PROJECT EVEREST

EVEREST RECYCLING SOLUTIONS

BUSINESS PLAN

December 2017

Team leader: Douglas Radford

Group Leader: Kaushik Bilimoria

Trekkers:

Emma Goldrick, Thomas Beaven, Ethan Moore, Grace Blackford, Michelle Du Toit, Phoebe Chilman, Matthew Rafferty, Mitchell Beaty

EXECUTIVE SUMMARY

Business name: Everest Recycling Solutions (ERS)

Everest Recycling Solutions is a waste collection service that operates in rural and unserviced villages surrounding Siem Reap. There is currently no waste collection service in these villages and as a result villagers often burn their waste, bury it or leave it in public areas. Everest Recycling Solutions addresses this issue by working to provide a reliable and effective service throughout unserviced villages in Siem Reap with a focus on general waste and the collection of sellable recyclables. Currently, ERS works in conjunction with GAEA (Global Action for Environmental Awareness) to collect the waste for a small fee and dispose of it in landfill whilst selling the recyclables to buyers for a profit.

This document outlines the sum of work done on ERS, focussing mainly on that completed by the December team, in order to deliver a concise summary of progress and clear future direction. After reviewing previous findings the December team continued with both primary and secondary research and refined/altered the business model surrounding the collection system. Prototype 2 was introduced at a cost price of USD$6.00 and a selling price of USD$10.00. The altered prototype led to the sale of 4 bins in 2 households and 9 Expressions of Interests in the service within Chreav Village.

Future recommendations include further research into the scalability of the education workshop to ensure that villagers and children understand the negative impact that burning rubbish can have upon both the environment and their health. Additionally, the exploration of further revenue streams will prove useful to ensure that the business is able to operate profitably. The introduction of the payment plan and payment punch card is further recommended to ensure the smooth transition of the prototype from the December team to the January team. Finalising one or a viable combination of these, as well as further developing the waste collection service is strongly recommended as future goals.

More information on XYZ For Good Pty Ltd (Project Everest) can be found in the handover document.

Business Aims

Primary Aim:

To reduce the negative environmental and health impacts that waste and pollution

have within villages of Cambodia thereby improving living conditions
Secondary Aim:

To educate the Cambodian community on the negative health effects of burning waste and promote recycling and sustainability in the Cambodian community

Model Canvas

<table>
<tr>
<td rowspan="2">Key Partners

GAEA:
*Strategic Alliance
Collector of general waste and potential recyclables.

Chreav and Krovat Krong Depots:
*Buyer-supplier type relationship
Purchase our cans, bottles, paper and cardboard (recyclables)

Village Chiefs:
*Strategic Alliance
Earlier adopters of the prototype</td>
<td>Key Activities

Prototype research and development

Collection of waste from villagers in rural/unserviced areas of Siem Reap.

Transportation of sorted waste to purchasers (landfill and depos)

Selling of recyclables to local depots (Chreav and Krovat Krong).</td>
<td rowspan="2">Value Proposition

Cleaner living environment and better overall health

Reliable and convenient service

Affordable

Mutual exchange of recyclables from customer to depots</td>
<td>Customer Relationships

Face-to-face

Phone
Copywriting & Printing

Email

Facebook (advertising, feedback channel → future)</td>
<td rowspan="2">Customer Segments

Characteristic:
Unserviced and rural community in Siem Reap

Segments:

Villager (Segmented)
*offering a tailored service dependant upon socio-economic & usage behaviour

Example: A lower income villager will need to use the payment plan service. Additionally some villagers might just need some</td>
</tr>
<tr>
<td>Key Resources

*Finance,human, physical, intellectual

Bins &</td>
<td>Channels

Personal Selling & word of mouth to villagers (face to face discussion with</td>
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that become champions for the project moving forward in their village	Brochures Tuk-tuk trailer/truck drivers Translators GAEA: *Information on the unserviced areas, & partnership through utilizing their current distribution network Employees (trekkers)		locals) Advertising (brochure & flyers) Village chief/ early adopters of service & drivers (develop trust and brand awareness in the community)	aspects of the service (just general waste) Businesses (schools,shops etc)
Cost Structure Value-driven structure: Focused on creating and delivering a high value product customized to customer segment and their needs and capabilities (offering payment plan to lower-economic). Economies of Scale: Based on calculations the higher the volume of customers the cheaper it would be to service per customer (bulk buying of bins, larger scale = being able to negotiate better deals). Fixed Costs: Bin, printing of brochure, GAEA disposal fee ($2.50 for transfer of waste to landfill site per trailer), admin & legal, utilities, insurance			Revenue Streams Real time market: Sales from reselling cans and bottles are volume dependant and subject to the market prices at the time, looking into international exporters might mitigate the fluctuation in the purchase price Recurring Revenue from charging a subscription fee: Villages paying a fee for general waste collection service Transaction Revenue from asset sale: Selling bins to customer at a profit (bins as a investment & way	

Variable Costs: Purchasing recyclables to on-sell, fuel, wages, processing and cleaning	to access our service). Note: Pricing will be customer segment dependant due to the need to tailor the service based on customer needs (just general waste, multiple bins etc) and financial ability (outright purchase of bins or payment plan)

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OWNERSHIP STRUCTURE OF ERS

Project Everest currently holds full ownership of ERS, and is therefore the only shareholder. All of the other major relationships are with partners not shareholders.

Currently, ERS only has a single primary partnership, which is with GAEA;

GAEA

Global Action for Environmental Awareness (GAEA) is the primary waste collection service in Siem Reap. Operating mostly in the metropolitan area, GAEA collects waste placed in their bins on the side of the road and takes it to landfill. This service also extends to sweeping streets and occasionally cleaning waterways. GAEA operates as a private business, servicing its clients for a monthly fee with the promise of collections three times a week. On top of this, GAEA is also government funded. Qualitative data collected by previous teams and observations of the December team lead to the conclusion that GAEA's service is largely unreliable, inconsistent and far too urban centric to service the rural communities of Siem Reap. Through empathising with villagers both the July and December team have found that GAEA collects their waste as little as once a month. Based on these shortfalls, ERS have liaised with GAEA and formed a Memorandum of Understanding (MOU) which allows ERS to deliver its services in companion with GAEA (GAEA MOU 2017), minimising competition and allowing both companies to work towards the mutually aligned end goal of sustainability. Within the MOU, GAEA allows ERS to dump rubbish at their dumpsite for a set USD$2.50 per trailer. The definition of a trailer has loosely been defined as being able to fit on the back of a motorbike. ERS plans to work alongside GAEA to provide the rural component of general waste collection around Siem Reap, as well as introducing the recycling aspect which GAEA has not yet incorporated to their service. After meeting with Loy, the CSR Manager for GAEA, it became apparent that GAEA is looking to introducing basic recycling processes in January, however this has not been confirmed. For an example of collaboration between ERS and GAEA, 171214 Village visit to Banteay Chas w/GAEA documents both parties coming together to scope a potential village for assisted expansion.

PRODUCTS AND SERVICES

PREVIOUS PROTOTYPE (Prototype 1)

Previously, July's team had been using a bag based system where waste was segregated into three different bags (general waste, recycling and mixed waste) however the bag was deemed too expensive and small, not durable, and impractical as it needed some structure to hang or stand. While the December team did investigate other bag alternatives, after extensive research it was deemed that implementing a bin based system would be more feasible and practical.

CURRENT PROTOTYPE (Prototype 2)

ERS provides a waste collection service that aims to collect both general waste and recyclable materials from semi-rural and rural areas at a profitable yet affordable rate. There are currently two different prototypes that ERS are running. Prototype 1 refers to the previous bag based system introduced in July. ERS is currently phasing this prototype out and replacing it with Prototype 2. Prototype 2 is the bin based collection system and is explained below.

ERS offers two bins for purchase, a blue bin for general waste and a green bin which is for a mix of low-value recyclables.

General waste is collected in the blue bin and currently, customers pay a fee for the collection of this. The price has been initially set at 1000KHR , however it should be noted that this price has significant potential to be increased.
The green bin is a mix of low-value recyclables including cardboard, paper, plastic bags and glass. This bin will be collected without the exchange of money by either party.

The service is designed so that both bins be bought together totalling USD$20.00 either upfront or as part of a payment plan. This price can be altered depending on future teams and their financial requirements, considering the December team's findings during empathising which led to the belief that increasing the price is a viable option. However, it is recognised that due to the lower socio-economic status of the communities, villagers may be unable to afford the price. To mitigate this, a payment plan is proposed where the customer lays down a deposit before paying off the bin in weekly installments. This payment plan is yet to be implemented in the current prototype. Another option is to be offered to customers who may not want as many bins to purchase a single blue bin for general waste at a price of USD$12.

Aluminium cans are already collected by many potential customers in their own containers for sale to adjays, and hence do not need a bin for storage. Adjays are individuals that collect recyclables from households and businesses and on sell them for a profit. They pay the households/businesses for these recyclables. ERS will buy these from the customers for 3000 KHR/kg . Plastic bottles are similarly collected, and will be paid for along with plastic cups at 500 KHR/kg

Upon collection, the physical bins will not be collected as they remain permanent property of the consumer. It is critical to acknowledge that there is both a product (the bins) and a service (the collection) being sold in conjunction. Customers must

purchase the bins or sign up to the payment plan to access the waste collection service.

THE MARKET

The primary market of ERS is characterised as the rural, unserviced areas within the Siem Reap Province. The customer segment might change slightly depending on the growth stage of the business. For example, once the business is more established, the focus may shift towards villagers of lower economic status, as subsidising the cost could be a possibility which would make the service more affordable for them.

Previous Customer Segment

- The rural village of Proyut Village in the Puok Commune was serviced by the July team, and serviced at the commencement of the project.
- Conclusions from Proyut Village:
    - The distance to ERS facility (South house)/GAEA from the village is too great and too expensive to reach for the purpose of initial testing, especially if constant consultation is needed during implementation.
    - While the village size was suitable, the income of the villagers do not fit the needs of ERS' revenue requirements, as targeting higher income (more affluent) villagers will ensure ERS's business is profitable (based on financial projections). Once the service is up and running, lower income villagers will be targeted and subsidies may be offered.
    - ERS found that 12 out of the 14 households serviced had not burned their rubbish as a result of the bags being implemented, despite the poor use of the system. There was a want to implement the service, but a lack of understanding which can be mitigated with further education.
    - Of the 14 households serviced, 7 customers were questioned about the preference of a bin service. All 7 customers preferred the idea of a bin as it is:
        - Larger and easier to store
        - Offers more protection from animals (this was previously outlined as an ongoing issue as the bags were destroyed and not collected)
        - More durable for longer term use

Current Customer Segment

- Chreav was chosen as a new village for prototype testing as it is closer to the project team's operations base than Proyut, making transport easier and

reducing expenses incurred during testing. Additionally Chreav was previously identified by the July team and GAEA as a potential village and ERS's observation found that the village is a farming community and subsequently more affluent (evidenced by the widespread ownership of higher value housing, multiple motorbikes or cars). The reason for the shift in customer segments for this prototype is primarily as a result of the higher income, allowing higher price points to be established, which enables the financial model to be viable. Expectations were important for the implementation of Prototype 2 as there would be a break between the current team and the January team, thus it had to be explained that there would be a cool down period where the service was not operating.

Future customer segment

- After achieving proof of concept with more financially affluent customers, ERS have decided to initially focus on higher income families to ensure the program's viability. Once ERS established a re-evaluation is needed to look into lower income customers and whether subsidisation is a possibility to make the program more affordable for them.

- Additionally, collecting the valuable recycling items such as aluminum cans and plastic bottles from businesses in urban Siem Reap may be a valuable future revenue stream but requires further investigation and development regarding the logistics and impact of this. The relationship between ERS and GAEA and whether this will cause unnecessary tension must be considered when investigating this option as they service many of these businesses and a large part of urban Siem Reap. The most recent emails with GAEA can be found here: 171207 GAEA 01 DR

Customers are currently interacting with ERS goods and services through ERS representatives that visit households and pitch the waste collection service to them. If the households are interested, they have the option to buy two bins at $USD10.00 each. If this is too expensive to pay up front, ERS representatives will suggest the payment plan which will allow the lower socioeconomic households to access the service. Customers will receive the bins after paying for them or signing up to the payment plan. The payment plan is a process in which customers are able to pay a set amount of money each week for a period of 5 or 10 months. This has not yet been implemented and will require further prototyping. More information can be found in 171214 Pre-paymentplan 01 MB. The customers are responsible for segregating the rubbish themselves. ERS will collect their rubbish at a set time frequency, influenced

by the sensitivity analysis included in the finance section. This will be determined using customer data surrounding the amount of waste produced per household, collected within the first few weeks of prototype implementation.

The customer will pay 1000KHR per blue bin, while the green bin will be removed free of charge. The recyclables (plastics, cans and glass bottles) will be removed and ERS will pay the customer per kg for this type of waste. Once the collection process has finished, ERS will then collect outstanding payment for anyone who is on a payment plan. This payment process will be completed in conjunction with rubbish collection.

Word of mouth plays a large role in the success of ERS, thus managing the customer experience and their expectations is key to the success of ERS' service. Customers are expected to act as a reference and encourage their friends and neighbours to sign up to the service. For example, during the final bin sale in Chreav village, a friend of the customer was interested and insisted that ERS provide the service to her household. The Cambodian culture, being very community based will prove advantageous to ERS as villagers' constant communication with one another could encourage growth in customer base and hence increase revenue as ERS' customer base expands.

Project and Service Progress

ERS has successfully made 2 sales this month with the dual bin waste collection system, both sales were made within Chreav Village, which is located approximately 3km away from the South House. They are detailed below:

NOTE: Customer reference number (CRN) is the number assigned to each household/business who receives the prototype. This allows easier logging and the ability to keep track of a single customers use of the bins when collecting payment and dealing with feedback. For a detailed look at CRN classification see: 171128 Customer Database 01 TB.

Customer Reference Number (CRN)	1114
Name	Mr Savorn
What ERS sold	1 blue bin and 1 green bin for USD$10 a bin totalling USD$20
Customer Reference Number (CRN)	1117
Name	Miss Sovan
What ERS sold	1 blue bin and 1 green bin for USD$10 a bin totalling USD$20

Additionally, recyclable materials collected from the prototype implementations have been sold to the local Krovat Krong depot, within 2 km of South House (HQ) for a small profit.

Currently, ERS have five families being serviced within Chreav Village, two with the new bin system (Prototype 2) and four with the older bag based prototype (Prototype 1). Additionally ERS has nine Expressions of Interest (EOI)s within the Chreav Village for the bin waste collection service (Prototype 2), of these, seven of them are interested in a payment plan and the remaining two are interested in buying the bins outright. As previously mentioned, ERS targeted the more affluent households as ERS' empathising found that these villagers are more likely to able to afford the current price point required for the financial viability of the service.

MARKET RESEARCH

Secondary Research

Attempts to contact international and domestic buyers for ERS' recyclable waste were made. There was a very poor response rate from emails sent. The only reply was from Vanden Global, and the only noteworthy outcome of that contact stated that the potential for international export is very low due to the economies of scale issue with the low-profit materials. Local depots are common around Siem Reap and have

been utilised for short term sale of recyclable products collected from villages.

In the short term, the depots are the only viable buyer from December's research. For international exporters to be interested, ERS must be collecting a minimum of 20 tonnes of a single material. This was highlighted through contact with Vanden Global and will be a viable option once ERS captures the market for recyclables and has successfully expanded to multiple different villages.

There may be a need in the long term to assess the capacity of the various depots around Siem Reap; however, in the short term, their price is competitive and is the most suitable revenue stream.

Previous teams had contacted NGO recycling organisations and other businesses with the intent of implementing their own upcycling streams. Previous contacts with companies including Cleanbodia, NagaEarth and conCERT. Feedback gained was that in general, NGO's obtain their recyclable resources through donations and were in no position financially to start purchasing the recyclables from us. It was decided to avoid engaging any of these types of companies at this point until the new prototype was a proven concept and hard data was collected in terms of amounts of specific waste obtained which would be useful to these companies to approach. The exact nature of the relationship is yet to be decided but should be kept open-minded in future work.

Empathise Breakdown

The problem is two-fold. Firstly, the sheer distance of rural villages and lack of disposable income means many areas are left unserviced by GAEA. Secondly, education on the effects of burning waste and the purpose of recycling is extremely limited. While some villagers see value in a collection service, many believe that all waste is disposed of in the same way and hence opt for the cheaper option of burning. When making a pitch, using the point of improved health (amongst other benefits) is a major selling point. 171220 Empathise Handover 01 MDT

Customer Breakdown

The customers wants and needs have been identified through various empathising stages. These have included visiting households and businesses within villages to talk about their current and previous experiences with waste collections and waste in general. A common theme noted throughout has been the lack of a reliable waste collection system. More needs and wants have been identified below

Consumer Wants & Needs	Strategy To Address Wants & Needs
Want to be paid for their recycling - essentially 100% of customers were keeping majority of their cans and plastic bottles separate to sell to adjays. This is because they are paid for it.	ERS has implemented an altered segregation system that will allow certain bags to be exchanged for payment to the villager
Need for a durable, sizeable, structured bin/bag - All feedback indicated that they wanted larger bags	Bought and implemented
Need for regular pickup, as opposed to on demand - Verbally villagers preferred a regular pickup than the on demand text system. However, note that the text system was implemented and not utilised, nor was any feedback gathered.	Eliminated the texting system and now aims to have a set day each week for pickups

Relevant Field Research

Week 1

ERS implemented the prototype handed to us by the July team within 15 businesses. These issues included the need for greater clarification on items intended to be put in the red waste bag as well as different storing methods for the bag as it offers no structural support. This highlighted the need to research bag alternatives as well as revise the information sheet handed out upon implementation. More information can be found here: 171201 Week 1 Prototype Summary 01 EG:

Week 2

Following week 1, various issues were identified upon feedback during the collection process. Greater clarification upon the segregation process and waste collection service is needed to ensure efficiency in the sorting process. The size, durability and price of the bags are further issues that arose after feedback was gained. This feedback has been implemented through the creation of a new prototype in which the dual bin system (prototype 2) was introduced. Due to the lack of text system efficacy, ERS chose to move to a regular, weekly pickup system. Further information regarding the prototype summary can be found here 171208 Week 2 Prototype Summary 01 GB:

Week 3

In week three, ERS implemented the bin prototype into Chreav Village which gained

2 sales and 7 EOIs. Additionally, it has been noted of the need for specific and clearer clarification within the waste collection service and this has been introduced within the bin system. The bag prototype was stopped within Puok Commune as it was identified as unnecessary and unviable in the short term. More information can be found here: 171215 Week 3 Prototype Summary 01 MR

Week 4

Chreav village has proved successful in the past 2 weeks as a vast amount of interest has been generated in the dual bin system. Out of 5 households currently using ERS system, 4 were serviced as the 5th household wasn't home. Collection of general waste was successful in 4 households and collection of the recyclables in 1. Following the second pickup in Chreav, it must be noted that an emphasis on the use of the bins is necessary as both of the 2 households in which it is implemented were using the bin for various reasons other than waste collection. Additionally, out of 5 houses serviced, only 1 household had recyclables to sell to us. A large push for households to use this service is necessary. More information can be found here: 171221 Week 4 Prototype Summary 01 GB

SWOT analysis

Strengths	Weaknesses
• Servicing previously untouched markets through a lower cost structure • Comprehensiveness – Waste collection, mixed recycling, and can and bottle purchasing in one service • An easy to use and efficient segregation system • Sealed, durable bin system which prevents smells escaping and animal invasions • Multiple revenue streams through sale of Bins, sale of recyclables and charging customers for removal of general waste	• Ensuring the reliability and consistency of service outside of project months • Potential competition with Adjays to collect valuable recyclables • Lack of viable, consistent buyers of ERS' recyclable materials - Current inability to directly sell to recycling exporters due to low collection volumes. • Lack of options for glass – the mass and low value of glass results in a low depot price (USD$0.025/bottle), upcycling options are hard to employ
Opportunities	Threats

• Semi-rural areas are still not covered by GAEA • Urban partnership with GAEA • Form solid and long lasting partnerships with business and villages • Expand into servicing schools • Streamlined Punch card payment system for general waste • Villagers and businesses - Users want this service and have expressed a willingness to pay for it. • Partnership with Adjays • Reliability (a key weakness of GAEA). • A viable new area of Chreav village identified • The expansion of the new bin prototype • Direct partnerships with foreign recycling buyers as ERS increase in size (offering higher prices)	• Villagers' valuable plastic/aluminium cans may be sold to Adjays – further investigation into prices paid by Adjays is required • Deterioration of relationship with GAEA and becoming negative competition • Customers defaulting on bin payment plans

MARKETING STRATEGY

Branding

The July team developed a visual identity for the project through the creation of a colour and monochrome logo, which can be seen below.

While the July team wanted to look into further developing and registering the brand, after research into the trademarking and legal aspect of registration as a separate business, it was determined that moving forward ERS would be operating the project under 'Project Everest' instead, as this is the name registered in Cambodia.

Channels of Communication

Print: During the December team's project ERS relied heavily on printing material such as the printing of an information sheet, labels and brochures. During the 3rd week of project ERS developed a professional brochure, this made ERS' business seem more legitimate and significantly assisted in the making of the two initial bin sales.

Point of Sales/Direct Marketing: A majority of ERS' communication with customers have been via face to face communication, often assisted with a translator. Here it was important to develop good rapport with the villagers and also a concrete understanding between team members and the translators in order to best communicate the project and ERS' aims.

Costs

- Purchase of Bins
- Printing (inc. brochure, information cards, posters)
- Transport (Tuk Tuk, Trailer, Truck)
- Translators
- GAEA Waste Disposal Fee

Campaigns

Past: The July team ran several implementations of the bag segregation system in both the Puok and Chreav Villages. Here they informed the villagers of their segregation system through face to face interactions and a supplementary information sheet. ERS emulated this campaign upon arrival and have made adjustments accordingly. This included updating the information sheet by supplying a single sheet rather than a informative label on each bag. An additional text feedback and collection system was introduced to move towards utilising the technology space and reducing labour/limitations in face to face interactions.

Current: In ERS's final iteration, an illustrated tri-fold brochure was developed to move away from the previous text based A4 information sheet. The brochure was chosen with the idea that the more professional approach would attract customers more than the previous information page. Furthermore, it provided extra detail and clarification on the segregation required from each bin. On this brochure, the new method of segregation has been communicated as it is more economically driven. That is, the materials are separated based on revenue created from re-selling.

Planned: Currently, ERS is redesigning the brochure based on feedback from current users and based upon this, future teams will be able to develop the design further. This would allow for future prototype changes to be incorporated. A metric for the development of this brochure is as follows:

- Provide brochures to new customers, check progress of prototype one week later. Observations on the:
    - The questions produced (during, after)
    - The quality of segregation

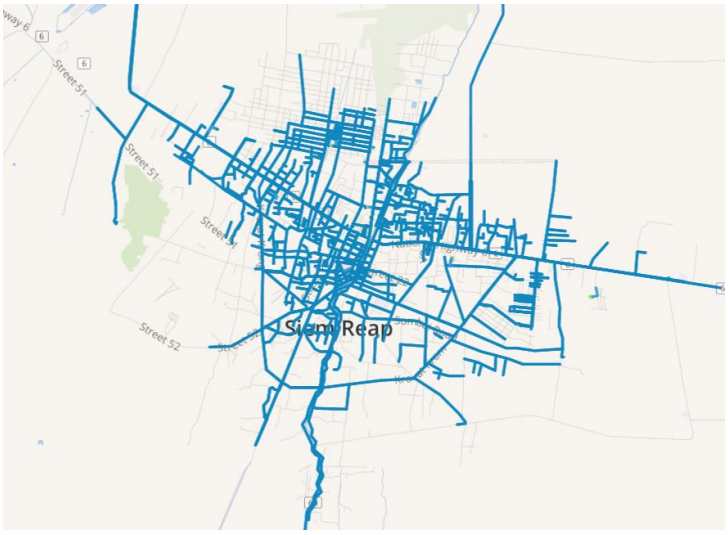
  would provide insight into the quality of the brochure. The final brochure would be in a state that provides customers with enough information to use the service with very minimal face-to-face contact.

Additionally, ERS assumes that moving forward, more emphasis will be placed on building brand awareness and recall, as this would encourage greater use of ERS' service and compliment the service built upon in December.

COMPETITOR ANALYSIS

Urban Analysis

- The inner city of Siem Reap is currently serviced by GAEA.
- They service main roads and highways out of the city
- GAEA picks up waste for a monthly subscription price
- Hotels and restaurants pay inflated fee for more regular pickup
    - The fee can be incorporated into the electricity bill
- Generally perceived as unreliable for general households or more outer areas in Siem Reap - infrequent pickups and quality of pickup often questioned
- Household customers unreliable (SWM ~50% of households don't pay - but this is subsidised by hotels and restaurants)



- **Similar Services**
    - Other small NGO or businesses which operate a similar service in select villages (HCC envirocam in Phnom Krom)
    - CINTRI in Sihanoukville and Phnom Penh operate similar business to GAEA (CINTRI also services the temples outside of Siem Reap)
- **Value Proposition**
    - ERS will service areas GAEA/others cannot or currently does not service. ERS pays for recyclables, collects other recyclables (paper, cardboard and glass) and are convenient for the customer. ERS's service aims to be consistent and reliable.
    - ERS provide a service that can be tailored to varying income levels through the upfront and payment plans
    - ERS also takes and purchases recyclables (GAEA do not)

OPERATIONS AND LOGISTICS

Supplies and suppliers

- Bin Supplier - The current ERS bin supplier is a seller at Old Market named Pisey (Ph. 012988921). So far 4 bins have been purchased for USD$6.75 each. In the future if more bins were required, she agreed to order them in (min. order 10) at a cost of USD$6 each from a Thai supplier. This is a temporary supplier, for large orders in the future direct purchase from the Thai supplier should be investigated.
- Printer - During december ERS has used a printer on Oum Khun St, between Platinum Rd and Taphul Rd. The shopfront is yellow, and it is on the South side of the Rd. Cost is 100KHR/page.
- Translators - A range of translators are used depending on availability.
- Transportation provider (tuk tuk trailer, truck etc.) - In the first week of ERS collection in December, a local Puok Villager with a truck was used for the day to transport waste. In the following weeks, a tuk tuk trailer and driver was used. Costs varied depending on the changing area the prototype has been run in over the month.
- Recycling Buyer - all of the ERS recyclables collected in December have been sold to the Krong Krovat Depot. Ideally, with increased scale, ERS would be able to access large international recyclers directly for better sale prices.
- Landfill Company - Currently ERS are disposing of collected general waste with GAEA. The cost is USD$2.50 for a tuk tuk trailer full of rubbish. They appear to be flexible with the amount of rubbish.

Method of delivery of products and services

Much of the delivery of the product is to take place in person, as technology based systems were not received positively. It is noted that upon collection, most bags were not full, highlighting a reason as to why ERS received no text messages and hence a limitation to the assumption. Therefore, an on demand system did not seem feasible and thus a regular collection time such as weekly or fortnightly was selected as reasonable. Distribution of bins and signup to the service is currently done personally, with individual house visits performed to sell the service and induct village members to be able to use it. However, there is scope to make this a more community wide activity. The collection of waste is currently done using a tuk-tuk with a trailer, which is readily available but can be expensive unless a local is utilised to organise the trailer. It is worth pursuing the use of alternative solutions such as Adjays and a GAEA truck, as detailed in Pickup Method Evaluation 01 EM.

Overheads

- Salary

- Stationary
- Utility
- Uniform
- Training

Legal Requirements

Project Everest is now registered as a business in Cambodia and therefore future teams can charge a fee for the collection service and for the purchasing of bins.

Insurance Requirements

In-keeping with the Australian business insurance standards, Project Everest (ERS) will have to take out insurance for:

- Workers' compensation insurance - if you employ people in the business
- Third party personal injury insurance - for any motor vehicles you own.

Employees

Currently ERS does not have any permanent employees in Cambodia. With future growth, a collection vehicle and driver should be implemented. This may be implemented through first assessing the logistics of current methods of collection and whether they are viable in the long term. This will include employing a driver with a vehicle on a salary as it will prove cheaper to employ them long term than hire someone for each pickup.

COST AND PRICING STRATEGY

- Cost breakdown of each service
  - 1000 KHR per waste bin collected
  - No charge for green bin collected
  - ERS collected cans for 3000 KHR/kg for cans
  - ERS collected plastic bottles for 500 riel/kg
  - 2 Bins at USD$10.00 each or 1 bin for USD$12.00
- Competitor price points:
  - GAEA charge USD$5.00/month for ‘frequent’ service
  - GAEA charges more for hotels and restaurants for more reliable service
  - Depots pay 4000 KHR/kg cans and 1000 KHR/kg for bottles
  - Adjays pay less because they come to the house and collect for you. Price points were not consistent for all adjays. That is, the villagers did not know the exact price points they were getting for their recyclables. ERS do know from the July team that the Adjays only make approximately 100 KHR/kg profit when on-selling to the depots.

FINANCIAL ANALYSIS AND REPORTING

The bin prototype was evaluated by considering the profit and loss statements throughout the first year of operation:

NOTE: The sheet names must be fixed to maintain the cross-cell referencing

For Project Financing, see sheet: 171219 Project Financing FINAL 01 MB

This spreadsheet is a basic profit/loss spreadsheet which bases the incomes and expenses which are assumed based off of an arbitrarily selected number of customers. It also includes approximate transport costs. From an initial customer base of 10 villagers and a single pickup, the total expenses are USD$115.00 with a total revenue of USD$206.00 which gives USD$91.00 profit. The other pickups are seeing the effect of varying the number of customers serviced. In general it is seen that even for a single customer, there is a USD$7.00 profit.
This was extended to a year long projection per customer:

For project financing, see sheet: 171219 Project Financing FINAL 01 MB

The breakdown per customer, like the sheet above, excludes general operating costs and is primarily focused on direct service costs and profits. The period of analysis, along with the pickup frequency is a variable. In this case for a two bin service operated once a week, a single household has a gross operating profit of USD$21.19, with a total operating cost of USD$29.66 over a year long period.

The above two sheets ignore the ongoing costs of running a business in general. This is considered in: 171219 Project Financing FINAL 01 MB

This is an ongoing, month by month sheet which considers the operating costs including: administration, utilities, wages, waste disposal, marketing, wages and bank fees. The net differences at the end of the month are carried into the next month. A general expansion rate of the customer base is included as well. Several of the operating costs are fixed variable; for example, admin and legal is considered a percentage of cash in. Other approximations such as rent and utilities are assumed as roughly constant each month. Through using a customer base rate of 10, villagers with an expansion/spread rate of 45% per month (~600 customer base within a year) results in breakeven of cash flows. From this analysis, the need for initial capital in order to withstand the initial losses of the service is required, approximating USD$10,000.

A sensitivity analysis was conducted on the number of customers required and price points in order to break even on the profit margins. To break even in the first month an initial customer base of 39 villagers is required. A growth rate of 32% per month of the customers serviced is required to breakeven by the end of the year.

For a constant 200 customers reached by the end of the year, the price point for the bins required with all other variables kept constant to breakeven by the end of year one is USD$17.50. Other sensitivities such as changing the buying price of the bin and the amount ERS charge for picking up the waste bin prove insignificant in changing/altering the cash flows for the first year.

Analysing the pickup frequency of the service, it was found that for a price point of USD$0.25/bag, it generated USD$408.00 profit with a once per week pickup, and USD$490.00 profit picking up fortnightly. When the price point is increased to USD$0.50/bag the profit for once per week is USD$1059 and fortnightly was USD$815.00. This is concluded as a balance between savings from reduced wages and transport costs and more regular income from picking up the bags.

From this analysis, the primary variables of interest which dictate the profit of the business are:

- Growth rate of customers per month
- Fixed operating costs
- Price points of pickup as a function of pickup frequency

Not all variable interdependencies and correlations have been established in this work. Further analysis should consider these and how it affects decisions made for further development.

CONTINGENCY PLANNING

Risks of Current Model for Project Everest	**Mitigation Actions**
Relatively large investment into bins - high initial cost	Do not expand too quickly before all aspects of prototype are established - logistics and finance most important. For the customer side of investment being too much - look into micro financing and payment plans
Changing/stopping model would be costly - because the bins are sold to the user or loaned on a payment plan ---- either the customer loses out if ERS change, or ERS lose out on the unrecovered payment.	Offering full refunds for the bins or paying back whatever they had paid
Over-expense of pickup logistics - currently short term contract drivers are expensive	Currently has to be absorbed. As service expands, look into centralised pickup points, utilising GAEA trucks, full time employees, local warehouses for storing/sorting
Over-expense of sorting process - new concept to villagers, chance of perfect sorting and quality of segregation could be limited which needs extra labour to compensate	Teething problems which must be absorbed initially. Re-implementing and re-educating at a local or community level is key for long term development.
Risks of Current Model for Stakeholders	**Mitigation Actions**
Structural unemployment of Adjays from removing source of income	Seek to employ Adjays to sort waste and drive tuk tuk trailers where possible.
Misinformation, miscommunication or poor teaching methodology resulting in the above. Long term	Avoid running education workshops and programs until fully developed and participants with formal education

misunderstanding of waste management importance from education program	experience are utilised.
Closure of Depots and unemployment of Depot workers because ERS take their sales	Seek to re-employ where possible, need to ideate and develop mitigation strategies further. Utilise the depots and integrate into supply chain for local drop-off/cheaper transport costs. Prioritise selling products to domestic markets rather than exporting.
Private businesses taking responsibility reduces government accountability in solving social issues, encouraging government complacency.	Consult and encourage government levels to be involved in implementation and promotion of business once ERS reaches a relevant scale. Chiefs of villages have been engaged where appropriate and should continue to be.