

Project Summary for Research, Development & Commercialisation Team

Date		Country:	🇹🇱 Timor–Leste 🇹🇱
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Group Leader:	Rose Gooding		
Project:	ERS Collection & Repurpose		

Executive Summary:

February 2019 saw the continued separation of the ERS team. It also saw a good cohesive relationship between the two teams with the sharing of knowledge, goals and overall thoughts on the project.

The Collection team began with the identification of the different market sectors for recycling. By looking at January it was noticed that the four main market sectors were restaurants, schools as well as both cheap and expensive hotels. The team decided that both cheap hotels and restaurants were to be focused on, due to their similar pain points as well as their predominant form of waste being plastic which aligns with our current repurposing capabilities. Furthermore, it had been evident in the data collected by January that many of the expensive hotels were early majority, wanting a service in place before placing any deposits and schools having paper and cardboard as the main waste item, which has no repurposing option.

Collection conducted price testing for the previously contacted businesses which were offer tested in January. The businesses which were to be focused on were cheap hotels and restaurants. This consisted of asking three questions around the willingness, amount and means of paying for a potential new service. The questions were firstly to target the suspected or most likely early adopters found from the offer test results. The 'early adopters' were those who fulfilled the criteria of having the problem, knowing they have the problem and were willing to pay for a solution to the problem. It did not take long to realise that there was not enough data to continue so it was decided to widen our searched with the possibility of doing offer testing and price testing in one meeting to business who had not yet been spoken to.

With the previous Bag pay system being unsuccessful we also researched into the municipal service and potentially involving recycling in a later part of the overall waste system. This lead to conversations and a meeting with UNDP who are also currently attempting the early stages of a

recycling system in Dili. The UNDP, being at a potentially earlier stage than ourselves have agreed to be open to exchanging information and generally assisting each other where possible.

Later in the month other ideas have also become a growing priority with some of the team looking into supermarkets and local engineering companies as their production of plastic (and cardboard) is high and could be good way to begin a change in culture. Furthermore, as a team we are beginning the business planning for a specific service catered for Timor Plaza. This service is something which we are 'fast tracking' as there is a hope that there is a possibility for this to begin early in the July project.

The Repurpose team was tasked with emptying the warehouse of all the materials that have been collected By ERS collection, sign the contract with Ximenes Belo, Sell the green house, and finding a local outsourcing solution for glass and paper and cardboard.

To achieve this the team began by identifying the different avenues that can be taken to find a use for each different recyclable material. The contents of the warehouse consisted predominantly of PET plastics, due to this outsourcing plastics was a priority.

Last month (January 2019) a deal with Jose Deolindo Ximenes 'Belo' the director of Star Product was set up to outsource our plastic PET bottles. Mr Ximenes requested that a letter of agreement was drafted to outline the specifics of the intended deal. This letter of agreement was created and taken to Mr Ximenes to sign. Currently we are waiting to hear back from Mr Ximenes to set a date for the collection of our plastic bottles.

Currently all the collected recyclables are being stored in a warehouse close to the airport. The warehouse currently has a floor space of 135.72 meters², this warehouse has a monthly rent of \$150 USD. This is a large overhead cost, Repurpose have been looking at finding alternatives for the storage of the collected materials. Little progress was made in regards to glass outsourcing, currently neither local solution or export is appearing to be feasible. Such large quantities are required to crush glass and machinery is expensive. On top of that the requirements for reusing crushed glass (cullet) is so strict, it needs to be 99.5% pure which is extremely challenging to achieve.

Development was made late in the month with paper and cardboard, with the idea of producing paper bags as an alternative to single use plastic bags which will soon be banned within Timor. This is still in very early staged, KOR Timor is a local company that already produced paper bags on a very small scale we have been in contact with them.

We have been in contact with Verde a startup recycling company within Dili has been contact to discuss a business partnership, with ERS providing the collection service, with Verde focusing on the repurposing aspect. Heineken Brewery Company has also been in contact with Verde and ERS in regards to finding a solution to the waste problem in Timor-Leste, as they have recognised

their contribution to the problem and are looking for a solution in repurposing plastic bottle. A partnership between ERS, Verde, and Heineken needs to be established.

Background:

Everest Recycling Solutions, a project based under Project Everest Ventures, focuses on United Nations Sustainable Development Goals, specifically Goal 11 (make cities, safe, resilient and sustainable). Running under the concept of social enterprise, ERS has created one of the first recycling services available in Dili, Timor-Leste. This has potential to make significant social impact as its not only a service but also introduces the concept of recycling (in tetum, there is no word for recycling).

There were a multiplicity of factors that contributed to building ERS, and many individuals involved to allow for the current business. The [2017 January](#) team recognised the lack of awareness about recycling as well as the unreliability of the government service. Ultimately, discussion landed upon a segregation business. In [2017 February](#), there was thoughts to rebrand and establish Everest Waste Solutions (EWS) and aimed for the establishment of the business and built the brand through stakeholder meetings. The [2017 July](#) team began initiating trial runs for ERS however problems arose to do with the land and ended with rubbish being sent to the dump and customers being apologised to. The summer team of [December 2017-February 2018](#) successfully hired employees, obtained land to store collected recyclables and expanded the customer base enabling the business to run autonomously. The [2018 July](#) team signed on two more premium customers, as well as introducing the concept of 'BagPay', which offers a cheaper alternative for customers. Three customers signed up to the 'BagPay' trial. Prototyping of plastics and glass was conducted with a greenhouse prototype for plastic bottles being sold for \$200. The autonomously run business meant the [December 2018](#) goals involved growing more customers for both Premium and BagPay, repurposing and finding buyers for the collected recyclables in the warehouse, and improving the business; through client feedback. Also, glass collections was put on hold until a repurpose solution was found, and cardboard and paper collections were introduced. The team in [January 2019](#) separated Dili into four main market segments and performing both offer tests and meeting research into previous customers. Repurpose focused on validating and researching information both old and new as well as exploring all options possible to finding a home for the recyclables collected.

For **February 2019**, Collection focused on carrying out further offer testing and price testing for cheap hotels and restaurants. From the data gained there was also investigations into the municipal system, conversations with the UNDP in order to address recycling at a different part of the Dili waste system. There is also ideas being made and explored for venturing into supermarkets and engineering companies due to the potential volume of recycling. Lastly a plan is being made for a recycling system to be implemented at Timor Plaza, a plan which is hoping to be implemented in July of 2019. Repurpose looked into finding final answers on the viability of

some repurposing ideas. From this research was done on the export or local repurposing of glass, paper, cardboard. Furthermore a deal was agreed upon with Ximenes who is now going to take the plastic bottles from the ERS warehouse.

Both ERS teams worked closely together and shared information despite having different and specific focuses. The teams were still split into the Collections team and the Repurpose team. A breakdown of each team and their expertise is listed below;

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COLLECTION

The Problem:

There is no recycling service in Timor-Leste that manages waste in a reliable and sustainable manner. This can be seen to be an issue in many of the sustainable development goals that Project Everest aims to achieve. As the effects of environmental impacts become more and more obvious in the form of global warming, we as a human race can no longer afford for valuable resources to sit in landfill and deteriorate into harmful chemicals that can have devastating effects on human health and the health of the Earth. The people of Timor-Leste, in particular those living in Dili live surrounded by waste with current systems failing to keep waste off the streets and out of the ocean. It should also be noted that the it is currently estimated that Tibar is going to be full by 2020. This will result in the need for a new landfill site to be found.

With the solution that ERS are aiming to put forward, we would be providing a service that would bring awareness to the people of Dili and across Timor-Leste as a nation. The waste issue is something that is experienced in every corner you turn in Dili and while it will be no easy task, the Timorese are keen to help in keeping Timor-Leste clean and eco-friendly.

Proposed Solutions:

Currently in Timor-Leste there are a few ways people deal with their waste;

- 1) Dump it at Tibar themselves.
- 2) Utilise the free government collection service which dumps the rubbish at Tibar.
- 3) Burn it in public places such as streets.
- 4) Leave the rubbish on the streets.

None of these solutions are sustainable and all of them have serious health risks.

Everest Recycling Solutions aims to address the problem by collecting recyclables and repurposing them into secondary products ready for reuse. ERS collects recyclable plastic bottles, aluminium cans, cardboard and paper through a subscription based collection service. These recyclables are then repurposed into various prototypes and outsourcing options that are being developed. This section elaborates on the collection service.

Recycling Collection Service

Currently we have two bag pay customers, one regular premium customers (Hotel Timor - our best and most passionate client) and two on-call premium customers. This recycling service operates on a subscription based business model, through which every collection is charged a set amount.

During the month of February, whilst the current collection service was still operational, monthly goals focused on redesigning a new service and validating the UVPs created based of the data collected by the January team. In offer testing, ERS refined its focus toward cheap hotels and restaurants. This was upon identifying that expensive hotels were more likely to have an existing recycling service, and schools lack relevant recyclable waste, rendering them less viable customers for ERS at this stage.

Another major conclusion was reached through talking to many businesses during the month, was that it would be a worthwhile option to explore finding contacts further up the current collection system.

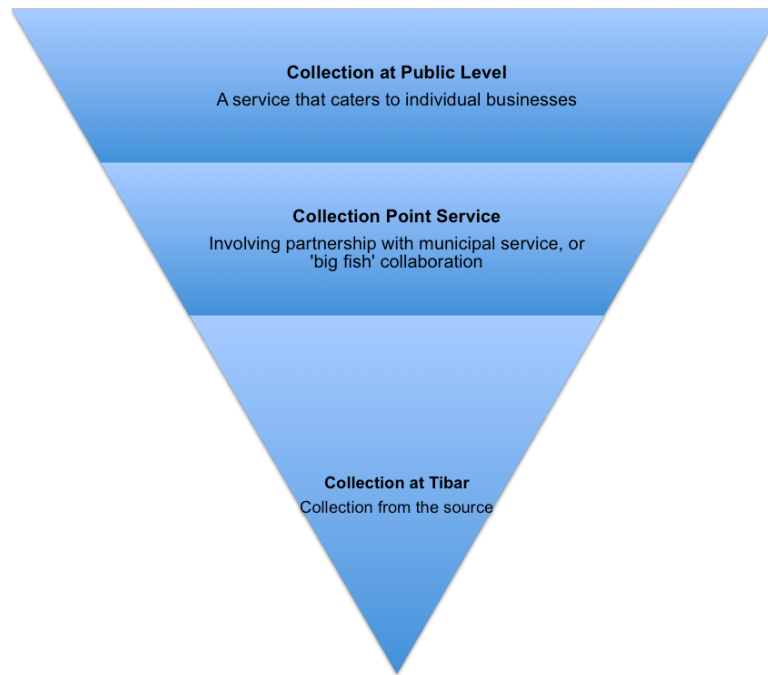
A business proposal focusing solely on Timor Plaza has been created for the July 2019 team to implement. This was constructed towards the later end of the month so no experiments based on this have been conducted as yet. This will be influenced heavily by the relationship and possible partnership with the company Verde.

The up-to-date ERS Information Pack regarding the December 18 - July 19 collection service (further details and cost structures) which is sent to potential customers is found [here](#) (Must Read).

Most Promising Solution:

ERS has begun to shift toward the implementation of a recycling service that is less individually tailored and more broad reaching. This can be observed through the funnel diagram below - as ERS is gradually shifting toward collection from the source:

A service that involves a collection point will be more scalable, and will likely improve the logistical challenges of a personal business pick-up service.



A key method by which this could be achieved is partnering with Timor Plaza, which ERS has started to consider. This would promote a more suitable source of revenue and is a means of social influence for ERS.

The team has also begun to focus on a potential partnership with Verde (discussed below). At this stage, it is envisaged Verde would subcontract ERS to collect waste from stakeholders and drop to them to repurpose.

Overall, the assumption is that if ERS can collect larger amounts of waste, less frequently, we can provide a service that is more viable and sustainable. It will be easier to implement on a larger scale.

SWOT Analysis:

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • A recycling collection service reduces the amount of waste going to the landfill and streets/ocean - therefore a healthier environment and community • Uses existing services therefore resources needed are reduced 	<ul style="list-style-type: none"> • Poor communication with driver and segregator (limited English) • Partnering with existing services, their values and ERS values may differ • Accountability to a third party • May become dependent on other business

<ul style="list-style-type: none"> • Revenue stream for locals, in roles of driver, managers and segregators. • Autonomous operation while PEV are not in-country • A cleaner Dili promotes tourism which enhances economy 	
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Increased targeted customer segments with cardboard/paper service • Scalable business model - eventually all businesses and households could be serviced (like developed countries) • Through stakeholder engagements, awareness about waste management is increased among the community • Clients could be recognised as recycling-conscious eg. sticker on shop window • Revenue made from on-selling repurposed materials • Timor Plaza already exists as a central hub in Dili, the introduction of recycling could result in a stronger social change. • Could result in a strong relationship with Tony Jape which is a great contact to have in respect to recycling in Dili. 	<ul style="list-style-type: none"> • Consistency of services provided: as new clients are signed, their individual needs vary greatly. • When approaching stakeholders, care needs to be taken so that they are held accountable for their waste but not pushed to feel guilty. • Inexperienced translators used to sell complex services can cause misunderstandings and disappointments • If ERS can make a profit of exports or repurposing, others probably can too, and may stop using the service. • Jape could decide to take over the service once ERS is involved, ultimately cutting his costs. • Inefficiency/problems could cause hostile relationship with Jape.

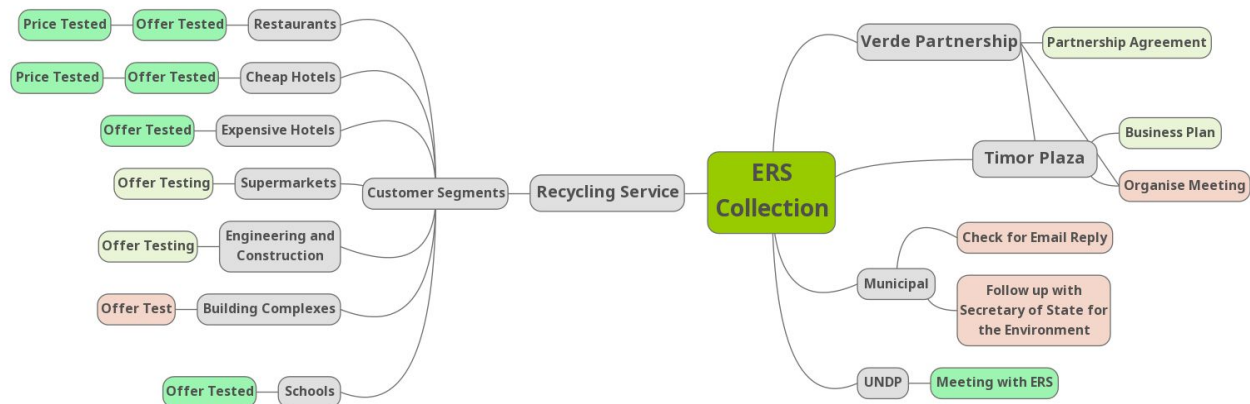
Alternative Solutions + Competitive Analysis:

Offering an individualised collection service is logistically challenging. Every stakeholder produces different levels of relevant recyclable waste, and has varying demands on the frequency of service. By attempting to perform inconsistent waste collection demands, the reliability of our service is at risk. This risk is heightened during months in which ERS is not in

country. This became an issue during the course of July to December 2018, whereby a few BagPay customers discontinued our service.

Furthermore, to set up a individualised collection service that begins with small businesses is a financial challenge. The current financial climate in February 2019 where the government has not sign off the budget for the year is placing heavy stress and strain on small businesses.

Another solution that has been raised is partnership with the municipal service. Whilst this solution has not been discredited, it is moonshot. At this stage, it is difficult to convince municipality officials of ERS collaboration. The alternate route is to work with 'big fish' businesses. As ERS has previously had contact with Tony Jape, owner of Timor Plaza, working in partnership with this entity is a more accessible way to have a broad-reaching solution



Mind Map

Backing Data:

Some important goals achieved by the ERS Collection February team included analysing the data collected in January of 2019 during offer testing. It was determined that at the time out of the four customer segments offer tested (Schools, restaurants, cheap hotels

Thought out the month documents have been created and updated for each customer segment for the customers that were offer tested and then uvp tested:

Customer segment links:

Restaurants

https://docs.google.com/spreadsheets/d/1jnXu23JgFJ151xcqMAIrFpK0hF_OSI00w4yYVpnJ3EY/e/dit#gid=1427578278

Cheap hotels

https://docs.google.com/spreadsheets/d/1CCBD_39mthnos36HZG9j0gi_4szdwXqn92SZ6mdWHZA/edit#gid=1849698948

Expensive hotels

<https://docs.google.com/spreadsheets/d/1EN2OgFKKUJngGDuwG-yADnut8SBGrx60g0mrWf9zQu/edit#gid=1245950677>

Schools

<https://docs.google.com/spreadsheets/d/11USio8ISrBfmo8pgTcacdQ-kqt4DQ6zYUICBm4M7M-Y/edit#gid=806349763>

Each of the above documents have the google forms attached on exactly what was offer tested along with what was uvp tested for the two targeted segments for the month, cheap hotels and restaurants, these ended up being fruitful as we ended up securing 2 deposits from Boca Doce and Doca Tentaco. These two businesses have been added to the WhatsApp group chat 'PEV - ERS News Chat' with Rose Gooding (ERS Manager) and Matt Rafferty (FEB 19 TL) where they can be updated on ERS and we can be updated on their feedback and questions. The above spreadsheets also have the details of every business that was contacted in that sector and the resulting evaluations of what happened and what future actions can be taken in regards to each customer.

Later in the month two new segments were generated as we believed we had exhausted all relevant businesses within those sectors. The two new segments were identified as viable options as repurpose believed they had a lead that was capable of process cardboard and paper therefore creating a need for both of those materials so a look into acquiring that resulted in the best option being supermarkets. The engineering and constructions companies segment was created as it was discovered that each one ruffly produces 300- 400 plastic bottles a week. This would be a good avenue to venture down as signing something such as an engineering or construction company will result in a solid steady stream of plastic bottles. The experiment can be found [here](#)

Engineer and construction segment

<https://docs.google.com/spreadsheets/d/1VGxIEnF3L6S4AOz-CLdKjMmlFvrkd9CaI4D923u1SK8/edit#gid=0>

The main source of recyclable waste for construction and engineering companies is plastic bottles. The experiment has begun with a few businesses being offer tested however there is still the opportunity for more to be interviewed. The link for the experiment can be found [here](#).

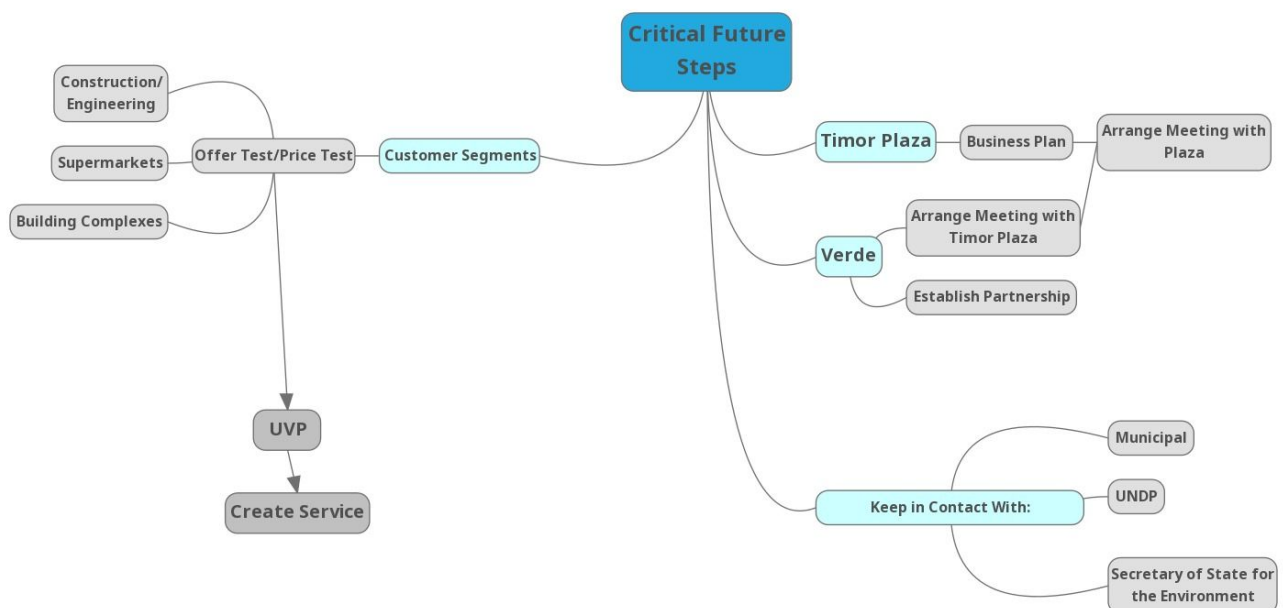
Supermarkets segments

<https://docs.google.com/spreadsheets/d/1GzPSNImZGOJVraHFLXwD628p3KHRS2O4M3cB7YGrEPQ/edit#gid=80821613>

In its simplest form the above data demonstrates that all segments have a need and desire for the service but each section has a particular type of waste that needs to have a repurposing solution before collection commences otherwise the warehouse will fill to the point of ruining efficiencies. As there is a potential new means of repurposing cardboard (KOR Timor), the collection of cardboard could pose as a good recycling service. Furthermore it was found that supermarkets produce enough waste that the municipal service does not pick up their waste. This would show that there is a possibility that ERS could begin a specialised service for this segment

Critical Future Actions:

There is a mind map that visually explains where ERS collection currently at that can be found [here](#).



Verde Business Partnership:

Within the last two weeks in Country in February the business ERS contacted the business Verde. Verde is a starting up recycling company in similar stages as ERS, however they have a significantly different business model that they follow e.g. three years of non-profitability, high capital cost. Regardless of this, they would be a worthwhile partner and would possibly focus on one aspect of recycling, repurposing, leaving collection to Project Everest.

On 14/03/2019, Matt Rafferty will attend a video conference with Heineken and Verde to discuss the capacities of both companies in regards to collaboration. The agenda/minutes can be found [here](#).

A SWOT analysis has been done on this proposed partnership that can be found below, in the Repurpose section (page 22).

This partnership is critical for the next steps for ERS, if this opportunity is not taken, there is the possibility that Verde could be a key competitor for ERS. Every effort should be made to maintain our relationship with Verde, most importantly communication.

It is vital that within the first week in July that ERS sets up and conducts a meeting with Verde as this will largely determine the direction of ERS for the rest of the month.

Timor Plaza Business Plan:

The last two weeks in country in February saw the dawn of a business plan centred at collecting plastic bottles from Timor Plaza. This had to be revisited when it became clear that Verde had already been in contact with Timor Plaza. The key idea here is, as stated above, to aim for further down the 'funnel' of the current waste collection service. This would look like an ERS collection bin within the rubbish room at Timor plaza. There are extensive logistics that need to be done before this plan can be put into place including how we continue with this plan as a partner of Verde. Details on the current business plan for Timor Plaza can be found here:

<https://docs.google.com/document/d/1vH3J4WI4OKHxzLQ8dnUshnfrVAhQkQ6mJM-nfCBzrP8/edit#>

Some key steps include:

- Working out where we stand in terms of Verde and what their current relationship with Timor Plaza looks like

- Contacting Hope Sellers (Antonio) to see if they will provide us with a bin/cage (like the one outside of Pateo)
- Make Pamphlets to educate staff on how to segregate and recycle properly
- Make labels for rubbish bins
- Estimate profit margin and cost of project
- Present plan to existing employees for ERS and determine if more people will need to be hired
- Review the business plan document so that is as close to perfect as possible before presenting to Timor Plaza
- Contact Verde and Timor Plaza and present business model to them (They do not want to see us again without a firm plan)

The experiment that relates to this business venture was proposed by the February team and can be found [here](#):

ERS's relationship with Timor Plaza is not as strong as it could be with several key employees such as Tony Jape and Mariza Molina seeing the inefficiency of the PEV handover. A possible mitigation for further deterioration of this relationship would be to send the same people to each meeting in July if there are multiple needed and if available send people that have already been in contact (e.g. Matt Rafferty or Rose Gooding). If possible, a representative from Verde should also be present once ERS feels they are ready to present the business plan to Timor Plaza

Recycling Service Suited for Target Business Sectors:

Another lead worth following up if it is decided that aiming for individual businesses will in fact be more promising than the pathway suggested above, is looking into the target market segments that have been identified as most likely

While ERS has contacted some businesses in the newly proposed market sector of engineering and construction companies, there are still many more out there that ERS has not reached out to. The businesses contacted so far can be found here:

<https://docs.google.com/spreadsheets/d/1VGxIEnF3L6S4AOz-CLdKjMmlFvrkd9CaI4D923u1SK8/edit#gid=1501706474>

(See the call outcome tab to see to ones that have been contacted already)

With this new pool of potential customers there are many to be contacted and offer tested with the next Collection team also creating a price testing experiment and price testing those businesses that seem interested. The proposed experiment can be found here:

<https://projecteverest.crowdicity.com/post/1011150>

With potential avenues for paper and cardboard recycling proposed by the repurpose team, the market segment of supermarkets looks promising as cardboard is a waste product many grocery stores accumulate regularly. This segment had little contact with ERS in the early months of 2019. Apart from Patéo (see Hubspot and meeting minutes), most Dili supermarkets have not been introduced to ERS Collection. The proposed experiment can be found here: <https://projecteverest.crowdicity.com/post/1011170>

In February a lot of work went into updating the every business ever contacted list as to mitigate against ERS meeting with people that had been met with in previous months. It is essential that going forward future teams are able to continue to update minutes, hubspot and the every person ever contacted list. There was also a lot of time allocated to cleaning and organising the drive as so it is easier to be traversed by future teams. Keeping the neatness of the drive intact is also essential to ERS being able to efficiently move forward.

Two deposits were successfully made in February with the businesses Doce Tentaco (\$20) and Boca Doce (\$10), both from the restaurant segment. MoU were signed with the deposits to show interest in a service that ERS will offer. The UVP that went with these interviews will need to be consolidated regularly when developing the service.

Currently the market segments that ERS Collection are working on are Restaurants, Cheap Hotels (<\$70 a night), engineering and construction companies and supermarkets. They are, however, all at different stages. A large focus of February was UVP testing on cheap hotels and restaurants and offertesting any businesses in this market sector that January missed. Towards the later end of February, some engineering companies and supermarkets were contacted for offer testing. Many construction companies have not been contacted before but may potentially be large providers of plastic waste in the form of plastic water bottles.

If this is deemed a valid pathway to take for ERS Collection in July 2019, the team should continue contacting engineering and construction companies as well as supermarkets for offer testing. Based on these results a UVP can be developed and then tested against those businesses that showed interest. (Similar to the process followed by Feb. regarding cheap hotels and restaurants). A time frame for these tasks could be to complete offer testing by week 1 of project and develop specified UVPs for individual market segments to be testing in the later half of week 2.

Another pathway that was approached in February was collaborating with the current Municipal Service (Government) and/or UNDP. ERS met with UNDP in February to discuss a possible partnership however were denied this at the current stage UNDP is at with their 'pilot' system but were positive about future collaborations. This company should be contacted in July to see how operations are running with the aim of sustaining the relationship and possible partnerships.

Risks:

Commercial: A risk is offering credit with no collateral. At this stage, it is important for ERS to obtain deposits from interested stakeholders as a tangible sign of their commitment. From this, ERS can build and deliver a reliable service. This should be paramount in future offer tests.

Safety: Maintaining the safety of collection service employees is important. It remains that employees do not often take proper safety precautions despite warning. As ERS collection expands, health and safety should be considered, and mitigated where possible.

Reputational: If communication with future stakeholders is not documented appropriately, stakeholders may be re-asked several of the same questions. This would leave ERS looking unprofessional and off-putting to stakeholders. Trekkers can mitigate reputational risks by carefully examining meeting minutes and hubspot posts before contacting any stakeholder. Any further communication with existing and new stakeholders must be documented across all relevant spreadsheets: including, but not limited to, the Every Business Ever Contacted list.

This month, ERS received deposits and MOU agreements from two stakeholders, and strong interest in the delivery of a service from various others. It is important that ERS honours this commitment and avidity by keeping the relevant entities updated on progress via phone call, email or Whatsapp.

Financial: ERS continues to operate at a loss. Where ERS and its stakeholders agree on varying payment amounts, for deposits and the service itself, it is important that finances are kept track of. Those who have left a deposit should have their commitment honoured via ERS progress updates. Deviation from fixed agreements ought to be accounted for. For instance, if a stakeholder needs extra waste picked up than normally agreed, ERS must ensure its remuneration.

Next Teams Goals:

The quantifiable goals for the next team are focused around the areas that February collection team didn't manage to achieve as well as plans laid out. These consist of:

- Maintain relationship with Verde (start partnership if not already commenced)
- Propose business plan for Timor Plaza to Verde
- Propose business plan to Timor Plaza (Contact Timor plaza (Jape) and arrange meeting (once all preparation is done) and make sure that everything is ready to implement if Jape give us the go ahead)

- Finish offer testing and price testing of identified customer segments
- Collate data and form UVPs for identified early adopters
- Begin implementing a service based around the information gained through empathising and start generating some revenue.

The actions on aren't as clear as Jan or December due to the influence of Verde and Heineken on our future actions; if we don't work with them, we will be solving the same problem in the same manner (opposition). Further actions on will be published to crowdicity should they present themselves before July 2019.

Other Useful Documents:

- **Timor-Plaza and Verde Business Model Documents**
 - [Timor Plaza Proposal](#) Document
 - [Timor Plaza Experiment Draft](#) Document
- **UVP Data Documents**
 - [Restaurants](#) Segment Data Spreadsheets
 - [Cheap Hotels](#) Segment Data Spreadsheets
 - [Schools](#) Segment Data Spreadsheets
 - [Expensive Hotels](#) Segment Data Spreadsheets
 - [Supermarkets](#) Segment Data Spreadsheets
 - [Construction Companies](#) Segment Data Spreadsheets
- **Crowdicity Posts on UVP Testing of Supermarkets and Construction Companies**
 - [UVP Supermarkets - Proposed Experiment](#)
 - [UVP Construction Companies - Proposed Experiment](#)
- **Crowdicity Posts on UVP Testing of Cheap Hotels and Restaurants**
 - [Initial UVP Test Experiment](#)
 - [UVP Experiment Results](#)
- **Crowdicity Posts - February Work Updates**
 - [Initial Work Update](#)
 - [Mid-month Work Update](#)
- **Crowdicity Posts on Offer Testing**
 - Initial Offer Test Experiment [Offer Test Experiment](#)
 - Expensive Hotels Results post [Expensive Hotels Offer Test Results](#)
 - Cheap Hotels Results post [Cheap Hotels Offer Test Results](#)
 - Restaurants Results post [Restaurant Offer Test Results](#)
 - Schools Results [Schools Offer Test Results](#)
- **Crowdicity Market Sector Validation**

- Black label validation of market sector [Customer Segment Validated](#)
- **Documents for sustaining and growing the business**
 - [Contracts](#) folder
 - [ERS Info Pack](#); this was updated in February 2019 and is to be sent out to all potential customers and interested stakeholders. However, a new/tailored Info Pack will need to be created if a new collection service is implemented.
- **BagPay: Crowdicity Posts + Documents**
 - Crowdicity: Bagpay Feedback from past customers [Bagpay Feedback](#)
 - BagPay Prototype and Testing [Folder](#)
- **Impact Assessment**
 - February 2019 Impact Assessment [Impact Assessment Spreadsheet](#)
 - February 2019 Impact Document [Impact Document](#)
- **Documents on Collection Run Logistics**
 - [Maphub](#); contains [collection runs](#)
 - 10 Individual customer [run sheets](#) from July/August - December 2018.
 - [Driver](#) SOP, [Segregator](#) SOP, and [Employee Absenteeism](#) SOP
- **Contracts**
 - [Signed contracts and PDFs](#)
 - [Every Business ERS has Ever Contacted](#) Document

Appendix:

Key Stakeholders

- **Alberto Trindade** - Hotel Timor
 - Hotel Timor is our best and most enthusiastic customer
 - As the biggest hotel in Timor, it is essential to maintain relationship
 - Phone: +670 7801 1135
 - Email: alberto@foriente.minihub.org
- **Tony Jape** of Jape Group Industries
 - Tony Jape is not a current customer but has huge as a 'big fish' and knows about PE
 - Could be a stepping stone to getting large amount of waste and many other customers
 - Email: tony.jape@timorplaza.com
 - Phone: +670 331 6688
- **Clarisse Soares Trindade** - Technical advisor to the minister of environment
 - Key contact for relations with the government and for information on the government's policies and processes for the environment

- Email: nstrin19@gmail.com
- Phone: +670 7795 1999
- **Felisberta Moniz da Silva-** The leader of a UNDP run program on waste segregation in Timor
 - Key contact to see if there any other programs and also to gather information on what is happening in Timor in regards to waste solutions/ management
 - Email: felisberta.dasilva@undp.org

REPURPOSE

The Problem

Currently in Timor-Leste there is a lack of recycling facilities to deal with recyclable waste materials for repurposing. Timor-Leste is the world's youngest country with a population of less than 1.3 million people and the 28th lowest GDP in the world, hence, has no means of investing in the facilities necessary to recycle and repurpose. This lack of infrastructure means that all the recyclable materials such as plastic, glass, paper and cardboard are being burnt either on site or at Tibar. ERS looked into the potential of exporting these recycling materials overseas, however, this option requires large amounts of capital and is not feasible for our business' current financial situation. The previous Secretary of the State of Environment has informed us in a previous [meeting](#) that the government planned on building their own recycling station in Timor-Leste but the official legislation that would implement this was ideated by the previous government and it is unknown if this will continue.

Thus the only option that we believe to be viable, is to find a local means of dealing with the recyclable waste material. Local options are very limited and not overly expensive. This lack of local recycling options stems from a reduced education in the field of recycling (they do not have a word for recycling in their language, Tetun). All of these problems lead to a higher amount of waste disposal at Tibar. At Tibar, they collect all the waste and burn it. Because of the waste being burnt, there will be a high production of greenhouse gasses that further contribute to global warming. This is discussed in more detail in "The Problem" section of ERS Collection.

Another problem the February team faced was the greenhouse. As the greenhouse project was discontinued in previous months, we were left with the problem of selling the final prototype unit. This was problematic as the main reason the greenhouse was discontinued was due to a lack of identifiable market as no one wanted to buy one.

Proposed Solutions

Solutions have been looked at for both exporting and local recycling of plastic, glass, and paper/cardboard. Currently we don't have means to crush glass on a small scale, into a small enough size and a high level of purity to do anything with. This makes it very hard to repurpose

or export glass. Our current solution is to broker a deal with a local business to outsource our waste glass.

Most Promising Solutions

[Heineken Brewery Company](#) is a startup business within Hera, Timor-Leste. Heineken's making efforts to align with the UN Sustainable Development Goals. Currently this is resulting in them looking for recycling solutions for plastic. In December 2018, they began the early stages of locally producing virgin plastic bottles, they already produce cans in country from recycled aluminium. Heineken has no proposed solution for glass at this point in time as their efforts are focused around the recycling of plastic bottles. They are ideating collecting bottles, crushing and sorting with their newly purchased hammer drill arriving in March 2019 and are working with Caltec to produce plastic pavers and/or repurposing plastic in tar roads. In a [meeting with Heineken](#) we did discuss the possibility of us being the collection service and providing them with the PET bottles.

The Timorese government have started a bill called "[Zero-Plastic Policy](#)" this policy aims to remove all single-use plastics from Timor-Leste. Inspiration for finding a replacement to the plastic bags used in shops was ideated after having a meeting with [KOR Timor](#). The idea is to turn waste paper and cardboard into paper bags to replace single use plastic bags. Our team has gone out to local business offer testing recycled paper bags, overall the outcome of this experiment was positive and shows that there is interest out there for plastic alternatives. [KOR Timor](#) is currently producing recycled paper, we will need to work with them in the future to help create a recycled paper bag, helping with bag design and distribution – predominantly supermarkets and food retailers. More information about KOR Timor and the proposed collaboration can be found [here](#).

[Jose Deolindo Ximenes](#) owner of Star Products agreed to purchase PET plastic bottles from ERS for \$1.5/FRBC bag (or \$1 for his bags which are half the size) and signed a Letter of Agreement on the 08/02/19, however against his agreement he has not yet collected the bottles. Many attempts have been made to complete this deal.

Verdeka ([Verde](#)) are a local company that aims to set up a local recycling facility to shred, melt and recycle plastic bottles. After having a [meeting with Eka](#) (CEO Verde) we have seen an opportunity for ERS to have a partnership with Verde. They have stated that they will purchase our plastic bottles from us. If this partnership can be established as soon as possible, it would be an extremely beneficial partnership as Verde are very well connected and have significant influence in Dili.

In terms of the greenhouse, the proposed solution was to contact NGO's who may have some use in a greenhouse and to significantly lower the price. A list of the organisations contacted can be found [here](#). Many NGO's were contacted, however, after three weeks we had received no replies and the only option was to donate the greenhouse. At this point two other NGO's were contacted, Hivos and HIAM Health (a different contact from the FarmEd contact for HIAM Health). Both NGO's replied requesting to purchase the greenhouse, however, Hivos mentioned that he intended to use the greenhouse for display purposes only. Due to concerns with structural integrity and UV degradation, this seemed like the better option. Hivos also expressed interest in purchasing two more greenhouses as they were hoping to distribute them to farmers in rural communities. We had to unfortunately decline to sell additional units to Hivos as the greenhouse prototype has been discontinued, however, they would like to stay in touch with us. The greenhouse was finally sold for US\$80, a \$50 profit.

Swot Analysis

	Strengths	Weaknesses
Heineken Brewery Company	<ul style="list-style-type: none"> • Avenue to locally outsource glass bottles • Potential to outsource plastic • Has a large influence • Has capital to invest 	<ul style="list-style-type: none"> • Startup business • Not sure what to do with the recycled plastic product (tiles) once it is made
KOR Timor	<ul style="list-style-type: none"> • Could partner to repurpose paper and cardboard • Only company in Timor recycling paper • They have good English and knowledge of the area • Happy to work with us 	<ul style="list-style-type: none"> • Have not organised a contract or signed a Letter of Agreement • Loss of control of production when not in country
Ximenes Belo	<ul style="list-style-type: none"> • Currently have a deal to take our plastic bottles for \$1.5 per FIBC bag • Lots of contacts and high influence in Dili 	<ul style="list-style-type: none"> • Unreliable • Not trustworthy

Verde	<ul style="list-style-type: none"> • Lots of contacts and influence in Dili • Large investment in infrastructure to repurpose plastic bottles • Always in country • Already willing to pay for recycling waste • Values align 	<ul style="list-style-type: none"> • Has capital to put into a business which could make ERS superfluous • ERS is not always in country • Can do it without us • Do not have a collection service to offer them right now
	Opportunities	Threats
Heineken Brewery Company	<ul style="list-style-type: none"> • Business partnership to sell plastics to • Future option of glass recycling 	<ul style="list-style-type: none"> • Can start up their own collection service without us
KOR Timor	<ul style="list-style-type: none"> • Take advantage of the need for plastic bag alternatives • Ability to collect cardboard 	<ul style="list-style-type: none"> • Potential to move faster than us and leave us behind
Ximenes Belo	<ul style="list-style-type: none"> • Locally outsource our plastic bottles • Empty warehouse stock 	<ul style="list-style-type: none"> • Has influence in Timor-Leste and not the greatest relationship with PEV
Verde	<ul style="list-style-type: none"> • Locally outsource our plastic bottles • Empty warehouse stock • Willing to partner 	<ul style="list-style-type: none"> • Potential to move faster than us and leave us behind • Become a fierce competitor

Alternative Solutions

Plastic Repurposing

Many options are underway in relation to PET plastic bottle recycling. As well as the [Ximenes Belo](#) deal, there is potential for local plastic recycling, as [Hopesellers](#), [Verde](#) and [Heineken](#)

[Brewery Company](#) who have recycling machinery, can provide the resources for future large scale operations.

[HIAM Health](#) is also a possible company that could take some of our plastic bottles. They use the bottles as a pot plant alternative.

If the Ximenes deal falls through, these companies could be used to recycle the plastic bottles currently in the warehouse.

Crushed Glass Exportation

Previous groups had briefly looked into exporting glass. This month, extensive research was done to look into the exportation of glass. It was known from previous research that glass needs to be crushed before exportation otherwise the density is too low and it is not worth shipping.

It was found that glass cullet (crushed glass) needs to be of at least 95% purity to be worth any money and 99.8% pure to be worthwhile. The processing required to achieve this level of purity cannot be done without specialised machinery, and currently we cannot afford this capital. It is unlikely we would be able to produce glass cullet at such a high purity, therefore we have closed the door on glass exportation at the moment and advise looking into other options.

A financial analysis on the exportation of glass cullet can be found [here](#).

Local Glass Recycling Facility

[Research into the construction of a large scale glass cullet factory](#) was undertaken this month. It was found that the minimum cost to start up the processing factory is \$105,600 USD. It has been concluded this is not a viable option right now as we do not have enough bottles being collected, we currently have no customers lined up to purchase large quantities of glass cullet and cannot afford the upfront cost of the facility.

To the best of our knowledge, no one in Dili sells glass cullet, there's a hole in the market here and a real opportunity to develop a large scale recycling plant.

Local Outsourcing of Glass

[Botir Matak](#) is a local NGO, that repurposes glass and provides employment to people with disabilities. Botir Matak previously collected small quantities of waste glass from our warehouse at no charge. They repurposed the glass into glass cups, candles and self watering pots for plants. We have recently re-negotiated with them about a regular collection of waste glass from

our warehouse, asking them to pay \$1 USD for 20 glass bottles. To cement this agreement a Letter of Agreement was drafted. The agreement states they will pay for the glass bottles from now on. The main issue with this deal is that Botir Matak only collect a very small number of bottles and it is not enough revenue for us to create a sustainable business.

[Botir Matak](#) have since reneged on this deal to pay \$1 USD for 20 bottles, currently we have no deal and they are not collecting any glass from the warehouse.

Local Paper and Cardboard Recycling Facility

It was found that the complete cost of a large scale paper and cardboard recycling facility would be approximately \$1,000,000 and a smaller facility could be implemented for \$330,000. This is a huge investment and currently Collection has not secured any regular cardboard collection. The cost break down and other information can be found [here](#).

No companies in Dili recycle paper on a large scale and only one business recycles paper on a small scale. There's a viable opportunity to develop a large scale recycling plant and either export kraft paper or repurpose it in house.

Exportation of Paper and Cardboard

We researched the exportation of paper and cardboard. It became apparent that in order to export we would need to bail the paper and cardboard to make it more dense. Companies contacted would except a minimum of 50 tonnes of paper and cardboard. At our current level, this is not viable as we have not started a regular collection of paper and cardboard.

More information on paper and cardboard exportation can be found [here](#).

LDPE Pavers

[Extensive research](#) has been conducted looking into producing pavers using sand and LDPE (low density polyethylene). LDPE is a soft plastic primarily found in food packaging such as glad wrap and some plastic bags. It was found that this plastic can be melted and combined with sand and molded into bricks and pavers.

The idea needs to be offer tested and buyers need to be found, so far we have not been able to establish any sales channels in Dili. The main reason the idea was put on hold is it has no real unique value proposition as the information on these pavers is freely available on the internet for anyone to view.

Backing Data

This month ERS Repurpose team focused on finding local solutions to waste within Timor-Leste. Through emphasising with several businesses, ERS found that currently nothing is being done with cardboard and paper.

On the Cards: Kor Timor + Voyage Beyond.

Large amounts of cardboard and paper is sent to Tibar daily by supermarkets like [Centro](#) or being stored by the likes of Augustro Gomes from Pateo. ERS initially looked into local options of outsourcing or upcycling paper. Through the use of [Timor-Leste Profile In The Solid Waste And Recycling Sector](#) produced by PRIF (Pacific Region Infrastructure Facility) as a secondary source, we learnt that 2% of Timor-Leste's exports come from waste paper and begun searching for local companies such as Kor Timor who upcycle waste paper.

In order to compete in the new age without plastic bags here in Timor-Leste, the proposed paper bags produced in collaboration with Kor Timor will need to be produced for under 20 cents per bags in order to gain interest from the local market. However, this number has been gauged through interactions of environmentally conscious locals, including Augustro Gomes from Pateo ([meeting minutes](#)) and may need to be lowered in order to gain further interest from supermarket chains like Centro. In the current project state, ERS is unaware of how much cardboard will be needed in order to create one bag, furthermore, a collaboration deal has yet to be finalised with Kor Timor. *Ideally, Project Everest would supply cardboard to Kor Timor, and then split the profits of the paper bags. Further financial analysis is required to be completed to conclude if this is a financially viable option.* Further research can be found here [Paper / cardboard analysis of Kor Timor](#)

To combat Kor Timor's currently small operation and the possible influx of cardboard from supermarkets and businesses alike [exportation costs](#) of OCC (old corrugated cardboard) has been investigated. However without being able to verify a price point of OCC with a recycling plant this option requires further research. Additionally, It is important to note the [large quantity](#) of OCC required per shipment and current lack of and quality of storage space before this option is further investigated.

Research was also conducted into the cost of a paper recycling plant ([paper recycling plant and baler](#)), this avenue is certainly unviable with the high capital costs involved.

The Closing of the Glass Door

This month confirmed the lack of options of recycling glass either in Timor-Leste or globally. Research was conducted into [glass shipment cost](#) and the [cost of a glass facility](#). Both options are not viable in ERS's current state.

Highs and Lows of the Plastic Bottle

A [financial analysis of the Ximenes](#) deal was completed to estimate the long term financial viability of the agreement. According to the data analysed, we will require around 10,000 plastic bottles a month to be collected before we start to break even against the significant overhead warehouse costs. Furthermore, although signing the Letter of Agreement with Ximenes at the start of the month, we have still been unable to arrange a collection time due to a number of delays on Ximenes' side.

Storage Conundrum

Currently ERS major overhead cost (\$150 per month) is stemming from our current warehouse. To combat this, the February team researched different possible storage solutions. Nelson Cerveira supplied ERS with his own contact [Joaninha](#), who has offered us land in Tibar of 1 or 3.5 hectares for 35 cents per square meter a month.

Furthermore, construction companies RMS and Concept Construction TL were contacted about warehouse construction. The quoted costs were \$800 dollars per square meter and \$400 dollars per square meter respectively.

- [Erik Stokes](#)
- [Chris Jackson](#)

Currently our most promising option comes from a possible partnership with Verde. Initially, Scott offered to ship a shipping container for free from Singapore if we were to purchase a second-hand container. As an approximate, a shipping 40ft container costs around \$2000 US. ([meeting minutes](#)). However, land is still needed to store this container. In our second meeting with Verde, [Eka](#) offered to introduce us to Mr Ricardo, a future land option to chase and our next best lead into finding a cheaper alternative.

Critical Future Actions

After the month of February, it is evident that there are many critical tasks that the July team need to carry out.

	Critical Future Actions	Key Activities
1	Continue to contact Heineken and Verde to solidify deal	<ol style="list-style-type: none"> 1. Plan a business arrangement with ERS 2. Contact both companies and discuss the collaboration 3. Write up a contract outlining the agreed business arrangement
2	Determine feasibility of the recycled paper bag alternative	<ol style="list-style-type: none"> 1. Contact UNDP about potential funding 2. Establish partnership and brainstorm paper bag prototype with Kor Timor 3. Continue offer testing more business in Dili 4. Price testing and utility testing 5. Financial analysis
3	Find land alternative. Warehouse structures and alternatives (e.g. shipping containers) and their pricings have been researched. Land options need to be researched further.	<ol style="list-style-type: none"> 1. Use current contacts to source land for a warehouse 2. Research new land alternatives 3. Conduct financial analysis to determine most viable option
4	July customer segment experiment: Use of recycled/reusable products in Dili.	<ol style="list-style-type: none"> 1. Determine what businesses are currently selling in Dili 2. Determine if there is a gap in the market that

		we could potentially fill by repurposing waste into a new product
5	Continue outsourcing options for glass	1. Conduct research both online and by word of mouth to find a repurposed glass alternative

Continue to Contact Heineken & Verde to Solidify a Deal

Continued contact is required and is of utmost importance over the next four months when PEV is out of country in order to develop a partnership and business plan with Verde and Heineken. The ERS Collection team will continue to implement and upscale their collection service to sell the PET bottle to Verde and Heineken. If we do not get the collection service up and running immediately come July there is a risk that during the time we are not in country, Verde and Heineken will begin their own collection either for free or with a momentary incentive. Partnership will need to be confirmed and the contacts drafted and signed, committing a service where Heineken and Verde have agreed to pay a set price for the plastic bottles. It currently looks like ERS has the best leads in regards to a collection service with large businesses, where Verde and Heineken have both mentioned providing public collection points.

Determine Feasibility of the Recycled Paper Bag Alternative

The process of producing and distributing a paper bag alternative is a very extensive task. The first critical step that will need to be taken is to establish whether businesses in Dili would purchase our paper bags which can be done by conducting offer testing. It is inevitable that businesses in Dili will need to source a plastic bag alternative due to the new government policies in place to minimise the use of plastic in Dili. It is the role of the July team to conduct an [experiment](#) which involves offer testing and price testing to collect data that communicates two key points, a) how many and which businesses would be willing to purchase and distribute the paper bags and b) how much would they be willing to buy our bags for. Some businesses were found by the February team and they did express interest in our idea. The results can be found [here](#). Currently, businesses are starting to utilise the cassava bags but there are some flaws in this bag alternative as not only are they imported but they are a lot flimsier than regular plastic bags. The government isn't encouraging the use of cassava bags and don't intend on implementing legislation to support businesses using the cassava bag alternative.

The next stage would be to ideate a prototype. Currently, Kor Timor produces their own paper bags but they are made entirely of newspapers. Collection doesn't currently collect large sums of newspapers and thus, an alternative material will need to be researched. It is understood that there are large amounts of cardboard and paper that businesses would be willing to pay us to collect so the July team would need to conduct research into ways these materials could be used by Kor Timor to produce a paper bag. The team in February found that cardboard can be broken down to be recycled similarly to the way paper is. If a thicker and sturdier paper made from cardboard could be made, this could then be folded into a bag to make a more durable product.

After a prototype is determined, logistics in terms of delivering the bags to stores to be sold will need to be determined. Another key factor will be the financial validity of the project. The team will need to collaborate with Kor Timor to determine the revenue streams and cost structure. The February team had a [meeting](#) with the Secretary of the State of Environment who was very interested in the idea. He said that in a years time there would potentially be money that he would be willing to fund towards a project like ours. It has been predicted by 2050 that additional land will be needed due to the rate at which Tibar is filling up. They expressed the importance of recycling and minimising waste and are willing to invest in this area in the future. The February team has been given a very useful contact at the UNDP of an individual who would be interested in funding a project like ours. They unfortunately were out of the country so a meeting couldn't be arranged. A contact has been created on hubspot and a meeting should be arranged so the project can be discussed further.

Find Alternative Warehouse Structures and Land Alternatives

Although warehouse alternatives were explored throughout the month of February a solution is still yet to be finalised. Different businesses and organisations will need to be contacted to find a suitable location to store our rubbish. These will include Mr Ricardo and Mr Han, introduced to us by Verde. Additionally, Verde have made known to us that they have overseas connections who would be able to ship a shipping container to Dili with no shipping costs. Once a land solution has been found, Verde can be contacted so a shipping container can be delivered.

Another option for land that has been mentioned but not investigated is the land next to Paradises. It is not known if this land is owned, as in Timor-Leste land is often just claimed by an individual without purchase or the council's knowledge. Al, the owner of Paradises, should be spoken to to determine if the land would be available for our use.

After a variety of land options have been considered it is essential that these are compared so the most financially viable option can be determined.

Establish Market for Goods Manufactured from Repurposed Materials

Throughout February, it became very evident that many businesses around Dili have adopted a more “eco-friendly” mindset and started selling environmentally sustainable products. As we are still uncertain about the future direction of ERS, research will need to be conducted to establish what products are currently being sold in Dili which are made from recycled materials. We should also determine what environmentally sustainable alternatives for single use products are being sold e.g. KeepCups. This way, ERS can establish if there is potentially a market for a new product that we can produce using recycled materials. The [Crowdicity experiment](#) is to be conducted in the first week of project. The February team compiled a list of businesses that sell these products but these businesses were those that trekkers happened to have visited. No formal search for these products has taken place and will need to be conducted.

Continue Outsourcing Options for Glass

Despite the extensive research conducted in February, it is still evident that more research into a repurposing solution for glass needs to be carried out in the month of July. As large scale glass crushing is financially unviable, research into a small scale way to crush glass so it can be exported or repurposed should be done. Further research into small-scale local repurposing solutions could be conducted but should definitely not be a priority.

It is important to recognise that the most effective research that took place throughout the month of February was a result of meeting with businesses and other relevant parties face to face. Many businesses and sources of key information don't have an online presence and thus the July team should try and get out in Dili as soon as possible to conduct research into potential avenues for repurposing glass.

Other Future Actions

- Remain in contact with PRIF and possibly follow up on the contact they provided us with.
- Follow up with Antonio Hopesellers, as they have been put in contact with Verde.

Key Skills

- Interns who are currently studying in a wide variety of areas such as business, engineering, marketing, international relations and education
- A leader to oversee all operations and support the interns as they collaborate and work on the project
- Creative individuals who are eager to collaborate with Kor Timor and prototype different products
- The ability to work collaboratively and innovatively in a team environment

- Shared values with PEV and a passion for sustainable development

Risks

Critical future action	Risks
<p>Determine usage extent of <u>recycled/reusable products in Dili</u>.</p> <p>Continue <u>outsourcing options for glass</u> experiment.</p>	<p>Reputation</p> <ul style="list-style-type: none"> - Revisiting the same businesses about similar issues due to lack of thorough Hubspot research and stakeholder engagement preparation can lead to frustration and damaged relationships. - Conducting meetings and interviews without thoroughly following stakeholder engagement protocol (preparing meeting minutes, meeting matrix, WISHLOAD and Backbrief) leading to underpreparedness. <p>Safety</p> <ul style="list-style-type: none"> - Uneven, wet, hazardous ground causing injury to self that could have been prevented with appropriate PPE. - Sun stroke, heat exhaustion, sunburn and other sun exposure related risks. - Dehydration from physical exertion and sun exposure. - Interaction with locals resulting in agitation, harassment or assault.
<p>Determine feasibility of the <u>recycled paper bag alternative</u></p> <ul style="list-style-type: none"> • Establish partnership and brainstorm paper bag prototype with Kor Timor Kor Timor • Continue offer testing more business in Dili • Price testing and utility testing • Financial analysis 	<p>Reputation</p> <ul style="list-style-type: none"> - The prototypes and/or end product are fisible do to functionality leading to loss of positive relationship - Reputation damaged due to issues with product - Issues with Handover lead to loss of information and contacts - Product disrupts other existing services leading to issues with businesses in the community <p>Safety</p> <ul style="list-style-type: none"> - Manufacturing and production risks <p>Commercial</p> <ul style="list-style-type: none"> - Losing control of production when not in country - Copy-cat product emerges before channels are secured - Cut out of the business due to redundancy <p>Financial</p> <ul style="list-style-type: none"> - Investments into research don't pay off

	<ul style="list-style-type: none"> - Investments into prototype do not pay off
Continue and develop the relationship with Ximinese and our plastic bottle collection arrangement.	<p>Reputation</p> <ul style="list-style-type: none"> - Business negotiations go south and Ximines' influence leads to our tarnished reputation - Service falls apart while we aren't in country <p>Commercial</p> <ul style="list-style-type: none"> - Ximines neglects to pay us for the collection of our plastic bottles - Ximines doesn't collect as much plastic as he said he would <p>Financial</p> <ul style="list-style-type: none"> - Ximines doesn't pay us for the collection of our plastic bottles - We invest in new infrastructure and then the deal falls through
<p>Continue cost optimisation experiment: <u>Warehouse</u> structures and alternatives (e.g. shipping containers) and their pricings have been researched.</p> <ul style="list-style-type: none"> • <u>Land options</u> need to be researched further. 	<p>Safety</p> <ul style="list-style-type: none"> - Moving current stock of glass and plastic from one location to another causing physical harm or injury to staff <p>Financial</p> <ul style="list-style-type: none"> - Invest in bigger infrastructure without guarantee that the business is viable resulting in large capital losses
Develope Verde , Borti Matak or Heineken relationship regarding local glass recycling option.	<p>Reputation</p> <ul style="list-style-type: none"> - Revisiting the same businesses about similar issues due to lack of thorough Hubspot research and stakeholder engagement preparation can lead to frustration and damaged relationships. - Conducting meetings and interviews without thoroughly following stakeholder engagement protocol (preparing meeting minutes, meeting matrix, WISHLOAD and Backbrief) leading to underpreparedness. <p>Safety</p> <ul style="list-style-type: none"> - Handling of glass that could lead to physical harm or injury to staff <p>Commercial</p> <ul style="list-style-type: none"> - Glass collection begins and then business venture is no longer viable - Too many avenues of repurposing waste are tackled at once, overloading staff and overrunning the business <p>Financial</p>

	<ul style="list-style-type: none"> - Deal is signed but falls through - Return is low and not financially viable

Next Teams Goals

Goal Number:	Monthly Goal:	Type:	Relates to Experiment:	Metric?	Further Actions?	Priority:
1	Determine extent of recycled/reusable products used in Dili	Problem, Solution, Channels, Customer segment	https://projecteverest.crowdcity.com/post/1042300	Quantitative data and qualitative analysis of recyclables.	Continue building data pool to gain a more representative image of the issue.	Low
2	Determine feasibility of the recycled paper bag alternative	Solution, UVP, Channels, Customer Segment	https://projecteverest.crowdcity.com/post/1042350	The idea or prototype is adopted by 3 supermarket s/ stores.	Obtain the grant from Ministry of Environment contact and create prototype product in partnership with Kor Timor.	High
3	Finalise relationship with Ximinese and our plastic bottle collection arrangement to meet the Letter of Agreement	Revenue Streams, Cost Structure	https://projecteverest.crowdcity.com/post/1042290	Ximenes agrees to pay more for our FIBC bags.	Making the deal redundant or scaling up.	High

4	Continue the cost optimisation experiment: Warehouse structures and alternatives (e.g. shipping containers) and their financial viability	Solution, Cost Structure	https://projecteverest.crowdcity.com/post/1042250	An alternative option to the warehouse is found and implemented .	Find a warehouse or alternative storage option.	High
5	Continue the outsourcing options for glass experiment	Solution, Customer Segment	https://projecteverest.crowdcity.com/post/1046500	Number of solutions for glass researched thoroughly and financially analysed.	Find a local outsourcing option for glass bottles.	High

Other Useful Documents

Project Information

The [Dossier](#) from January provides the bulk of our foundation knowledge and is a great reference for ERS Repurpose.

It is important to refer to [Hubspot](#) and the [Timor Workhub](#) drive when researching previous customer contact. Additionally, there are two contact databases, '[Every Business ERS Has Ever Contacted](#)', specific to ERS.

As we have done, ensure the [Impact Assessment](#) document is updated at the end of the month.

Repurposing Options for Specific Waste Types

Glass

- Research
 - Information on [glass crushing](#)
 - Information on [glass cullet processing plants](#)
 - Other [glass research](#)

- Stakeholders
 - Botir Matak have agreed to collect glass from our warehouse on an irregular basis
 - [Hilly Bouwman](#) contact
 - [Letter of Agreement](#)
 - PEV wish to enable Heineken to fulfill their UN Sustainable Development Goals while aiding in the recycling process of glass and maybe other products resulting in a solution to PEV collected recyclables
 - Most recent [meeting minutes](#)
 - Primary contact [Arnulf Weiler](#)
 - [WISHLOAD + Back Brief](#)

Paper and Cardboard

- Research
 - Information on logistics of a [paper processing operation](#)
 - Information on [paper exporting](#)
 - Information on [recycling options](#)
- Stakeholder
 - Kor Timor
 - Primary contact is [Savio](#)
 - [Meeting minutes](#) of the last meeting are very thorough.

Plastic

- Research
 - Information on [plastic and sand pavers](#)
- Stakeholder
 - [Ximenes Belo](#)
 - Latest [meeting minutes](#)
 - [Letter of Agreement](#)
 - Verde
 - Primary contact [Eka Mardiarti](#)
 - [Meeting minutes](#) for last contact

Appendix

Key Stakeholders

1. **Eka Mardiarti** of Verdeka (Verde)
 - a. The Verde team of Eka and Scott (wife and husband) are interested in investing the capital required to get a local recycling business operational in Timor-Leste
 - b. They already have a bin collection trialling at Timor Plaza, a deal that we initially wanted but couldn't secure
 - c. Phone: (+67) 077455613
 - d. Email: eka.mardiarti@verde-tl.com
2. **Savio** of Kor Timor
 - a. Savio is one of the people in charge at Kor Timor. He lived in Melbourne for his university studies and is easy to meet with.
 - b. Kor Timor are the only business repurposing and recycling paper in all of Timor.
 - c. Phone: +677334460
 - d. Email: kortimor.lete@gmail.com
3. **Ximenes Belo** of Star Products
 - a. Him and his wife Tina work together to run the business. They have proved difficult to work with, not making themselves available for meetings and phone calls. However we have a Letter of Agreement that needs to be legally met, stating that our FIBC bags of plastic bottles will be collected for \$1 each by Star Products.
 - b. Ximenes is a 'big fish' in Dili, and keeping a good relationship with him is crucial.
 - c. Phone: +670 7761 1845
4. **Arnulf Weiler** of Heineken
 - a. Verbally agreed that PEV can be a collection service for plastics, and we can work together to find a solution.
 - b. Heineken are committed to the 17 UN Sustainable Development Goals and they are in a position where they require large quantities of recyclable goods.
 - c. Email: arnulf.weiler@heineken.com

Project-specific and technical theory/processes

Local solutions for Timor-Leste's waste issues

Finding local solutions to recyclable waste was at the forefront of the February teams goals and should continue to be the main aim of ERS. Although insight provided by [Biji Biji](#) in January suggested we should aim to outsource before upcycling, data collected this month heavily suggests the exportation of glass and plastic should no longer be looked into due to previously mentioned issues. The exportation of paper may continue to be further analysed, despite significant capital costs, shipping logistics and cost complications.

Additional future action avenues

One of the most important future events for ERS in Timor-Leste is the impending plastic bag ban that the government intends to roll out in March 2019. We anticipate that this will bring about new pathways, markets and channels for environmentally sustainable products made of recycled and repurposed materials. Hence, the Kor Timor partnership to develop a recycled paper bag alternative to plastic is vital. Partnerships with existing businesses are preferred as operation can continue whilst PEV aren't in country.

The Verde deal follows a similar vein, as without local options for recycling, ERS struggles as a start-up business. Partnering with Verde will provide us with the means to repurpose and recycle the waste collected and verify our place in Timor Leste.

The Ximenes deal isn't our best option for plastic bottles and if the Verde partnership is finalised then we will be better off. However, as an immediate solution, Ximenes' business empties our warehouse so that collection can continue.

Therefore, the intention is to continue with Ximenes as our plastic bottle solution, Kor Timor as our paper/cardboard solution and Heineken and Verde as a collector of both plastic and paper/cardboard. As it was found by the January team, it is better to have two options for repurposing rather than one.