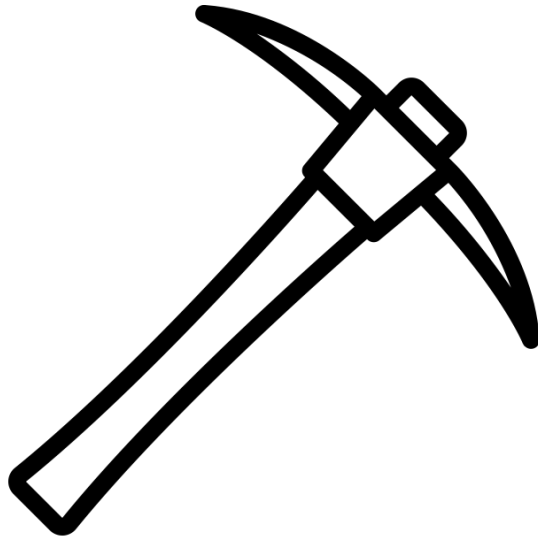


Urban Miners

It's a waste not to see plastic as a resource



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1. Executive Summary

Westfield generates over 30 tons of waste per day, much of which ends up in landfills or burned in incinerator plants. In addition, some of this material ends up in our parks, streets, and surrounding nature areas. Plastic is one of the biggest problems of our waste stream, as it is a quite valuable and useful material if recovered appropriately. Currently there are no recycling facilities in the Westfield area, so the plastic that is collected is shipped to other cities to be processed. However, because the large industrialized recycling facilities only accept PET (Plastic type #1) and HDPE (Plastic type #2) bottles that are easy to identify, the rest of the plastic gets burned in the incinerator even though it's collected. This information pushed us to look for solutions to the plastic waste problem and led us to Precious Plastic community and their idea of small scale recycling and production of new products.

2. Mission

Plastic waste is becoming a huge problem, especially from single use plastics. Plastics are divided into seven numbered categories depending on their composition (Plastic #'s 1-7). One of the main challenges of recycling plastic is that all the types have different melting temperatures, which makes it necessary to carefully sort the plastic by type so they can be processed into new products.

We learned that from the total plastic produced per person in the European Union, around 23% is #5 (PP), but only 15% of the total of PP is recycled currently. Besides, approximately 13% of the total plastic produced by an individual is #2 (HDPE), but more encouraging numbers show that 35% is currently recycled. However, only 8% of the plastic used is #6 (PS), but currently is not recycled at all in Westfield (Appendix 1). The Precious Plastic shredder pro machine we plan to build is able to process all of these 3 types of plastics (HDPE, PP and PS) into small shreds that can be used in other Precious Plastic production facilities.

Our team sees value in every piece of waste, however small or dirty it may be. We strongly believe that we can all contribute with small actions to start

changing the way we perceive plastic by providing the Precious Plastic network in Westfield with high quality, clean, and sorted plastic shreds be turned into new products by craftsmen and craftswomen in Westfield.

We envision a planet where nature is free of plastic waste and people are more conscious about their purchasing decisions. Our aim is to collect and recycle 80% of Westfield's post consumer plastic and provide local people with this valuable raw material.

Team



Name: John Clarkson

Role: Owner and Administration

Experience:

Studied business and management. 2 years working at the SocialFab. Certification of social innovation and entrepreneurship with a practical approach.



Name: Lara Stephens

Role: Distribution and Shredding Assistant

Experience:

Product designer with 3 years of experience working with recyclable materials. Project manager at the SocialFab of Westfield.



Name: Jorin Portello

Role: Processing and Shredding

Experience:

Electrical engineer with 5 years of experience in the machinery industry working independently and part-time for a construction company working with solar panels.

5. Market Analysis

a. Products & Services





Urban Miners will process and sell shredded plastic collected by the local Precious Plastic collection points. Our shredded plastic will be clean, as well as sorted by plastic type and color as much as possible. Our plastic will be sold in 10kg or 50kg bags, with the larger amounts offered slightly lower in price.

The plastic types we will process are HDPE (#2), PP (#5) and PS (#6). For example, HDPE (#2) usually comes from shampoo bottles, household cleaning products, toys and soda bottles. PP (#5) is widely used for food containers, reusable bottles and containers for yoghurt or margarine. Whereas PS (#6) is often used for single use cups, plates, cutlery and bowls, and meat and poultry trays.

Because the different Precious Plastic machines require different dimensions, we will shred the plastic in three different sizes. The large size shredded plastic (above 10 mm) will be used by the sheet press machine because it can easily handle these larger sizes. The medium size shredded plastic (0mm-10mm) will be used primarily by Precious Plastic workspaces with injection machines. The small size shredded plastic (0mm-7mm) will be created for the extruder machine, which requires the smallest dimension of shredded plastic. The smaller the dimension of shreds, the more time needed to process the material so a higher price will be charged.

Initially we will offer two main amounts of shredded plastic - 10 kilograms or by 50 kilograms. Each package of shredded plastic will have just one specific type of plastic and color. There will be three main variables to choose your shredded plastic: type of plastic, colour and size of shreds. For example: 10 kilograms of blue PP, medium size shredded plastic.

The price range will vary depending on the size of the shredded plastic. For the 10 kilograms bags the price will start from €12 for the large size shredded plastic to €35 for the small size. The 50 kilograms amount starts from €48 for the large size to €140 for the small size, being a bit cheaper to buy higher volumes compared to small amounts (20% discount).

<p>Three Measures of Shredded Plastic</p> 	<p>Variety of Plastic Types</p> 
<p>Variety of Colors</p> 	<p>Small and Medium Size Sorted by Colors</p> 

b. Target Groups

Our target groups are the Precious Plastic workspaces that work with the injection, extruder, and sheet press machines because we can provide them with the raw material for production. While industrial recyclers can provide cheaper shredded plastic, they don't often provide the range of colors that we will provide because it's inefficient to process small amount of colored batches with such large machinery. For Precious Plastic production workspaces it's also difficult to source from industrial recyclers the smaller amounts of plastic that we can provide (10kg and 50kg bags). We also provide shredded plastic that's solely collected locally, which is what will attract many of the end buyers to buying products made with our material.

Through the Precious Plastic community platform we connected with the Precious Plastic community builder of Westfield to network with the local workspaces. So far we've connected with a total of 9 workspaces in Westfield

and the surrounding region. This number is expected to rise as more workspaces are opening as a result of the great work that the community builder is doing through education, awareness and workshops in collaboration with the collection points.

After reading the waste characterization study from the Westfield department of sanitation, we've determined that Westfield produces about 100 tons of plastic waste per month. If we assume that 20% is being collected by the traditional recycling system, that leaves 80% that we can potentially recover (80 tons per month, or 960 tons per year). If we can sell this material on average at 1.5 euros per kilo, that means there is a total available market of 1.4 million euros per year. Our goal in the first year is to capture just 1% of this plastic waste, and expand our operations as we develop best practices surrounding running our business.

c. Engagement

As the provider of the locally sourced plastic waste, Urban Miners will be a key player for the development of the local Precious Plastic network. We will need to engage closely with all the parties involved in the process, especially the collection points and community builder.

Our engagement channels will be primarily direct, as we are targeting businesses, not end consumers. Word of mouth and the Precious Plastic Community Platform will be key to connect with the local Precious Plastic community. Both of these channels will allow us to establish a close relationship with our suppliers and clients.

Participating in Precious Plastic events setup by the local community point will give us visibility and provide an opportunity to show the value of recycling. Social media (facebook, instagram) will also be used, but mostly to show the value that recycling can create and more as an educational and awareness tool for the community.

Finally, our website will also help us to advertise the range of shredded plastics we offer and contact directly with customers or interested parties. The website will enable the interested people from the Precious Plastic Bazar to be

redirected to see more information about us. We would also like to create a section in the website to show the amount of plastic we process and recycle.

d. Sales Channels

Urban Miners will target mainly businesses that produce end products, so our sales channels are primarily B2B (Business to Business). The strategy targeting B2B is different from B2C (Business to Customers) because you have less customers and they care more about the characteristics of the product and the quality, as it is their raw material for production.

Our main sales channels will be direct sales to the machine workspaces. We will contact potential customers through email and phone calls, where workspace owners can coordinate with us the amount of plastic they need and the date and desired distribution method.

The Precious Plastic Bazar also an important sales channel, as it allows us to showcase our material and process sales. There is a 5% of commission that we need to pay to the Precious Plastic Bazar for each sale made through the platform. Additionally, being on the Bazar works as advertising and a tool to connect to more projects around the world. So, the Precious Plastic Bazar allows us to expand our network internationally and reach new markets. This is especially useful for areas that don't have any shredder workspaces yet and need to source their plastic from a nearby region.

6. Operations

a. Key Resources

In order to be able to operate efficiently we need a few key tools and machines. One of the most important is having a big workspace that allows us to store the plastic before shredding it. The plastic we receive from the collection points uses a lot of storage space as it is not compressed, so having enough space it is key for us.

Similarly, it's important to keep the plastic after being shredded in closed containers to ensure that it stays clean and doesn't mix with other colours or types of plastic. As a result, having specified containers and bags to store the shredded plastic will be key. Marking the containers and bags with the type of plastic will be important to classify correctly when displaying and selling it.

Another important resource is the shredder machine and the plastic collected. Without these two resources it is impossible to produce our end product. Consequently, buying the shredder will be our first investment. Additionally, as picking up the plastic from the collection points and afterwards distributing the shredded plastic takes a lot of space, we will urgently need a big van with an additional trailer to carry all the plastic.

Finally, without the employees all the key tasks cannot be performed. So, all the workers involved in the process, from production to sales are key to making the business run smoothly and ensure efficiency and quality.

b. Key Tasks

Some key activities are also important to guarantee efficiency in our operations and provide quality service to our clients. For instance, managing and picking up plastic from the collection points to produce shredded plastic will be of major importance.

Maintenance of our shredder on a weekly basis is key to ensure that the machine will not break down and that the plastic we shred is not contaminated

with the plastic shredded previously. Mixing types of plastics or colours makes our product lose value and quality. For this reason, every time the operator will shred different plastic types or colours, they need to clean thoroughly the machine before starting to shred the next type. As well, general maintenance is needed to assure the functionality of the machine.

Sorting the plastic by colors, it is also an activity that requires a lot of effort, time and patience. The collection points provide as with the plastic sorted by type of plastic only, so in order to start shredding, we need to sort each type of plastic by colors. Sorted by color is a really important part of our value proposition.

Lastly, the community and customer relationship it is key for us because we are an intermediary between the network of people that collects plastic, and the businesses that are willing to create new products with them. We close the loop to enable this circular model to exist. As a result, we like to have a warm and close relationship with all the collaborators of the business - collection points, community builders, and workspaces focusing on production.

c. Running Costs

In order for us to operate, we need to cover some main costs on a monthly basis. The two largest will be the wages for the employees and the rent of the workspace. In addition, the basic utilities of our workspace need to be covered each month. The most important ones are electricity, water, gas and internet. Fortunately, we do not pay for the plastic used as raw material to produce the shreds, which greatly reduces potential running costs.

d. Collaborators

One of the main collaborators that will allow us to fulfill our mission is the collection points that will provide us with the sorted and clean plastic. They will save us a lot of time by collecting plastic from people and making sure it is clean and sorted by type.

The Precious Plastic production workspaces (extruder, injection and sheet press) will also be important collaborators. For instance, they will be our main

clients and allow us to make a business out of shredding plastic, but at the same time, they are the ones that are finally showing the value that the recycled plastic can have to the Westfield society. So keeping a strong and close partnership with them is key to creating a circular flow of businesses that eliminate the waste from the production cycle and demonstrate the value of plastic.

The community builder and community point is also key collaborator for us, as they are the people who bring together all the actors of the community and create the connections with Westfield's citizens. We want to participate in the workshops and activities they organize to connect with the community and show that in order to produce new products, their plastic must be properly cleaned and sorted.

Finally, the local government of Westfield is also important for us because they have public money and grants to fund projects that help to reduce waste and impact positively the environment. As we will have tangible impact measures of the amount of plastic we process, we can apply to get financial help and start our shredder workspace. The local government can also help the whole Precious Plastic network providing public spaces for collection points, to provide workshops and educate the community of Westfield about plastic pollution.

6. Impact Measures

a. Community

Contributing to the Westfield community and measuring it how we will contribute to the Westfield community. The first way of doing this is by giving a useful life to the plastic waste recollected by collection points of the city. By processing the plastic waste, we will help the community of Westfield to reduce the plastic waste they produce and give a second use to plastic. We will also show to the habitants of Westfield the value that plastic can have and the urgency of changing our perception of it.

b. Planet

Our contribution to the planet will be diverting plastic waste from ending in Westfield landfills, incinerator or the environment. Additionally, we will increase the amount of plastic waste recycled in Westfield by reincorporating it to the production cycle. This impact can be measured tangibly through the amounts of plastic we will be shredding and the amounts of plastic that we sell to production workspaces. Through some calculations related to the estimated monthly sales, we can predict that around 2-3 tons of plastic will be shredded by Urban Miners each month (Appendix 2).

c. Income Streams

In order to reinvest and grow the project over time, we need to focus on creating a sustainable source of income. In our case the money we will generate will come from the sales of the shredded plastic to the Precious Plastic workspace. Initially, with the expected sales for Urban Miners (Appendix 3), the revenues earned per month should be around €5.950,00 (Appendix 4).

As appendix 3 shows, the profit margin per unit sold will vary from 1% to 34%, depending on the size shredded plastic. The discount for buying the plastic in 50kg bags versus 10kg bags will be 20%. We also plan to price the colors of the plastic that are difficult to source at a higher price. For example, neon green would cost more than white, which is a much easier color of recycled plastic to find.

7. Financials

In order to demonstrate the financial sustainability of Urban Miners, below is an overview of our projected financial situation.

As we can see in the investment costs table below, Urban Miners will need around €10,866.00 to set up the workspace to start operating. The total amount of money needed to start operating includes the one-time costs but as well the cost of one month of production costs and the monthly costs, which comes to a total of €16,131.50 (Appendix 4).

Investment Costs	
Initial Investments	Cost
Shredder Pro	5,300.00
Workspace Renovation	800.00
Business license and permits	300.00
Van	3,000.00
Washing/Sorting setup	500.00
Coffee Machine	20.00
First Aid Kit	45.00
Office Supplies	120.00
Computer	300.00
Speaker	25.00
Trailer for the Van	300.00
Storage bags	8.00
Storage bag hangers	4.00
Sorting container	15.00
Shredded plastic containers	15.00
Shredded plastic storage shelf	15.00
Workbench	25.00
Shredding trolley	10.00
Cleaning brush	2.00
Rubber mallet	12.00
Wrenches	25.00
Allen keys	5.00
Scale	20.00
Total:	10,866.00

We aim to finance the initial investments to start Urban Miners through a public fund we applied for from the local council of Westfield that seeks to invest and incubate local sustainability projects. Because we have estimations about the plastic we can process monthly, we can show the impact that our business will create for the community and on the local government costs to recycle waste.

<i>ent</i>												
<i>Revenue</i>	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950
Total Cash In	22,082	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950
<i>Investment Costs</i>	(10,866)											
<i>Variable Costs</i>	(947)	(947)	(947)	(947)	(947)	(947)	(947)	(947)	(947)	(947)	(947)	(947)
<i>Fixed Costs</i>	(855)	(855)	(855)	(855)	(855)	(855)	(855)	(855)	(855)	(855)	(855)	(855)
Total Cash Out	(12,668)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)	(1,802)
<i>Net Cashflow</i>	9,414	4,149	4,149	4,149	4,149	4,149	4,149	4,149	4,149	4,149	4,149	4,149
Money In Bank (End of Month)	9,414	13,563	17,711	21,860	26,008	30,157	34,305	38,454	42,602	46,751	50,899	55,048

The cash flow table also reinforce the financial projections of Urban Miners, showing financial institutions that we will be able to sustain ourselves and cover our financial obligations.

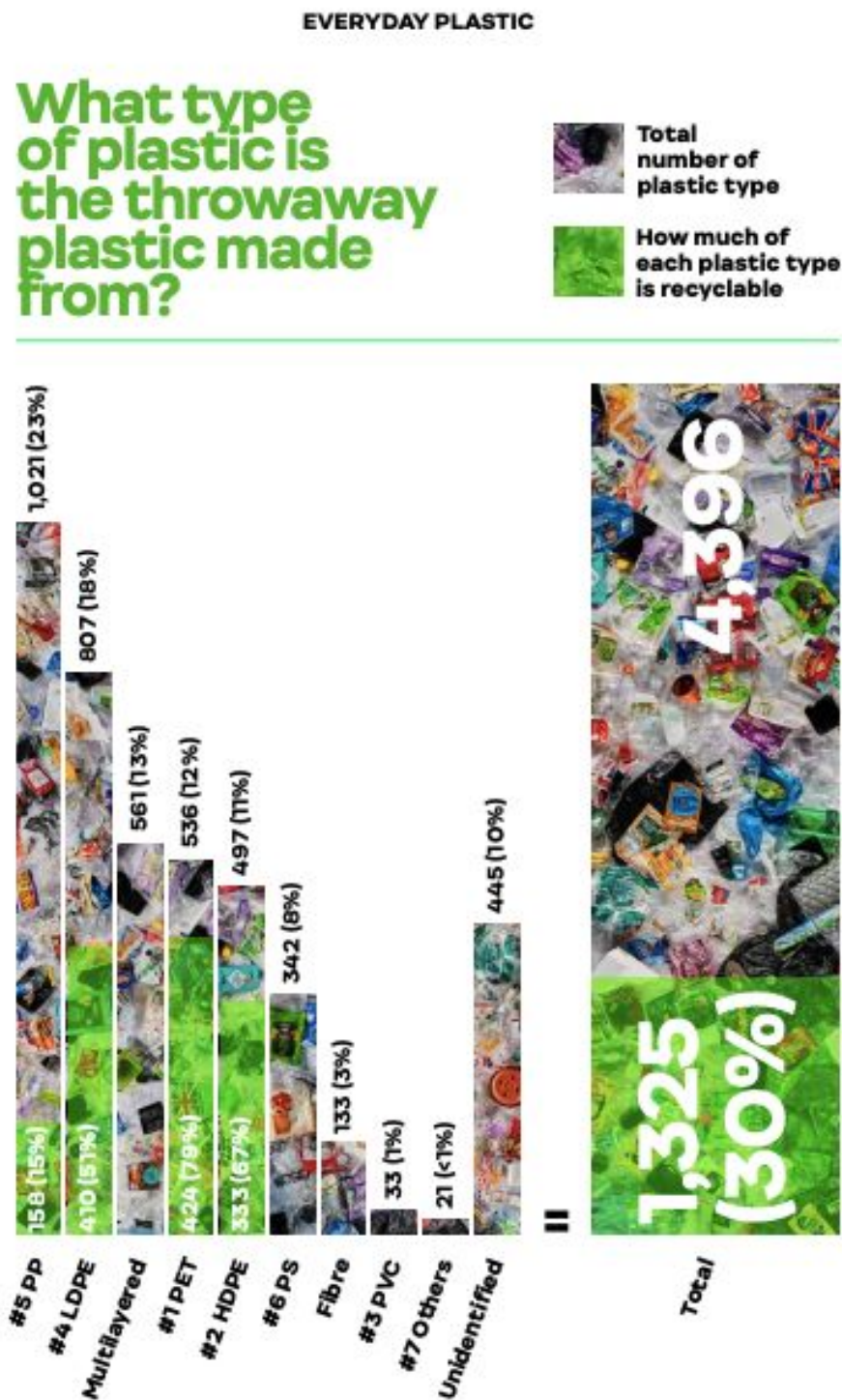
8. Legal Structure

Urban Miners' main mission is to be a company that can create positive impact for Westfield's community and allow them to move from linear business models to circular ones. As a result, we will be classified as a limited liability social business because we create economic, social, and environmental benefits. John Clarkson is the owner of Urban Miners workspace and has two main employees that help with the operations.

In the future we would like to apply for the B corporation certification to enter the ecosystem of sustainable and social corporations. This can allow us to create more collaborations and network with additional businesses that could use our shredded plastic to produce their products.

9. Appendix

Appendix 1

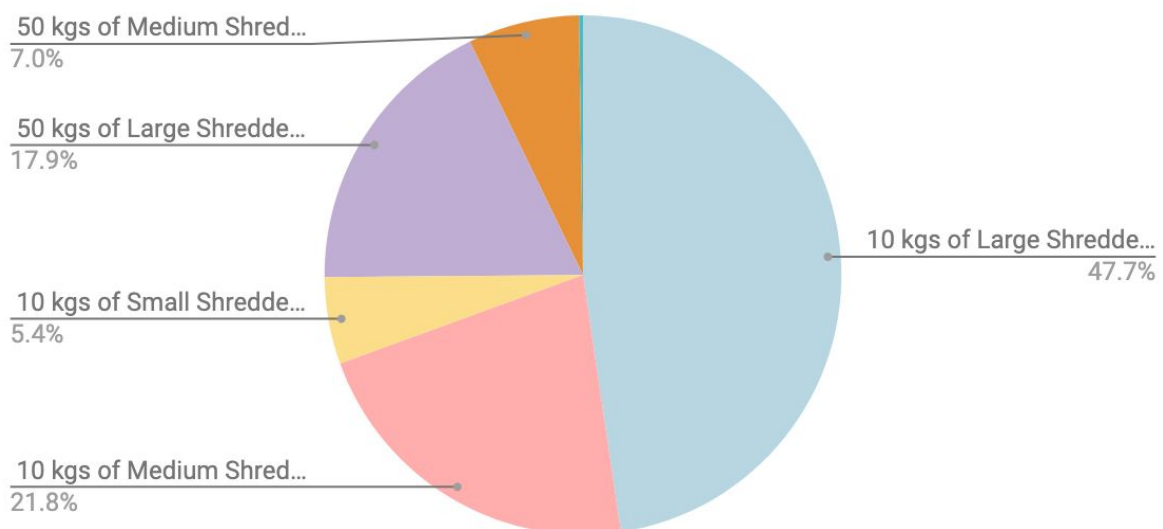


Appendix 2

Total Time and Quantity Produce Per Month					
Size of Shredded Plastic	Sale Units Per Month	Kilograms Per Unit	Time of Production per Unit	Total Kg of Shredded Plastic a Month	Monthly Shredding Time
Large	12	50	0.8	600	9.6
Large	130	10	0.16	1300	20.8
Medium	8	50	1.65	400	13.2
Medium	90	10	0.33	900	29.7
Small	1	50	2.5	50	2.5
Small	65	10	0.5	650	32.5
TOTAL	306			3900	108.3

Appendix 3

Total Monthly Profit by Product



Appendix 4

Summary	
Money Needed to Start	16,131.50

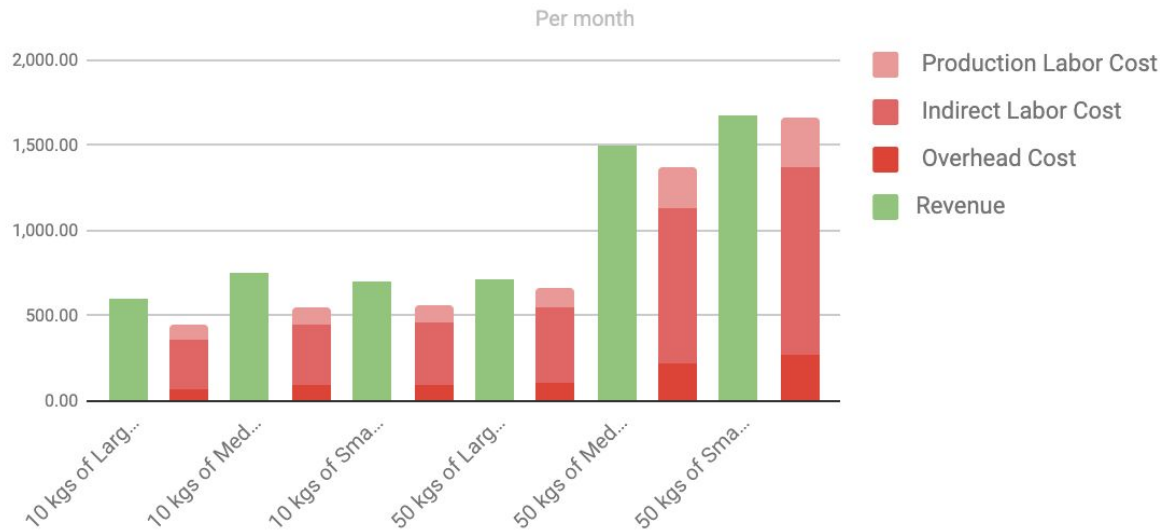
Months to Pay Back Investment	25
Full Time Employees Needed	2.6
Revenue Earned Per Month	5,950.00
Fixed Costs Per Month	855.00
Material Costs Per Month	0.00
Total Wages Paid Per Month	4,410.50
Total Profit Earned Per Month	684.50

Appendix 5

Sales Overview				
Products & Services	Selling Price Per Unit	Number of Expected Sales Per Month	Total Product Cost	Profit Margin
10 kgs of Large Shredded Plastic	12.00	50.0	8.90	34.82%
10 kgs of Medium Shredded Plastic	25.00	30.0	18.36	36.18%
10 kgs of Small Shredded Plastic	35.00	20.0	27.82	25.83%
50 kgs of Large Shredded Plastic	48.00	15.0	44.51	7.85%
50 kgs of Medium Shredded Plastic	100.00	15.0	91.79	8.94%
50 kgs of Small Shredded Plastic	140.00	12.0	139.08	0.66%

Appendix 6

Per Product Revenue Vs. Costs



Appendix 7

Payback Analysis

