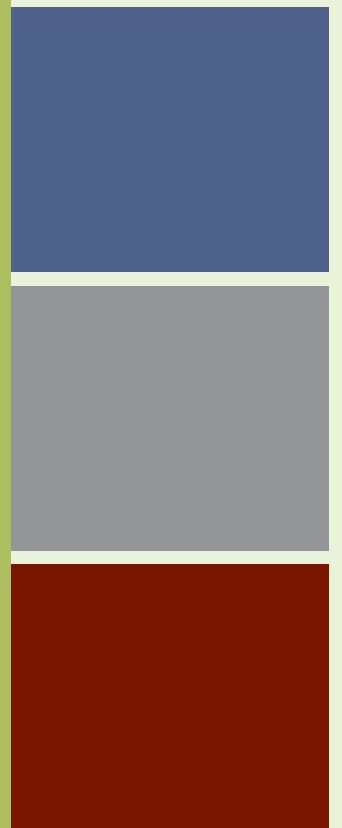




Waste Management Toolkit



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INTRODUCTION

With waste nowadays creating floating islands in the oceans of the world, space getting scarcer, and air pollution contributing to disease and global issues, it is essential for individuals, businesses and Governments alike to engage with waste management and try to reduce, reuse and recycle.

Zanzibar is experiencing drawbacks from its accelerated tourism development which include both physical and cultural degradation. At present Zanzibar is struggling with unplanned waste management, insufficient skills and investment to manage solid waste, insufficient regulatory controls or incentives for the tourism industry to comply with national environmental regulation and policy and the unavailability of waste producing options, which all accentuate the importance of managing waste.

This booklet has been produced in collaboration with the Honeyguide Foundation, the Mungu Utuafiki Organisation (MTO) the Zanzibar Association of tourism Investors (ZATI) and funded by the International Union for Conservation (IUCN) Ecosystem Grants Programme, as a self help toolkit to encourage and enable businesses linked to tourism in Zanzibar to make a start towards managing their waste. Although the main theme of the toolkit is waste management, it has been written with the big picture of sustainability in mind, and it is up to the inspired individual to take it further if they can. It is intended as a guide which is packed full of useful tips, hints and best practices and it is hoped that each reader obtains something that is of use to them in their every day battle with waste, and in their efforts towards sustainability.



Fact Scrap

Islands of waste

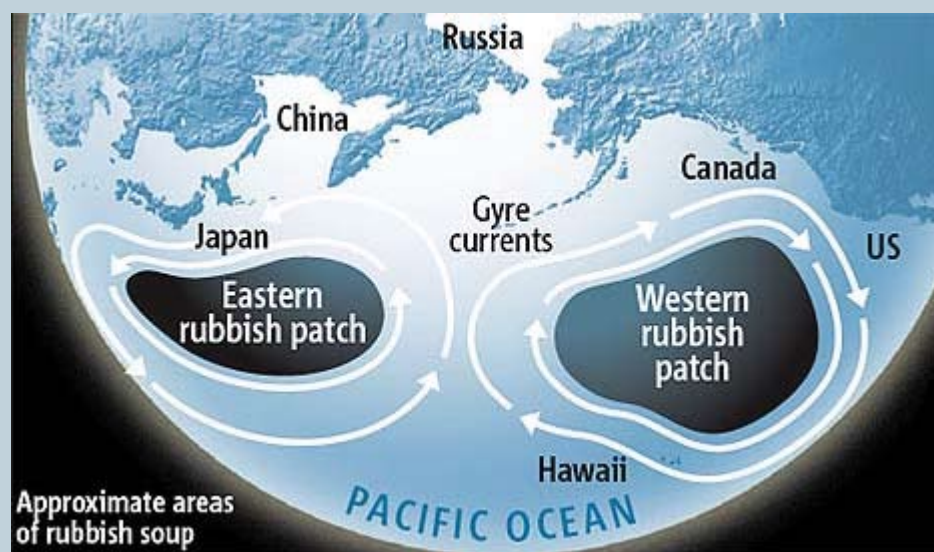
In remote areas of the Pacific Ocean vast artificial 'islands' have been found, made up of floating plastics, bottles and caps, light bulbs, ropes and other human debris. They are caused by the waste being carried on currents and getting caught up in giant gyres, where they end up spinning in a never ending whirlpool. It is thought that some of these islands may be double the size of Texas. With plastics leaking pollutants into the water and wildlife and birds getting caught up in the rubbish, there is cause for concern for the marine ecosystem.

Read more:

<http://www.greenpeace.org/international/campaigns/oceans/pollution/trash-vortex>

http://en.wikipedia.org/wiki/Great_Pacific_Garbage_Patch

<http://www.independent.co.uk/environment/the-worlds-rubbish-dump-a-garbage-tip-that-stretches-from-hawaii-to-japan-778016.html>



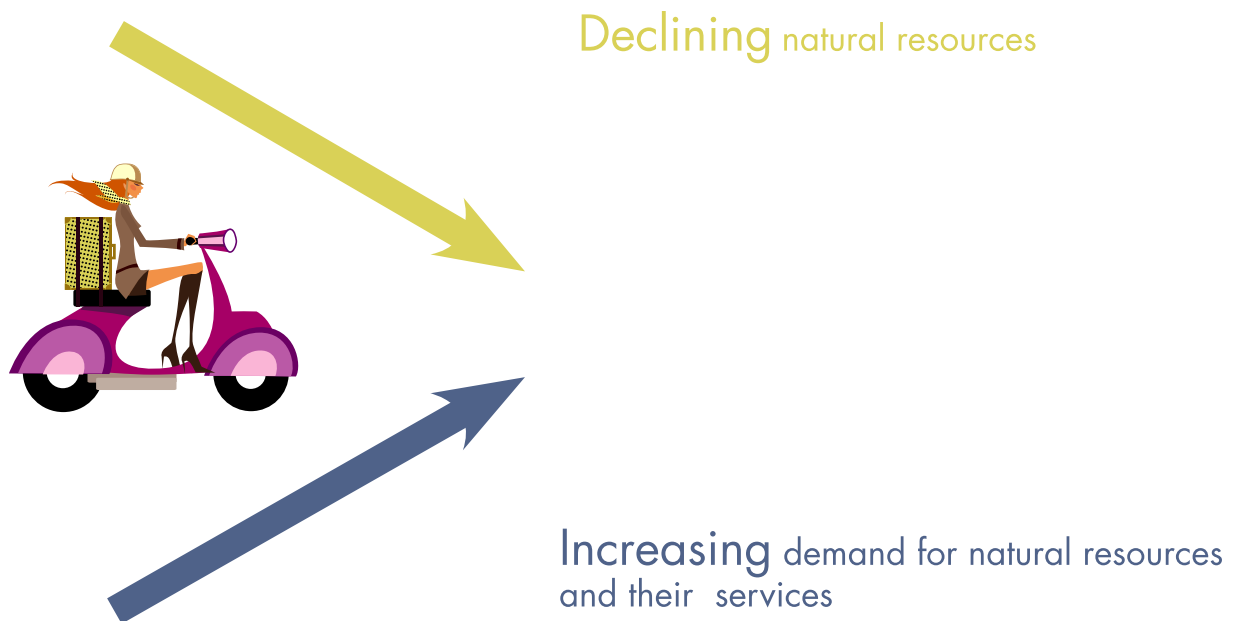
What Is Sustainability?

Sustainability, what is it?

The word sustainability seems to have invaded our everyday world, from Government policy, to how we live in the privacy of our homes, but what does it really mean?

Sustainability is defined by the United Nations World Commission on Environment and Development as “meeting the needs of the present generations without compromising the ability of future generations to meet their needs.”

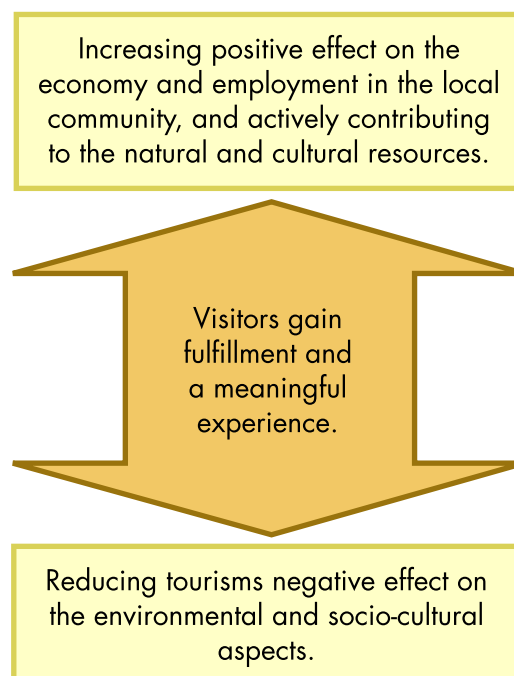
Quite simply, if we look at how the world is moving today in terms of declining natural resources and an increasing demand for natural resources, it creates a funnel effect and soon we will be living beyond the planet's means.



Sustainability And Tourism

In the business climate of today it is no longer affordable nor is it acceptable to use excessive amounts of the world's natural resources, or to take them for granted, and so it is time to force change. Reflected in this is the demand of the modern traveler, who seeks a more sustainable type of tourism, an efficiently run business which takes account of its effect on its surrounding environment and contributes in a larger way to the local community.

Creating a sustainable tourism industry in Zanzibar means:

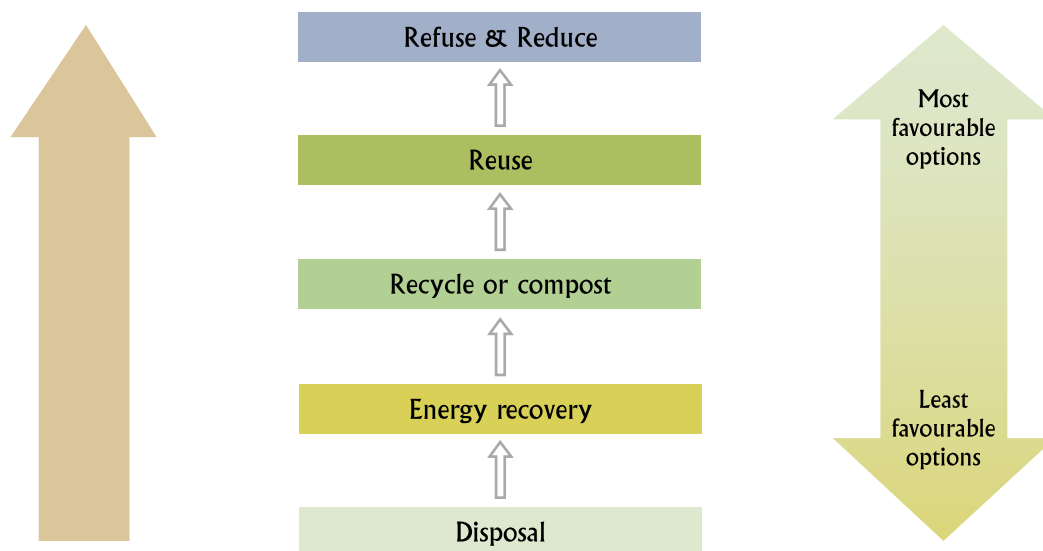


Many tourists now actively seek a more sustainable or 'ecofriendly' holiday, resort or accommodation. In 2007 Trip Advisor carried out a survey which involved more than 1,000 worldwide travelers. The findings revealed that 38% of respondents would consider environmentally-friendly tourism when traveling, while 9% specifically seek out environmentally-friendly hotels.

34% of travelers interviewed said that they would pay more to stay at an environmentally-friendly hotel. 25% would be willing to pay a 5 – 10% premium, and 12% would pay a 10 – 20% premium.

Sustainability And Waste

By managing the waste we produce we can make a large contribution towards sustainability. The waste hierarchy is one of the most useful considerations for sustainable waste management. It describes the order in which to consider your waste management options based on their impact on the environment, with a goal to gain the maximum practical benefit from resources and products and to produce the minimum amount of waste. Refuse and reduce, reuse and recycling and recovery are considered first with disposal only considered where it is unavoidable.



Sustainability As A Tool For Both The Present And The Future

It is important to realize that sustainability is not just a tool for protecting the future but also one which acts in the immediate. By improving the way we live and the way we run our businesses, helping towards the conservation of natural resources we can also reap the benefits in the present by:

- Saving money both in the short and long term by being more energy efficient.
- Creating a healthier more efficient way of life for Zanzibaris and their visitors.
- Contributing immediately to the conservation of Zanzibar's biodiversity by reducing the impact on the environment.
- Help to reduce the impacts of climate change.
- Ultimately, support Zanzibar and the world at large, in a move towards a sustainable future

How To Use This Toolkit

This toolkit is intended to be a support to anyone involved in the tourism industry in Zanzibar, who wants to find out more about waste management and how to improve their sustainability. It is not intended to be read from the beginning to the end, but to be dipped into. It is not meant as a fully exhaustive list of the number of ways you can deal with waste, but as an inspiring booklet with a focus on supporting the island of Zanzibar and its tourism industry.

The 'Give it a Go!' sections are intended as helpful resources to make it easier to start yourself. You will find templates and examples which can be used by those who prefer to have a model to copy, or modified to suit individual needs. The hints and info boxes are aimed to add a little more information, ideas, and interest to each section.

With this document in hand, all you need is the courage to change!

START UP AND GO!

Wondering where and how to start? We'll keep it simple and don't get bogged down by too much information.

Self Assessment

Take a look at your business and try to carry out a simple self assessment to determine where you are. This will give you a pointer about where you need to start and what you need to work on, as well as what is easy to achieve and what will encourage your team to keep going. It will also act as a reference for you for the future to gauge what you have achieved and what you are saving as a result of your actions.

Give It A Go!

Self Assessment Tool

Have a look at the questions below and tick your answers. Once you have completed them, review them, remember them, and then consider them while you browse through the toolkit, finding out what might be appropriate for your particular organisation. Refer back to the self assessment at a later date and see if your answers have changed.

Self Assessment Tool

- Nothing at all, what goes out the back disappears and as long as guests don't see it, it is acceptable.
- Waste is sorted into different bins, but once it goes out the back who knows what happens.
- I would like to start a waste management programme but I am stuck on how to go ahead.
- I have a comprehensive waste management programme incorporated into my business but would still like to know more.

What would be your motivation to start a waste management programme?

- Reducing costs
- Reducing the piles of waste lying around
- To comply with legal obligations with regards to waste disposal.
- Improving environmental health and safety
- Attracting environmentally conscious tourists
- Develop the reputation of my business
- Conserve natural resources on Zanzibar and improve its sustainability

Do you know what is classed as hazardous and non-hazardous waste?

Yes No

Do you have a purchasing policy to buy goods in bulk and not individually wrapped or in small containers where possible?

Yes No

Do you use eco-friendly cleaning products?

Yes No

Do you burn your waste on site?

Yes No

Do you separate your waste?

Yes No

Do you have a composting facility?

Yes No

If your waste is collected by someone, do you know where it goes?

Yes No

Making A Statement

Adopt a statement which supports your waste management principles, and will help you to focus on what you are trying to achieve for your business.

The statement should be signed off by top management and taken on by each individual in your organization.

Give It A Go!

Choose one or write your own.

Waste management statements;

EcoKing Ltd will endeavor to reduce, reuse and recycle all waste it produces.

Envirochampions Ltd will take responsibility for the waste it produces, making sure that it does not endanger health and safety of individuals or cause harm to the natural environment.

ResponsibleLodge Ltd will consider its waste as a potential resource wherever possible and will ensure that where waste cannot be reduced, reused, or recycled, it is disposed of in the most sustainable manner.

Sustainablestar Hotel strives to minimize negative impacts of tourism through the responsible use of resources, and the reduction of harm towards threatened habitats, species and communities.

Making A Statement

Drawing up a plan for waste management will help you to focus your efforts and to concentrate on one step at a time. It should be simple and concise, and can be evolved with time.

Making A Statement

Draw up a simple plan.

No.	Objective	Action	Responsible person	Achievement criteria	Completed (date)	Notes/further action
1.	Classify waste	List all categories of waste and identify hazardous.	George	List of waste categories.	Last week Feb 2010	
2.	Awareness raising on waste management	Training for all departments	Lucas	All levels of staff to be aware of waste management and sustainability principles.	1st week March 2010	Short interactive seminars, including games and quizzes.
3.	Set up a waste management team	Identify responsible and enthusiastic individuals.	Lucas	Waste management team signed up and ready for action	2nd week March 2010	Use the training sessions to identify possible candidates for team
4.	Separate waste	Initiate waste separation at source	George	Bins for waste separation in all departments.	Last week March 2010	Colour buckets according to Internationally recognised criteria.
Etc						

TIP

Evaluate where you are on a regular basis to stop you from getting it wrong.

TIP

Use your self assessment as a starting point and measure against it to see what you have accomplished.

Building Your Team

Once you have put the basics of a plan in place, you will need a team to expand and implement it.

It is important to get all your employees on board from the start. Without their commitment and contribution, environmental improvement won't happen.

Training plays a key role in the protection of the environment and well trained and knowledgeable staff can make an enormous difference to your business's effort towards sustainability.

Choose and team and build it up! Get your team to take up the challenge!

- Including those who have an obvious passion for the environment.
- Make sure a member of senior management is involved, responsible and has the knowledge and skills to change current working methods and implement best practice.
- Your team should be made up of people from all areas of your workplace and those with different roles and experiences will bring in different skills and ideas.
- Train the team well in the basics of waste management and why it is important.
- Keep them interested, with feedback, challenges and up to date ideas and innovations
- Keep them motivated with acknowledgement of achievement and support; this could ideally be in financial terms or a small present.
- Encourage champions!

TIP

Choose environmental champions! These are employees who have a passion for environmental issues and will raise awareness and encourage change in other employee's behaviour towards improving environmental performance.

READY TO GO!

Classify Your Waste

Before you actually begin to tackle your waste, take time to review it and decide what you are dealing with. Take a walk around noting where waste is produced. Classify the waste into hazardous and non-hazardous, then further into biodegradable and non-biodegradable, then further still into paper, plastics, compost, glass etc. This will give you a starting point, and allow you to think about what you can reduce and how you can begin to separate and deal with each category.

Choose and team and build it up! Get your team to take up the challenge!

Waste is considered hazardous if it has properties that are harmful to human health or the natural environment. Examples include:

- Used lead-acid batteries
- Fluorescent light tubes
- Glass in general
- Electrical equipment containing hazardous components e.g. cathode ray tubes in televisions.
- Waste oils
- asbestos
- solvents

Non-biodegradable Waste			
Metals, tin cans.	Glass, bottles, jars	Plastics, Plastic bottles, wrappers	Toxis waste, paint, batteries

Biodegradable Waste		
Garden waste, grass, makuti	Food, veg meat and cooked food	Paper products, cartons, office paper

Once you have classified your waste you can start to think about what you can do to manage it.

REDUCE YOUR WASTE

Reduction or minimization of waste is about prevention. It is about not producing waste in the first place, and is at the top of the waste hierarchy.

If businesses reduce their waste it means that their processes become more efficient, which leads to reduced costs and can in turn make them more competitive. Businesses across a range of industries have been shown to save 4 - 5% of turnover through the employment of simple waste minimization techniques (www.envirowise.gov.uk)

TIP

If you have not already taken a walk around your premises to ascertain your waste areas, then do it now. Determine where your waste is produced and tackle the simple things first, giving you some 'instant wins'. Fix dripping taps, turn off lights and set printer to print on both sides.

If you are in the food service industry, try the following:

- Wake up wilting vegetables by immersing them in water for a few minutes rather than throwing them away.
- Use as much of the vegetable as you can, cut off only the minimum.
- Store food at the right temperature to stop it from spoiling.
- Serve smaller portions if there are a lot of leftovers.
- Prepare food to order to prevent excessive waste.
- Find a local community orphanage which might be able to use excess fresh produce.
- Use cloth napkins instead of paper ones.
- Use refillable salt, pepper and salt containers instead of small packets.
- Try operating with no cling film or aluminium foil.

SAY NO! TO CLINGFILM AND ALUMINIUM FOIL

- Use fly nets to cover food (try the beautiful ones made by Ayesha Mawji at Moyo in Dar es Salaam (ayesha@moyodesign.com))
- Use re-useable plastic container to keep food safe in the fridge.

IT'S EASY!

TIP

Link waste minimization to other resource efficiency practices, e.g. water and energy consumption. It will reduce your costs and contribute to sustainability.

PURCHASING

Effective purchasing is one of the easiest ways to cut down on your waste. If it does not come into the business then it does not have to be dealt with.

Write a purchasing policy for your business, and stick to it. A purchasing policy should convey a strong, clear message to suppliers and contractors about what your business expects from them.

HINT

Purchasing puts two more possibilities at the top of the waste hierarchy:

- Re-think! And
- Eliminate (hazardous material content)

Try and include these in your purchasing and procurement plans.

An illustrative environmental purchasing policy - for a buying organisation

In pursuit of the organisation's objectives relating to sustainability, we recognise the critical need to act as a role model, by carrying out purchasing activities in an environmentally responsible manner. We will therefore:

- comply with all relevant environmental legislation;
- encourage and persuade suppliers to investigate and introduce environmentally friendly processes and products;
- educate our suppliers concerning the organisation's sustainable development strategy;
- ensure that suppliers' environmental credentials are considered in the supplier appraisal process;
- ensure that, where appropriate, environmental criteria are used in the award of contracts;
- specify, wherever possible and reasonably practicable, the use of environmentally friendly materials and products;
- ensure that consideration is given to inclusion, within all specifications, of a facility for potential suppliers to submit prices for environmentally friendly alternatives; and
- ensure that appropriate consideration is given to the costs and benefits of environmentally friendly alternatives.

SignedChief Executive

Date

Adapted from the Institute of Public Finance Guidance 2001

TIP

Ask your supplier to read, agree and sign your environmental purchasing wish list. This will encourage them to change the way they supply others and improve communication with your business.

Ideas for improvements when purchasing

- Order the items you need as accurately as possible, avoiding any excess
- Order items 'just in time' to avoid spoilage and losses
- Buy locally produced food. It reduces packaging, and fossil fuels for transport and you'll be happier knowing where it has come from.
- Consider the packaging!
- Ask your supplier to provide large quantities of some items e.g. rice, sugar, which can then be decanted into well sealed containers at your premises.
- Avoid lots of small tins of products and instead buy large containers which can be reused once they are empty e.g. cooking oil
- Ask your supplier to avoid items with excessive packaging, plastic bags and to use cardboard boxes and paper bags instead for deliveries
- Return old boxes and bags to your supplier to be reused for packaging
- Consider the quality and source of your purchases. Are they environmentally friendly? Will they last? Could you find some good quality or recycled materials for a better price?
- Ban cling film altogether. Use greaseproof paper to wrap food for lunch boxes and containers with lids to store other foodstuffs. Use fly nets to cover food.

Ban the Bottle!

Carrying a plastic water bottle around these days is like carrying your mobile phone or your house keys. They may be convenient, but when you consider their negative side, you may want to rethink. They are made out of non renewable petroleum and natural gas, nine bottles out of ten ends up as waste and each can take over 1000 years to biodegrade.

Offer guests the opportunity to buy stainless steel water bottles with your hotels logo on, and provide them with filtered water in a carafe, or drinking fountains using water from a safe source. Encourage guests with information on how many plastic bottles they might be saving by drinking your 'safe' alternative.



REUSE

After reducing the amount of waste you produce, the next step is to separate your waste at the point that it is produced. This will allow you to ascertain what can be reused on site or by someone else.

A convenient site should be chosen, in close proximity to where waste is being produced. Safety and practicality should also be considered. All staff should be made aware of the locality of the waste disposal site, by word of mouth or a map.

The area should be covered and protected from rain to stop any leaching of hazardous substances into the ground.

Separate waste containers should be labeled clearly to show what goes in them, and all staff should be trained on the labeling technique to avoid cross contamination. It is good practice to colour code the waste containers.

TIP

Buy old metal drums or large recycled plastic containers, cut the lids off them, paint them, label them and use them as your waste separation containers.

TIP

Colour code your waste containers.
Although there is no internationally standardized code for waste, why not try this one:

Organic is green

Glass is yellow

Paper is white

Metal is grey

Plastic is blue

Hazard is red

WASTE SEPARATION

Some basic tips on how to sort your waste.

Paper

- Go through your paper and sort out that which can be reused i.e. paper with printing only on one side can be used as note paper and envelopes can be reused internally.
- Compost paper wipes or towels if you have not managed to abandon them in the reduction process.
- The rest can be sent off site for recycling

Cardboard

- Separate out any packaging that can be reused for wrapping again.
- Try to send as much packaging back to your supplier to be reused
- Fold up and compact cardboard as much as possible to reduce the volume it takes up

Glass

- Separate glass into clear and tinted, greens and browns where possible.
- Try to make sure that you do not smash the glass and bottles and containers remain intact to ensure safety.
- Light bulbs should be wrapped carefully and placed in the general waste container. Used energy saving bulbs or fluorescent bulbs are hazardous waste and should be placed in the hazardous waste container.

TIP

Despite that it takes more energy to produce an energy saving bulb than a traditional bulb, the energy they save in their lifetime far outweighs this. They do contain mercury, but an amount smaller than the tip of a biro and the fact that they save electricity means that less mercury is pumped into the air from coal burning power stations.

Bulbs should be disposed of as hazardous waste.

- If a bulb is smashed then it is advised to:
- Leave the scene for about 15 minutes if possible.
- Do not breathe in the dust.
- Sweep up the contents and place in plastic bag
- Wipe the area and place the cloth in the plastic bag.
- Dispose of the plastic bag in the hazardous waste bin.
- Wash your hands.

Plastic

- There are several different types of plastics and if these can be separated, they may be able to be recycled independently:
 - Polyethylene Terephthalate (PET or PETE) is normally used for clear bottles e.g. coke in a plastic bottle, and these can be recycled.
 - High density Polyethylene (HDPE) is used for making containers which are not under pressure e.g. milk, juice, detergents. It can also be recycled.
 - Polyvinyl Chloride (PVC) is a much harder plastic can also be recycled.
- Containers and bottles should be rinsed to remove any residues and this will avoid odour and contamination issues while they are stored.

Scrap Metal

- Separate any metals parts that might be reusable first
- Identify metal parts which are covered in oil and place these in the hazardous waste bin

- Aluminium should be separated from steel (you can test which is which using a magnet). About 75% of all drinks cans are made of aluminium. If separated into different metal types they are easier to make use of or recycle.
- Any food cans should be rinsed to get rid of rotting food and bad smells.

Compost

- It is well worth separating your biodegradable waste, to cut down on the volume of your waste if nothing else.
- Use fruit and vegetable waste as well as tea bags and tea leaves and coffee granules.
- Make sure that there is no cooked meat waste mixed in as this will attract rats etc.

Hazardous Waste

- Store hazardous waste separately from other waste i.e. do not mix your fluorescent bulbs and computer monitors with your scrap plastic and cooked food wastes.

Mixed Waste

- Unfortunately there is always that waste which cannot be reused or recycled e.g. non compostable biodegradable waste and non recyclable packaging. This should be stored in containers until it can be collected and disposed of by a licensed and responsible collection practice.

REUSE

Recycling is key in the business of waste management. It is the processing of waste materials to produce a useable product.

It is important to make sure that recycling markets are stable and that they produce environmental benefits by replacing products made from primary resources. Recycling only makes sense if it is the best practical environmental option for a particular waste type (IEMA, 2008).

Recycling should be viewed as the common sense approach, determining the most environmentally suitable option.

In Zanzibar, many waste resources are automatically recycled, or rather re-used, and opportunities can be found within the community for a sustainable option for reusing a waste product. However, consideration must be taken into account as to the ultimate disposal of the item. Don't just dump your waste on the community, but provide a final solution e.g. plastic water bottles may be reused again, but will ultimately end up as waste when broken. The disposal factor still needs to be tackled!

For help with recycling opportunities, resources and facilities, please refer to the Tanzania Waste Directory (<http://www.honeyguide.org/news-media/>)

Mixed Waste

Composting is a useful recycling tool for hotels and restaurants who produce a lot of waste with a high organic content i.e. kitchen and garden waste and paper. The process involves the breakdown of the biodegradable waste into compost which can then be used as a fertilizer.

The key players in the composting process are the microscopic creatures who tirelessly recycle the earth's resources.

There are many composting options from small scale bins to large scale heaps in waste facilities, and the composting process can be refined to make it quicker and more productive, and also more practical and suited to individual needs.

Where possible, the best option for a business is to consider having an onsite composting facility which reduces the amount of waste that has to be collected from their premises, and provides a rich soil improver for gardens.

If this is not possible then the next best solution is to make sure that the waste is sorted appropriately so that composting can be carried out at the waste management facility.

Have a Go!

There are several different ways of making compost, and as long as a few basic rules are followed then you should succeed. The best method is the one that will suit your particular requirements.

Making Your Choice

Try a few options and experiment until you find the best solution.

First decide if you want to try the hot or cold option:

Hot Or Cold?

Hot heap: this is done when you fill a compost container in one batch, using the right mixture of materials and preferably chopped or shredded if tough.

- + Quick action, makes compost in as little as 6-8 weeks.
- + Most weeds, seeds and diseases are killed.
- Requires a lot of material at once
- High temperature can reduce the fertility of the end product, due to the fact that Nitrogen is given off as ammonia.

Cool heap; organic matter is added bit by bit and the heap may or may not heat up

- + Built as material becomes available
- + nutrients are retained and therefore it may be more fertile
- may take up to a year to compost
- weeds and seeds may not be killed

Next see how you can get faster results:

Speeding Up The Process

There are various ways to speed up the process of composting:

- Try and fill the container; add as much material as you can in one go; mow the lawn, weed the beds etc.
- Chopping and shredding; if you have tough stems or similar then bashing them with a hammer will help by increasing the surface area on which microorganisms can work on, therefore speeding up the process.
- Turning the heap; if the heap initially heats up and then slows down then turn it to add in more air, add water if it is too dry, or dry material if it is too wet. Move the outer material into the middle and incorporate the new material with the old.

Another alternative might be worm composting:

Worm Composting

This is a simple process where compost worms are fed on kitchen waste and other biodegradable material and convert it to worm compost. This form of compost helps to stabilize the soil structure due to the worm casts produced and aids plants growth due to hormones produced during the digestion process of the worms.

Worm composting works best with a regular supply of small quantities of material e.g. kitchen scraps, tea leaves, egg shells etc.

TIPS FOR WORM COMPOSTING

What you will need:

- A plastic dustbin with as wide a surface area as possible and a lid
- Coarse sand or gravel to fill the bin to a depth of between 7.5 and 10cm.
- A circle of wood or some tough polythene to separate the compost and gravel
- Bedding material (e.g. well rotted compost mixed with shredded paper or cardboard, it should be moist but not dripping) to a depth of about 7.5cm
- At least 100 worms
- One whole newspaper, soaked in water
- 1-2 liters of chopped kitchen waste.

To make the worm compost:

1. Drill holes 2.5cm and 7.5cm up from the base and around the top. Fill it with 10cm of coarse sand or gravel.
2. Cover the gravel with a perforated wooden board or polythene sheet to separate the gravel and compost.
3. Add 7.5cm or so of bedding material along with the worms and some food. Cover with a moist newspaper.
4. Put the lid on the bin.

Put the food in a layer of no more than 5cm on the surface of the bedding material in the bin.

Leave some space for the worms to move to if they do not like what they have given them.

Never feed the worms too much or too often. This is something you will learn from experience. Be aware that worms are more likely to die from overfeeding than underfeeding!

One established working bin should be adequate to cope with the waste from an average family of four. Start a series of bins if you need more.

The worms will gradually fill up the bin with rich compost. This can then be removed from the bin with a trowel. If you wish to empty the whole bin and retain the worms then spread the compost out in a thin layer on a sheet of plastic in a sunny spot. Spread out a moist newspaper on top and you will find that the worms migrate under the newspaper as the compost dries out in the sun.

There is also the opportunity to collect the liquid waste from the worm compost bin, by fitting a tap on your plastic bin. The liquid known as worm tea can then be used as a liquid feed for plants, diluted 1 part in 10 of water.

Help!

There are lots of worms at the top of the bin This usually indicates that the conditions in the bin are wrong e.g. air, warmth, pH etc.

Worm bin infested with tiny flies These are fruit flies attracted by the scraps. Keep the bin covered so they stay away.

White thread like worms in the bin These can generally be ignored but if they occur in large numbers then it indicates that the conditions are too wet or too acidic.

Worm bin smells unpleasant This means that the food is not being processed quickly enough, reduce the food and check the conditions.

No worms in the bin The worms have left or died. Check the conditions.

Contents of the bin are too wet Check your drainage. Mix in shredded newspaper to soak up excess moisture and avoid adding liquid when feeding.

Glass Bottles

Glass bottles can be recycled and made into glass beads and other decoration e.g. Shanga or Wonderwelders. Find your nearest glass recycling project.

Plastic Drinking Water Bottles

Refer to the waste recycling directory- Tanzania Waste Directory (<http://www.honeyguide.org/news-media/>)

Cooking Oil

Used cooking oil should never be poured down the drains, as it can congeal in the pipes and cause blockages. It should not either be poured into water as it is lighter and floats on the top of the water hindering its oxygenation and polluting it.

Used cooking oil can be used to make biodiesel, and you could run your hotel vehicle from it. Alternatively it can be used to make soap, and donating your used cooking oil to one of the many small handmade soap industries on the island can greatly help to support them.

TIP

If you are buying handmade soap try to encourage the maker to use biodegradable wrapping for the soap and to avoid cling film or other plastics. Use banana bark, mitumba market cloth, coconut palm fibre etc.

WASTE DISPOSAL

This the last resort in the waste hierarchy, and the choices are few, especially in Zanzibar

Landfill

Landfill or dumps are the most common way of disposing of waste. Burial or landfill should only be considered if carefully sited or contained to avoid groundwater pollution.

This the best option for disposing of non recyclable inert wastes such as mixed rubble, and also hazardous wastes which cannot be reused or recycled.

Identify your nearest facility in Zanzibar that is providing an area to dump your waste.

Incineration

This is the burning of waste at very high temperatures. It has a place in the safe disposal of certain wastes e.g. infectious waste. Burning of waste in this way gives rise to bottom ash and a very much finer fly ash which can cause air pollution when containing dioxins, acid gases, nitrogen oxides and heavy metals, however in recent years techniques to reduce the emissions from incinerators have been very much improved.

SOMETHING DIFFERENT

Waste treatments are constantly being developed and improved. There are methods for waste management which are used as alternatives to incineration, such as pyrolysis (the incineration of waste in the absence of oxygen, producing gas and oil and char, all of which can then be further processed and used as fuel to produce electricity), and gasification (waste is mixed together with other fuels and heated slowly in the absence of oxygen to produce a low energy gas which can then be used to produce electricity.)

Probably the simplest and most suited to Zanzibar is the use of biodegradable waste to produce methane, by anaerobic digestion, which can be used as a fuel for cooking or to produce electricity. This is more commonly known as biogas.

MEASURING AND MONITORING

Although the last section, this is perhaps one of the most important. It is key to measure your achievements. Without measuring from the start, you will have little ability to gauge how far you have come, and you will wish you had. You may see no change in which case you may need to rethink, or fine tune your waste management operation.

Weigh your waste as you dispose of it. Monthly figures will give you a good opportunity to display your results on a graph. This way you be able to see whether you have managed to reduce your waste overtime. You will be able to ascertain whether you have managed to cut down on plastics and paper, or perhaps measure the amount of composting material you have available for your gardens.

You will have your success recorded in a way which is understandable and which is useful to you in your reports and advertising how ecofriendly you are!

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