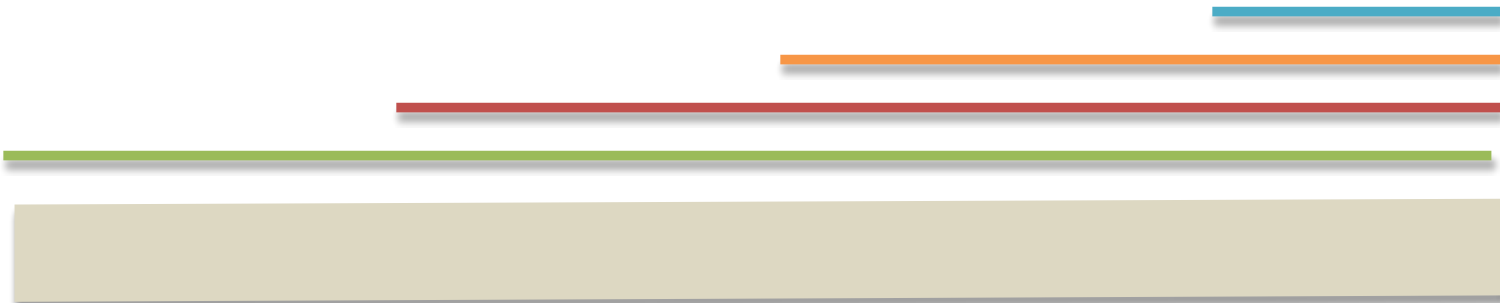




START YOUR WASTE BUSINESS!

For

Waste Pickers, Dealers and Small-Scale Recyclers of Recovered Materials





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The author of the guide is

Nathalie Agathos, WASTE, Gouda, the Netherlands

People who helped prepare this guide for you:

Patrick Mwanzia and Paul Chege, Practical Action, Nakuru, Kenya

Oscar Espinoza, IPES, Lima, Peru

Leo de Castro, Center for Advanced Philippine Studies (CAPS), Quenzon City, Philippines

Anne Scheinberg, WASTE, Gouda, the Netherlands

Niels Lenderink, WASTE, Gouda, the Netherlands

Stan Maessen, WASTE, Gouda, the Netherlands

Jacqueline Barendse, WASTE, Gouda, the Netherlands

Introduction

This document is a Guide for Waste Pickers and Small-Scale Dealers of Recovered Materials. If you fall under this profession then we hope that the guide will help you understand your operations, organize them and eventually help you make more money!

The Guide is build up as four main chapters following the “Four Steps towards Entrepreneurship at Small-scale”, as presented below. Once you are at a step, you should try to answer some questions that will help you understand what you are supposed to do at every step.



Figure 1: Four Steps towards Entrepreneurship

Step 1: You will always start with an idea or a thought that will make you think whether you could make money out of it. The first step is exactly about this. You should try to understand and explain your idea, analyze why you want to go for it and if you have the skills to do so. You might think of starting a new business in recovered waste materials or you might want to expand to a new type of material, or even grow bigger.

Step 2: Once you have a clear view on what you want to do, then you will need to make sure that apart from you the rest of the world around you thinks that your idea is good. You need to verify in other words that what you aim to provide, is actually wanted by the market. You need to see if you have demand for your products. Step 2 helps you to understand and analyze the demand that your products will have. It gives you also some ideas of what can affect the demand for your products.

Step 3: If you have your idea and you made sure that there is also market demand for it, then you need to start planning. Step 3 will take you through all the questions you need to ask yourself before starting a business. You are going to plan your marketing strategy, your operations as well as your financials. The outcome of step 3 will be a more or less concrete plan of how you are going to make your idea reality.

Step 4: Then you only need to Go For It! If your planning at step 3 showed that there is a good potential for your idea, then just go for it! Before you do though, Step 4 shows you the last things you need to do, to make sure your business kick-off as better as possible.

Throughout the guide you will get specific information on three materials, recovered by waster pickers and traded by junk-shops and wholesalers all around the world. These materials are paper, plastic and organic waste.

If you are a Waste Picker or Trader of Recovered Materials

We hope that this guide will help you understand what you need to do every time a new business idea comes into your mind. We also hope to give you useful information on how to plan and run your business, especially if you are interested in paper, plastic or organic waste.

The guide gives you the theory, examples and around twenty-five exercises in order to help you understand and practice. For all exercises there are detailed answers at the end of the guide, so you can see how did you do! Just take the booklet, read, think and write!

If you are working with Waste Pickers or Traders of Recovered Materials

The guide is built in a way that, somebody interested in the business activities of waste recovery would be able to read through it and understand the basic idea by himself or herself. However, we realize that because of the high rate of illiteracy in those professions, they would in most cases probably seek assistance.

We hope that you will use this guide in a step-by-step way, by answering the questions in each step and by taking the readers through it in a way that they will feel comfortable with the theory, the examples and the exercises provided.

We would like to inform you as well, that we have also developed a supporting training material for the guide. For more information you can contact WASTE at info@waste.nl.

The following index will provide you explanations of the different symbols used all through the guide, so you can understand the meaning of them. The Guide contains approximately twenty-five exercises and for all of them answers are provided in Annex 8.





	Some theoretical information about the presented topic. When you see this sign it means you should pay attention to the information provided.
	An exercise. When you see this sign it means you take your pen or pencil and start thinking!
	Information of Significant Importance. When you see this sign it means that you are reading a point that is important to know.
	Additional information related to the presented topic.

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PART 1

The Steps





Step 1

The Idea

Question 1:

What do you want to start doing or start doing differently ?



It all starts from the moment you have an idea about doing something for earning money or doing something for earning more money.

Once you are at that moment it means you should start thinking seriously whether you can put the idea into practice!

First of all, you start by writing down what the idea is all about. Is it that you saw some type of solid waste dumped in your local landfill that could be recovered for some value or is it that you already recover a certain amount of waste material and you want to expand your operations to get more money for the materials you sell?



Exercise 1: Write or draw your own idea. What do you want to sell? To whom?

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....



Once you have your idea clear you need to think of the things that will help you succeed in what you are doing and of the things that will threaten your efforts. You need to think first of all at a personal level, what are your strengths and weaknesses and then on a general level, what are the circumstances that will provide opportunities or threaten what you are doing.

Strengths

What are they?

- The things you do correctly
- The things you are really good at
- Your competitive advantage

What to do with them?

You should make sure you keep and increase your strengths.

Weaknesses

What are they?

- The things you do not do correctly
- The things you should improve

What to do with them?

You need to understand why you are weak in some areas and think of ways to change.

So if for example you are not delivering on time your materials to your customers, then maybe it is because they are located far away and maybe you should think of changing location.

Opportunities

What are they?

- The things you should look for and try to use for your own benefit.

What to do with them?

You should use the opportunities that can bring additional value to your operations.

“Have your eyes open”

Threats

What are they?

- The things you should be careful of
- The circumstances that are not controllable and may be unpredictable.

What to do with them?

You should organize yourself in such a way that will allow you to adapt quickly to the new situation.

So, if for example there is an economic crisis that makes you sell less material than you expected, then you should have saved some money, so you can respond to your expenses.



Exercise 2: In the following cross there is a wrong sentence in each of the boxes. Try to find the odd one out and place it in the correct box. The first box has been done for you as an example.

Sentences

1. *The special agreement you have with the director of the landfill.*
2. *A bad reputation*
3. *Another waste picker that has better access to junkshops or middle dealers.*
4. *The location of your business is close to your suppliers and customers.*
5. *A new buyer appearing in the market.*
6. *Lack of technical skills in order to meet technical specifications of materials.*
7. *You have to pay taxes for your products or services.*
8. *A new waste picker that comes and recovers from the same place as you are.*
9. *Your ability to find buyers for your materials.*
10. *The municipality introduces a waste collection program that allows you to recover directly from the households and gain from the material sales*
11. *A merge with other waste pickers to sell bulk.*
12. *The government votes for a law that does not recognize the work of informal waste pickers and collectors.*
13. *You don't deliver materials at the time promised to the client.*
14. *A "dirty" product that will not qualify for any type of sale.*
15. *If you don't know the prices in you market.*
16. *A municipality puts a restrictive fence around the landfill.*
17. *You can collect other types of materials in order to sell to different markets.*
18. *The way you sort your materials.*

Strengths

Weaknesses

Opportunities

Threats



Question 2:

Why do you want to make your idea reality?



Earning money is the main reason why most people start a new business in the first place. But there might be a wide range of other reasons why you would like to develop your idea. Stating clearly the reasons why you want to change or start your business is a way to check in the end whether you achieved the things you wanted.

Possible reasons:

To improve the living standard of your family

For change

For pleasure

For contact with people

To be your own boss

To provide a service to the community

To protect the environment



Exercise 3: *Write down the reasons for wanting to start your business or change your operations.*

-

-

-

-



Question 3:

Are you the entrepreneur type?



There are some key competences, personal characteristics that a person should have in order to set up and run a business. Usually you should combine passion for what you will do with the fire needed to trigger the process and the necessary knowledge to realize the venture.

You have to remember that entrepreneurship is having an innovative intuition and identify business opportunities where others can't, but you also need to have the correct tools to equip yourself and organize your thinking.



Exercise 4: Answer the following questions with a “yes” or “no”.

Are you hard working?

Do you like dealing with people?

Are you reliable?

Are you good at giving directions?

Can you make decisions quickly?

Do you know enough about the product you are selling?

Do you have the time needed to operate and organize your business?

Do you have knowledge of small-scale business operations in the solid waste recovery sector?



Exercise 5: Write down the personal characteristics that would help you become a good business-man or business-woman (e.g. hard-working, reliable, honest, good planner etc).

- | | |
|------------|---------|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |
| Other..... | |

You may ask yourself: “Why should I risk my resources in an unpredictable business when I could hold a stable job which offers a regular monthly income without any risk?” In other words, why be an entrepreneur rather than an employee?



Having your own business can have big rewards, but be sure to weigh returns and profits against potential risks and losses!

By now you have:

- ↳ Made clear and explained your business idea
- ↳ Understood the reasons why you want to realize your idea
- ↳ Understood what characteristics you need to have for running a business

Step 2

The Investigation





Step 2

The Investigation

Question 4:

Will somebody buy your product?



From step 1 you might come up with the most brilliant, innovative idea, let's say for example that you can recover cardboard and make furniture out of it. As an entrepreneur you might have the fire for pursuing the idea but this is not enough. You need to identify whether there is a market that would potentially demand your product so as to be able to make money out of the whole story.

Demand = Potential Sale = Money!

The price per kg of material you sell is the interpretation of demand from the market into a number!



Exercise 6: *Read the following true case study and identify what was the mistake in the approach of the entrepreneur?*

In Mali, a local entrepreneur heard from a friend that he could use mixed waste to produce compost', for vegetable farming and make money by selling it to farmers. Finding the mixed waste was not difficult for the entrepreneur as he had access to the local transfer station and to some neighboring households so he thought that it was a good idea. He then organized himself, found the place where he would process the waste, bought even a donkey to transport the waste to his facility and then he started producing. He calculated that he could get around 100FCFA/ m³ of compost. His aim was to replace the "terreau", the semi-composted raw waste, which the farmers were already using. When his first produce was ready he went to the farmers to sell it but he couldn't. The farmers could not understand what the advantage was for them in buying his compost instead of the "terreau" and thus refused to buy it.



Analyzing demand is the most crucial step for you, because you might have in your possession the perfect machinery and the best artisan to design your furniture but if you don't have somebody to pay for it then you will not have a business. Instead, you might find out that there is demand for baled cardboard from a local junkshop and thus prefer to sell your products there, a less interesting idea, but one for which there is proven demand.



People (buyer) will have demand for the recovered materials as a result of benefits (quality) these materials have for his/her business. Demand goes with benefits from a product or service. That means that you should not wait for people to ask for your products if they do not have a certain quality that meets their expectations!



To identify demand is not always simple but is not impossible either. You have just to look around you and identify who is willing to buy your product or who is already paying you for that. If you are not an entrepreneur yet you need to find out if people are willing to buy your product. If you already got money by someone for the products you sell that means that you can talk with them and understand what they expect from your product.

Read the following cases:

	There is a Market	There is no Market
You are not selling yet	<i>You analyze the demand for your product and see if there is space for you in the market. If yes you go on with your idea. If no, then you have to rethink</i>	<i>You work to create demand and create a market by selling a product that is innovative or not yet sold.</i>
	<p><i>Methods to do that:</i></p> <ul style="list-style-type: none"> - Visit a junkshop owner and ask what type of materials he/she would be interested in buying. - Find a local paper mill owner, bring with you a sample of your future product and ask for what types of paper would he /she be interested in buying. - Ask your municipality to help you communicate with future clients. 	<p><i>Methods to do that:</i></p> <ul style="list-style-type: none"> - You talk with people who might be your future customers, if for example you want to sell compost for agriculture you have to go and ask the farmers in your region if they are willing to buy it. - You discuss it with municipal authorities responsible for the commercial development of your region, usually the chamber of commerce.
You are already selling	<i>You come in contact with your clients and build talk with them in order to have a correct idea of the demand.</i>	<i>There is no possibility of actually selling your products when a market does not exist.</i>
	<p><i>Method to do that:</i></p> <ul style="list-style-type: none"> - You are part of a Value Chain and that means that you can talk with your existing customers and ask them what they would be willing to pay you, if for example you delivered not simply PET bottles but shredded PET. 	<p><i>Method to know that:</i></p> <ul style="list-style-type: none"> - You cannot find any potential markets - It turns out that many businesses have already failed. - There are empty facilities with rusting equipment from previous entrepreneurs.



Exercise 7: Read the following 4 boxes and try to match them with the equivalent case.

1. In the city of New Jersey a group of citizens saw the opportunity to recover mixed paper and try to sell it. The local market for paper was saturated but they thought of selling it to the local farmers to mix it with cow manure and use it as ground cover for the barns.

a. Entrepreneur selling but there is no market.

2. The local junkshops sell their shredded PET to the recycling plant of Nakuru.

b. Entrepreneur not yet selling and there isn't yet an existing market

3. Carlos in Peru has been hearing from his friends that LDPE agricultural film waste can be profitable because a new recycling factory has started working few kilometers outside Lima and he is seriously thinking of getting involved.

c. Entrepreneur not yet selling but there is a market

4. You are already recovering paper from one area and thinking of recovering paper from households of your neighboring region. There are three deserted facilities with paper bailers in that area. There is no separation of paper in households and most of the year it is rainy.

d. Entrepreneur selling and there is a market



In this step you only need to identify if somebody could be willing to buy your products. In the following step of 'planning' you will define who exactly your clients will be and how much you expect them to buy from you. This is a process, which is like a spiral; you have to go around many times to get the level you want.



Question 5:

What can affect the demand for your product?

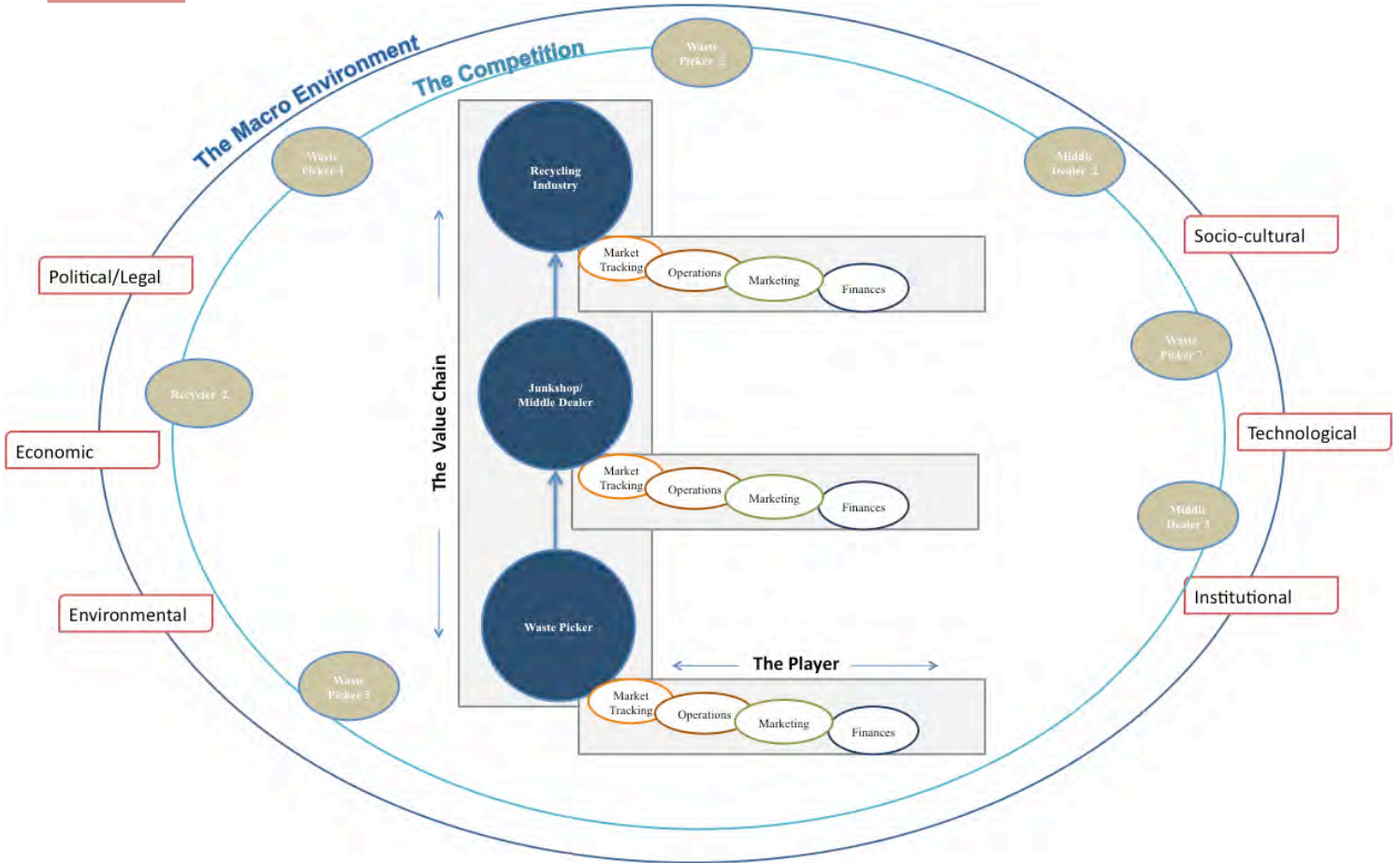


Figure 2: Factors affecting the demand for your product.



A. Your Value Chain

In most cases the demand will come from your clients, who then will sell the product to someone else and so on. The demand that you experience for your products is the demand that has started probably far away from you and involves many other “players”. Before analyzing extensively what is a Value Chain (VC), why it is important for you and how it works for the different materials, try to understand and describe the value chain you are part of by answering the following questions.



Exercise 8: Answer the following questions:

1. In which part of the chain do you identify yourself? (use a ✓)



2. Where and from whom do you get your materials?

.....

3. To whom do you sell your products?

.....

4. Do you need a license to operate? Do you pay taxes? Do you need a place to work?

.....

5. How do you know at what quality you should deliver your products?

.....

6. How do you get paid? (In cash, in advance, with credit etc.)

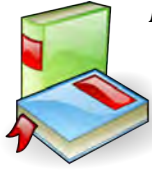
.....

7. What do the people you interact with complain about?

.....



After this exercise you will have a clearer idea of what is happening when you do business with other parts of your value chain, so you can picture out the demand for your products and compare it with the information that follows.



Imagine you are a football player and you are part of your regional football team. If you want the team to win you have to do two things:

1. Make sure you as a player you are in a good shape! (This you will do in step 3)
2. Make sure you cooperate well with the other players. (This you will do in this step)

A Value Chain is a similar concept with the difference that winning is the sale of the final product. Based on that, a Value Chain is “a vertical alliance of enterprises, which collaborate in various degrees, involves all stages, from conception to disposal and is defined by its raw material and market segment.”

A diagrammatic representation of a simple VC in the recovery of waste materials is shown in figure 3.



Figure 3: Typical Value Chain of Recovered Materials



Why is it important for you?

Here are 5 key reasons why knowing your Value Chain is important:

1. You **know your demand**: You know what your client wants so you ensure that you will have somebody willing to pay for your product.
2. You **know your supply**: You know from where you can get your materials and at what prices.



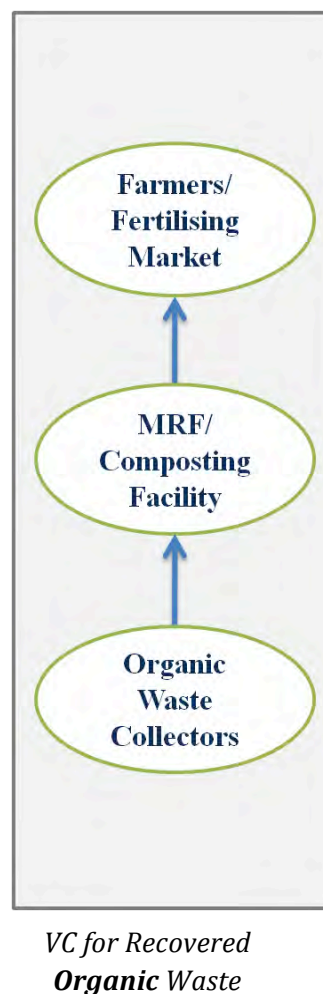
3. You **know the product specifications**: Knowing at what quality and conditions (i.e. volumes, grades, collection at site by buyer or delivery at factory gate, frequency demanded by buyer, mode of payment) your product should be delivered increases the chances of getting a better price for what you sell.

4. You **know your value added**: By knowing the value you add and the importance in the chain you can increase your negotiating power.

5. You have **a reason to organize** yourself: By organizing yourself you increase the chance that the 'team' will consider you a 'good player' and keep you on board.



The following figures represent the typical Value Chains of Plastic, Paper and Organic Waste Recovery.





B. Your Competitors

“The people who do the same thing as you”

Who else is offering what you offer?

To define what exactly a competitor is you have to look around you and identify who else is doing what you are doing now, or will be doing in the future. A competitor is not an enemy. He/She is somebody like you with the same needs and same willingness to gain some money from selling waste materials. Most of the time there is room for many people in the business and competitors are not necessarily people you should be afraid of. You need to be aware of their existence and of their work. If for example you are currently recovering plastic bags from the landfill and there is another person who is doing the same, then he/she is a competitor. But if for example you are recovering plastic bags and you are selling them to a dealer, this dealer is not a competitor but your client and part of your value chain.



Exercise 9: *Think of two people who do the same work as you and fill in the following table.*

Factor	Competitor A	Competitor B
Products		
Price		
Quality		
Reliability		
Expertise		
Company Reputation		
Sales & Payment Method		
Other:		



The exercise will help you identify who competes with you in selling recovered materials and under which conditions he/she does so. The main reason you need to know about your competitors is for pricing. When you will ask for a price for your material you will need to know at what price your competitor sells so you will know the bargaining margin you have with your client.



An additional reason is differentiation. Knowing what your competitor is offering to the market gives you the opportunity to think of ways of adding a special value to your product, “your competitive advantage” to make it more appealing for the market. For example, if all your competitors sell washed PET bottles only, you know that if you remove the caps from the bottles you gain a competitive advantage cause the market prefers un-capped bottles.



Types of Competition

Direct Competition: *is represented by the people who sell the same mix of products/materials as you do. These people may already be doing it (existing competition) or might start doing it in the future if they see it is profitable (new entrants in the market).*

Indirect Competition: *is represented by the people who sell different materials than you do and are usually competitors of the other players of your value chain. For example if you sell your baled paper to a junkshop named “Papier” and a new junkshop opens in 500m away from “Papier” selling bulk baled paper in half price, then the new junkshop would be a competitor for “Papier”, and eventually for you. This is because the final client, the recycler, will reduce the amount of materials that he buys from “Papier” and start buying from the new junkshop that would sell in a lower price.*



Exercise 10: Identify in the following cases if an entrepreneur would face competition or not and if yes, of what type?

<i>You are a:</i>	<i>The Situation is that:</i>	<i>Is there Competition?</i>	<i>If yes of what Type?</i>
<i>1. Waste-picker who recovers LDPE plastic from the landfill and that sells the plastic cleaned and shredded.</i>	<i>A German firm has introduced at the local market relatively cheap shredders with a capacity of 200tonnes/day and with possibility to repay it in 24 monthly installments.</i>		
<i>2. A scavenger in Payatas landfill in the Philippines</i>	<i>You learned that a landfill 500km away from your location has closed.</i>		
<i>3. Waste-picker who recovers glass objects.</i>	<i>You neighbor has seen that you make some money out of glass recovery and you see him one day in the landfill collecting glass.</i>		
<i>4. Waste-picker who recovers plastic bottles and cardboard boxes.</i>	<i>The municipality launches a 'Separation at Source' program, during which the materials are collected from houses and transported to the local MRF.</i>		
<i>5. Roma paper recoverer selling to your local paper mill in Serbia</i>	<i>You learn from the newspaper that in Hungary in September 2009, the German Hamburger Group opened a large paper mill with a capacity of 30,000 ton/month.</i>		
<i>6. You want to start collection of organic waste to produce compost and sell it to farmers.</i>	<i>The women in your neighbor discovered that they can do home composting and use the compost directly to their gardens.</i>		



PAPER

Typical Competition for Paper Waste Recoverers:

- *Community Based Organizations for recovery from households.*
- *Itinerant waste buyers*
- *New sources of virgin fiber*
- *Municipal office paper campaigns*
- *A fuel shortage*
- *A Waste-to-Energy project.*

ORGANIC WASTE

Typical Competition for Organic Waste Recovery for Composting:

- *Fertile soils mined and transported to the end user.*
- *Chemical Fertilizers*
- *Animal Manures*
- *Raw municipal waste*
- *Human Faecal Sludge (from pit latrines and septic tanks)*
- *Nutrient-rich wastes from industrial processing*
- *Mined decomposed landfill material*
- *Topsoil "mined" from construction projects*
- *Peat Moss/ turf transformed into fuel or used for nurseries.*

PLASTIC

Typical Competition for Plastic Waste Recoverers:

- *Community Based Organizations for recovery from households.*
- *Itinerant waste buyers*
- *The virgin materials traders*
- *Municipal Recycling Practices*
- *A Waste-to Energy project*



Competition turned to Co-operation

Knowing your competitors is also important for identifying potential alliances. In recycling business there is usually something to be gained from working together with your competitors. The ways in which you could cooperate are summarized below:

- *Ad-hoc collaboration*
- *Form an Association /Trade Union*
- *Form a Partnership/Cooperative/Company*



Exercise 11: *Classify the following statements as benefits or risks if you try to work collectively with your competitors.*

1. *You are less vulnerable to the risks an individual who works alone faces.*

2. *Waste pickers can face discipline problems from some members and have to deal with the 'free-riders'.*

3. *Waste pickers are able to gather resources to buy machinery such as bailing machines and trucks that will help them get higher prices for their materials.*

4. *Waste pickers are able to negotiate better terms and conditions with buyers and local authorities.*

5. *Waste pickers can have disagreements between them for the strategy they will choose to follow.*

6. *Waste pickers can provide for their own social protection through medical coverage, funeral schemes etc.*

7. *Waste pickers can mobilize changes in legislation affecting them.*

8. *You have the capacity to take on bigger jobs/orders.*

A. RISKS

B. Benefits



C. Macro Factors

The demand for your products can be influenced not only by the individual players and the market they address but also by a number of other factors that relate to the wider environment within which a Value Chain operates.

These factors may be:

Political/Legal

: The fact that Tanzania has some trade protection measures left over from her communist era combined with the fact that Tanzania is a net importer of paper and paper products, puts a significant pressure on the local mills, which cannot operate at their full capacity. This consequently threatens the whole local value chain of recovered paper, eventually influencing even the waste pickers. Laws on a national or international level as well as diplomatic relations between countries can have a significant impact on the price of the commodity you sell or even on the existence of a business opportunity itself.

You should make sure you know the laws affecting your operations!

Economic

: If a tax is introduced for the imported PET plastic pellets in a country, then the local end producers will try to find alternative sources for raw materials. Then they could potentially contact junkshops and consequently waste pickers will face more demand for their products.

Other economic instruments that can have an effect are interest rates, unemployment rate and subsidies. For example subsidizing in Sri Lanka the fertilizer products means that the compost cannot easily be a competitive alternative for farmers, thus it is likely that there would be small demand for it.



Socio-cultural

: If the citizens of a city start being environmentally aware and choose to buy paper made from recycled materials then there could be significant increase in the demand for recovered paper.

Technological

: The use of eddy currents for sorting the different types of plastic bottles is an important factor that can influence even the existence of informal sector sorting. If for example the local recycling plant to which the local junkshop sells pre-sorted materials has invested in this new technology, then the factory will not be willing to pay more money to the junkshop if the waste material is sorted in different types.

Institutional

: In the Philippines, the creation of Micro, Small and Medium Enterprise Development Bureau under the Department of Trade and Industry has provided significant support to junkshops and scrap businesses in getting more organized. Thus, the creation of such a public institution has increased the demand for materials recovered by waste-pickers.

Environmental

: The extended fire in a city has caused a significant amount of forest to burn, making raw timber a scarce resource. This environmental incident might influence the demand for recovered paper in the region.



These factors can create threats or opportunities for your business, that you should consider when you do your SWOT analysis (see Question 1).



These factors may have a direct influence on the price or demanded amount you might eventually get for the kilo of material you sell to your junkshop or they might have an indirect effect by influencing the environment under which you or the other 'players' of the team operate.



Exercise 12: Identify in the following cases what type of factor will affect the demand for an entrepreneur's products in the waste recovery, and then decide whether the influence is direct or indirect.

	Type of Factor	Direct Influence	Indirect Influence
1. The price of oil is rising increasingly and the plastic producers are facing growing production costs.	<input type="checkbox"/>	<input type="checkbox"/>
2. A new public campaign has been launched from the municipality with the title "No Litter in the Streets, Cleaner Future for our Kids".	<input type="checkbox"/>	<input type="checkbox"/>
3. Peru has introduced in 2010 the law 29419, under which waste picking activities are recognized, get a formal status and are being integrated to the country's solid waste management system.	<input type="checkbox"/>	<input type="checkbox"/>
4. A high-tech washing machine for plastic flakes has become commercialized and with the specification of reduced cleaning time by 50%.	<input type="checkbox"/>	<input type="checkbox"/>
5. In Kenya, the government back stopped exports of recovered scrap metal thus affecting livelihoods of small business operators	<input type="checkbox"/>	<input type="checkbox"/>

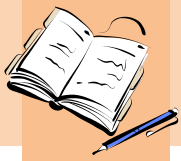
By now you have:

- 👉 Defined your business idea, including your product
- 👉 Understood the importance of demand
- 👉 Understood some of the factors that can influence the demand for your product.

Step 3

The Planning





Step 3

The Planning



Provided that you have identified from step 2 somebody willing to pay you for your products, which means that there is demand for them, then the next step would be to start organizing yourself and make sure that you will be in a “good shape”! At this step you focus on planning how you will do things with regards to:

- *What will be your market strategy?*
- *How will your operations look like?*
- *What will your finances look like?*



The investigation & planning themes for each “player” of a Value Chain

Question 6:

What will be your Marketing Strategy?



When you hear “Marketing” you should think primarily of two things:

- A. *Who will you sell to?*
- B. *How you will sell?*

Both questions are simple but they include some more things that you need to clear out. So in the end your marketing strategy will include both information on who your customers will be and how you are going to sell to them. The following pages will present you options, exercises and tools to plan your marketing strategy.

A. Who will you sell to?

From step 2 you have identified that there is demand for recovered materials in a specific market. Let’s say that you estimated that there are people asking for recovered plastic PET bottles to make flakes. The next step now is to learn the different characteristics of the local and international market for PET and then see who exactly will be buying your product. Below you can find some market information for three materials.

PAPER

WASTE MARKET

1. Market Type/ General

- Recovered paper is traded both locally and internationally.
- International trade in recovered paper grew from 27 million tonnes to 42 million tonnes between 2000 and 2005 and is forecast to grow to 77 million tonnes by 2015.
- The growth in the global trade of recovered paper has two main economic drivers. First, paper manufacturing capacity is moving from Europe and North America – which have well developed and highly productive forest industries – to countries with lower manufacturing costs but more limited forest resources, in particular China and East Asia. Second, there is a natural inverse relationship between trade flows of manufactured goods (and the material they are packaged in) and the trade flows of recovered paper. As collection infrastructures have developed to meet legislative and other drivers of increased recycling, collections in developed countries of recovered paper – and in particular of packaging material – have grown.

2. Net Importing Countries of Waste Paper

1. China
2. Indonesia
3. India
4. Mexico
5. South Korea

3. Net Exporting Countries of Waste Paper

1. USA
2. Japan
3. UK
4. Benelux (Belgium, Netherlands, Luxemburg)
5. Germany

4. Source of Information

4. a. Global Market

- For prices of paper waste per type, at the global market: Letsrecycle.com:
www.letsrecycle.com/prices/

or : www.recycle.net/Paper/waste/

- For prices of pulp and raw fiber: Paper Fiber Network: <http://paperfiber.net/>

4. b. Local Market

- You can consult the junkshops of your area or the Chamber of Commerce of your country.

5. Prices

- The price of recovered paper grades is highly volatile and depends on various parameters.
- The prices of recovered material reflect the availability of virgin pulp, as it is a substitute for virgin material, with the price of pulp in turn dependent on timber prices.
- The old newspapers and PAMS* get a significantly higher price than mixed paper. Old Corrugated Cardboard prices normally lay in between.
- A snapshot of the export paper market in July 2010 will show the following:

* magazines

PAPER

WASTE MARKET

	Jul-10	Global Market	Lima, Peru				Nakuru, Kenya			La Union, Philippines		
	\$/kg		Waste-Pickers	Junkshops	Wholesalers	Recyclers	Waste-Pickers	Junkshops	Wholesalers	Waste-Pickers	Junkshops	Wholesalers
1.01 Mixed Paper & Board, unsorted		0.12										
1.02 Mixed Paper & Board, sorted		0.12	0.04	0.05	0.07	0.13	0.012	0.03	0.037			
1.03 Greyboard												
1.04 Supermarket Corrugated Paper & Board												
1.05 Old Corugated Containers		0.14	0.05	0.07	0.09	0.11	0.025	0.043	0.05	0.09	0.23	
1.06 Unsold Magazines (with or without glue)			0.07	0.09	0.11	0.13		0.03	0.037			
1.08 Mixed Newspapers and magazines I (minimum 50% newspaper content)												
1.09 Mixed Newspapers and magazines II (minimum 60% newspaper content)			0.02	0.03	0.04	0.06		0.03	0.037		0.11	
2.05 Sorted Office Paper		0.16										
2.06 Coloured Letters		0.28	0.25	0.29	0.36	0.43	0.03	0.075	0.15	0.023	0.067	
2.08 Coloured Woodfree Magazines							0.03	0.06	0.075			
3.05 White Woodfree Letter		0.39										
3.10 Multi-printing												
3.16 White woodfree coated paper, without glue		0.51										
3.18.01 White woodfree uncoated shavings												
4.01 Unused corrugated kraft												
4.02 Used corrugated kraft I												

PAPER

WASTE MARKET

6. Grades of Recovered Paper * (Most commonly traded)

Group No.	Grade No.	Description	Alternative Names
1. Ordinary Grades	1.01	Mixed Paper & Board, unsorted	CEPAC A2, A2, PSI 2, Hard mix (higher magazines content), Soft mix (higher newspaper content)
	1.02	Mixed Paper & Board, sorted	CEPAC A1, A1, PSI 1, Hard mix (higher magazines content), Soft mix (higher newspaper content)
	1.03	Greyboard	Boxboard
	1.04	Supermarket Corrugated Paper & Board	CEPAC A4/A5, UK 80/20, 80/20 OCC, B19
	1.05	Old Corrugated Containers	OCC, CEPAC A5, A5, Old KLS, PSI 11, 80/20 EOC, Group 8 Container Waste
	1.06	Unsold Magazines (with or without glue)	
	1.08	Mixed Newspapers and magazines I (minimum 50% newspaper content)	
	1.09	Mixed Newspapers and magazines II (minimum 60% newspaper content)	CEPAC A9, A9, Group 5 News and Pams, PSI 6,7, PSI 8
	2. Medium Grades	2.05	Sorted Office Paper
2.06		Coloured Letters	Multigrade
2.08		Coloured Woodfree Magazines	
3. High Grades	3.05	White Woodfree Lettter	White Letter
	3.10	Multi-printing	Coloured Best Pams
	3.16	White woodfree coated paper, without glue	Best White 2
	3.18.01	White woodfree uncoated shavings	Best White 1
4. Kraft Grades	4.01	Unused corrugated kraft	New Shavings of Corrugated Board
	4.02	Used corrugated kraft I	Kraft 4.02

* Based on the grading system of the Confederation of European Paper Industries (CEPI)

PLASTIC

WASTE MARKET

1. Market Type/ General

- Recovered plastic is traded both locally and internationally.
- The markets for recovered plastics are still small relative to the size of the market of virgin materials. As a result, recovered plastics prices are not determined by production costs as one would expect in an efficient market. Instead, recovered plastics prices are pegged to the price of virgin plastics in the long-run.
- For example, an increase in oil prices raises the cost of producing virgin plastics and drives up the market price of virgin plastics. Higher prices for virgin plastics leads users of these plastics to increase the quantity of recovered plastics. Higher demand for recovered plastics forces up the price of recovered plastics up until the point at which they stand in the same ratio to virgin plastics prices that prevailed before the oil price shock. Producers of recovered plastics will benefit from higher profits. But any subsequent change in the capacity of the recovered plastics industry will not (at least until now) have been large enough to materially affect the price of virgin or recovered plastics.

2. Net Importing Countries of Plastic Waste

- China
- Hong Kong
- U.S.A
- India
- Brazil, Pakistan, Nigeria, Canada

3. Source of Information

3. a. Global Market

- For prices of plastic waste per type, at the global market: Letsrecycle.com:
www.letsrecycle.com/prices/
- Plastics Today:
www.plasticstoday.com/resin-pricing-today
- The Plastics Exchange:
www.theplasticsexchange.com

3. b. Local Market

- You can consult the junkshops of your area or the Chamber of Commerce of your country.

4. Net Exporting Countries of Plastic Waste

1. U.K.
2. Belgium
3. Germany
4. China, India, USA, UK, Germany, Pakistan

PLASTIC

WASTE MARKET

5. Prices

- Prices for recovered plastics vary by polymer/resin type, colour and contamination level.
- Natural HDPE and clear PET are more valuable than coloured or mixed polymers.
- Pale colours will tend to attract a higher value than darker colours.
- Sorted waste plastics streams will receive a higher premium than unsorted materials.


- Minimization of contamination at all stages of the recycling process will improve the quality of the waste plastics, thereby potentially increasing its value and the demand for it.
- A snapshot of the export plastic market in July 2010, presented in the following table, will show that:

		Jul-10 \$/kg	Global Market	Lima, Peru				Nakuru, Kenya			La Union, Philippines	
				Waste-Pickers	Junkshops	Wholesalers	Recyclers	Waste-Pickers	Junkshops	Wholesalers	Waste-Pickers	Junkshops
	PET 100%	100% Clear PET bottles	0.38									
	PET 90:10	90% clear PET bottles, 10% light blue tinted PET bottles	0.19									
	PET 80:20	80% clear PET bottles, 20% coloured PET bottles										
	PET mixed		0.23	0.29	0.36	0.57	0.71	0.087	0.12	0.21	0.25	0.45
	HDPE 90:10	90% natural HDPE bottles, 10% coloured HDPE bottles	0.5									
	HDPE 80:20	80% natural HDPE bottles, 20% coloured HDPE bottles										
	HDPE Jazz	Coloured HDPE bottles	0.29	0.21	0.25	0.36	0.54	0.12	0.16	0.27		
	PVC	Bottles		0.29	0.32	0.43	0.64					
	JAZZ FILM 95:5	95% coloured film JAZZ	0.31									
	JAZZ FILM 50:50	50% coloured film LDPE										
	LDPE 100%	100% Clear film, no labels										
	LDPE 99:1	99% Clear LDPE / LLDPE film	0.40									
	LDPE 98:2	98% Clear LDPE / LLDPE film										
	LDPE 95:5	95% Clear LDPE / LLDPE film	0.23									
	LDPE 90:10	90% Clear LDPE / LLDPE film	0.16									
	LDPE 80:20	80% Clear LDPE / LLDPE film	0.16	0.18	0.23	0.32	0.71	0.12	0.16	0.27	0.36	
	LDPE 70:30	70% Clear LDPE / LLDPE film										
	PP	Yogourt Containers, Liquid Cosmetic Packaging		0.21	0.29	0.36	0.71	0.12	0.16	0.27		

PLASTIC

WASTE MARKET

6. Types of Recovered Plastic (Most commonly traded)

Resin Type	Resin Name	Description	Alternative Names
	PET 100%	100% Clear PET bottles	
	PET 90:10	90% clear PET bottles, 10% light blue tinted PET bottles	
	PET 80:20	80% clear PET bottles, 20% coloured PET bottles	
	HDPE 90:10	90% natural HDPE bottles, 10% coloured HDPE bottles	
	HDPE 80:20	80% natural HDPE bottles, 20% coloured HDPE bottles	
	PVC	Bottles, Plastic Seats, Furniture, Water pipes	
	JAZZ FILM 95:5	95% coloured film	
	JAZZ FILM 50:50	50% coloured film	
	LDPE 100%	100% Clear film, no labels	
	LDPE 99:1	99% Clear LDPE / LLDPE fim	
	LDPE 98:2	98% Clear LDPE / LLDPE fim	
	LDPE 95:5	95% Clear LDPE/ LLDPE film	
	LDPE 90:10	90% Clear LDPE/ LLDPE film	A grade film, retail grade film
	LDPE 80:20	80% Clear LDPE/ LLDPE film	B grade film
	LDPE 70:30	70% Clear LDPE/ LLDPE film	C grade film
	PP	Yoghurt Containers, Liquid Cosmetic Packaging	

1. Market Type/ General

- Compost is the outcome of processing organic waste from different sources, and one thing you should know is that it is not a product in the traditional way.
- Compost if traded, is traded locally. It is the nature of the product that does not allow international transportation and trading.
- The markets of compost are not very developed yet. There are some main challenges faced:
 - a. There is an apparent lack of awareness and yet there are numerous reservations regarding compost. Compost often has a negative image due to its input material (waste) and in sometimes bad quality.
 - b. The nutrient value of compost is often compared with that of chemical fertilizers.
 - c. Compost has to compete with low-cost traditional products like manure.
 - d. The long distances between production (composting plant) and application (fields and gardens) prevents the sale of compost.
 - e. Inadequate or unfair regulations and policies (e.g. subsidies for chemical fertilizers) hinder the composting approach.

2. Source of Information

For more information on the potentials of organic waste you can get in touch with agricultural universities, the ministry of environment or agriculture the farmers of your region or even local NGOs that work for farmers or solid waste issues.

3. Prices

Since compost is traded locally the prices may vary significantly from one region to the other.

The price of compost, in comparison to the paper or plastic depends primarily on the production costs of the material.

However, a producer will add a profit margin to provide further investments or technological improvements. The margin, nevertheless, is limited as the prices of composting products and the willingness to pay of the customers have to be taken into account.

Taking a snapshot at some local markets for organic waste for composting in some cities, for July 2010 you can see the resulting compost prices:

COMPOST

MARKET

3. Prices

Jul-10					
\$/kg	Lima, Peru	Nakuru, Kenya		Cairo, Egypt	Quezon, Philippines
	Waste Pickers	Waste Pickers	Wholesalers	Wholesalers	Wholesalers
Kitchen Waste	0.02	-	-	0.008	0.015
Animal Manures	0.04	0.012	-		
Enriched Compost with Rock Phosphate and Titania Leaves	-	-	0.25-0.44	-	-

4. Compost Types

Type Name	Description	Utilization
Raw Compost	Contains waste not decomposed or disinfected, with foreign objects (Used in Mali, see p.20).	→ Soil Conditioner
Fresh Compost	Known also as unstable compost, and is going through early stages of a biological degradation process or still going under rapid decomposition and can tie up nitrogen from the soil.	→ Soil Conditioner
Mature Compost	The mature compost shrinks, in about 50% of the original weight, and has a dark brown colour and soil like substance.	→ Soil Conditioner → Mulch → Land Reclaimer
Special Compost	The compost created under special requirements such as screening, separation, addition of mineral substances etc.	→ Soil Conditioner
Enriched Compost	The mature compost enriched with additives, like urea, potash or poultry manure, in order for it to obtain a balanced NPK ratio.	→ Fertiliser+ Soil Conditioner



Depending on the material you are selling you need to identify the people who would be interested in buying it. For example if you recover waste plastic PET bottles you have to make a list of the potential junkshops or middle dealers that would be willing to buy from you. If you are a mid-level dealer and you want to expand your operations you will have to make a list of recyclers either outside your area or even outside your country.

What you need to know about your customers depends on the product you sell. In the case of recovered materials demographics of the people you sell to do not matter much. What matters is the following:

- The type of business they are. Their relation to you and their position in the value chains you work in.
- Their distance from your location.
- Their requirements, their expectations from you. Normally the specifications for the materials you will sell to them and the mode of payment, which is usually cash on delivery.
- Their willingness to pay, meaning how much they would be able to pay you. In other words, at what price you will be able to sell to them.



Exercise 13: Fill in the following list of potential customers and then visit them. Investigate their potential needs with regards to what you offer to them. The quality needs, the quantity they need and the delivery conditions. Then fill in the rest of the table.

Customer & Expectations				
Your Product(s):	Customer(s):	Materials Specifications (Quality)	Quantity	Delivery Conditions/ Payment Terms
Example: Coloured HDPE bottles	Mr. Peter Jones Junkshop Owner 3 Avenue Road 12460,Haiti	Clean (10% allowed moisture) Not sorted Not Shredded	50kg/month	- Delivery at the junkshop - Every Tuesday, in batches of 12.5kg/week. - Payment in cash



After this exercise you will have a clear idea to whom you will potentially sell and how much. The quantity column will help you calculate later your expected revenues from your sales and the quality column will define your operational choices. That is why it is very important that you do this small research very carefully.



*It could be helpful for you when visiting your customers to **have with you a sample** of the materials you collect and sell. Alternatively you can ask your clients to show you samples of the type and quality of the material they expect from you. In this way, not only you avoid misunderstanding but also you build up an image of a responsible and serious entrepreneur.*

PAPER

Typical Recovered Paper Customers:

- Pulp & Paper Board Millers
- Paper dealers / Middlemen
- Market vendors (card-boxes)
- Tissue Industries
- Companies from other countries (export)

PLASTIC

Typical Recovered Plastic Customers:

- Middlemen
- Plastic Reprocessing Industries
- Small-scale reprocessing units
- Companies from other countries (export)

COMPOST

Typical Compost Customer Groups:

Bulk Market:

- Urban and peri-urban agriculture (farmers)
- Rural agriculture and Forestry
- Viticulture (wine), fruit, tea, tree crops
- Green space management (parks, zoos, sport arenas, cemeteries,)
- Landfill Rehabilitation, mining rehabilitation, erosion control

Cash Market:

- Horticulture (flowers & trees)
- Home & Community gardening
- Nurseries of Seedling Producers
- Vegetable Gardening
- Hotels, Company Premises, Schools, University Campuses
- Landscaping, real-estate development
- Retailers of fertilizing products
- Industrial use (biofilters)

For every grade of paper and depending on the country you are operating or exporting to there are different specifications. However there are some general rules that can be taken into account with regards to the following:

a. Packing: Unit types like bales, skids, rolls, pallets, boxes or bundles are all potential forms of packing your recovered paper. It should be agreed in advance with your client what is the preferred type.

b. Moisture content: All paper stock must be packed air dry. A moisture content of 12% of total weight is deemed to be air dry, except if you use it to make it briquettes.

c. Quantity: The quantity you are expected to deliver depends on which level of the value chain you are. The average trading quantity for a waste picker is between 5-11kg/day. For a middle dealer or junkshop on average the amount he sells is between 100-250kg/day. For a wholesaler the amount is between 500-3000kg/day, depending on the scale and country he is operating. For exporting a minimum of 1ton (1.000Kg/ shipment) is a common required amount.

d. Contaminants: All sorted recovered paper stock must be free of food debris, medical or hazardous wastes and poisonous or other harmful substances or liquids.

PLASTIC

WASTE CLIENT SPECIFICATIONS

For every type of plastic and depending on the country you are operating there are different specifications. However, there are some general trading rules which if followed by the waste recoverer or middle dealer can reduce the processing costs of waste plastics and thus maximize its price to the final reprocessor.

Quantity: The quantity you are expected to deliver depends on which level of the value chain you are as well as on which type of plastic you are recovering. The following table shows some average ranges for expected quantities per type of resin, based on market research in Lima (Peru), La Union (Philippines) and Nakuru (Kenya). For exporting a minimum of 1ton (1.000Kg) is a common required amount.

Table 1: Average traded quantities per type of plastic

kg/day	PET	HDPE	PVC	LDPE	PP	PS
Waste-picker	8-15	4-8	1	1.2-8	2-10	0.5
Middle Dealer/Junkshop	65-400	25-200	12	35-200	15	20
Wholesaler	2,000-3,000	1,500-6,000	500	1,200-4,000	1000	800
Reprocessors	5,000	15,000	N/A	15,000.00	10,000.00	

Sorted: Sorted waste plastic streams are likely to receive a higher premium than unsorted materials. The sorting can be done either by colour, by resin type or by original intended application of the material.

Baled: Bales shall be compressed to a minimum density of 10 lbs/ft³ or 160kg/m³ and a maximum density to be determined by individual contract between Buyer & Seller. Increased density may improve transportation efficiency, but over-compression may adversely affect the ability of a buyer to separate, sort and process the material.

Cleaned: Unspecified materials must not exceed 2% of total bale weight and typically 1% or lower for most grades. Bales that contain over 2% will be subjected to reduction in the contacted price of the material as well as charges of the disposal of the contaminants.

With regards to the moisture content of the bale the specifications are usually indicating that the bale has air-dry moisture content not exceeding 10%.

Coded: The coding applies mostly to exports. Codes for baled recycled plastics consist of a prefix letter, three digits and two suffix letters (i.e. P000XX). The prefix letter “P” precedes all codes and designates “plastic” material. The first digit corresponds to the SPI resin identification code system and designates the primary plastic material. The second digit describes the plastic product category. The third digit defines the color/appearance of the product. The first suffix letter indicates the type of recycled plastic. The second suffix letter indicates the source of the recycled plastic product.

COMPOST

SPECIFICATIONS

(Adapted from: Decentralised Composting for Cities of Low and Middle Income Countries, Eaweg/ Sandec and Waste Concern, 2007)

The following table presents the compost quality criteria and the possibility that they are assessed by customers. The factors assessed by lab testing can all be measured and the producer has to have proof of them. As with paper and plastic the quality specifications depend a lot on the client and especially for compost on the soil type of the area.

Table 2: Quality Factors for Assessing Compost

Factors to be assessed by visual inspection	Factors to be assessed by lab testing
<ul style="list-style-type: none">→ Colour (dark)→ Smell (like earth)→ Visible foreign matter (plastic, glass, wires, stones)	<ul style="list-style-type: none">→ Degree of Maturity/Stability in terms of chemical constituents→ Nutrient Content (NPK)→ Inaction of weed seeds→ Freedom from pathogens→ Heavy metal content

Visible foreign matter:

Can be easily detected by the end- user. Each piece of glass or plastic shows the user the origin of the material and causes a loss in confidence in the product. Especially glass or metal pieces pose harm to the users and should be strictly avoided.

In the UK the compost should not contain more than 8% mass/mass of “air-dry” sample of stones bigger than 4mm in grades other than “mulch” and 16% mass/mass of “air-dry” sample of stones bigger than 4mm in “mulch grade”.

Degree of Maturity/ Stability:

Is the most important aspect for horticulture and vegetable production. Compost should be stable, which means that it does not release substances (e.g. ammonia or acidic substances), which can put in danger plant growth. Unfortunately, maturity is difficult to measure; it requires more than one test to assess maturity. Some average values for indicators of maturity/stability of the compost are the following:

COMPOST

SPECIFICATIONS

Maturity Indicator	Acceptable Range
pH	7 ± 0.5
Dry Weight	50-88%
Organic Matter	16-50%
C: N	25:1
Respiratory Test	16 mg CO ₂ /g organic matter/ day

Nutrient Content:

Is defined by each customer differently according to the individual needs. Pure compost contains a balanced mixture of Nitrogen, Phosphorous, Potassium, Calcium and other essential micronutrients. It cannot compete with artificial fertilizers in terms of nutrient content but is especially beneficial due to the high content of organic matter and the presence of useful micronutrients. If higher nutrient contents are required, enrichment with fertilizers is an option.

Table 3: Permitted Levels of Nutrients in Composting

Nutrients	Switzerland Association of Swiss Compost Plants	India Indian Institute for Soil Science	Great Britain PAS 100 (BSI) and Apex-Standard*
Phosphorous (P ₂ O ₅)	> 0.7%	0.5 – 0.8%	25 - 40 mg/l*
Potassium (K ₂ O)	-	1-2%	0.5 - 0.7%*
Total Nitrogen	> 1% DS**	> 0.8% DS	0.7 - 1.0%*

* Apex is a voluntary standard, launched by three of the UK's biggest waste management firms.
** DS = dry solids

Weed Seeds:

Compost should be free of weed seeds

Pathogens:

Compost should be free of pathogens like Salmonella spp and Escherichia coli.

COMPOST

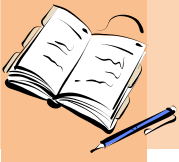
SPECIFICATIONS

Heavy Metals:

Heavy metals play a particular role. Once heavy metals are detected in the compost, they hardly can be eliminated again. Mixed municipal solid waste can contain heavy metals, but the organic fraction is low in heavy metals. Hence a contamination can largely be avoided by separating the organic waste from other residues prior to composting.

Table 4: Permitted Levels of Heavy Metals in Compost

Heavy Metals	Switzerland Association of Swiss Compost Plants	India Indian Institute for Soil Science	Great Britain PAS 100 (BSI) and Apex-Standard*
Cadmium (mg/kg DS)	1	5	1.5
Chromium (mg/kg DS)	100	50	100
Copper (mg/kg DS)	100	300	200
Lead (mg/kg DS)	120	300	200
Nickel (mg/kg DS)	30	50	50
Mercury (mg/kg DS)	1	2.5	1
Zinc (mg/kg DS)	400	500	400



B. How will you sell?

Once you have clarified who is willing to buy your product, you will then have to think of how you are going to let them know about you and buy what you offer.

In other words, you will need to choose your location and your promotion methods.

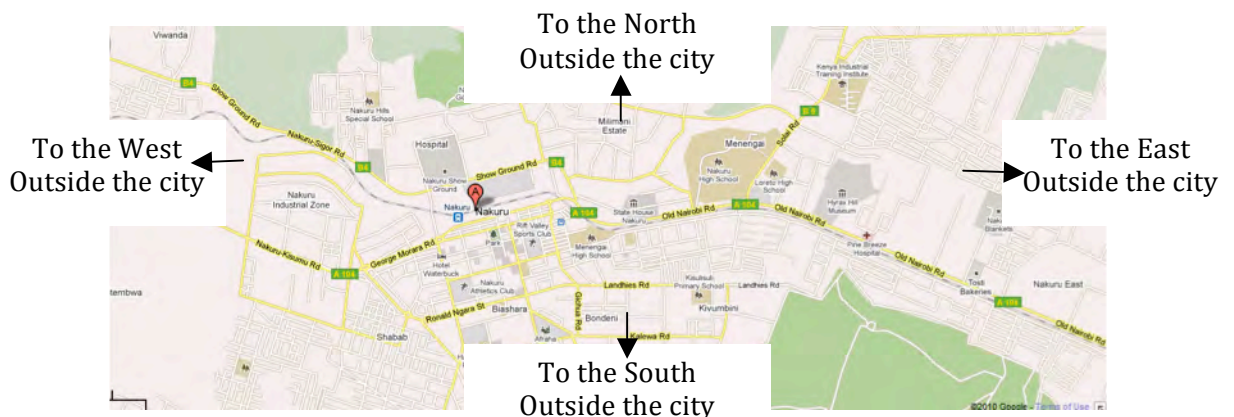
Place/Location:

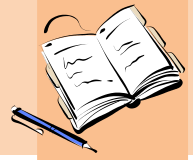
The location of the business is often very important for waste pickers and generally waste recoverers and dealers. They need to be close to the source of the materials (e.g. land-fill, dumpsite, waste-pickers etc) and at the same time close to the customer (e.g. junk-shops, middle dealers, reprocessors etc). This however is not always possible and that is why transportation can be arranged primarily between the waste recoverer and his/her client. In that case there would be some transportation costs that need to be considered when you will do your finances.

In order to decide on the location of the business, the business owner needs to prepare a map of the area showing the location of the waste and the markets.



Exercise 14: Find a map of your area and try to spot where your recovery points are and where your customers will be. You then try to identify the best point to locate your facility (See page 135 for more guidance on the exercise).





After you have finished mapping out the location of your 'supplying' source and your customers, you can decide which is the best location for you. You have to consider two things: **time** (depends on distance) and **practicality** (depending on the material you are recovering). If for example you are recovering paper during the rainy season and you are 20km away from your facility then you run a high risk of wetting your merchandise. Same, if you are dealing with 100kg/day of materials it is not so handy to move them for long distances.

So the choice of your location will be based on the nature of your business.

- | | |
|--|--|
| <p>1. Your supplying sources will come to you:</p> | <p>You need to be near them.</p> |
| <p>2. You are going to collect the materials yourself:</p> | <p>It would be better if you were near a good road or highway.</p> |
| <p>3. You are planning to store materials:</p> | <p>You need a building (except for compost) and that possibly means being in an industrial zone.</p> |

There are some guidelines for the different players of a value chain in the recovery of materials regarding their location and amount of waste handling. The following table is just for you to have an idea, but it does not apply to all cases.

Table 5: Location and Space Requirements per Player of the Waste Recovery Value Chain

Players	Guidelines
Waste pickers	Each waste picker handles 60kg of waste per day and requires 60sq. ft of space near the dumpsite/landfill for segregation.
Junk-shops	3000sq ft has to be allocated near markets and commercial centers for segregation, storage and shelter for the workers.
Wholesalers	The wholesalers need storage space of 60,000sq. ft for roughly 60,000kg of waste which they collect from the junkshops. The location is determined by both the accessibility to the suppliers as well as the ease of transport to the clients.

Source: Chintan Environmental Research and Action Group, 2005



One of the most difficult but also most important issues you have to decide as an entrepreneur is the price of your products or services. How will you calculate how much you need to charge your clients? Even though there is no single right way to decide about your prices, likely there is some information you and some tips that can help you with your decision.

The practical tips you can remember:

Tip 1: You cannot put a price to a product that does not cover your basic business costs.

Tip 2: Your price has to be close to what your clients can pay.

Tip 3: Your price has to be logic for what you offer.

Tip 4: Your price has to be comparable with other goods people pay, for example for water or school fees.

Tip 5: Your price has to be close to the price your competitors charge, unless you have a clear strong competitive advantage.



As a starting point you could use the following simple equation for calculating your price. Then you should make sure it is within the limits your customers accept and that it is logical when compared to your competitors.

$$\text{P}_{\text{rice}} = \text{Cost} + \text{Cost} + \text{P}_{\text{rofit}}$$

to produce your products or buy your equipment to run your business



Price: is what you are going to charge to your clients. For example the price a collection service in Nakuru, Kenya is 2\$ per collection.

Cost to produce your products or buy your equipment: is how much it will cost you to buy the materials and the equipment you need to use for delivering your product to the customer.

Cost to run your business: is the cost you have to pay daily like the salaries of your employees, the tyres you need to change in your bike, the rent you pay for your store etc. All these costs are known as operating costs.

Profit: is the amount of money that is for your own benefit after you cover all your costs. More information on what you can do with your profit will follow.



Promotion:

Promotion, in relation to valorization is exactly not about talking, but about proving:

That your product is as good as virgin

That you can process it correctly

That you can provide it on time and in the right place

You should make your potential clients know about you and that you can provide the above. This in a small region or city is quite easy because people know each other quite well. However if you want to operate in a bigger region or city then you have to use some ways to advertise your materials. This can happen easily by:

- Word of mouth and networking. Cheap and direct but restricted to area.*
- Display of products or give away samples and get testimonials.*
- Exhibition garden for flowers/ food crops grown with compost.*
- Posters, sign-posts, catching phrases, brochures. Not so expensive, targeting a bigger audience and can stay longer. Especially if you use picture you would be able to address also people who cannot read. It is however one-way communication method.*
- Public Announcements (megaphone). You can draw attention to a large population. Not so cheap and one-way communication.*
- Radio or newspaper announcements.*
- Join chamber of commerce.*



Question 7:

What will be your Operating Strategy?



The next question you should ask yourself is “How will I actually do it? From where I am going to recover or source materials (supply), how will I transport them (transport), where will I put them after I gather them (storage) and eventually what will I do with them in order to sell them (processing).”

The following paragraphs will give you some ideas of what you can do with regards to supply, transport, storage and processing of your materials as well as the health and safety of your operations.

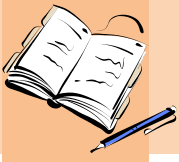
A. Supply

The supply refers to the issues related to the sourcing of your material. Where are you going to find it? What you need to know is the location of your supply, the regularity of the material at that source and if you have legal rights to recover it. With regards to the regularity it is important to take into account seasonal trends. For example during rainy season the supply of paper would be limited due to the fragile nature of paper.



Exercise 15: Use the following table to gather all the necessary information for your supplying sources. An example is provided at the last line.

Material	Source Name	How far is the source from your location?	How many materials can be recovered per day? Is there seasonality?	Do you have the legal right to access and recover?
Example:				
PET bottles	Landfill Papoulao	100metres	5kg / No	Yes



PAPER

Typical Recovered Paper Sources:

- Households (source-separated newspaper, cardboard packaging etc)
- Supermarkets (for OCC)
- Printing shops/ factories
- Corporate offices, Ministries

PLASTIC

Typical Recovered Plastic Sources:

- Households (source-separated bottles, food containers etc.)
- Shops
- Hotels
- Markets
- Packaging Industry

COMPOST

Typical Organic Waste Sources:

- Households
- Hotels and Restaurants
- Vegetable Market Places
- Food Processing Factories
- Tobacco Processors
- Farms

In general, waste materials from households and commercial sources is in a way are the best to be recovered for several reasons:

- *Quantity: the big volume of recyclable materials;*
- *Homogeneity: their better quality and consistency;*
- *Contamination: the degree to which different materials and substances are mixed together, which in this case if source separated is quite low*
- *Location: the number of points at which the materials are first discarded as waste.*



B. Transport

It is also necessary to decide on the way you are going to transport you materials from the supply source to your facilities and then on to your selling point.

Some parameters you should think of before deciding your transportation:

- *the Distances you will have to cover*
- *the Weather Conditions under which you work*
- *the Volume and Density of the materials you transport .*
- *the Type of roads and possible slopes or hills*

Some rules of thumb for transporting recovered materials:

- *Get and accumulate enough materials of each kind so you transport full load.*
- *Densify by pressing or cutting so you don't transport air.*
- *Organize the transport so that the materials arrive in good shape and on time.*

The following pictures can provide you with ideas on the equipment you can use for transporting your materials from your supplying sources and to your clients.





C. Storage

Once you have your material you should consider where and how much space you need to store them. There are different storing options that a waste recoverer has:

- a. Construct your own storing space. Depending on your climate this might mean that you need a fence or a shed or a house or a roof or a combination of the previous.*
- b. Find somebody else who owns a warehouse and make a rental agreement. You can have a strategy to store only during the wet season and make an arrangement for that.*
- c. Organize virtual storage. In this case you don't bring the materials physically together but you use the same purchase order to sell them. It is an accumulative mechanism.*
- d. Place your materials in trailer bodies/ shipping containers.*

In any case there are some general rules of thumb you should keep in mind before choosing how and where to store your materials:

1. You need to choose a space for which you have legal rights.

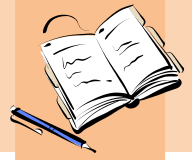
A junkshop in Soush, Serbia gets a 1000€ fine every time the municipal inspector passes by because the junkshop has no right to operate in that location. In order to avoid similar situations it would be wise to visit your municipality and ask them for help if you are uncertain of the legal rights you have to operate in a specific location.

You should remember that there is always space for you provided you ask the correct people to assist you!

2. You should think of your materials.

Are they heavy? Do they need to be protected from the sun (i.e. plastic should be protected from sunlight)? Do you need to keep them dry and clean? Do you need to protect them from animals? All these questions will help you choose the most suitable storage type.

3. How long and at what quantities you need to store your materials defines how many cubic meters (m³) of storage space you need.



Exercise 16: *Based on the following hypothetical facts try to calculate how much storage space, both in volume and surface, you will need for your materials per month.*

- *You collect around 8tonnes of Old Corrugated Cardboard (brown cardboard) per month.*
- *You sell 150kg per day to your customers.*
- *You are operating 25days per month and you are renting a facility of 2.5m height.*

D. Processing

Depending on the material you are recovering there are different processing techniques. For the purposes of this tool you will be presented the processes that are more frequently applied in small-scale enterprises. The following boxes present for each material the most commonly followed small-scale processes.



For recovered paper and plastic, the specific sorting process will change depending on your different buyers. So you need to keep your operations flexible and check frequently what the market expects from you.

1. Recovered Paper Processing

The following figure presents the steps followed in most cases for waste paper recycling. For the purposes of this guide only the extraction and processing phases are going to be analyzed. For more information on the converting phases please refer to Annex 2.

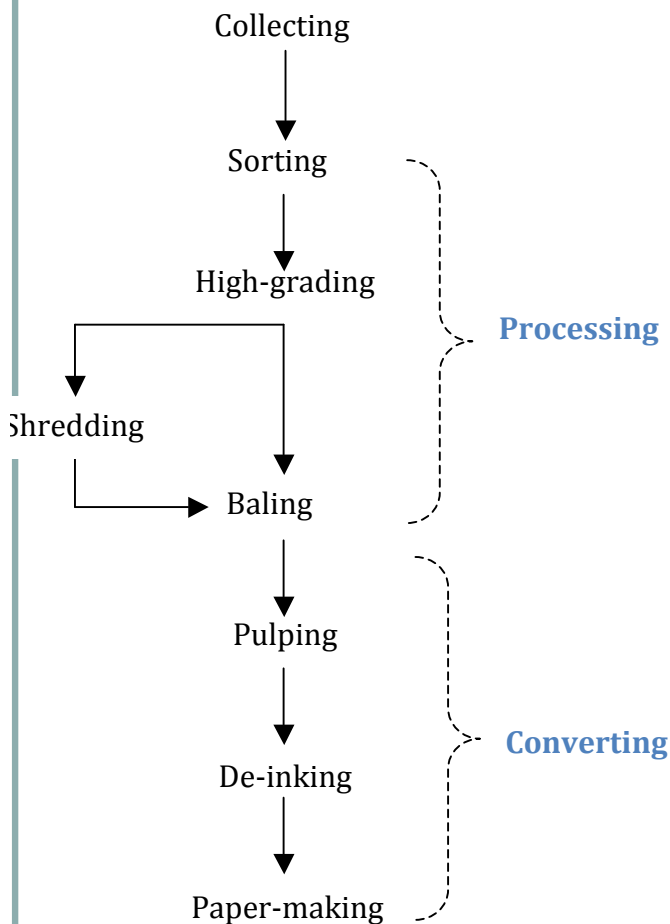


Figure 4: Waste Paper Recycling Steps

Recycling waste paper

Advantages of Recycling Waste Paper:

- Using waste paper is the easiest way into papermaking as all the difficult first stages have been done. There is no need for chemical digestion, bleaching and complex screening operations. The waste may only require repulping before being reformed as 'new' paper.
- Compared with producing a tonne of paper from virgin wood pulp, the production of one tonne of paper from discarded paper may use half as much energy and water.
- The clay originally added to the paper to make it glossy will help to separate the ink from the paper during recycling.

Limitations to Recycling:

- Paper can be recycled only 5 to 8 times before the fibres become too short and weak to be reused.

It is therefore essential to use as **high a grade** of waste as possible as the starting point. From both pulp quality and ink points of view, **computer paper waste** is a very useful raw material for the recycler. **Old newspapers** are commonly used to make tissue and cardboard, while **magazines** are often recycled into newsprint.

1. Sorting

Sorting of paper waste is removing all the non-paper materials and contaminants from your recovered paper.

2. High-grading

This is one of the most important step, where your small-scale operations add value, if you are recovering waste paper. High-grading waste paper is about sorting it into different grades.

The most common types of waste paper are the following:

- Newspapers and Magazines
- Office prints
- “Brown Cardboard”, Old Corrugated Containers
- White Paper

The following categories fall under the different grades of paper presented on page 41, under the Paper Market section.

3. Shredding

Shredding is a process that does not always has to take place when you are processing paper waste. Shredding or chopping would be most of the times requested from your customers for purposes of information destruction, in order to guarantee confidentiality related to what is written on the waste paper.

If for example you collect waste paper from banks, courthouses, police stations, tax offices you will probably be asked to shred the paper so it is not anymore possible to read it.

If you collect magazines and telephone books, shredding or chopping could be useful in order to deal with the glue that they might contain.



Sorting paper waste, in Nakuru, Kenya



Packaging paper waste, in Nakuru, Kenya



Baling brown paper waste, in Nakuru, Kenya

©Patrick Mwanzia, Practical Action, Eastern Africa, 2010.

4. Baling

One of the main benefits of baling is that paper is compacted and the amount of air contained in the stuck is minimized. Additionally with baling you save considerable space, which is important if you are interested in exporting.

A side benefit of balers is that they can provide you with fairly accurate trash weight information.

Generally speaking the higher the force, bale weights and bale density, the higher the cost of the baler.

Some Technical Information:

Before deciding on a baler size, it is important to

- Evaluate the typical size of the items in the overall waste stream to be baled, in conjunction with the loading door opening of the Baler and the space that is available.
- Extra space has to be allocated for not only removing the bales from the baler but also any service requirements that might be necessary (usually about a foot /0.3048 m or so from the wall on the back and sides of the baler).
- Also the ceiling height is very important since the cylinder movement requires extra height beyond the normal 'resting height' of the unit.
- In addition to bale size the bale weight is also an important consideration for determining the desired baler. Table 6 presents some general figures for different types of paper, when they are loose (not baled) and when baled



Picture 1: Shredded Paper

© WASTE, 2010

Type of Material	Loose Weight of Material	Baled Weight of Material
OCC, Brown Cardboard	30-60kg/ m ³	415- 650kg/ m ³
Paper	150-300kg/ m ³	600-712kg/ m ³
Newspaper	200-300kg/ m ³	445-590kg/ m ³

Table 6: Loose and Baled Weights for Different Types of Paper

There are different ways of baling paper:

- Improvised Baling Constructions

You just need to form a cube-shaped construction so you can pile up inside your paper.

- Industrial Balers

There are many types of industrial balers, but for the purposes of this guide we will present only the following types:

Horizontal Balers: are designed for continuous operations and high-volume applications. They can be fed by hand, or via mechanical or pneumatic systems. Large hopper openings permit the direct loading of materials such as cardboard, secondary fibers, paper stock, aluminum cans, steel cans, and plastic containers. Horizontal balers do not require shredding and are available in either closed or open-end configurations (see picture 2).

Vertical Balers: are designed to compress dry waste such as cardboard, plastics, or polythene. They have a relatively small footprint, but feature sturdy designs at relatively low costs (see picture 3).



Picture 2: Horizontal Baler in Nis, Serbia



Picture 3: Vertical Baler in Arbinje, Serbia



Picture 4: Baled Cardboard, Serbia

1. Recovered Plastic Processing

The following figure presents the steps followed in most cases for waste paper recycling. For the purposes of this guide only the processing phases are going to be analyzed. If you want to learn more about the production processes you can go to page 154.

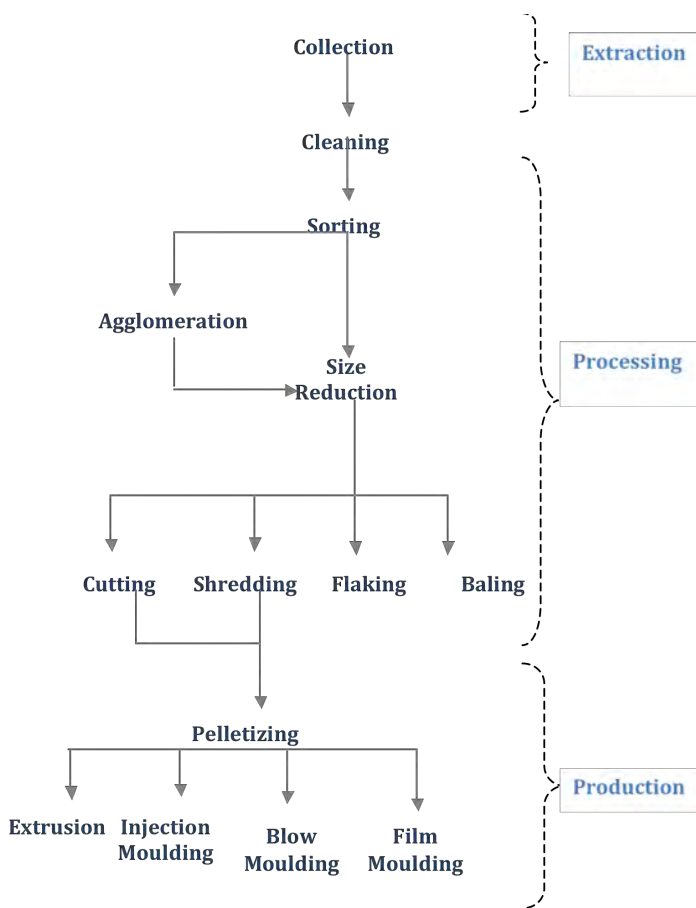


Figure 5: Processes of Recovered Plastic

General benefits from Processing Recovered Plastic.

- It is important that the waste plastics are washed, because clean waste materials get better prices and they improve the quality of the end product.

A good example is removing the caps from the bottles. Most of the plastic bottles are of different type of that of their cap. So by removing the cap from the bottle you provide even cleaner materials.

- All waste plastics need to be washed, except for some rejected materials from industrial and commercial sources. The washed and unwashed fractions should be kept separate from non-plastics and dirt.
- Reducing the size of plastic materials is also very important, because in this way you reduce the amount of air you are transporting and you are maximizing the use of your space or transportation mean.

1. Cleaning

The cleaning stage consists of washing and drying the plastic items.

Washing

- The plastics can be washed at various stages of reprocessing: before, after, or even during sorting.
- Films and rigid materials are usually cleaned before the size reduction stage.
- Foreign materials such as glued paper labels are also removed.
- Rigid plastics are often washed a second time after they are shredded.
- There are two types of washing: manual and mechanical.

Manual washing may be done in oil drums that have been cut in half, in bathtubs or in specially built basins, or even plastic buckets. If the waste is greasy, hot water with soap, detergent or caustic soda should be used (Note: when using caustic soda, always wear protective gloves).

Mechanical washing uses a water-filled basin, which is equipped with a motor that drives a set of paddles at low speed.

The plastic materials are left to soak for several hours, while the paddles stir them continuously. Dirt, mainly sand, settles out during the process, and the clean plastic material is removed with a drainer.

Drying

As with washing, plastics can be dried either manually or mechanically.

With the Manual method the plastics are spread out in the sun to dry, and turned regularly. Plastic films can be hung on lines, and thus require only half the area normally used when plastics are spread out to dry.

With the Mechanic Method, there is a tray equipped with a grid on which shredded plastics rest, a fan and a gas burner. The fan blows heated air underneath the shredded plastic, thus reducing its moisture content.



Washing, bucket for cleaning plastic waste, Burkina Faso



Manual Washing, for plastic waste, Burkina Faso

© Patrick Mwanzia, Practical Action,
Eastern Africa

Rules of Thumb for Drying

To spread out 300 kg of shredded plastics (bulk density 210 kg/m³) requires 15-20 m².

Plastics require 2-3 hours to dry, at temperatures between 70°C and 90°C.

The time needed for solar drying will depend on the wind and the prevailing temperature.

2. Sorting

The degree of sorting of plastics waste varies considerably, depending on the demand and the special wishes of your customers.

The material may be sorted at any stage in the recycling process, according to colour, type of polymer or level of cleanness.

Some basic guidelines for the sorting process are as follows:

- a. All attached materials, such as paper labels, should be removed from the plastic items.
- b. Films (soft plastics) and rigid objects (hard plastics) should be separated.
- c. Various polymer types (PE, PP, PS, PVC) should also be separated, particularly PVC.
- d. PE films should at least be separated into transparent and mixed-colour fractions.
- e. Rigid PE objects should at least be separated into light-coloured (transparent and white) and mixed-colour fractions.

For more information on techniques for sorting plastics into different polymer types, you can read Annex 1.

3. Agglomerating

Agglomerating is for film plastic. Imagine that you are beating chocolate chips until they all stick together. It's when you push things around so quickly that from the friction they stick to each other and you get more density, so they are more easy to cut and less fluffy.



Picture 5: Sorted PET bottles

© WASTE, 2010



Picture 6: Sorted Plastic Film

© WASTE, 2010

The materials fed into the agglomerator should be clean, since all foreign objects will be processed together with the plastics, and will be evident in the partially plasticized materials.

4. Size Reduction

This "densification" helps to reduce transport costs, and the smaller pieces can be more easily fed into further reprocessing machines. There are four ways to achieve reduction of the volume of plastic waste: cutting, shredding, flaking, baling.

Cutting

The first step in the process of material transformation involves cutting up the waste plastic materials into smaller pieces. This is needed for items such as jerry cans and buckets, which are too large to fit into the hopper of the shredder. These items can be cut first with a circular saw or with a handsaw (see picture 7). You can even use ordinary scissors for cutting plastic waste into small pieces.

Shredding

The raw materials to be fed into a shredder, like the one in picture 8, if necessary cut into pieces beforehand, should consist of clean objects, selected according to product form, polymer type and colour. These materials are fed into the hopper on top of the shredder. The rotating cutting blades then shred the materials. When the pieces are small enough, they fall through a grid into the tray placed to the right of the machine. Picture 9 shows a schematic overview of the interior of a shredder, which can have either a horizontal or a vertical axis.



Picture 7: Cutting of Plastic Waste with a handsaw.

© Patrick Mwanzia, 2009



Picture 8: Shredder

© WASTE, 2003



It is estimated that 3 labourers, each using a pair of scissors, can cut up 1 tonne of sorted plastics per day!

A low-cost option is a self-made version of a shredder. The simplest design may be a vertical axis machine. Making such a machine requires only basic mechanical skills, but it has the disadvantage that it will be less robust and efficient, and is unlikely to be as safe to operate as a purchased machine.

The best policy would be to start by building a small shredder with a 5 kW motor, and to use future profits to purchase a larger, more powerful, factory-made machine.

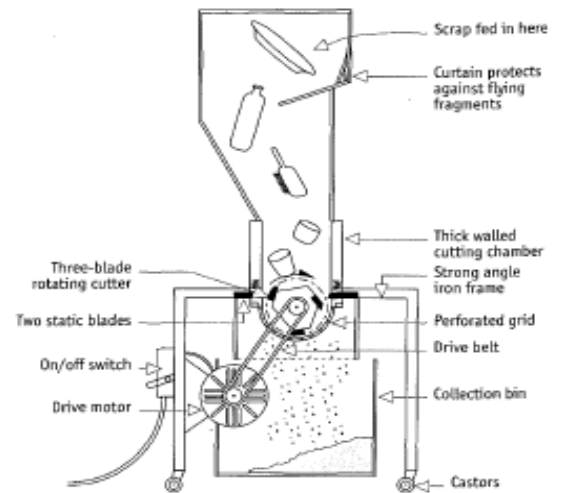
End Products of Shredder

The end products of shredding are irregularly shaped pieces of plastics that can then be sold to reprocessing industries and workshops (see picture 10). If the waste plastics have not already been washed, the shredded pieces may be placed in a hand-held sieve and rinsed with water to remove any dirt or dust.

Flaking

Flaking is usually with fast sharp knives or hammers, the result is more or less corn flakes, *which* are crispy or brittle and are the easiest to handle in industrial processes. See picture 11 for the outcomes of the flaking process.

Flaking is also referred to as regrinding, and another name for flakes is “regrind”.



Source: Vogler,⁴⁵ 1984.

Picture 9: Interior of a Shredder.



Picture 10: Shredded Plastic Waste
©WASTE,2009



Picture 11: Flakes from Plastic Waste.
©WASTE,2003

Baling

Baling is another form of reducing the size/volume of the recovered plastic. You should bale the plastic usually when you are selling to plastic processing industries. Like for paper baling, you can use handmade baling constructions or machines.

Table 7 presents the size of baled and non-baled PET and HDPE containers.



Picture 12: Baled PET bottles
© Nathalie Agathos



Picture 13: Vertical Baler for Plastic Waste
© WASTE,2003

Table 7: Loose and Baled Weights for Different Types of Waste Plastic

Type of Material	Loose Weight of Material	Baled Weight of Material
PET (soda bottles, food packaging etc)	18-24 kg/m ³	240-350kg/m ³
HDPE (milk jugs, detergent containers)	13-14 kg/m ³	240-300kg/m ³

1. Recovered Organics Processing

There are three main ways in which organic waste can be used:

- Soil improvement
- Animal raising and
- Source of energy

Differing levels of processing are required for achieving the above and in this section we will concentrate only on composting of organic waste. Figure 6 below, shows some of the options of processing organic waste in the form of a flow diagram.

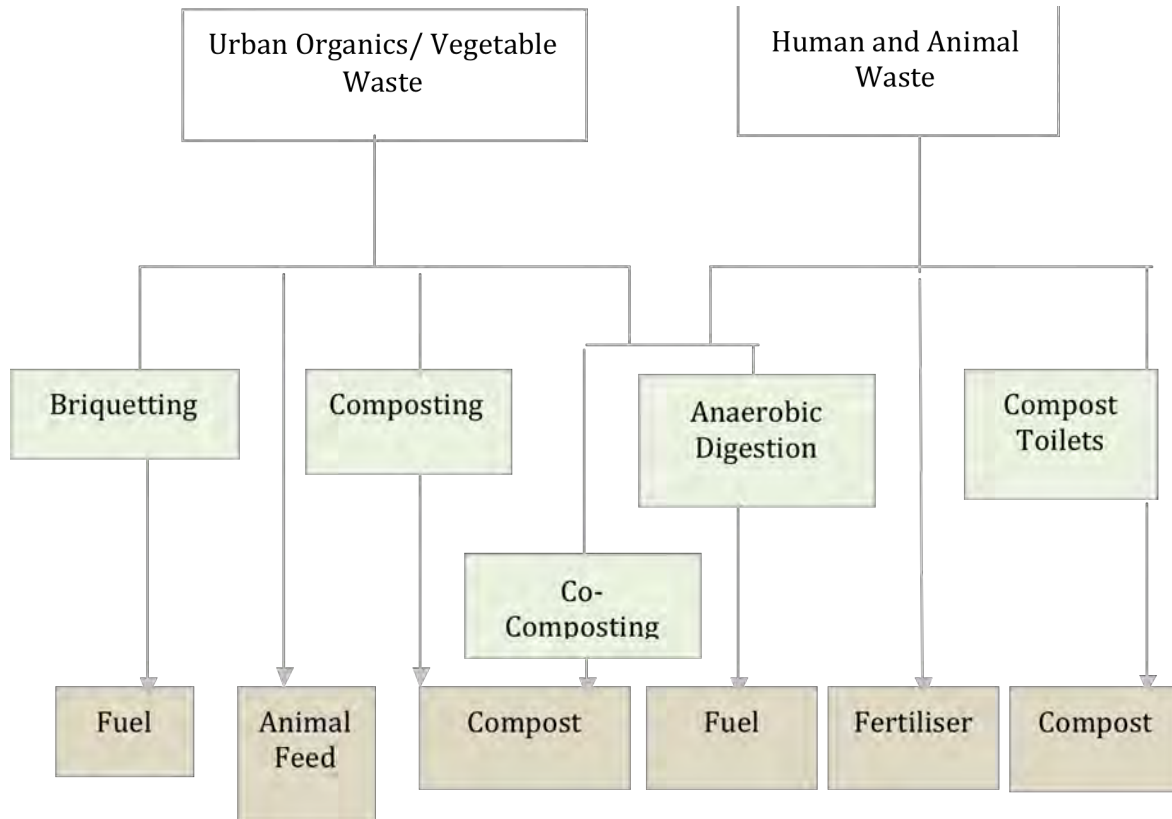


Figure 6: Process and Products from Organic Waste Processing
(Source: Adapted from Practical Action)

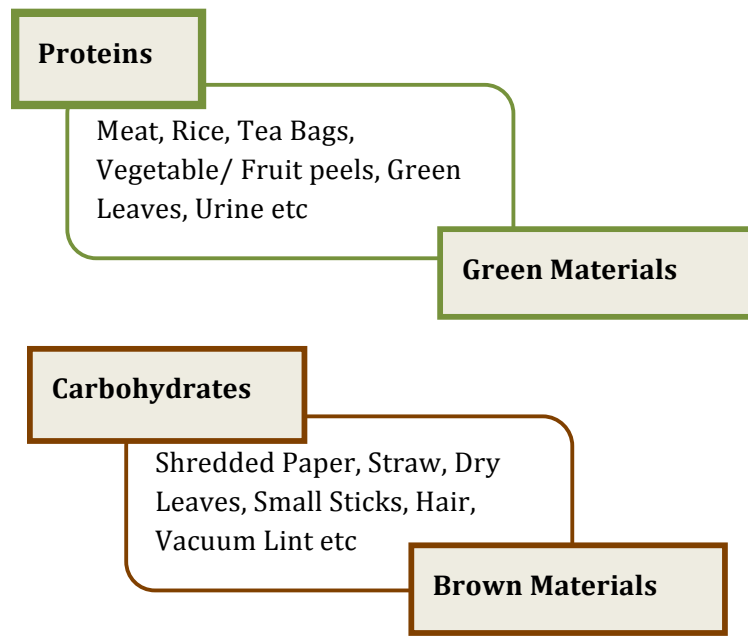
2. The Biological Composting Process

Composting is a biochemical process, which happens by itself. There are many steps involved in composting organic materials, but the real work is done by the different organisms that actually digest the organic materials and make the compost.

The main work of composting is done by bacteria, and in order to do their work, they need to be happy and have enough to eat! The figure in the other box shows you what is needed in order for organic waste to turn into compost.

Food:

The bacteria will need to eat both proteins (green materials) and carbohydrates (brown materials). A successful compost needs 40 times as much brown material as green. If what you have is mostly green, you need to add a lot of brown materials, such as shredded paper or straw or dry leaves. If it's too brown, you need to add green materials, such as rice or leftover dairy products or excreta – especially urine from people or animals.



BACTERIA



FOOD



WATER



AIR



Water:

Also they need water to live, but with too much, they drown. Then the process changes to an anaerobic process, which has a nasty smell. The right amount of moisture means that if you squeeze the materials to be composted, a few drops of water will come out, but not a stream.

Air:

Another thing you have to know about the bacteria is that they only eat on the outside of their food, that is, on the surface. So they need **a lot of small surfaces**, which means that you have to cut or chop or break up masses of things to small particles.

The ideal size is smaller than the tip of a child's finger, but bigger than a grain of sand. Aim for about the size of a corn kernel or grain of wheat.

You also need **variable sizes**, to keep some air spaces in the compost, because otherwise, like you, the bacteria will die if they get no air. The term "bulking agent" is used for hard pieces of wood or rubber that are a little bigger, and function to keep air spaces open.

Additionally, a compost pile should be **turned often** to allow all parts of the pile to receive oxygen.

3. Typical Successful Organic Waste Mixtures with Proportions by volume

Organic Materials from markets + animal manure + rice hulls/sawdust

1/1/1

Mixed Domestic waste + cow dung slurry

1/1 to 4/1

Vegetable market waste + press mud for sugar mills + slurry waste + waste hyacinth

5/1/1/1

Municipal Solid Waste

1

Mixed waste from markets (fruits, vegetables, packaging materials, non organic refuse)

1

Green Waste + animal manure

1/1

Household organic waste + cow dung slurry

10/1 to 6/1

4. Composting at Medium Scale

The following diagram presents concrete composting steps for a middle-scale composting center. In Annex 4 you can find more information on the individual steps of the composting process.

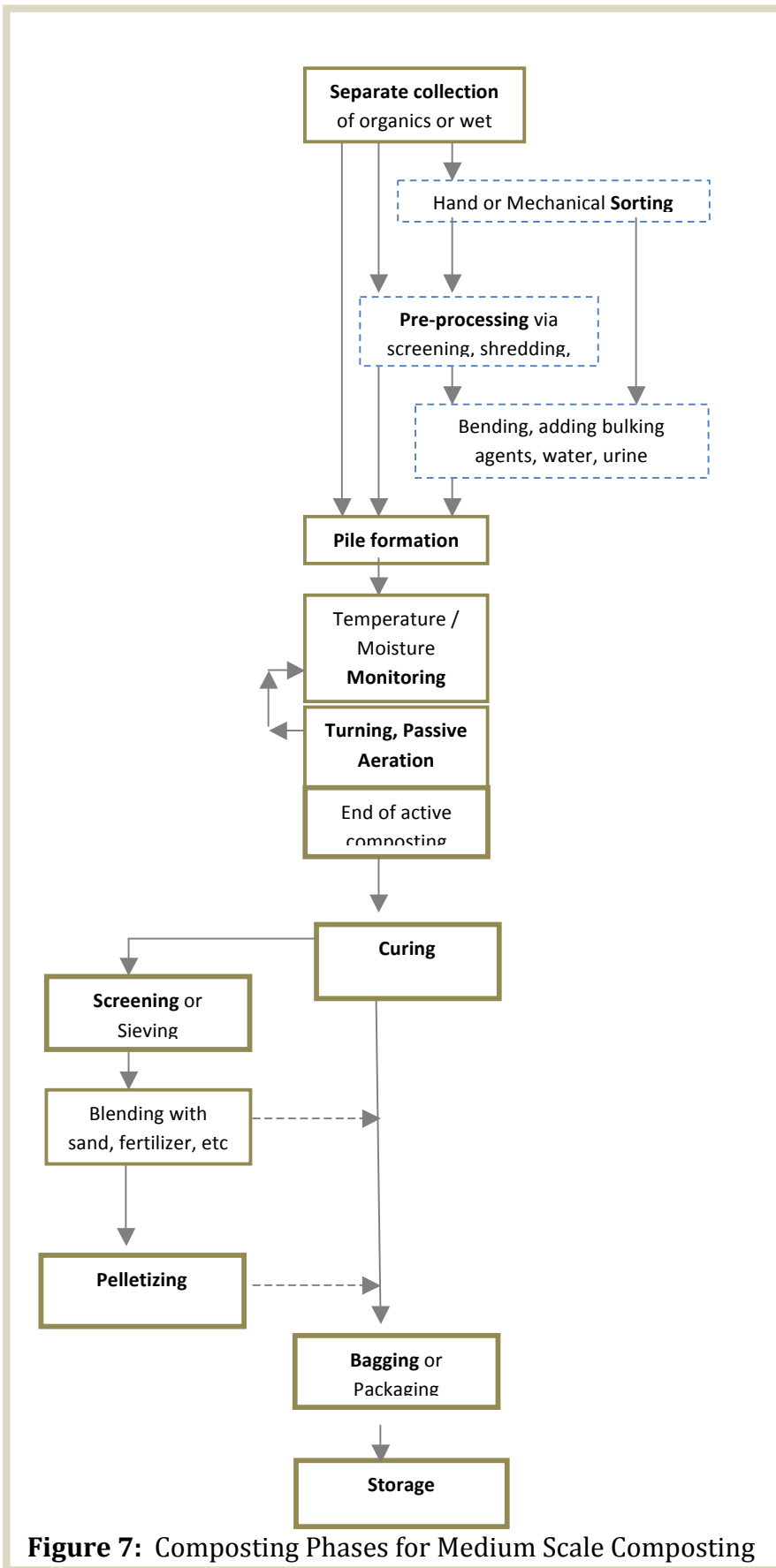
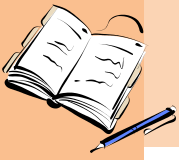


Figure 7: Composting Phases for Medium Scale Composting

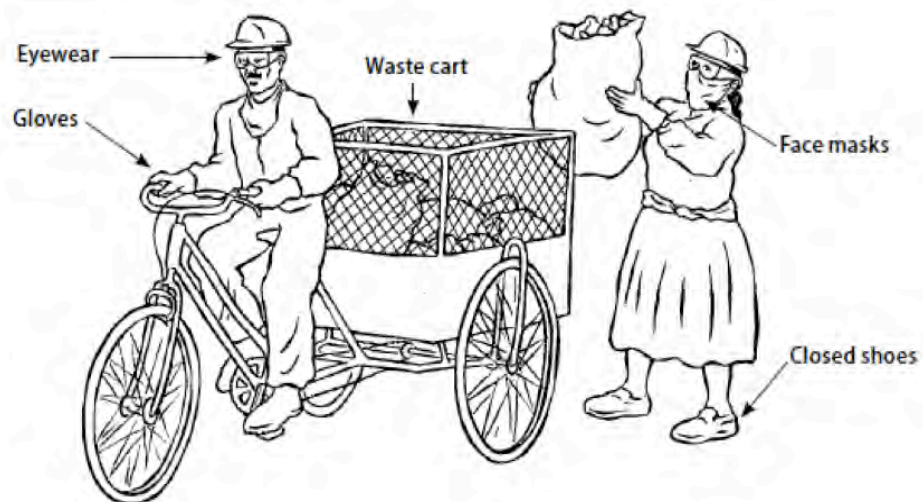


E. Health & Safety Aspects of your Operation Strategy



1. Your Protection

If you want to make sure that you are alive and kicking for running your business you need to pay a lot of attention to your protection when recovering and treating waste and to the method you lift heavy loads. The following picture shows the basic equipment you should wear when picking or collecting or processing waste materials.



Picture 14: Protection Equipment for waste pickers.
(Source: Hesperian, 2008)

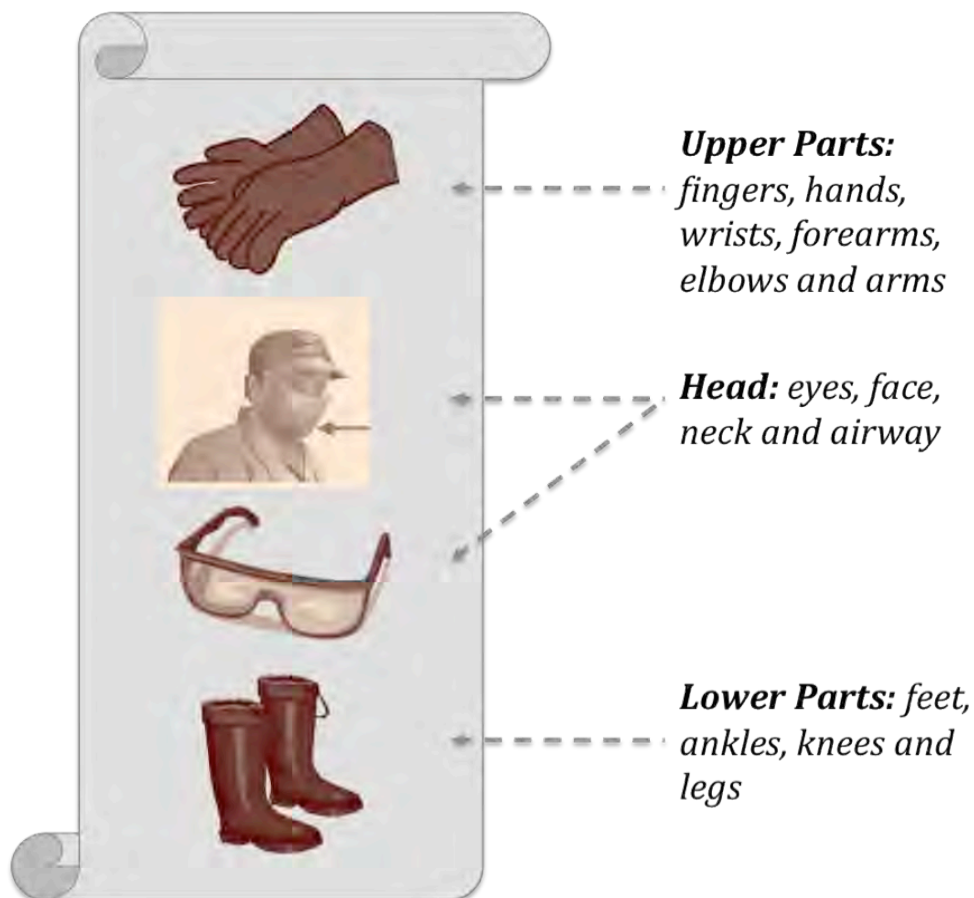
Why is it important?

- You run less risks of falling sick or getting infected by malaria, tuberculosis, HIV etc.
- You save costs (direct and indirect) caused by accidents.
- You increase your productivity because you don't reduce the amount of time you work.
- You present a better picture of yourself and of your company to the outside world.



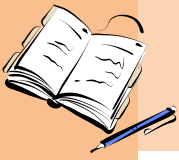
What equipment?

The equipment you need to use to be safe while working with waste materials is shown in the following picture:



If you live in a country where the weather is really sunny and warm, it is not very easy to keep on the mask on your face.

For this reason there are different types of masks that exist in shops with holes (open backed masks) that permit you to transpire less when wearing the mask. You can read more on the different types of masks you can use in page 166. On page 167 you can read some instructions on how to create your own mask.



Gloves

The gloves will help you protect from:



- *Injuries*
- *Cuts*
- *Contact with other aggressive contaminants or pathogens, such as faeces, syringes, dry sex litter, car batteries etc.*



Mask

The mask will help you protect from:



- *Breathing in Toxic Substances*
- *Breathing in Hazardous Liquids such as paint, varnishes and other cleaning products*
- *Breathing in Smoke from burning waste*

Eyewear

The eyewear will protect you from:

- *Splashes of hazardous materials*
- *Smoke from burning waste*
- *Pieces of glass or plastic going into your eyes during size reduction activities*



Boots

The boots will protect you from:

- *Injuries caused by broken glass or other sharp items*
- *Infections caused by syringes*
- *Contact with other dangerous materials.*





Exercise 17: Identify in the following pictures what is good practice and bad practice for protection in waste picking. Put a circle around the correct sign.

1.



2.





3.



4.



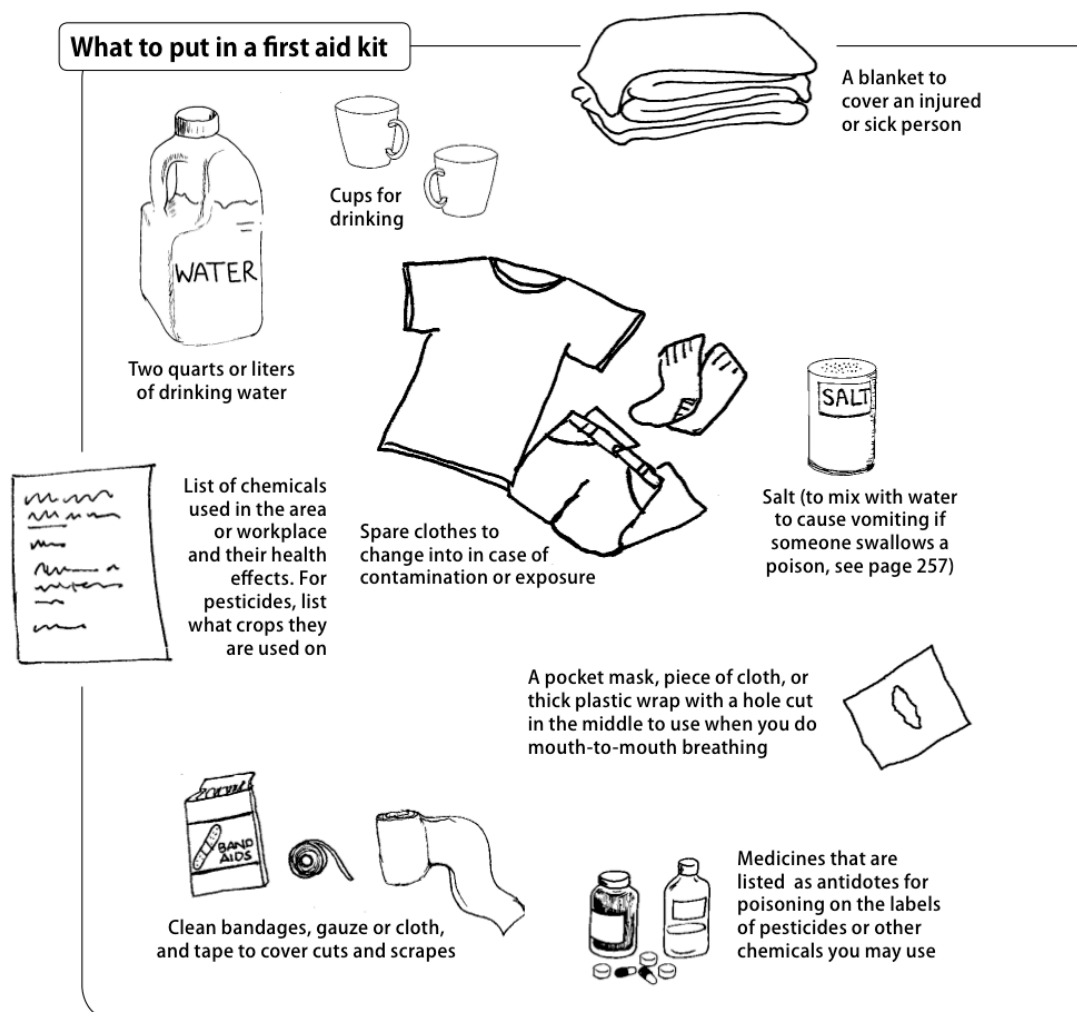


2. Your Working Space

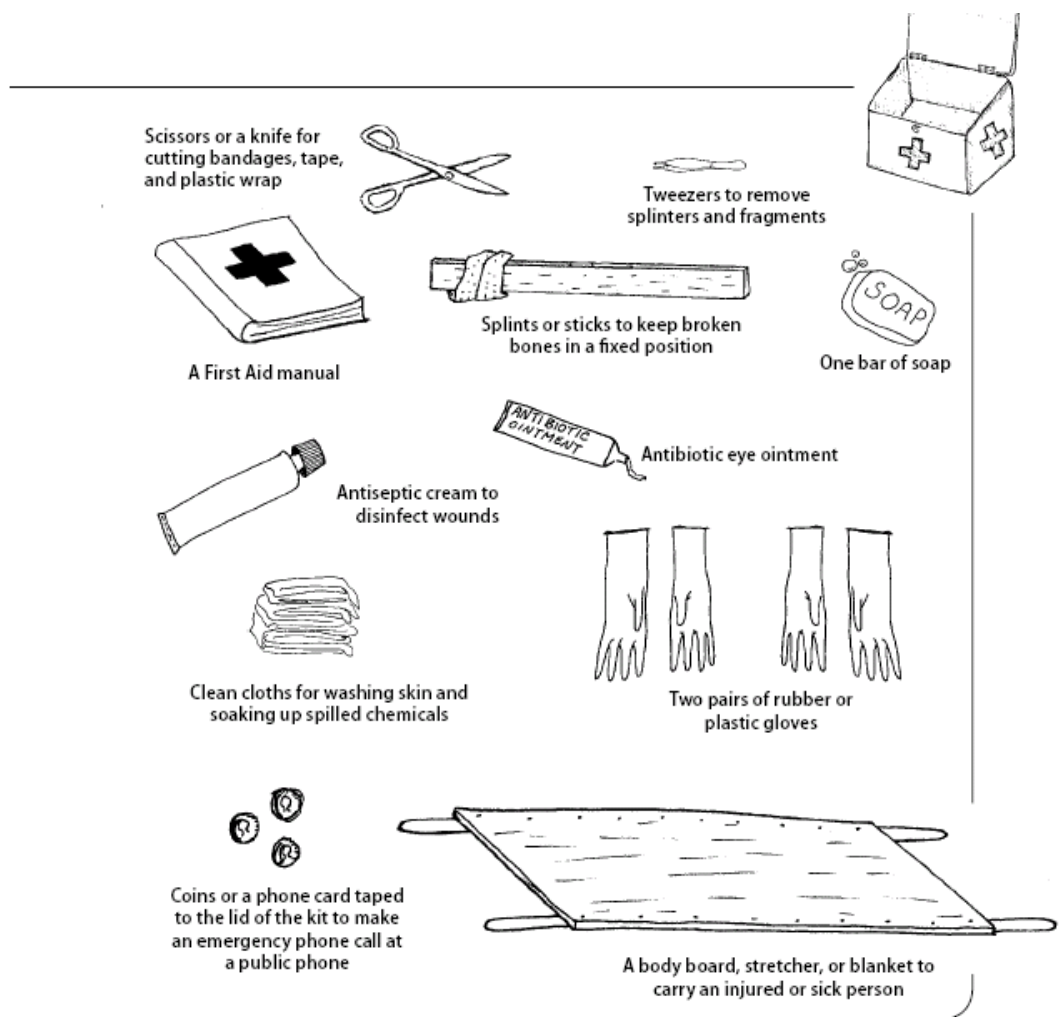
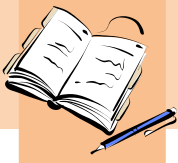
Apart from your personal equipment while working you should also have your working space equipped with a first aid kit for emergency cases.

Make a first aid kit in a container with a tightly fitting cover so water, dust, or chemicals cannot leak into the kit. Make sure everyone in the community or workplace, including new workers, knows where the kit is kept and how to use it.

The following picture presents some key things your survival kit should contain.



Source: Hesperian, *A Community Guide to Environmental Health*, 2008



Source: Hesperian, *A Community Guide to Environmental Health*, 2008



3. Your Medical-Working Track Record

One more thing that would be wise to do would be that every day after you go back home you could fill in a form like the one on page xxx, where you would note down what materials you collected. In the same form you could also note down any health issues you faced during a certain period. In this way you keep track of the materials you interact with and that could potentially be causing you a health problem and you yourself become an expert on how to protect your own health.



Question 8:

What will your Finances look like?



The last part of the things you need to plan before starting your business is the money! All the previous decisions and plans you made may seem perfect in theory but if you put numbers on them then they might not be such a good idea.

As an entrepreneur and successful business man you need to have an idea of your costs, your expected sales, the amount of money you are going to earn etc. The reasons why you need to know these things are:

- ☺ To know if it is worth continuing doing this job*
- ☺ To be able to get some money from bank or other institutions*
- ☺ To know if you can grow as a business*

As you did a small research for your clients, competitors, the technologies you are going to use like this you need to do some research before starting for some basic costs for materials, rents, trucks, equipment etc. Once you have done this research you are ready to plan your finances.

For planning correctly your finances you need to put in paper four main things:

- A. Your Start-up Money*
- B. Your Profits and Losses for the 1st year.*
- C. Your Cash Situation*
- D. Your Balance Sheet*

The following pages will help you understand what information you need to know and how to organise it so it can tell you if you will be doing ok as a business or not!

Before you start reading the following pages you should try to do the following exercise.



Exercise 18: Match the following terms with their meaning.

a. Profits

1. The costs you to pay for different things like electricity, rent, insurance etc.

b. Assets

2. The things you own, your business property like stock of materials, equipment, a donkey etc.

c. Expenses

3. The positive gain you have from running your business, after you have subtracted your expenses.

d. Revenues

4. The money equivalent of all your, cash, property, and other valuables, which represent the wealth of your business.

e. Capital

5. The condition in which what you spend is more than what you earn.

f. Loss

6. The amount of money you receive from selling your products.



A. Start-up Money



What is it?

Your start-up money is the amount of money you need to start your business. This money will help you cover starting expenses before you actually have revenues. You will need start-up money for:

a. Capital Investments	b. Working Money	c. Other Start-up Expenses
<p>When you buy an asset that has a high value and lasts for a long time. The capital investments you can make are primarily for:</p> <ul style="list-style-type: none"> → Fixed Capital like: a plot of land, a place to store materials, permanent infrastructure like a pelletizing machine etc. → Equipment like: hand tools like shears or measuring rulers, uniforms, a vehicle for transportation) 	<p>The money you will need to pay on a regular basis before you actually start to make money. Primarily your working capital will cover:</p> <ul style="list-style-type: none"> → Stock of materials → Rent → Promotion of products (i.e. publicity) → Labour (payment of yourself and your employees). → Utilities (fuel, electricity) → Maintenance of machines and facility → Insurance → Interest on Loan (if you don't have a grace period) 	<p>They include the things you will pay only once at the beginning of your venture like:</p> <ul style="list-style-type: none"> → Business License → Permits or Zoning Approval → Legal fees for Contracts → Registration fees → Contingency (money for unexpected costs)



Why is it important?

First of all, for you to have a clear idea that at the beginning of your operation you will not directly make profits and above that you will have to pay some money from your own savings until you start selling.

Second, people who will lend you money would like to see what would your start up capital expenditures be and know where their money will be spent.



How to calculate it?

Start-up Money

=

a. Capital Investments

+

b. Working Money

+

c. Other Start-Up Expenses



Example

Please note that the costs are imaginary and do not represent real life situations

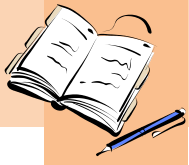
Start-up Cost Type	Cost in \$
a. Capital Investments	
Fixed Capital	
Putting a fence around the land	20
Equipment	
Baler	10
Shears (5 x \$0.4)	2
Protective Gloves (10 x \$0.2)	2
Protective Gears (10 x \$0.5)	5
Carry Bags (8 x \$0.5)	4
Total Capital Investments:	43
b. Working Capital	
Stock of materials (200kg of Cardboard * \$0.5/kg)	100
Promotion (assuming "word of mouth")	0
Rent for Storage Facility (1 month x \$50)	50
Labour (1month x \$25)	25
Maintenance (1 month x \$10)	10
Interest on Loan (assuming grace period of 3months)	0
Total Working Capital:	185
c. Other Start-up Expenses	
Business License	10
Legal Fees for Contracts	5
Registration Fees	10
Contingency	30
Total Other Start-Up Expenses:	55
Total Start-up Capital (a+b+c)	283



Stock of Materials: *If your business sells the products or services on credit it will generally take even longer before cash comes in from sales. In this case you may need to buy stock a second time from your start-up capital. So in the above table, the Stock of Materials = 2 x (200kg of Cardboard * \$0.5/kg).*

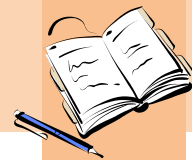
Rent: *You calculate the rent for your business premises that will be paid from your start-up capital. This means that you will have to estimate for how many months you will pay the rent from your own pocket. In the case where you will have to pay from your start-up capital more than one month rent, in the above table, the Rent = Number of Months x Rent.*

Labour: *The same applies to the calculation of labour expenses. You need to estimate for how many months you will pay your employees before the sales cover your costs. In the case where you will have to pay from your start-up capital more than one month's wages, in the above table the Labour = Number of Months x \$25.*



Exercise 19: Calculate the start-up money you need by filling in the following form.

Start-up Cost Type	Cost in \$
a. Capital Investments	
Fixed Capital	
.....
.....
.....
Equipment	
.....
.....
.....
.....
Total Capital Investments:
b. Working Capital
.....
.....
.....
.....
Total Working Capital:
c. Other Start-up Expenses
.....
.....
.....
.....
Total Other Start-Up Expenses:
Total Start-up Capital (a+b+c)



B. Profits and Losses (P&L)



What is it?

The profits and losses statement is simply a calculation of your sales and costs for each month of your operation. If the sales are more than the costs then you make a profit. Otherwise you lose money. Usually when you set up a business you do a P&L for the 1st year.

For your Profit and Loss statement you need to present the following:

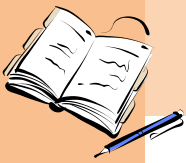
- A. Sales** *How much money comes in your business from selling the materials?*
- B. Costs** *How much money you pay for processing the materials and for other operating costs?*
- C. Net Profit/Loss** *How much money you earn from selling your materials?*



Why is it important?

Your profit and loss statement tells you whether or not your business is making money. It tells you whether you are profitable or not.

That is why it is really important when you make your estimations you write down the assumptions you made. If for example you are going to hire another employee to help you collect more paper, you are making the assumption that your customers will ask you for more materials. An assumption is something you take as a fact and is based either on your intuition or on some personal estimation or your experience.

**A. Sales**

$$= \text{Amount of Materials you sold} \times \text{Price}$$

Your sales are what you sold to your customers multiplied by the price. For example, you sold 500kg of shredded plastic for \$0.05/kg in January. Then your total sales for January would equal to $500\text{kg} \times \$0.05/\text{kg} = \25 .

B. Costs

$$= \text{Costs for processing materials} + \text{Operating Costs}$$

B.1. Costs for processing materials:

These costs are related to how much it costs you to prepare your materials. If for example you are selling brown baled cardboard, then your costs for processing the materials will equal to the cost for cord that you need to keep the bale attached plus the cost of paper notes you use to mark each bale.

B.2. Operating Costs:

Operating costs include all of the following costs:

Labour Costs: How much it costs you to employ people?

How to calculate Labour Costs:

To calculate your labour costs you need to know the following:

- Number of days your employees are going to work
- Number of people you are going to hire: This depends on how many materials you need to process and how many materials each person you hire can handle per day.
- The average salary you should pay your employees and every when you are going to pay them (monthly, daily, every 15days etc)

(See exercise below for an example on how to calculate labour

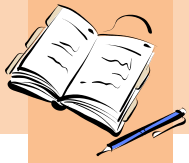


- **Rent:** How much money you pay to use the space/area/room etc where you process and store your materials?
- **Utility Costs:** How much money you pay for electricity, water, gas, telephone etc per month/day/usage etc?
- **Maintenance Costs:** How much money you pay for keeping the machines you use in a good state, or repairing them when necessary.
- **Transportation Costs:** How much money you spent to transport your materials, either from the source to your facility or from your facility to the customer's location? Transportation costs can include fuel for a vehicle, food and medical care for your donkey/horse etc.

If you have a fuel-operated vehicle (a car, motorbike etc) then you need to know what the "consumption" of fuel is for every route you make. Usually the fuel consumption is measured by liters/km. So if your car consumes 10 litres per km and you are doing 20 km per day, supposing that the price of fuel is \$1.2/litre then you pay per day $200 \text{ litres} \times 1.2 = \240 per day.

- **Office Supplies:** How much money do you spend for office supplies such as paper and ink for the printer, pencils, notebooks, stickers for the bales, forms for your book keeping etc.
- **Insurance Costs:** How much money you pay to keep yourself "covered" if something goes wrong?
- **Bank Interest:** How much money you pay per month in order to repay your loan to the bank? (see step 4, exercise 24).
- **Advertising:** How much money you pay for making your products known to the outside world (customers, other regions, municipality etc).

To calculate if you are making a profit or if you are losing money then you simply subtract your costs from your sales.



Since your business will be facing many risks, especially at the beginning, it is advisable to be rather pessimistic with your estimations of potential sales and costs. It is better that you get positively surprised in the end and get better results rather than the opposite.

Try to have accurate estimation of costs as possible. For example if you want to rent land do not guess what the price of the rent will be but rather go to its owner and ask him.



Exercise 20: *Try to calculate the labour costs for Carolina.*

Carolina is an entrepreneur in the recovery of plastic waste. She is selling clean, cut plastic materials. Today, Carolina does this by herself, but she has received two big orders for the next two months and instead of processing 200kg of plastic/day now she has to process 1.5tonnes/day. She is wondering how many people she needs and how much it will cost her if she hires people to help her.

She knows that:

- *Her business operated 25days per month.*
- *The amount per day that should be processed the next two months is 1.5tonnes or 1,500kg.*
- *In average an experienced worker in cutting plastics with shears can handle 300kg/day (from page 68).*
- *One day's salary for the experienced worker is \$2/day.*

So how many people does Carolina have to hire and how much will she have to put as labour cost in her profit and loss statement?

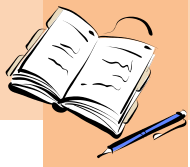




Example

The following table is an example of how you can present your Profits and Losses. The numbers used are not realistic and are used just as an example.

Entry Type (\$)	Jan	Feb	Mar	Apr	Ma y	Jun	July	Aug	Sep	Oct	Nov	Dec
A. Sales (Amount *Price)	100	100	150	150	200	250	250	300	300	400	600	800
B. Costs												
B.1 Costs for Processing Materials	1	1	2	2	3	3	3	4	4	5	5	6
B.2 Operating Costs												
- Labour	20	20	30	30	30	30	30	30	30	50	50	70
- Rent	50	50	50	50	50	50	50	50	50	50	50	50
-Utilities	15	15	20	20	20	20	20	25	25	25	30	30
- Maintenance	0	5	5	5	5	5	5	5	5	5	10	10
- Transportation	10	10	10	10	10	15	15	15	15	20	20	30
- Office Supplies	5	5	5	5	5	5	5	5	5	5	5	5
- Insurance	3	3	3	3	3	3	3	3	3	4	4	4
- Interest on Loan	15	15	15	15	15	15	15	15	15	15	15	15
- Advertising	0	0	0	0	0	0	0	0	0	0	0	0
Total Costs : (B.1.+B.2)	119	119	140	140	141	141	141	152	152	179	189	220
NET PROFIT /LOSS (before tax): (Sales-Costs)	-19	-19	10	10	59	109	109	148	148	221	411	580



Please note that the following P&L is an example and some operating costs might appear in some business cases and not in others. The costs you are going to estimate depend clearly on your operations.



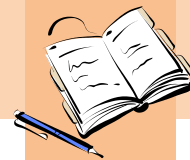
A really important issue is tax. If you are a registered company then you will have to pay taxes to the municipality or to another institution. The taxes will be mostly on your income and that is why you will pay an income tax. This means that your Net Profit or Loss is before tax and in order to see what really stays with you, you need to subtract the tax charges. This means that you add at your P&L statement two more lines like below:

NET PROFIT/LOSS: (before tax)	-19	-19	10	10	59	109	109	148	148	221	411	580
Income Tax: (if 9%)	2	2	1	1	5	10	10	13	13	20	37	52
NET PROFIT /LOSS: (after tax)	- 21	- 21	9	9	54	99	99	135	135	201	374	528

Note: numbers around round up at the first decimal point

The amount of tax you pay depends on the country you are. To find out how much tax you will pay you can ask your local municipality to help you or the chamber of commerce and trade.

So now you know that at the end of January and February you are making a loss of \$21 and at the end of March you are starting to make a profit of \$9, which are for you!



How to use it?

Based on the result of your Profit and Loss Statement, you will either have a profit or a loss! It is so simple!

That means that in any case, you need to do something about it. The following table presents you ideas on what to do in each case.

With your Profit you

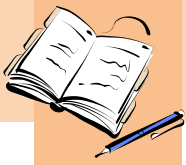


- *Pay back your loan*
- *Replace a machine or buy equipment. Grow your business.*
- *Save money for future "difficult" times.*
- *Enjoy*

With your Loss you can:

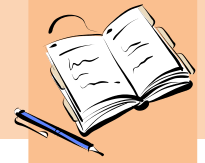


- *Not worry if it is in the first 3 months you start your business*
- *Use the saved money to cover your expenses*
- *Try to sell more*
- *Try to reduce expenses*
- *Try to borrow some money*



Exercise 21: Try to define at which cost category of the previous example you would put the following statements

STATEMENT	COST TYPE
<p>1. You use cord to hold the bailed cardboard together. The cost for 1m of cord is 0.20dollars.</p>	
<p>2. You mark your bails with a paper note. You buy these paper notes in packs of 50 and the cost per pack is 2\$.</p>	
<p>3. You use a 20sq. meter area to store your bales before they are sold. The rent for this space is \$50/month, which you pay in cash.</p>	
<p>4. You printed out 100 leaflets with your contact details and a photo of your materials, to distribute it to your region. The cost per 100 leaflets is \$10.</p>	
<p>5. You use a horse for transporting your materials. The cost per bag of horse food is \$4.5.</p>	



C. Cash Flow Statement

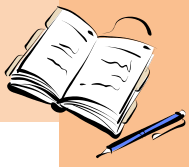


What is it?

The cash flow statement tells you **how much cash** you have. It shows how much money is coming into the business and how much money is going out. This statement should show that your company has the cash to pay its debts on time.

In other words, the cash flow analysis shows the liquidity of your company at any given month. The differences between the cash flow statement and the P&L statement are summarized in the following table.

	Cash Flow	Profit & Loss
Sales	<p>The amount of money you get from your sales is written in your cash flow books only when you actually received it and not before.</p> <p>If you are selling on credit, meaning that you give your customers the chance to pay you later, then the money from these sales is written in the cash flow only when paid by your customer.</p>	<p>The sales you do for one month are, even if you have not been paid yet for them, written in the P&L statement on that specific month.</p>
Costs	<p>You mention the costs you paid only when you actually paid them, not in advance.</p>	<p>The costs you expect to pay are mentioned in the P&L statement even if you haven't paid them yet.</p>
Capital Inflows	<p>If you manage to find money from other sources than your sales, for example by taking a loan, then this is mentioned in the Cash Flow statement.</p>	<p>In your P&L you will not be able to see additional money coming in if it is not related to your sales.</p>



Why is it important?

Because profits do not guarantee positive cash flow. You must be sure you have cash available to pay for bills and day-to-day activities. It shows also an important figure, the breakeven point.

BREAKEVEN is when

THE MONEY YOU RECEIVE = THE MONEY YOU PAY

What you should aim for is that you reach this breakeven point as soon as possible, when operating. That means you should make sure that relatively soon, in less than three to five months, you can see that the money you receive is more than the money you pay.

If you see that this is not happening then you might want to find some additional money to cover your temporary liquidity difficulties!



How to calculate it?

A. Cash In = Cash in Hand + Sales + Cash from Credited Sales + Loan

Cash In includes:

- **Cash in Hand:** *this is the amount of cash you have available, wherever you might keep it, when you start operating your business and at the beginning of each month. For the pre start-up phase it is assumed that you have no cash in hand and that a loan will help you cover your expenses the first month. The following months however, the cash in hand is what remains from the use of the previous one month. From the example that follows, for March the Cash in Hand is -48 which is what remained from February in the line of Cash Generated.*



- **Sales:** *this is the amount of cash you receive from your sales.*
- **Cash from Credited Sales:** *this is the amount of cash you receive from the sales you make on credit. This is the money you get after one month for example from your customer, because at the moment of sale he didn't have money to pay you and he asked you for a one month credit. If you look at the example that follows, in June for example you have \$100 at your cash from credit, which represents the \$100 from the sales of May that the customer didn't pay you.*

If you decide to sell with credit, meaning not being paid directly when you deliver your product but some time later, depending on your agreement with the customer, you have to be really careful and trust that you will get your money back. It is hard to say no to customers but banks will not hesitate to take all your premises if you cannot pay back your loan!

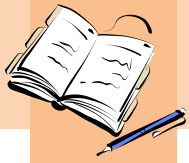
- **Loan:** *this is the amount of money you receive from a bank or other financial institution in the form of a loan.*

B. Cash Out = *Costs of Processing Materials + Other Operating Costs*

Cash Out Includes the cost categories as presented already in the Profit & Loss statement.

C. Cash Generated = *Cash In – Cash Out*

To calculate the Cash Generated you subtract the Cash Out from the Cash In.



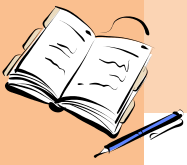
The best way of running your business is to maintain a positive cash flow. However, if your business faces cash problems there are a number of ways your can deal with the situation:

- 1. Get the money people owe you*
- 2. Increase your profits by increasing sales and/or reducing costs*
- 3. Find additional sources of supplies*
- 4. Borrow money*
- 5. Put more money of your own into the business or find a partner etc.*



Example Based on the example presented in the Profit and Loss section, below you can find an example of how you can present your cash-flow projections for the first year.

Entry Type (\$)	Pre Start-up	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
A. CASH IN													
- Cash in Hand	0	-10	-29	-48	-88	-28	-69	140	199	297	395	766	977
- Cash from Sales	0	100	100	100	150	100	250	200	200	150	400	400	800
- Cash from Credited Sales	0	0	0	0	50	0	100	0	50	100	150	0	200
- Loans	80	0	0	0	0	0	0	0	0	0	0	0	0
Total CASH IN:	80	90	71	52	112	72	281	340	449	547	945	1,166	1,977
B. CASH OUT													
- Cost for Processing Materials	1	1	1	2	2	3	3	3	4	4	5	5	6
- Labour	10	20	20	30	30	30	30	30	30	30	50	50	70
- Rent	50	50	50	50	50	50	50	50	50	50	50	50	50
- Utilities	10	15	15	20	20	20	20	20	25	25	25	30	30
- Maintenance	0	0	5	5	5	5	5	5	5	5	5	10	10
- Transportation	10	10	10	10	10	10	15	15	15	15	20	20	30
- Office Supplies	5	5	5	5	5	5	5	5	5	5	5	5	5
- Insurance	3	3	3	3	3	3	3	3	3	3	4	4	4
- Interest on Loan	0	15	15	15	15	15	15	15	15	15	15	15	15
Total CASH OUT:	90	119	119	140	140	141	141	141	152	152	179	189	220
CASH Generated: (A-B)	-10	-29	-48	-88	-28	-69	140	199	297	395	766	977	1,757



Exercise 22: Try to answer the following questions based on the Cash Flow table presented above.

1. Which month is the month, where the entrepreneur receives, as much money as he pays, in other words where is the breakeven point?

.....

2. In August, the entrepreneur has \$50 cash coming from credited sales. Can you explain what that means? From which month is the money coming from?

.....

.....

.....

3. In February, the total Cash In is equal to \$71. Can you explain how is this money calculated?

.....

.....

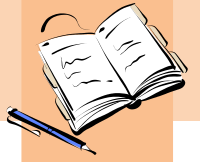
.....

4. In April, the entrepreneur has total cash generated \$-28. What does this mean? What do you suggest him to do?

.....

.....

.....



5. If you were a banker would you invest in this company by looking at the above cash flow statement? Yes or no and why?

.....

.....

.....



D. Balance Sheet



What is it?

It is a “snapshot” of your company at a given point in time. It shows what your business has (its assets), what your business owes (obligations/liabilities) and how much money you (the owner) have put in the business (equity).

Your Balance Sheet should have the following information:

- ↳ **Current Assets:** these are the things that your business owns that can be converted to cash within a year, for example cash, people that owe you money, raw materials etc.*
- ↳ **Fixed Assets:** these are things owned by your business that have a long-term use such as property, land and equipment. For example vehicles, buildings, special equipment, air-conditioners etc.*
- ↳ **Current Obligations:** are the debts your business will pay within a year, for example general operating expenses, items that you bought on credit etc.*
- ↳ **Long-term Obligations:** are debts that you don't have to pay within a year, usually a long-term bank loan is a typical example.*

Owner's Money: *is what capital have the owners put in the company plus any earnings that have been retained in the business. It is what the owners would get if all the assets were sold and all the obligations were paid.*



Why is it important?

It is important to know that if you apply for a loan, a banker will check first your Net Working Capital Ratio. This is what you get when you subtract your current obligations (bills due within 30 days) from your current assets (what you could turn into cash within 30 days). This ratio shows how possible it is that you manage to pay all your short-term obligations.

$$\text{Net Working Capital /Owner's Money} = \text{Current Assets} - \text{Current Obligations}$$

To determine whether you have a positive or a negative net working capital, divide your current assets by your current obligations to get your current ratio:

$$\text{Current Net Working Capital Ratio} = \text{Current Assets} \div \text{Current Obligations}$$

For Example: Current Net Working Capital Ratio (1.3) = Current Assets (\$200) ÷ Current Liabilities (\$150)



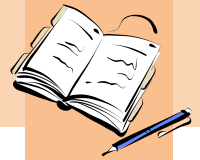
The goal is that the ratio is anything more than 1, and that means that you have a positive net working capital so you can meet your short-term obligations.



Example

The Balance Sheet for the company used in the previous examples, will look like this for the first day the entrepreneur starts to sell

BALANCE SHEET (\$) November 20, 2010	
A. Current Assets	
Cash	100
Credit Sales (Accounts Receivable)	0
Stock/Inventory	10
Total Current Assets	110
B. Fixed Assets	
Equipment & Fixtures	28
Building	0
Total Fixed Assets	28
(-)Depreciation	2.8
Total Fixed Assets (net)	25.2
Total Assets (A+B)	135.2
C. Current Obligations	
Trade Creditors	0
Tax related	13
Total Current Liabilities	13
D. Long-term Obligations	
Bank Loan	150
Total long-term obligations	150
Total Obligations (C+D)	163
Capital	
Owner's Investment	135.2
Retained Earnings	0
Total Capital	135.2
OWNER'S MONEY	-27.8



Your

Current Net Working Capital Ratio =

$$\text{Total Assets} \div \text{Total Obligations} = 135.2 \div 163 = 0.8.$$

Obviously there is a problem in the balance between how many assets you have and how much money you need to pay to other people. That means that you need to rethink and see again your other financial statements and see where you can improve your performance.



Exercise 23: *Try to answer the following questions based on the Balance Sheet presented as an example.*

1. *How much money does the entrepreneur has to pay for his total obligations and how did he/she calculate this number?*

.....

2. *How much money does the entrepreneur has on the first day of his/her operation? How did he/she calculate this number?*

.....

3. *If the entrepreneur bought a new plot of land with his own money at a price of \$500, where in the Balance Sheet would he/she have to add this money?*

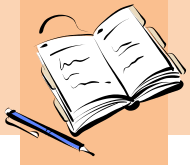
.....

4. *If the entrepreneur bought this plot of land not from his own money but took a loan of \$500, how the Balance sheet would be different?*

.....

.....

5. *The entrepreneur has to subtract from his/her fixed assets some money for depreciation. Can you explain what is this? If you know that the original*



value of the equipment he bought is \$28 can you estimate how many years he or she expects the equipment to last?





.....

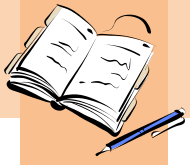
.....

.....



The following table is summarizing the four financial statements you will have to create when writing a business plan. Usually banks or other investors are interested in your Profit & Loss statement and your Balance Sheet.

Type of Statement	Shows	Calculated as	
A. Start-Up Money	The money you need to begin “The key that open the first door of your operations”	Capital Investment + Working Capital + Other Start-up Expenses	
B. Profit & Loss (P&L)	Making money or not	Sales - Costs	
C. Cash Flow	What money is coming in and what out	Cash In - Cash Out	
D. Balance Sheet	The situation of your business at any moment.	Assets - Liabilities	



By now you have:

- 👉 Planned how you will get your products to your market (Marketing Plan)*
- 👉 Planned how you will organize your operations (Operations' Plan)*
- 👉 Planned how much money you will need to start, how much you will earn and how much you might lose (Financial Plan)*

Step 4

The Realization



Step 4

The Realization



Reaching step 4 means that you have conceptualized your idea, you investigated if there was actual demand for it and then you planned how to make it happen. Now the only remaining thing to do is actually GO FOR IT!

Ancient Greeks said that “Well begun is half done”. You should make sure you kick-off your business in the most organized way possible.

Question 9:

How do you get started?

When you will kick start your venture you should do the following:

- a. Make an Action Plan*
- b. Decide on the Form of your business*
- c. Try to find additional sources of money*
- d. Decide on your book keeping templates*

A. Make an Action Plan

After the planning step you probably understood that there are quite a lot of issues that you need to figure out before starting. In order not to lose valuable time and not complicate your tasks more than necessary you should make in advance your own action plan. This should include the preliminary activities you need to do as well as by when you expect to accomplish them.



The following table is an example of how an action plan looks like. It can be adapted to your needs and thoughts! You may add or remove activities depending on your case. By putting a ✓ means that you will commit yourself and try to achieve the deadlines you set for yourself. Be aware and set up a realistic start-up plan.

Example of Action Plan Form										
Activity	Weeks									
	1	2	3	4	1	2	3	4	5	
1. Find the location of your business			✓							
2. Try to find additional money	✓	✓	✓	✓	✓	✓				
3. Order Equipment		✓				✓				
4. Order Office and other supplies						✓				
5. Make sure you have places from where you can find or buy materials.	✓	✓	✓	✓	✓	✓				
6. Install Equipment & Organize your facility								✓		
7. Make your business known			✓		✓				✓	
8. Register at the Municipality							✓			
9. Start Business										
	November				December					



Usually the activities 2 and 5 are not only happening during one week, but constantly. You always need to make sure you have enough money to start and if you apply for a loan then this will take more than one week. You always need to make sure you have sources of supply that you trust and count on them to have the materials you need to sell.



Exercise 24: Think of all the things you need to do to start your business, and then put them down in paper by filling the following Action Plan. You can change the time scale even the activities to make it more useful for you.

Example of Action Plan Form									
Activity	Weeks								
	1	2	3	4	1	2	3	4	5
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
Month				



B. Decide on the Form of Business

The legal form your company will depend completely to you and the vision you have for it.

The first question you have to ask yourself is whether you want to continue being informal and not having an official legal status of operation or formalize your operations by registering your business.

The choice is not easy. To answer that question you need to see what are the advantages and disadvantages of becoming **formal** or remaining **informal**.

Baasim is a waste picker in the city of Musiri in India and he has chosen to work informally. Maria is a cartonero in the city of Lima in Peru. She has decided to work together with the municipality and register her operations.

Hello my name is Baasim and I work as an informal paper waste picker in Musiri, India.

I am **happy** because like this I:

- Don't pay taxes
- I keep all the money I make for me
- I don't need to change and start keeping books and stuff, which I can't.
- I make a living and feed my family.



"Informal" Baasim

Sometimes though I feel **stressed** because:

- I get harassed by the police and they don't allow me to collect materials.
- I need to take a loan but the bank does not give me one.
- If my customers do not pay me I cannot take them to court because my business does not have a legal standing.
- The municipality does not want to work with me. if I am unregistered.

Hello my name is Maria and I work as a registered plastic waste recoverer in Lima, Peru, and I am member of the Latin Association of Waste Pickers.

I am **happy** because like this I:

- I have a more secure income
- I am insured
- I can have access to more areas because the municipality has given us permission to collect from households.
- I can take a loan and expand my business
- I don't feel afraid that the police will harass me.



"Formal" Maria

Sometimes though I feel **stressed** because:

- I have to keep track of all my activities.
- I have to follow the decisions of my association.
- I need to make enough money so I can pay my taxes and still have a profit.
- I need to comply with some national laws regarding safe handling of waste materials.

Either case is "paradise". Both of them face difficulties but also enjoy some benefits from their choice.

In case you would like to have some more information on the different legal forms of business that exist, if you feel that the formal model is what you choose, then you can read some more information in Annex 8. You will find information for:

- a. Sole proprietorship
- b. Partnership
- c. Corporation
- d. Community Based Organization
- e. Cooperative



C. Try to find additional sources of money

If when you calculate your start-up capital in Step 3, you realize that you will not manage to cover all the costs you have out of your own money, it is normal to try to find other sources to help you with your financials.

There are different informal and formal types of lenders:

a. Informal Lending Sources

- *Family or friends*
- *Pawnshops, where you can get quick cash by pawning jewelry and other valuables*
- *Money Lenders, these are people who lend quick money without collateral but charge huge interest rates. It is really not advisable to use this source of money.*
- *Credit cooperatives, these are a popular and easy source of credit especially in the rural areas. It may therefore be very useful for you, as entrepreneur, to join one. Usually a credit coop will lend an amount up to five times bigger than the money a member has deposited in it. Interest charges are often minimal.*

b. Formal Lending Sources

- *Banks*
- *Financial Institutions*
- *Government Development Agencies*

From all the different sources it is important that you have a clear idea of the different types of interactions you can have with a bank. It is important to know also what types of banking “products” could be useful in your case.



With a bank you can:

Take a Loan

- *You ensure to get the money for expanding or maintaining your business with reasonable repayment conditions.*
- *You can have a short-term loan, an intermediate type loan and a long-term loan. (See below for more information)*

Open a Business Current Account

- *Keeping an active business account in the bank increases the trust has to your business and will make it easier for the bank to give you a working capital loan.*
- *Keeping an active savings account in a bank will help you as a business owner to recapitalize (reinvest) in case you need to grow your business.*
- *You get an amount of money, called interest, for having your money saved in the bank.*

A bank will ask from you:

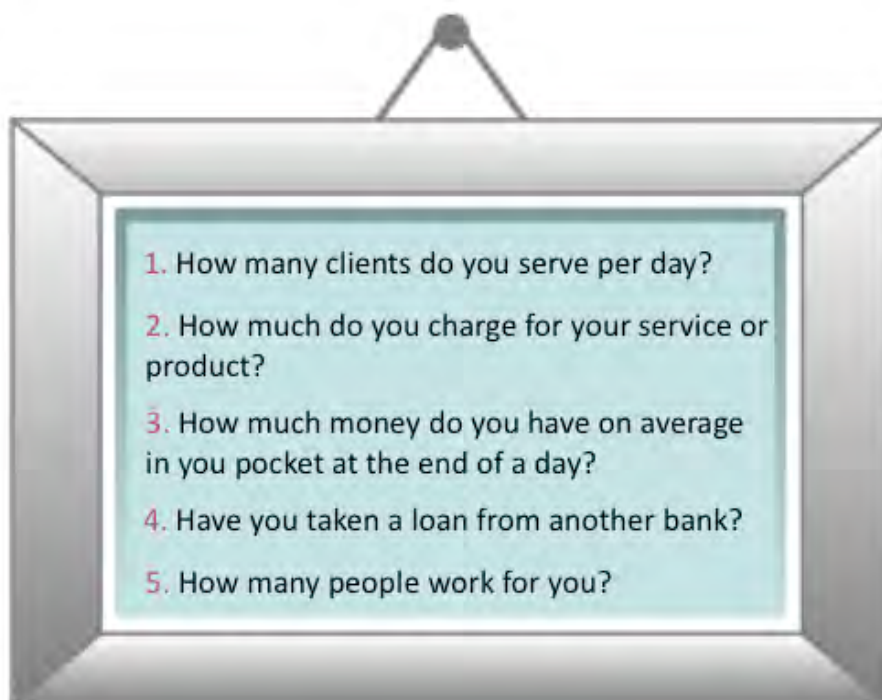
Collaterals: *These are anything that you can show to the bank as a guarantee in case you cannot pay back your loan. It can be anything from a house to a car or some money the guarantee of another person.*

Cash Situation (cash flow): *You will need to show to the bank that you have enough cash remaining in your hands after you cover your costs that would permit you to repay the loan on a regular basis, for example monthly.*

Registration: *The bank will ask you if you are registered. If you want to get a loan then you will need to do so. The main reason for this is that registration symbolizes that the municipality recognizes your activities and this gives confidence to the bankers that your business is stable.*

Balance Sheet: *You will need to show how many things you own, the value of your business as well as the other obligations you might have, like other loans etc.*

In any case you should remember that a banker would need to see if you are “liquid”. In other words you will need to prove that you are an active entrepreneur with constant sales and increasing clients. That is why you should always be prepared to answer the following question when going to a bank.





bank is
use the
Then answer the question that follows.

Exercise 25: Below you see the list of payments a presenting you for a loan you want to take. Try to data from the list to fill in the loan summary box.

Loan Summary

List of Payments

Loan Amount: **Ksh.**

Loan Length:

Annual Interest: **3%**

Pay Periodicity:

Monthly Payment: **Ksh.**

Total Paid: **Ksh.**

Total Interest: **Ksh.**

Total Periods:

Period	Interest Paid (Ksh.)	Principal Paid (Ksh.)	Remaining Balance (Ksh.)
1	0.50	16.44	183.56
2	0.46	16.48	167.08
3	0.42	16.52	150.56
4	0.38	16.56	134.00
5	0.33	16.60	117.39
6	0.29	16.65	100.75
7	0.25	16.69	84.06
8	0.21	16.73	67.33
9	0.17	16.77	50.56
10	0.13	16.81	33.75
11	0.08	16.85	16.90
12	0.04	16.90	-0.00
Totals:	3.26	200,000	

Question: With every payment you give to the bank, for the previous loan, are you paying back.

- a. Only Interest?
- b. Only the Loan Amount (principal)?
- c. Both Interest and Loan Amount



You should know that the loans a bank can offer can be any of the three above cases, either you will repay only interest with every payment and in the end you pay the principal, either you will pay only the principal and no interest and either you will pay both principal and interest at the same payment.



D. Decide on your Book Keeping Templates

The small final thing you need to figure out is what kind of templates/forms you are going to use in order to track all your transactions, assets and activities of your business. Below you will find some templates for the basic business activities of an entrepreneur in waste material trading.

a. Order Book

Every time a client is ordering products for purchasing them, the details of his/her order need to be recorded officially. For this reason, the order book is used for purposes of recording the quantity of the product ordered for, the product specification and delivery terms.

The order book is important because:

- *The records show what is actually required, when it was ordered and with what requirements.*
- *Helps to check whether what is finally delivered is the same as what was ordered.*

b. Delivery Note Book

After making an order for the supply of goods, the requested products will eventually be supplied and are brought in with a delivery note. The delivery book thus is used for recording the details related to the quantity of products delivered and their specifications.

The delivery book is important because you need:

- *To know whether what was ordered is what is delivered.*
- *To show to the sender that the item(s) was/were delivered.*

Below you can find examples of an order book and a delivery note book template.



c. Receipts Book

Every time you receive cash from outside sources e.g. sales of goods and/or services rendered, you have a cash inflow that needs to be recorded in the receipt book. The receipt book therefore contains document record, which is used to acknowledge receipt of money.

Receipt book keeping is vital in that:

- It is done in order to officially confirm that money has been received.*
- It easily enables the treasurer to enter cashbook records.*

Bot. of:		CASH SALE	
M.....		No. 040	
Date..... 20.....			
QTY			
		Shs.	Cts
E&OE	Goods once sold are not returnable. Thank you.		



d. Voucher Records File

This is a file for filling documents used to show amounts of money payments to other people. The cash outflow/payment could be for purposes of purchase of assets, purchase of stationery, payment of salaries/wages/allowances to officials, electricity, rent, water etc.

It's important to keeping a voucher file records because:

- *You will find it necessary and important to obtain information related to all money paid out.*
- *You can control your cash payments and ask yourself why such money was paid out when and to whom.*
- *Voucher records are also vital since they are used to enter figures in the cashbook.*

Name of the Co.		PETTY CASH VOUCHER	
		No.	
		Date..... 20.....	
A/C		Shs.	Cts.
Shs..... TOTAL			
Checked by	A/C Code	Signature of recipient	
Authorized by			

And do not forget that for making money out of waste you should follow:



PART 2

Solutions to the Exercises

Exercise 1: *The answer depends on your case. You write or draw your idea, on what you want to do. For example, “I want to start selling compost from organic waste to the farmers of my village”.*

Exercise 2:

Strengths: 1,4,6,9,18 (if it is a good sorting technique)

Weaknesses: 2,6,13,14,15,18 (if it is not a good sorting technique)

Opportunities: 5,10,11,17

Threats: 3,7,8,12,16

Exercise 3: *The answer depends on your case. There is no correct or wrong answer in this case.*

Exercise 4: *If you answered ‘no’ to more than two of the previous questions you might have to change your outlook if you want your company to succeed. You will need at least 6 of those characteristics to make your business idea a reality.*

Exercise 5: *The answers in this exercise depend also on your personality. You need to think of which personal characteristic of yours will help you build and operate successfully your enterprise. Try to see if you have mentioned any of the following competences, as mentioned in the publication of “Do you want to go into business” by The Philippines Department of Industry and Trade, Bureau of Micro, Medium and Small Enterprise Development, 2010 . To some extent you should have most of them.*

Characteristics Related to Achievement

1. Opportunity-seeking

- *Perceive and act on new business opportunities*
- *Seize unusual opportunities to obtain financing, equipment, land, workspace or assistance.*

2. Persistence

- *Take repeated or different actions to overcome obstacles*
- *Make sacrifices or expend extraordinary effort to complete a task*
- *Stick to your own judgment in the face of opposition or disappointments*

3. Commitment to work contract

- *Accept full responsibility for problems encountered*
- *Help own employees to get the job done*
- *Seek to satisfy the customer*

4. Risk-taking

- Take calculated or studied risks
- Prefer situations involving moderate risks

5. Demand for quality and efficiency

- Always strive to raise standards
- Aim for excellence
- Strive to do things better, faster, cheaper.

Characteristics Related to Planning

6. Goal-setting

- Set clear and specific short-term objectives
- Set clear long-term goals

7. Information-seeking

- Personally seek information on clients, suppliers, and competitors
- Seek experts for business or technical advice
- Use contacts or networks to obtain information

8. Systematic planning and monitoring

- Develop logical, step-by-step plans to reach goals
- Look into alternatives and weighs them
- Monitor progress and shift to alternative strategies when necessary to achieve goals.

Characteristics Related to Power

9. Persuasion and networking

- Employ deliberate strategies to influence or persuade others
- Use business and personal contacts to accomplish objectives

10. Self-confidence

- Believe in self
- Express confidence in own ability to complete a difficult task or meet a challenge.

Exercise 6: *The most important mistake the entrepreneur in Mali made was that he didn't research, before he started his production of compost, if there was an actual need for it. He didn't verify if there were actually people willing to buy it, in other words he didn't verify there was a market for his product. The farmers on the other hand, were not willing to pay an extra price and take the risk of buying a new product, since the benefits of the compost instead of the "terrau" were not clear enough. The conclusion of the exercise should be that before you start investing you should always make sure there is somebody who will pay you for what you are thinking to offer, and he of course will have a significant benefit out of it.*

Exercise 7: 1-b, 2-d, 3-c, 4-a

Exercise 8: *The answer depends on your case. There is no correct or wrong answer in this case.*

Exercise 9: *The answer depends on your case. Try to think of people that by doing what you want to do will reduce your market share.*

1.	<i>Yes, there is competition</i>	<i>Indirect, the new machine will potentially substitute your work as a hand shredder, if for example a junkshop decides to buy it. However, in this case, you could be the one to buy the machine and offer better quality products, and turn the Threat (see exercise 2) into Opportunity.</i>
2.	<i>No there is no competition</i>	<i>You are very far away for feeling the effect of other scavengers coming to your area.</i>
3.	<i>Yes, there is competition</i>	<i>Direct, the neighbor will directly compete with you because is decreasing the amount of materials you can find available.</i>
4.	<i>Yes and No, there is competition</i>	<i>Yes there is Direct competition, for the plastic bottles fraction because the amount of materials disposed to the landfill will be less. No, there is not competition for the cardboard fraction because either way, the cardboard reaching the landfill was contaminated from the organic fraction. However, once again the threat of a similar municipal program could become an opportunity and try to reach an agreement with the municipality to collect directly from households or so.</i>
5.	<i>Yes, there is competition</i>	<i>Indirect, the new paper mill in Hungary will compete with the paper mill in Serbia, to which you sell your products.</i>
6.	<i>Yes, there is competition</i>	<i>Direct, the women will reduce the amount of organic waste they throw away, thus your supply will be reduced.</i>

Exercise 11:

A. Risks: 2, 5

B. Benefits: 1, 3, 4,6,7,8

Exercise 12:

	<i>Type of Factor</i>	<i>Direct Influence</i>	<i>Indirect Influence</i>
<i>1. The price of oil is rising increasingly and the plastic producers are facing growing production costs.</i>	Economic	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>2. A new public campaign has been launched from the municipality with the title “No litter in the Streets, Cleaner Future for our Kids”.</i>	Institutional	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>3. Peru has introduced in 2010 the law 29419, under which waste picking activities are recognized, get a formal status and are being integrated to the country’s solid waste management system.</i>	Legal/Political	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>4. A high-tech washing machine for plastic flakes has become commercialized and with the specification of reduced cleaning time by 50%.</i>	Technological	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>5. In Kenya, the government backstopped exports of recovered scrap metal thus affecting livelihoods of small business operators.</i>	Economic		<input checked="" type="checkbox"/>

Exercise 13: *The answer depends on your case. It is important that you base your answers on real discussions with potential clients. Take a sample of your product with you so they can have a better idea of what you are offering and thus be more pragmatic to their willingness to pay.*

Exercise 14:

You have 2 points of recovering materials, 4 selling points –where your clients are- and 1 point where your facilities should be. In this exercise you are asked to estimate the best location for your facility by calculating the time and cost of your transportation.

For answering this exercise you need to follow the checklist:

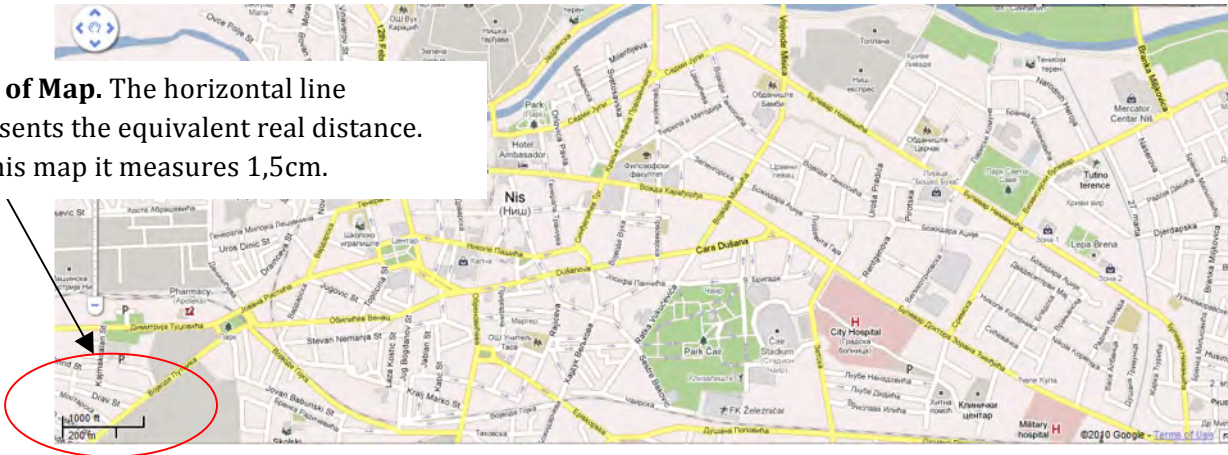
- 1. Find a map of your area*
- 2. Identify your points of recovery of materials and the selling points.*
- 3. Walk/Drive/Pass by all the points that you have identified*
- 4. Choose a point A and a point B as potential locations for your facilities.*
- 5. Calculate the distance, time and transportation cost from one of the points to your facility.*
- 6. Do the same for all your points on your map.*
- 7. You compare the cost and time calculations*
- 8. You choose either point A or point B for your location.*

In the hypothetical situation of a waste-picker in Nis in Serbia, the identification of the best location for his sorting and processing facility would be done as following:

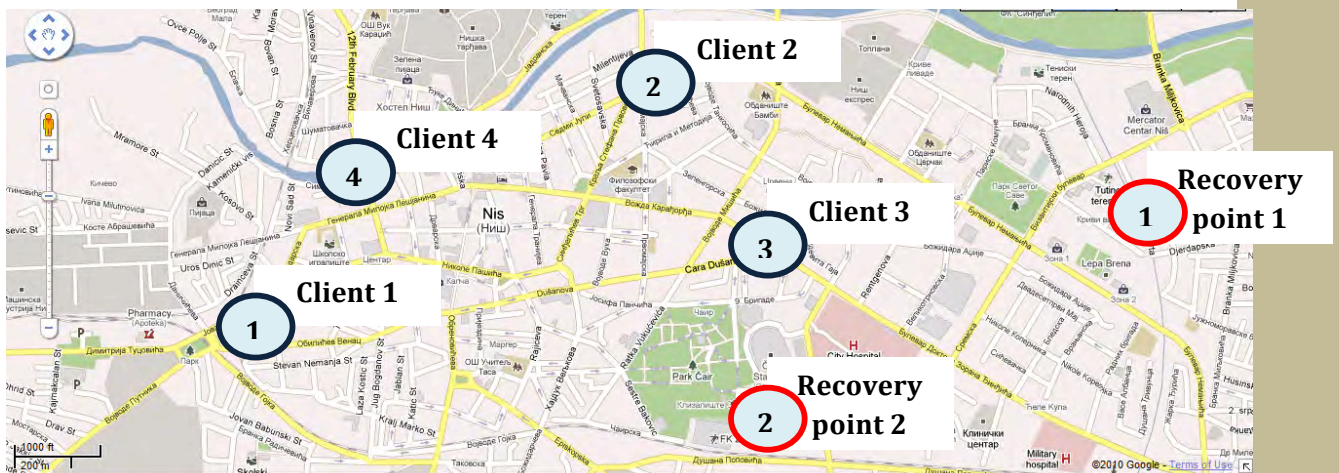
1. Find a map of your area.

This is a map of Nis in Serbia with a scale of 200m/1.5cm.

Scale of Map. The horizontal line represents the equivalent real distance. For this map it measures 1,5cm.



2. Identify your 2 points of recovery of materials and the 4 selling points.



3. Walk/Drive/Pass by all the points that you have identified

The reason for that is that you can sense the actual distances you will be required to make from one place to the other.

4. Choose a point A and a point B as potential locations for your facilities.

The choice of these points A and B should not be done by chance. You should take into account the practicality and time parameters into account, as mentioned in the note on page 57. You will have to choose two locations so you can compare them. In reality you might have more

you might have more than two options for your location. The rent you might need to pay per location can influence your decision as well.

For the example we will pick point A and B as shown on the following map:



Point A was chosen because of its proximity to all 4 clients but it is kind of far away from the recovery points. Point B was chosen because of its proximity to the recovery points and some of the clients.

Point A was chosen because of its proximity to all 4 clients but it is kind of far away from the recovery points. Point B was chosen because of its proximity to the recovery points and some of the clients.

5. Calculate the distance, time and transportation cost from one of the points to your facility. // 6. Do the same for all your points on your map.

a. Distance

To calculate the distance between your locations you need to know the scale of the map and have a ruler to measure the distance between the points on the map. For this example the scale is 200m, meaning that for every 200 real meters you match the length of the line shown on the scale, which for this case is 1,5cm. So looking at the map you need to calculate the real distances between the following locations.

From Point A to Client 1:

From Point A to Client 2:

From Point A to Client 3:

From Point A to Client 4:

From Point A to Recovery Point 1:

From Point A to Recovery Point 2:

From Point B to Client 1:

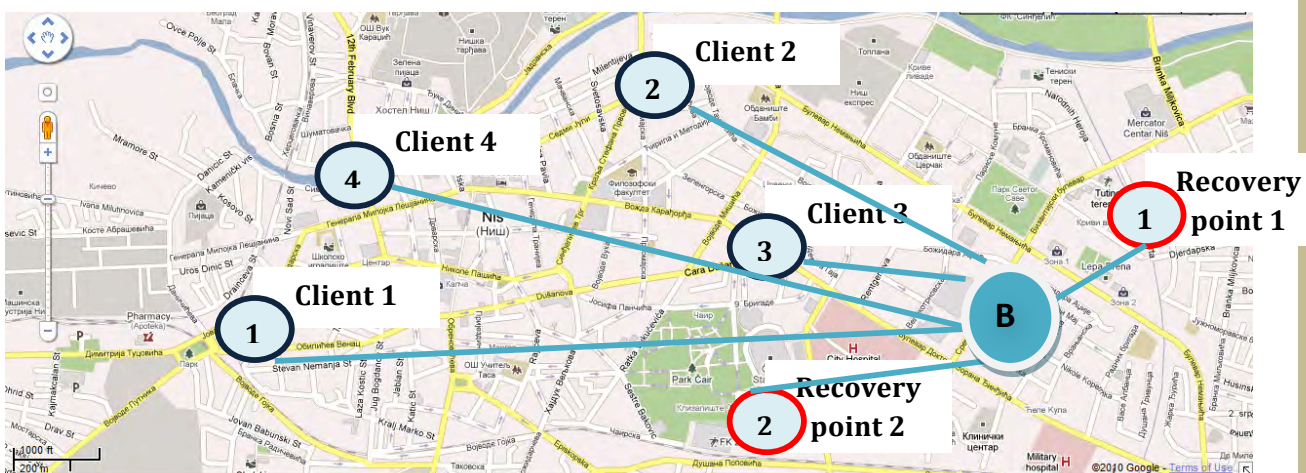
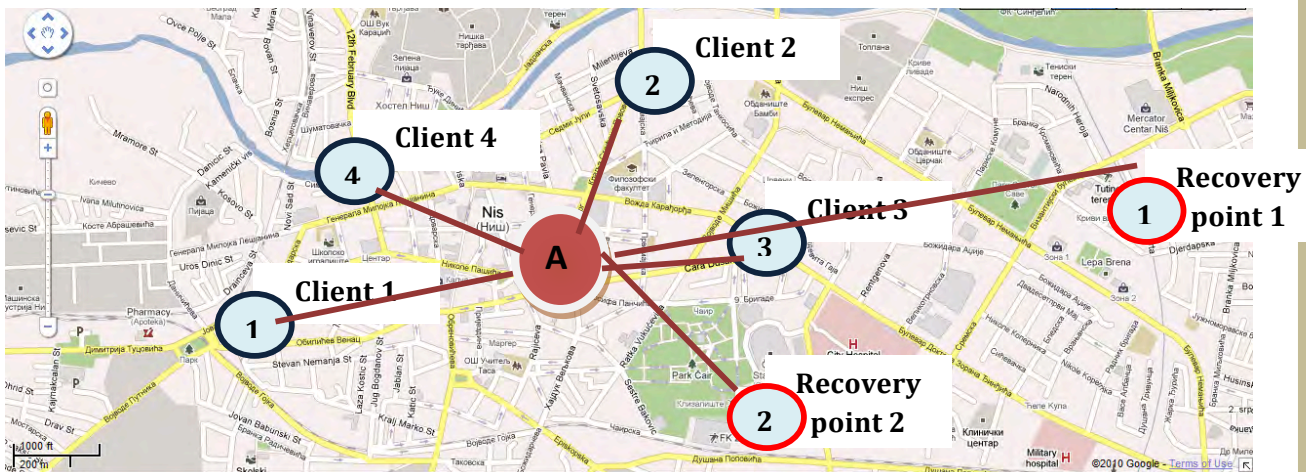
From Point B to Client 2:

From Point B to Client 3:

From Point B to Client 4:

From Point B to Recovery Point 1:

From Point B to Recovery Point 2:



From Point A to Client 1:
 $(2.5\text{cm} * 200\text{m})/1.5\text{cm} = 333 \text{ m}$

From Point A to Client 2:
 $(1.5\text{cm} * 200\text{m})/1.5\text{cm} = 200 \text{ m}$

From Point A to Client 3:
 $(1.5\text{cm} * 200\text{m})/1.5\text{cm} = 200 \text{ m}$

From Point A to Client 4:
 $(2\text{cm} * 200\text{m})/1.5\text{cm} = 267\text{m}$

From Point A to Recovery Point 1:
 $(6\text{cm} * 200\text{m})/1.5\text{cm} = 800\text{m}$

From Point A to Recovery Point 2:
 $(2\text{cm} * 200\text{m})/1.5\text{cm} = 267\text{m}$

From Point B to Client 1:
 $(8\text{cm} * 200\text{m})/1.5\text{cm} = 1,066\text{m}$

From Point B to Client 2:
 $(4\text{cm} * 200\text{m})/1.5\text{cm} = 533\text{m}$

From Point B to Client 3:
 $(2\text{cm} * 200\text{m})/1.5\text{cm} = 267\text{m}$

From Point B to Client 4:
 $(7\text{cm} * 200\text{m})/1.5\text{cm} = 933\text{m}$

From Point B to Recovery Point 1:
 $(1\text{cm} * 200\text{m})/1.5\text{cm} = 133\text{m}$

From Point B to Recovery Point 2:
 $(2\text{cm} * 200\text{m})/1.5\text{cm} = 267\text{m}$

For this exercise let's assume that the waste picker transports by bicycle his materials, thus the transportation costs would be zero.

7. You compare the cost and time calculations

So assuming that in one day your program starts by going to recovery point 1 and then to recovery point 2, then you come back to your facility. Then you visit in one go your clients. This is a simple example of your routing plan. It can of course be more complicated.

So your total distance covered if:

*You have your facility in point A would be equal to the sum of all the distances from that point multiplied by two, because you have to count the return also. This means that from point A you will have to cover the following distance: $(333+200+200+267+800+267)*2 = 2,067 \sim 2\text{km}$.*

*You have your facility in point B would be equal to the sum of all the distances from that point multiplied by two, because you have to count the return also. This means that from point B you will have to cover the following distance: $(1,066+533+267+933+133+267)*2= 3,199\sim 3.2\text{km}$*

8. You choose either point A or point B for your location.

The calculations show that in terms of distance point B would require you cover more distance. This will mean that you will also have to spend more time on transportation.

b. Time

For calculating the time it will take you to move from one point to the other, depends on the transportation means you use. If you go on foot then it will take you more time than if by car. However, then you will have higher transportation costs, because of the fuel

Exercise 15: *The answer depends on your case. This exercise is also important because it can provide you with an estimation of how many materials you can find in order to sell later. You cannot promise to your client to deliver 10kg/day and deliver 2kg/day, because you simply couldn't find materials. This would mean that you were mistaken at your original calculations.*

Exercise 16: Storage Space needed

a. You collect 8tonnes/month = 8,000 kg/month.

Per day you collect 8,000 kg/ 25 days = 320kg/day

b. You sell 150kg/day. So that means that the remaining cardboard, your stock, per day is

Stock = 320kg/day - 150kg/day = 170kg/day

c. A bale of OCC is weighting approximately 415kg/m³ (look table 64). That means that for the stock you have you need

Storage Space needed per day = $(170\text{kg} * 1\text{m}^3) / 415\text{kg} = 0.41\text{m}^3$

d. So for the stock amount of a month the storage space needed is

$$\text{Storage Space needed per month} = 25 \text{ days} * 0.41 \text{ m}^3 = \mathbf{10.25 \text{ m}^3}$$

If you want to interpret this in how much surface you will need, meaning how many m² you will need for your stock then you need to use the high your facility.

You know that your facility is 2,5 meters high. Then you calculate the surface needed like this:

$$\text{Volume (m}^3\text{)} = \text{Surface (m}^2\text{)} * \text{Height (m)}$$

$$10.25 \text{ m}^3 = \text{Surface (m}^2\text{)} * 2.5\text{m}$$

$$\text{Surface (m}^2\text{)} = 10.25 \text{ m}^3 / 2.5\text{m} = \mathbf{4.1 \text{ m}^2}$$

Exercise 17: *The answers to the pictures are shown in the following table. The ✕ indicates that it is a wrong practice and the ✓ indicates that it is a correct practice with regards to health and safety guidelines.*

1. ✓	2. ✓
3. ✕	4. ✓

Exercise 18:

a → 3

b → 2

c → 1

d → 6

e → 4

f → 5

Exercise 19: *This exercise depends on your case. You can use the theory presented before the exercise to estimate your own Start-up capital.*

Exercise 20:

Question 1: How many people Carolina has to hire?

She needs to process 1.5tonne/day and she knows that each experienced worker processes 300kg/day.

That means that she needs $1,500\text{kg} / 300\text{kg} = 5$ workers/day

Question 2: How much it will cost her to hire 5 workers?

Each worker will work 25days/month.

This will be for 2 months. So that means that in total each worker will work for 50 days.

Each worker costs \$2/day.

Carolina will have labour costs for the next two months equal to:

$50\text{days}/\text{worker} \times \$2/\text{day} \times 5\text{workers} = \500

Her labour costs per month will be \$250 and \$250.

Exercise 21:

1: Costs for Processing Materials

2: Costs for Processing Materials

3: Rent

4: Advertising

5: Transportation

Exercise 22:

Question 1. In June. The entrepreneur surpasses the breakeven point after June and he has enough liquidity to cover all his costs.

Question 2. It means that in May his customer didn't pay the entrepreneur \$250 as he should for the materials he bought, but \$200. The customer paid the remaining \$50 in June and that is why this amount appears in the cash from credited sales.

Question 3. Cash In = Cash in Hand + Cash from Sales + Cash from Credited Sales + Loans.

Question 4. The negative cash generated amount means that the entrepreneur does not have enough money to pay his running costs. He is suggested to do one of the following:

- 1. Get the money people owe you*
- 2. Increase your profits by increasing sales, and/or reducing costs*
- 3. Find additional sources of supplies.*

It is relatively soon to suggest him/her to borrow more money, since he just started with a loan. The same for finding external partners. It is relatively soon for that.

Question 5. A banker will definitely need to see the cash flow statement of the company. However, he will not base his investment decision only on that. He will also like to see the P&L as well as the start-up estimations, as well as a more complete plan for the company including its marketing and operational strategy.

Exercise 23:

1. The entrepreneur has to pay \$163 for his total obligations and in the case of the example these obligations concern \$13 for paying taxes and \$150 for paying back the bank loan. These number was calculated by adding up the current and longterm obligations of the entrepreneur.

2. On the first day of his/her operation (20th November 2010) the entrepreneur had \$110 which included the \$100 cash he/she had and \$10 value of inventory (materials' stored). These were his/her current assets , which were calculated by adding up the different types of current assets.

3. He would add it under the fixed assets category , under building.

4. If the entrepreneur took a loan then in his long-term obligations, under bank loan he would have not \$150 but \$700. That means that the owner's money in the end would be -\$577.8.

5. Depreciation is the number that represents the value loss of a machine or equipment and generally of assets while time passes by. This means that if you buy your baler today at \$8 and you try to sell it after three years, you will not be able to sell it for \$8 but for less. There are different ways of calculating depreciation and the simplest is to divide the original price of the asset by the number of years the asset is expected to last.

In the example we know that the baler cost \$28 (from equipment and fixtures) and that the depreciation is \$2.8 (from depreciation). That means that if we want to calculate how many years the entrepreneur thought his machine will last we divide the value of the baler with the depreciation. That means that $Years = 28 \div 2.8 = 10$ years.

Exercise 24: This exercise depends on your case. Just note down all the activities you have to do before starting and fill in the action plan table.

Exercise 25:

The missing information from the loan data box is:

The correct answer to the question is "c"

Loan Amount: Ksh. 200.00
Loan Length: 1 year
Annual Interest: 3%
Pay Periodicity: Every Month
Monthly Payment: Ksh. 16.94
Total Paid: Ksh. 203.26
Total Interest: Ksh. 3.26
Total Periods: 12

PART 3

Further Reading

Annex 1

Sorting techniques for plastics

a) *Finger nail scratch and flexibility: PE that has been exposed to the weather may have hardened and become unscratchable, rigid and brittle. Very thin material of any polymer may seem flexible; very thick of any may seem rigid.*

b) *Flotation test: This is very useful to make the difficult distinction between high-density polyethylene (especially if it has been hardened by exposure to weather) and polypropylene. Also between high and low density polyethylene. A mixture of water and alcohol is made up of exact density, so that one material will sink and the other float. If pure alcohol (ethyl alcohol - density about 0.79) is not available use iso-propyl alcohol (also called Propanol or Propan-2-OL - density about 0.78). Mix the two thoroughly and use a "hydrometer" (range 0.9 to 1.0) to test the density of the mixture. A density of 0.925 will ensure that polypropylene floats and HDPE (or even a medium density PE) will sink. A density of 0.93 is better to distinguish HDPE from LDPE.*







Flotation tests between polypropylene and LDPE cannot be done with certainty because their densities can overlap- Use the fingernail test and visual appearance instead. Once made up the mixtures can be kept, provided they are securely capped to avoid evaporation or checked with a hydrometer before use. Flotation may be affected by surface tension; avoid by adding a couple of drops of washing up liquid to the water or mixture, or by carefully pushing the sample under the surface and swirling gently to remove any air bubbles.

c) *For the flame test, cut a sliver 5cm long and 1cm wide at one end, tapering to a point at the other end which is lit. Hold over a sink or stone, away from the body and clothing as samples may drip. The drips will only burn as they fall if they drop from within the flame.*

d) *PVC can be confirmed by touching the object with a red hot copper wire and returning the wire to the flame when it will burn green. Burn off all residue of material before repeating the test with the same wire. (Other polymers that contain chlorine or fluorine, such as PTFE or polyvinylidene chloride, also give a green flame in this test but they are rare).*

e) *Thermosets can be tested with a piece of wire just below red heat. If the wire penetrates it is a thermoplastic, if not it is a thermoset.*

The following table presents some characteristics of the most used polymers, which can help you in their identification.

Resin Symbol	Flexibility	In Water	Burning	Scratch with Finger Nail	Transparent	Applications
	Very Flexible	Sinks	Strong Yellow Flame with a little black smoke	No-unless very thin	Yes	Fizzy drink and water bottles. Salad trays
	<ul style="list-style-type: none"> - Much less flexible than LDPE, - Film Crackles when bent, 	Floats	Ditto	Yes with difficulty, especially when cold or weathered	No	Milk bottles, bleach, cleaners and most shampoo bottles.
	<ul style="list-style-type: none"> - Rigid PVC is brittle • Plasticized PVC can be very flexible 	Sinks	Touch with a red, hot copper wire to flame. Green flame indicates PVC or other polymer containing chlorine	<ul style="list-style-type: none"> - Rigid PVC: No - Flexible plasticized PVC: yes 	Yes	Pipes, fittings, window and door frames (rigid PVC). Thermal insulation (PVC foam) and automotive parts.
	Very Flexible	Floats	Blue Flame with yellow	Yes, easily	No	Carrier bags, bin liners and packaging films.
	<ul style="list-style-type: none"> • Hard to bend but does not break when bent, • Forms an almost unbreakable hinge if folded 	Floats	Yellow flame with blue base, Can drip burning droplets	No	No	Margarine tubs, microwaveable meal trays, also produced as fibres and filaments for carpets, wall coverings and vehicle upholstery.
	Very Rigid and Brittle	Sinks	Burns strongly with yellow flame, Leaves no ash	No	Yes	Yoghurt pots, foam hamburger boxes and egg cartons, plastic cutlery, protective packaging for electronic goods and toys. Insulating material in the building and construction industry

Resin Symbol	Flexibility	In Water	Burning	Scratch with Finger Nail	Transparent	Applications
Acrylo-nitrille Butadiene Styrene- ABS	Less Rigid than PS	Sinks	Ditto but leaves some ash	No	No	In drain-waste-vents, pipe systems, musical instruments, golf club heads, automotive trim components, whitewater canoes, luggage and protective cases, toys like Lego brcks.
Cellulose Acetate- CA	-	Sinks	Like paper, not if flame is removed	No	Yes	cigarette filters, display packagings, eyeglass frames, fishing lures, industrial tapes, protective coatings, tool handles toothbrushes
Polymethyl Methacrylate – PMMA	Brittle	Sinks	Yellow flame with blue base. No smoke Does not drip	No	Yes	Adhesives, automotive signal lights, lenses, medallions, neon signs, protective coatings
Nylon	Very Flexible	Sinks	Blue Flame, Melts & Drips Does not continue to burn if recovered from flame	No	No	Bearings, carpets, gears, mechanical components in cameras and domestic appliances, oil seals, tire cords
Polycarbonate- PC	Very tough	Sinks	-	-	-	Electronic components, construction materials, data storage, automotive an airc

Annex 2

Further Paper Processes

Source: The Paper University, www.tappi.org

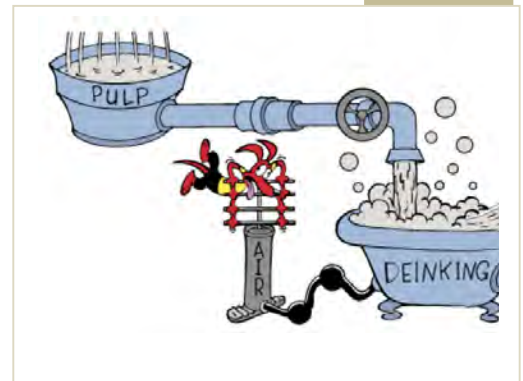
De-inking

Waste paper will carry some form of printing which, if not removed, will cause the product to be discoloured. The process of removing the print, called de-inking, is often, not worthwhile for the small-scale operator, involving as it does, even more, expensive equipment. It is a better policy to concentrate on unprinted materials if these can be obtained.

Alternatively, paper with as little print as possible

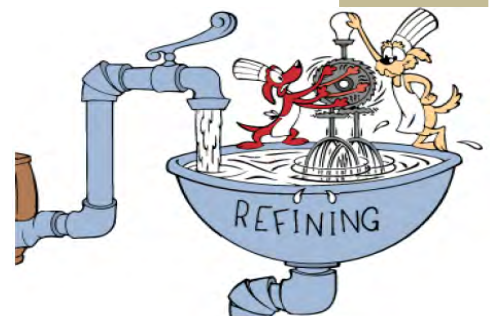
should be selected. When the final product is used for packaging it is sometimes acceptable to mask the discolouration due to ink by tinting the pulp to produce a coloured paper. One of the major parts of recycling is the collection, sorting, baling, and transportation of waste

paper.



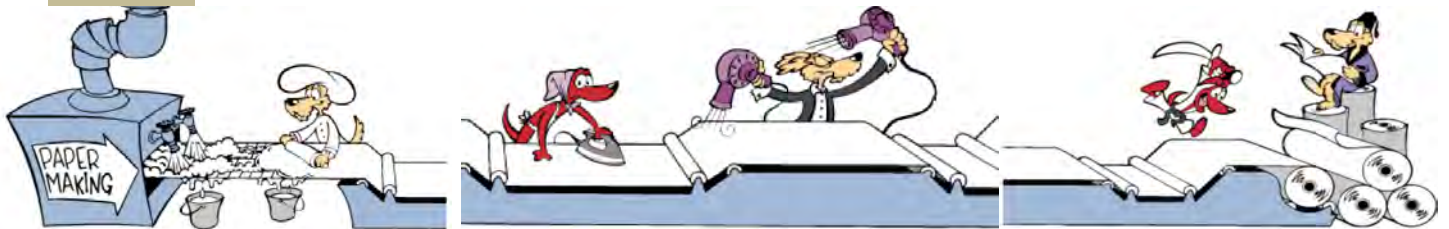
Re-pulping

The next step is re-pulping. Industrial production involves disintegrating the bails in a hydropulper, where they are reduced to individual fibres. Chemicals are added so that ink particles, coatings and additives, and extremely small contaminants such as fillers start to separate from the paper. Depending on the required level of improvement, the pulp is sent through several stages, where heat, chemicals, and mechanical action may be used to further improve the pulp. Finally, the pulp mixture enters a flotation device, where calcium soap and other chemicals are added. Air bubbles in the mixture float the remaining ink and contaminants to the surface as a scum, where it is skimmed away.



The pulp is sent to the stock preparation area, where it is treated and loaded into the flowbox (controls the flow of the pulp through the 'slice' onto the 'wire') of a paper machine.

From this point, the pulp is treated just the same as if it had been freshly made from any other raw material rather than recycled.



Annex 3

Further Plastic Processes

Pelletising

Pelletizing and product manufacturing are the final steps in the plastics recycling process. These processes require that:

- *The waste plastics have first been sorted according to polymer type*
- *That they have been cut into small, relatively uniformly sized pieces.*
- *Shredded and agglomerated materials can be used directly for product manufacturing processes (except the pelletizing stage), although this is not usually done. Normally, the shredded and agglomerated waste plastics are pelletized first.*

This way, the quality of the moulded end products can be improved. The use of pellets also increases the efficiency of the product manufacturing process, due to the lower bulk density of shredded and agglomerated waste plastics compared to pellets. The most common moulding processes in low-income environments are:

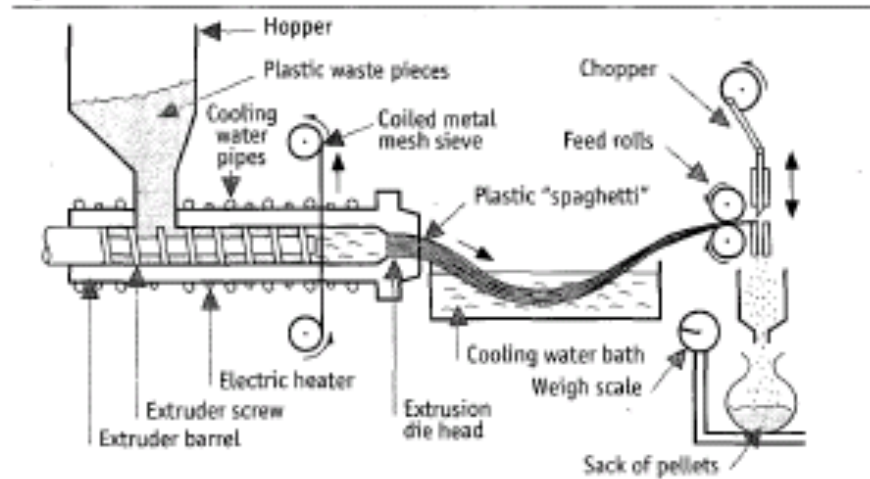
- 1. Blow Moulding*
- 2. Injection Moulding*
- 3. Extrusion*
- 4. Film blowing exists also and is used in the manufacture of plastic bags*

The Pelletizing Process in General

Shredded rigid plastic objects or agglomerated films are subjected to the process of extrusion and pelletizing to produce plastic pellets. These can then be used as the input materials for various moulding processes. Besides plastics, the process is also used to produce such diverse materials as pasta (spaghetti) and some metals.

The main functions of the extrusion phase are: compounding (mixing) the various substances, homogenization, compression, degassing, and plasticization and melt filtration. The pieces of plastic raw materials (compounded with any desired additives, such as pigments) are fed into the hopper of the extruder. Figure 8 presents the general principles of a pelletizing process.

Figure 6-2 Extruder with a pelletizer.



Source: Vogler,⁴⁵ 1984.

Figure 8: Overview of Pelletizing Process

The spaghetti-like plastic strings that emerge from the extrusion die head are then cooled by passing them through a basin of water or a ventilator. The strings, supported by rollers placed at the end of the water basin, are then drawn by a mechanical system into the pelletizer. The pelletizer chops the strings into short, uniform, cylindrical pellets that are ready for use in manufacturing processes. The plastic waste generated by this process can be extruded again.

The production capacity of the pelletizing process depends on the size of the extruder that is used. A micro-palletizing workshop needs two to three workers besides the owner. Sheltered accommodation is required, the size of which will depend on the size of the extruder, the water basin, the pelletizer, and the amounts of plastic material to be stored. Both water and electricity supplies are needed.

1. Blow moulding

The term "blow moulding" is used to describe the process of producing hollow articles such as bottles, where the tops or bottoms are narrower than the body itself. The process is similar to the one used in blowing glass objects. The principle of the process, which takes place in two stages, is shown in Figure 9.

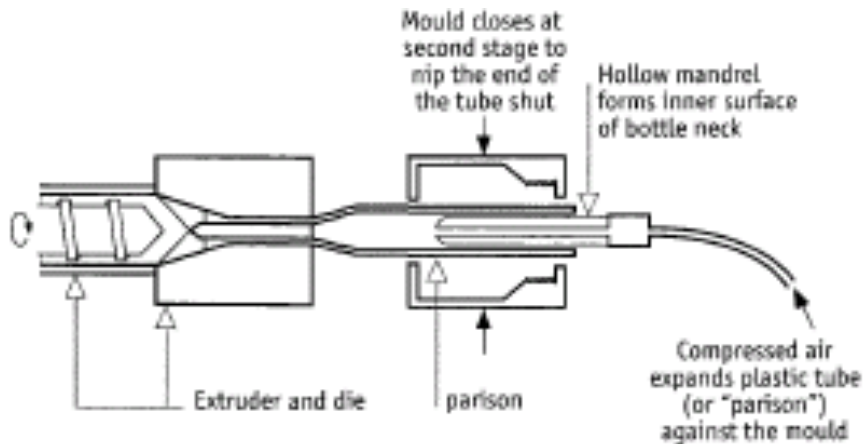


Figure 9: The Principle of Blow Molding

First, a piece of plastic tube, or "parison" is extruded, and is then transferred to a split mould with the shape of the final product. The mould is then closed around the parison. Compressed air is blown into the open end to expand the parison to the shape of the mould. The formed shape is allowed to cool until the finished object solidifies, which is then ejected from the mould and the cycle is repeated.

The production capacities of the blow moulding machines used in Cairo, for example, vary between 100 and 200 kg of final products per day, depending on the power of the motor, which can range from 10 to 15 HP.

2. Injection Moulding

The injection moulding process is similar to that of extrusion, except that the materials (the melt) are forced from the barrel through a nozzle into a strong, split steel mould, as shown in Figure 10.

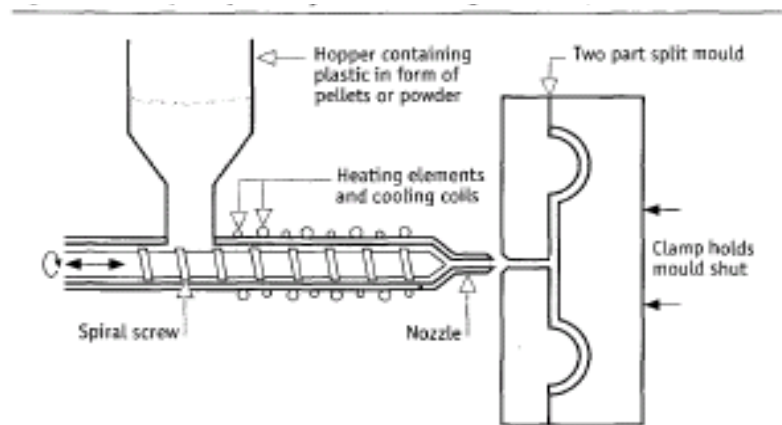


Figure 10: The principle of Injection Moulding

The rotating screw conveys the plastic forward and the heating elements plasticize it. The screw then stops moving allowing the melt to accumulate in the front part of the barrel. When an adequate amount has accumulated, the screw moves forward again, pushing the melt into a closed steel mould. The mould is kept cool so that the material quickly solidifies. The mould is then opened, the product is removed, and the mould is then made ready for the next amount of melt.

The shape of the mould determines the type of product produced. Hand-powered moulding is possible, but this usually results in products of poorer quality (e.g. caused by unequally applied pressure) destined for low-income consumer markets, even if virgin raw materials are used. Mechanical injection moulding usually results in products of a better quality.

3. Extrusion

Extrusion moulding is similar to the extrusion process preceding the pelletizing process, except that the end product is a continuous, parallel stream of plastic such as tubing. This is made by a special die: a steel plate pierced with a hole that determines the shape of the product. The extruded material is cooled and solidified in air, in a water bath, or on a chilled drum, before being wound onto a reel or cut into straight lengths. The principle of the technique is shown in Figure 11.

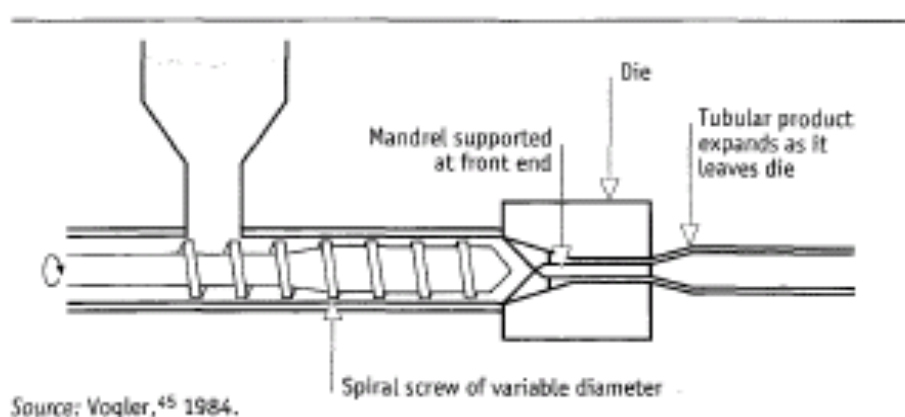


Figure 11: The principle of Extrusion Molding

4. Film Blowing

Film blowing is technically the most complicated of the processes described. Various methods are used: the process of making garbage bags. After extrusion from a tubular die, the product, in this case a thin tube moves upward to a film tower that contains a collapsing frame, guide rolls and motor-driven pull rolls. Compressed air is passed through the centre of the die and inflates the tube. The outside surface is cooled by air from an air ring mounted above the die. When the tube has passed through the pull rolls, it is sealed and cut to form the bag. For this process only high-quality pellets can be used as the raw material.

5. Product manufacturing

A number of mechanical manufacturing processes are used by small enterprises to produce particular final products, including:

- *Extrusion for piping and tubing*
- *Injection moulding for miscellaneous products*
- *Blow moulding for bottles*
- *Film blowing for plastic bags*

All of these processes require an electricity supply. Only for injection moulding does a low-cost, relatively simple, hand-powered alternative exist. Usually the type of product and the demands on physical properties will determine the ratio of reprocessed to virgin plastics that can be used. For massive final products, such as furniture and (fence) posts, 100% waste plastics can be utilized. With other finer items, such as fishing nets, only a minimal amount of waste plastics can be used in the form of shredded or agglomerated waste plastics as well as pellets.

Annex 4

Small and Middle Scale Composting: the different steps in detail.

Written by WASTE with inputs from the User's Manual on Decentralized Composting for Cities of Low and Middle Income Countries, EAWAG and Sandec, 2006.

When doing composting as a business, it's important to know what your market wants, and to adapt the process to meet their needs. But in all processes, there are certain steps., which are shown in the picture above.

Step 1, Source separation

The place where the organic waste comes from is called the source, and the person or company who produces waste is called the generator. For composting, several kinds of generators are important. They are:


- *Households*
- *Open markets*
- *Restaurants and cafes*
- *Gardens, yards, parks, and green spaces, both public and private, and also urban farms or vegetable gardens.*

For good quality compost, it helps a lot if the generator keeps the organic waste separate from the rest – it keeps both fractions cleaner and easier to work with. This often requires establishing new habits and providing the generators with a special container, that not only keeps the organic waste separate and clean, but serves as a kind of reminder of what to do with it.

Step 2, Separate collection

The next step is to gather the separated organic waste in a vehicle or in a bag or basket, and take it to the composting site. There the different kinds of materials – for example vegetable wastes, food processing wastes, and animal manures – should be piled separately to help the process of making the right mix of green and brown materials.

Step 3, Pre-processing


 Depending on the nature of the wastes, they may need to be pre-processed before the compost piles can be formed. That's why the diagram shows the pre-processing steps, but also that they can be skipped or bypassed if necessary. There are three things that pre-processing can do for your future compost:

Sorting by hand or with a screen or sieve can remove contaminants and make the final product more clean and marketable

Size reduction is a general word for different actions to reduce the size of the particles and make the materials more uniform. You can do this by hand chopping, or with equipment that shakes the material onto a screen, cuts or shreds it, or turns it in a drum. If the incoming organic waste already is a mix of sizes, this isn't necessary.

Blending materials before you form the pile helps to get good compost. Blending can mean including bulking agents, or mixing green and brown materials to get the right recipe, or even adding water or urine before you form the piles.

Step 4, Pile formation

 This is where you actually begin the composting process. You need to pile the compost up and make it into heaps. The size of the heaps, their shape, whether they are inside or under a roof, and how you build them, all depends on the materials you want to compost, how you will turn and aerate the piles, whether you have them in a container ("vessel") or not, and also what your climate is.

Generally there are three types of piles for composting:

windrows or active piles. *These are longer than they are wide, in fact as long as space allows, and usually about two metres wide and between one and three metres high. Active piles do not have aeration internally, the air is added by turning them over, either manually or mechanically. A typical approach to turning an active windrow is to use a front-end loader or a special turning machine and move the pile sideways. For larger composting operations, the choice for windrows does usually mean you need to have a tractor available.*

static piles. *These are round or long heaps, which are built with pipes inside them. The air is pumped into or sucked out of them with a fan, or in some cases just with perforated pipes that go through and allow air to enter. With static piles, you can get more compost in a smaller space, because instead of moving the compost into the air, you move the air into the compost.*

But that movement usually costs energy, and energy usually costs money, so you need to think carefully which you have more of – space or money.

vessels. *You can also compost inside a container or even in a hole in the ground. This is useful in small urban places or where there is some resistance from neighbours, or when you are composting materials that are likely to create some smell, like fish waste or human excreta. Some vessels look like tanks, some like cement-mixers or drums, and others like shipping containers or boxes. What they all have in common is that there has to be some way of introducing air into the vessel, and also controlling moisture and temperature. For this reason in-vessel composting is more like static pile composting than it is like windrows.*

Colder climates need bigger piles to insulate them. But in any case your pile needs to be at least $\frac{3}{4}$ cubic metre and never bigger than two to three meters in width. Height can be more variable, but two metres high is a good general idea.

Building the piles means simply taking the materials and placing them in a pile, windrow, or in the vessel. You can do some blending when you construct the piles, for example, a thin layer of green material, a thick layer of brown material, and a lot of water, and then begin again. In the turning, these materials will get mixed together, which is what you want.

Sometimes it helps to put larger materials on the ground to allow air to come in at the bottom. What is important for smaller compost operations is that the compost pile has to be in contact with the soil, because good composting requires that soil organisms migrate into the pile, do their work, and then leave again. For example larger organisms (“macrophages”) such as insects or snails have to go in to chew up the organics, so that the bacteria can do their work, but then they have to be able to leave again also.

Additives

There is a lot of hype about additives for faster composting. Our advice is to stay away from them, other than adding some oversize screening results from step 7, below. While most additives or bacterial inoculants don't hurt the compost, they are expensive and they don't do anything extra. Some additives like lime are actually harmful, because by changing the acidity they harm the bacteria or other organisms and prevent their working. If you have a very small space or a very special marketing demand you might need additives, but if you need them, you have an even more urgent need to hire a compost specialist as a consultant to tell you how to use them.

Step 5, Monitoring, turning, moisture control

Even though the bacteria and organisms are actually making the compost, you need to keep them happy and healthy. The two main indicators of happiness and health are temperature and moisture.

Temperature: The pile should be hot in the middle, when you open it up, steam should come out. If it's not hot, you need to add water and turn it, and then check that it does get hot again.

Temperature is also an indicator of when the compost is finished. if you add water and turn and it doesn't get hot, and it has been composting for more than three weeks, you can pass to step 6, curing.

Moisture. As mentioned above, the material, when squeezed, should be spongy and a few drops of water should come out, but not more.

If it's too dry, add water and turn, if it's too wet, spread it out in the sun, or add dry brown material, or turn it for a few days in succession.

In monsoon climates, or with a heavy rainy season, it may be good or necessary to cover the compost with a tarpauline, or put it under a shed or roof, during the period of heavy rains.

Step 6, Curing

When the compost doesn't heat up any more, and when it's a uniform brown colour, has the "good smell" of humic acid, and you can't identify any of the original materials. it's finished. And by the way, when it's finished, there's 40% less of it than when you start, so for each tonne of organic waste you take in, you only get 500 to 600 kg of compost out. What you lose goes into the air as vapour or CO₂, or into the ground as leachate.

But even finished compost will still be too active for using, because there will still be some materials that are not fully decomposed. So then you enter step 6, which is called “curing” or “maturing”. It’s the simplest step, because curing just means letting the compost rest before you sell it for use. Why is this important? Compost is a source of nitrogen, or protein for plants. But when materials are not fully decomposed, they take nitrogen from the plants instead of giving it. This is what sometimes gives compost a bad name, if it’s not finished, it turns plants yellow instead of helping them to grow.

So curing is a kind of extra safety mechanism to make sure your product is safe for the users, and you avoid getting that bad name.

To cure the compost, you move it from the windrows or piles into a very large pile, that is in a convenient place for either pre-processing or for bulk sales. It needs to sit in those piles for about a month, but there is no limit to how long (except if it’s too long, things may start to grow). It doesn’t need turning during curing, but turning doesn’t hurt it either.

Step 7, Post-processing

After the compost has been cured for at least a month, it can be further processed for sale. There are two types of post-processing, screening, which has to do with the appearance of the compost, and bagging or packaging, which has to do with the logistics and the marketing strategy.

Screening: *the main function of screening is to improve the appearance of the compost so it is a more attractive product. Screening removes non-compostable residues, but also larger clumps of material. The non-compostable residues need to be safely disposed, the oversize materials should be returned to step 4 and integrated into the piles of fresh material.*

Screens can be very simple, a frame with wire in it, held at a 45 degree angle to the ground, or very complex, with motors, layers, and conveyor belts,

Bagging or packaging: *bagging or packaging may be necessary to market the compost to household or small users, but be careful: it can add enormous cost and little value to your product. In any case, always try to keep more than 50% of your product for bulk sales, and be cautious with investing in equipment for bagging. Test the market for bagged compost at a small scale, using reusable bags that a normal person can carry. A nice example from Bangalore India created printed cotton bags of 2 litres, which the clients brought to the compost area, filled them, and then paid a small amount each time they filled them.*

Step 8, Storage

Storage is your inventory, combining bagged and bulk product. A special note about inventory: compost, like recyclables, is not “countable”. So in your cash flow analysis, assume that some will “disappear” either with your employees, or at night.

Step 9, Sales and marketing

Depending who you are and where you are, and especially how long you have been in business and whether compost is recognized as a product, there are four main possibilities for marketing the compost.

Bulk sales to the fertiliser or nursery industry, or housing estate developers. These businesses will use the compost as an input or intermediary product, to what they really sell, which is fertiliser, topsoil blends, plants, or houses with lawns or gardens. They are reliable buyers, but won't pay a high price. Try to get them to take a lower-quality product, and pay extra for special blends. Always make the deal that they buy in bulk

Bulk sales to the public sector and institutions. The municipality, the army, the highway administration, the railroad, churches and mosques, cemeteries, sport fields (including golf courses), as well as estate gardens, schools, and hospitals, are all large users who need to keep spaces green and growing. They won't buy the first year, or maybe even the second, so be prepared to give away large quantities of your first year's crop. It's worth it if they become clients, because their hunger for blended soils will keep your business going for years.

Sales or giveaway to households, gardeners, private individuals. This is a small but important market, that builds knowledge of your product and image of your company. Seek to use simple packaging and bagging strategies that cost little, keep the price low, and bind the users to your business.

Bulk or bagged sales to agriculture, silvaculture (trees), orchards, or horticulture (flowers and ornamental plants). We list this last because it's the easiest to think about, but in some ways the most difficult market to access. We recommend that you work with the local agricultural university or extension service to help you understand these markets, the players in them, and how your product can serve the needs of these important, but highly sensitive, potential buyers.

Annex 5

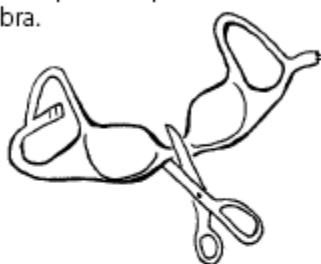
How to make a mask.

Based on the Community Guide to Environmental Health,
Hesperian.org,2008

How to make a cloth and activated charcoal mask

This homemade mask was designed by Dr. Maramba of the Philippines. It will give some protection from chemicals and dust.

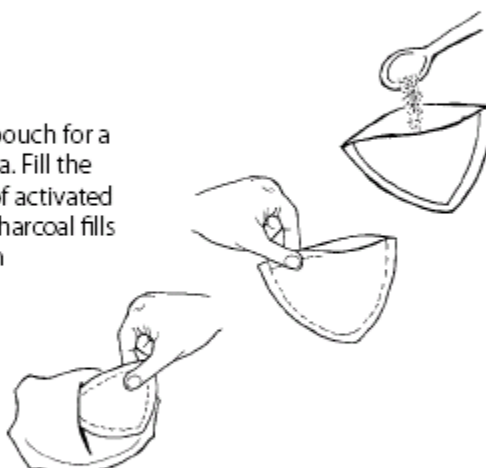
- 1 Cut one cup from a padded cloth bra.



- 2 Remove padding from the bra cup.



- 3 Cut some filter paper to make a pouch for a new pad that will fit inside the bra. Fill the filter paper pad with 100 grams of activated charcoal, making sure a layer of charcoal fills the entire filter evenly rather than settling to the bottom. Seal the paper so it will not spill, and place it inside the bra where the bra pad was.



- 4 Fit the bra cup with elastic straps to hold it tightly to your face.



The filter should be aired out between uses. If used while spraying the most toxic chemicals, this mask is good only for 2 uses of 4 hours each. The charcoal must be replaced within 1 week, depending on the type of chemical exposure and how long it is worn.

Annex 6

Different Types of Protective Masks

Based on the Community Guide to Environmental Health, Hesperian.org, 2008

Protective masks

The best ways to prevent harm from breathing in toxic chemicals and dust are to have good ventilation when working with them, and to wear a protective mask made to protect against the chemicals you are working with. If you feel ill from a chemical while wearing a mask, it is a sign the mask is not working properly, or that you are being exposed to that or some other toxic chemical in some other way.

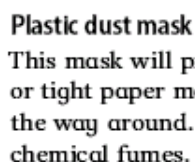
Loose cloth or paper mask

This mask will help keep out some dust. It will not stop you from breathing in chemical fumes. Fumes pass through paper and cloth and leak in around the edges of a loose-fitting mask.



Tight-fitting paper mask

This mask will protect from dust. The mask should touch your face all the way around. It will not stop you from breathing in chemical fumes. These masks clog up or wear out quickly and must be replaced when they no longer touch the face all around.



Plastic dust mask

This mask will protect from dust better than a loose cloth or tight paper mask. The mask should touch your face all the way around. It will not stop you from breathing in chemical fumes.



Rubber respirator

This rubber mask with filters MAY keep you from breathing in chemical fumes. It must fit your face tightly so no air leaks in between your skin and the mask. You will probably need a different filter for each chemical and must change the filter often. You will need special training to fit, use, and clean this mask. This mask is hot and uncomfortable to wear. When working with chemicals, take breaks often in an open, well-ventilated area where you can safely remove the mask.



Annex 7

Record Keeping Template for Health Status of Waste Handling Employee

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Health Status												
Diseases / Illness												
Materials Handled												
Location of Exposure to materials												

For the Health line you can draw little faces indicating if you were healthy or not on a specific month. For example:

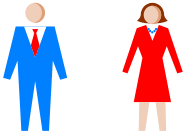
If you were healthy: 😊

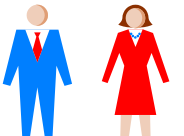
If you were not completely healthy but not seriously sick: 😐

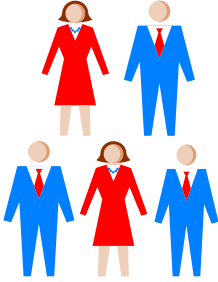
If you were not healthy and you couldn't work at all : 😞

Annex 8

Common Legal Forms of Businesses

Type	Advantages	Disadvantages
<p>Single Proprietorship</p>  <p>or</p>	<ul style="list-style-type: none"> - You can easily set it up; it is simple and low cost. - You make your own decisions 	<ul style="list-style-type: none"> - Requires a lot of your time - The growth of your business is limited to your own financial means. - You as the owner are the only responsible if things go wrong.
<p>Description: An individual owns the business. The owner needs a license to operate and if he/she has employees, then registration for sales tax or value added tax might be needed.</p>		

Type	Advantages	Disadvantages
<p>Partnership</p> 	<ul style="list-style-type: none"> - You can easily set it up - The balance and check of your operations is shared between the two owners. - Money and expertise can be more easily found. 	<ul style="list-style-type: none"> - If you disagree strongly with your partner then the partnership might be in danger. - If one of your partners makes a decision then it is binding for you as well. - If one of the partners has no more money, you might have to pay all the business debts by yourself.
<p>Description:</p> <p>Two or more people form a partnership. Current regulation says that maximum twenty people can form a partnership. The partners are the owners of the business and they make all decisions about the business together, unless they have agreed otherwise in the partnership agreement. The business profits are divided between the partners according to the partnership agreement and each partner is individually taxed on his or her share of the profits.</p>		

Type	Advantages	Disadvantages
<p>Corporation</p> 	<ul style="list-style-type: none"> - You share the risks and losses with other partners. - You have maximum flexibility for growth. - You are not held responsible if something goes wrong. - The management is more professionalized. 	<ul style="list-style-type: none"> - The process of setting it up is complicated - You as an individual you might have little influence on the management of the company. - You might have to face an increased bureaucracy.

Description:

It is owned by one or more owners, called the shareholders. There can be one or more owners who are all working in the business. There can also be the case where two are working in the business and the rest even though they are investors and owners of the company; they are not active in the business. For setting up this form of business you need to get help from a lawyer.

To start a limited liability company, you draft a Memorandum and Articles of Association of your planned enterprise and file the document together with the proposed name of your business with the Registrar of Companies or a similar authority. The Registrar of Companies issues a certificate of incorporation, which means that your limited company is now formed.

Type	Description
<p>Community Based Organisation</p>	<p><i>It is a business set-up by residents in a particular community to encourage self-help activities. Its purpose is to mobilize local resources to improve the quality of life through collective self-help. A CBE is a profit-oriented business and offers a service for a profit.</i></p> <p><i>A CBE is allowed to make a profit and to redistribute it to its members as an addition to their salaries. The members are the owners of the business and they make all decisions about the business together, unless they have agreed otherwise in the agreement.</i></p>

Type	Advantages	Disadvantages
<p>Cooperative (Association of People)</p>	<ul style="list-style-type: none"> - It is not very likely that it would be dissolved. - As a member you cannot be held personally responsible if something goes wrong. - More than one people benefit from the business. - The members can hire professional managers. 	<ul style="list-style-type: none"> - The fact that you share control of the company. - The fact that for every decision you make you need to have all or at least the majority of members to agree.

Description:

A cooperative is formed by a number of people who decide to work together for a common purpose. The common purpose can be economic gain or providing certain services for the members of the cooperative. All the members of the cooperative have one vote each when making decisions, but often they appoint a management committee to handle the day-to-day operations of the cooperative.

A cooperative must be registered with the authorities. It is complicated and takes long time but is normally not very expensive. The financial risks are normally not very high for the members of the cooperative. Their personal responsibility for the cooperative's debts is limited to what they have paid into the cooperative as capital. The cooperative itself is taxed for the profits. The profit is then divided among the members, for which they pay tax according to the tax laws in the country.

This section was adapted from the following two sources:

- *Start your Waste Recycling Business; A technical step-by-step guide of how to start a community based waste recycling business, Business Manual, International Labour Organization, October 2007*
- *Do you want to go into business, The Philippines Department of Industry and Trade, Bureau of Micro, Medium and Small Enterprise Development, 2010.*

FEEDBACK FORM

We would really appreciate if you would give us your comments for what you liked or didn't like in this guide. If you have any ideas of how we can improve this guide please let us know by either:

1. E-mailing this form to office@waste.nl

Name:

Company:

Title:

Contact details:

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Your Suggestions:

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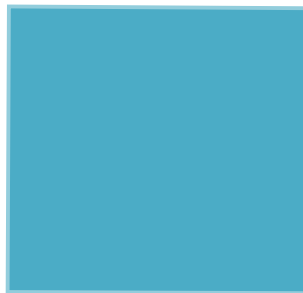
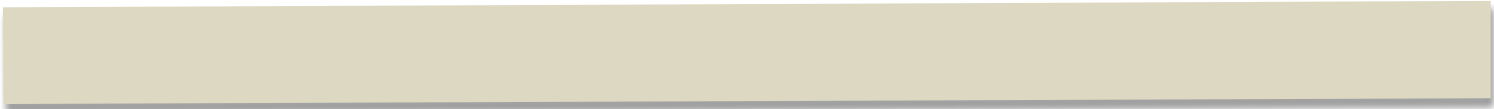
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2. Giving us a call at 0031 (0) 182 522 625





WASTE advisers on urban environment and development

Nieuwehaven 201

2801 CW Gouda

the Netherlands

tel: +31 (0) 182 522 625

office@waste.nl

www.waste.nl

