What is the name of your village? <input type="checkbox"/> Pango <input type="checkbox"/> Eton <input type="checkbox"/> Eratap
MAMMAS LAEF NAPPY TRIAL	
4	Did you use the Mammass Laef reusable nappy products every day? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> A few times <input type="checkbox"/> Other.....
5	If your answer was 'no' or 'a few times,' why didn't you use the products every day? <input type="checkbox"/> My baby did not like using the nappy product <input type="checkbox"/> Products took a long time to dry <input type="checkbox"/> It was hard work <input type="checkbox"/> Other.....
6	How many times a day did you change the nappy? <input type="checkbox"/> 1-3 times a day <input type="checkbox"/> 4-6 times a day <input type="checkbox"/> 7+ times a day <input type="checkbox"/> Other.....
WASHING NAPPIES	
7	Did you use the washing procedures provided by Mamma Laef to wash the used nappies? <input type="checkbox"/> Yes <input type="checkbox"/> No
8	If 'no' why not? <input type="checkbox"/> No water accesses <input type="checkbox"/> Too complicated <input type="checkbox"/> My house girl did the washing

	<input type="checkbox"/> Other
9	Did you soak the nappy in salt water or fresh water? <input type="checkbox"/> Salt water <input type="checkbox"/> Freshwater <input type="checkbox"/> Other.....
10	How did you wash your nappies? You may choose multiple answers. <i>You may choose multiple answers.</i> <input type="checkbox"/> Washing machine <input type="checkbox"/> Washing in a bucket <input type="checkbox"/> Washing in the river or creek <input type="checkbox"/> Washing in the sea <input type="checkbox"/> Other.....
11	If you said ‘bucket,’ how long does it take for you to wash a bucket of soaked nappies? <input type="checkbox"/> 5 minutes per bucket <input type="checkbox"/> 10 minutes per bucket <input type="checkbox"/> 20 minutes per bucket <input type="checkbox"/> 30 minutes per bucket <input type="checkbox"/> Other.....
12	How much freshwater or saltwater did you use to wash your dirty nappies? <i>You may choose multiple answers.</i> <input type="checkbox"/> 1 bucket (20 litre) <input type="checkbox"/> 2 bucket (40 litre) <input type="checkbox"/> 3 bucket (60 litre) <input type="checkbox"/> Other.....
13	If you said washing ‘machine,’ what sort of power did you use? <i>You may choose multiple answers.</i> <input type="checkbox"/> Unelco power <input type="checkbox"/> Solar power <input type="checkbox"/> Generator power <input type="checkbox"/> Other.....
14	Would you pay someone else to wash your nappies? <input type="checkbox"/> Yes <input type="checkbox"/> No
15	If you said ‘yes,’ would you pay: <input type="checkbox"/> House girl <input type="checkbox"/> A nappy washing business <input type="checkbox"/> Other.....
16	What is your washing goal? You may choose multiple answers. <input type="checkbox"/> Save time <input type="checkbox"/> Not waste too much water (save money on water bill) <input type="checkbox"/> No waste washing soap/ detergent to save money <input type="checkbox"/> Other.....

17	Do you wash your nappy products with hot water ? <input type="checkbox"/> Yes <input type="checkbox"/> No		
CHANGING NAPPIES			
18	Did you use the Mamas Laef given procedures to change your baby’s nappies? <input type="checkbox"/> Yes <input type="checkbox"/> No		
19	Tick the procedures you used. <i>You may choose multiple answers.</i> <input type="checkbox"/> Put the liner on top of the insert to hold the poop <input type="checkbox"/> Put the liner insert inside the nappy cover <input type="checkbox"/> Lay my baby on top of the nappy and fasten the button		
DRYING NAPPIES			
20	For how many days on average did it rain during the two weeks? <input type="checkbox"/> 1 time <input type="checkbox"/> 2 times <input type="checkbox"/> 3 times <input type="checkbox"/> 4 times <input type="checkbox"/> 5+ times <input type="checkbox"/> Other.....		
21	How long on average did it take for the nappy products to dry out on the sunny, cloudy, and rainy days?		
	Sunny day: <input type="checkbox"/> Half day <input type="checkbox"/> Full day <input type="checkbox"/> More than a full day <input type="checkbox"/> Other.....	Cloudy day: <input type="checkbox"/> Half day <input type="checkbox"/> Full day <input type="checkbox"/> More than a full day <input type="checkbox"/> Other.....	Rainy day: <input type="checkbox"/> Half day <input type="checkbox"/> Full day <input type="checkbox"/> More than a full day <input type="checkbox"/> Other.....
NAPPY PRODUCTS USE			
22	Which of the nappy product parts did your baby use the most? <i>You may choose multiple answers.</i> <input type="checkbox"/> Cover <input type="checkbox"/> Insert <input type="checkbox"/> Liner		
23	Why did your baby use more of the parts you chose? <i>You may choose multiple answers.</i> <input type="checkbox"/> Baby produces high quantity of waste per day <input type="checkbox"/> It rained a lot during the two weeks, so the parts took longer to dry up <input type="checkbox"/> I lost/ misplaced the parts <input type="checkbox"/> I shared the parts with other babies <input type="checkbox"/> Other.....		
24	How many inserts do you use per night? <input type="checkbox"/> 1 insert <input type="checkbox"/> 2 insert <input type="checkbox"/> 3 insert <input type="checkbox"/> 4 insert		

	<input type="checkbox"/> Other.....
25	Which time of the day did you use the nappies? <i>You can choose multiple answers.</i> <input type="checkbox"/> Night <input type="checkbox"/> Day <input type="checkbox"/> Both night and day <input type="checkbox"/> Other.....
MAMMAS LAEF VANUATU	
26	Do you like using the Mamas Laef reusable nappy products? <input type="checkbox"/> Yes <input type="checkbox"/> No
27	If your answer was ‘yes,’ why did you like using the Mamas Laef reusable nappy products? <i>You may choose multiple answers.</i> <input type="checkbox"/> My baby liked using the nappy products <input type="checkbox"/> It was easy to use <input type="checkbox"/> It is cheaper than buying disposable diapers (in the long term) <input type="checkbox"/> I can re-use the product when I have more children <input type="checkbox"/> It is good quality <input type="checkbox"/> It dries very quickly after washing <input type="checkbox"/> It is good for the environment/ community <input type="checkbox"/> Because I was given free products for this trial <input type="checkbox"/> Other.....
28	If your answer was ‘no,’ why did you like using the Mamas Laef reusable nappy products? <i>You may choose multiple answers.</i> <input type="checkbox"/> My baby does not like using the nappy products <input type="checkbox"/> It was such hard work to wash <input type="checkbox"/> Not enough water to wash the products <input type="checkbox"/> Not good quality <input type="checkbox"/> No house girl to wash the dirty nappies <input type="checkbox"/> The nappy product was hard to use <input type="checkbox"/> The nappy only worked for daytime use, not night-time <input type="checkbox"/> The nappy product only worked for night-time, not day time <input type="checkbox"/> Other.....
NAPPY WASTE	
29	Where do you dispose of the nappy waste? <i>You may choose multiple answers.</i> <input type="checkbox"/> Rubbish dump <input type="checkbox"/> Pit latrine (Bush toilet) <input type="checkbox"/> Ventilated Improved Pit (VIP) <input type="checkbox"/> Flush toilet in the house <input type="checkbox"/> Community toilet – flush toilet/ bush toilet <input type="checkbox"/> In the bushes <input type="checkbox"/> Bury in the ground <input type="checkbox"/> In the sea/ river/ creek <input type="checkbox"/> Soakaway system <input type="checkbox"/> Other.....

SNAPS NAPPY COVER	
30	Was the snaps nappy cover easy to use? <input type="checkbox"/> Yes <input type="checkbox"/> No
31	If you said ‘no,’ why not? <input type="checkbox"/> It takes a longer time to put on <input type="checkbox"/> It’s too tight <input type="checkbox"/> It doesn’t hold the nappy for long <input type="checkbox"/> It is too hard to use <input type="checkbox"/> Other.....
MONEY	
32	If you have been using the Mamas Laef reusable nappy product in the past two weeks, how much money do you think you have by not buying disposable diapers for two weeks? <input type="checkbox"/> 500VT <input type="checkbox"/> 700VT <input type="checkbox"/> 1,400VT <input type="checkbox"/> 2,100VT <input type="checkbox"/> I have not saved any money because I don’t usually buy disposable diapers to use <input type="checkbox"/> Other.....
NAPPY PRODUCTS	
33	Would you buy the Mamas Laef reusable nappy products if they were available to buy? <input type="checkbox"/> Yes <input type="checkbox"/> No
34	If you said ‘yes,’ why would you buy the Mamas Laef reusable nappy products? <input type="checkbox"/> It is good quality <input type="checkbox"/> It is easy to use <input type="checkbox"/> It is cheaper than disposable diapers (in the long term) <input type="checkbox"/> My baby likes the nappy product <input type="checkbox"/> It is good for the environment/ community <input type="checkbox"/> I can re-use the product when I have more children <input type="checkbox"/> It was easy to wash <input type="checkbox"/> It was easy to dry <input type="checkbox"/> Other.....
35	If your answer were ‘yes,’ what would you buy? <input type="checkbox"/> Liners <input type="checkbox"/> Covers <input type="checkbox"/> Inserts <input type="checkbox"/> All <input type="checkbox"/> Other.....
36	If your answer were ‘no,’ why would you not buy the Mamas Laef nappy products? <input type="checkbox"/> It is too expensive <input type="checkbox"/> I prefer disposable diapers <input type="checkbox"/> I don’t have time to wash the nappy products <input type="checkbox"/> I don’t have a house girl to wash the nappy products

	<input type="checkbox"/> Other.....
37	<p>If you said 'yes,' where would you like to buy Mamas Laef reusable nappy products?</p> <div><input type="checkbox"/> Local supply/ community member</div> <div><input type="checkbox"/> From the local shop</div> <div><input type="checkbox"/> Port Vila Market House</div> <div><input type="checkbox"/> Local markets</div> <div><input type="checkbox"/> ABM supermarkets</div> <div><input type="checkbox"/> Chinese stores</div> <div><input type="checkbox"/> Mamas Laef Centre, Pango</div> <div><input type="checkbox"/> Mamas Laef community delivery service</div> <div><input type="checkbox"/> Other.....</div>
38	<p>How much would you be prepared to spend on Mamas Laef reusable nappy products?</p> <div><input type="checkbox"/> 5,000VT and less</div> <div><input type="checkbox"/> 10,000VT</div> <div><input type="checkbox"/> 15,000VT</div> <div><input type="checkbox"/> 20,000VT</div> <div><input type="checkbox"/> I would not buy Mamas Laef products</div> <div><input type="checkbox"/> Other.....</div>
39	<p>Would you be more likely to purchase the products if the costs were spread over time?</p> <div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>
40	<p>Would you recommend the Mamas Laef reusable nappy product to other people?</p> <div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div>
VANUATU DISPOSABLE DIAPER BAN	
41	<p>Do you agree with the planned disposable diaper ban by the government?</p> <div><input type="checkbox"/> Yes</div> <div><input type="checkbox"/> No</div> <div><input type="checkbox"/> I'm not sure</div>
42	<p>Any further comments?</p>

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