

4

RUBBISH STORAGE, COLLECTION AND DISPOSAL AND ENVIRONMENTAL MANAGEMENT

1	Rubbish	134
2	Rubbish and disease	134
3	Domestic rubbish	140
4	Disposal of rubbish	141
4.1	Handling rubbish	141
4.2	Recycling rubbish	142
5	Rubbish bins	144
5.1	Rubbish bins inside the house	144
5.2	Rubbish bins outside buildings	145
5.3	Rubbish disposal guidelines	147
6	Household incinerators	148
7	Rubbish collection	148
7.1	Rubbish collection vehicles	148
8	Setting up a community rubbish collection system	150
9	Community and yard clean-ups	152
10	Rubbish tips	153
10.1	Finding the best site for the rubbish tip	153
10.2	Burying community rubbish	154
10.3	Trenching method of rubbish disposal	155
10.4	Sanitary landfill rubbish disposal method	158
11	Litter	158
11.1	Why people litter	159
11.2	Ideas to stop people littering	160
12	Environmental management—area beautification	162
12.1	Environmental planning	162
12.2	Benefits of environmental planning	163
12.3	How to plan for a healthy community	163
12.4	Ideas to improve the community environment	165



1 Rubbish

Rubbish is everything that people do not want any more. A lot of rubbish comes from people's homes. Examples are food scraps, paper, plastic, bottles, tins, old rags, clothing and bedding. Other things such as broken furniture, car bodies and parts are also rubbish when people do not want them any more.

Rubbish is also known as **solid waste**. This term helps distinguish it from the liquid waste (sewage) from toilets, showers, tubs and sinks.

If rubbish is not disposed of properly it will become a major environmental health problem because it can have a most unpleasant smell, can cause injury and it assists in the spread of disease.

People can cut themselves on broken bottles, tins, wood and metal left lying around. Also, rubbish has disease-causing germs which can be spread to people. For example, germs on rubbish can be spread by flies to people or food.

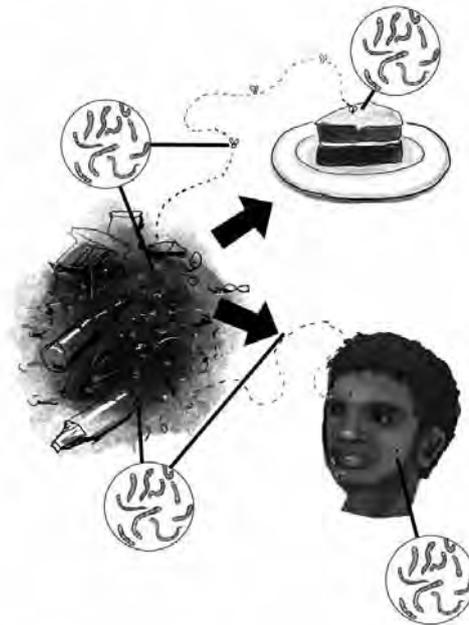


Fig. 4.1: Flies spread germs from rubbish to people and their food.

Rubbish should not be dropped or left all over the ground. It is most important that rubbish is disposed of properly.

Proper disposal of rubbish means its safe storage for a short period of time, proper collection and final disposal at the rubbish tip.

2 Rubbish and disease

Food scraps and other rubbish will have lots of germs and sometimes parasites on them.

If food scraps are left lying around in the house or on the ground, particularly in warm, damp weather, it will rot and lots of germs will grow on it. If people, flies, cockroaches, rats or mice touch the rubbish they can get disease-causing germs

on them. Anything they touch is then likely to get some of the germs. For example, germs will get onto people's food if it comes into contact with flies, cockroaches, or mice that have germs on them.

Below is a list of the diseases which people can get as a result of inadequate rubbish and pest control.

Diseases caused by germs

Bacterial diseases include:

- salmonellosis
- shigellosis
- staphylococcal food poisoning
- skin infections
- tetanus.

Viral diseases include:

- trachoma
- hepatitis A
- gastroenteritis
- Murray Valley encephalitis
- Ross River virus disease.

Parasitic diseases include:

- hookworm
- threadworm
- roundworm.

Germs and parasites can be transmitted from rubbish to people:

- **Directly** by people:
 - » coming into contact with rubbish which contains germs and parasites. For example, children may come into contact with rubbish when they play at the rubbish tip
 - » injuring themselves on rubbish. For example, someone might cut themselves on a rusty tin, allowing tetanus bacteria to enter the body
- **Indirectly** by providing places for vectors to live and breed. Vectors are disease-spreading animals, and include mosquitoes, flies, rats and mice which provide a 'vehicle' for germs and parasites to spread

Rubbish should **never** be left lying around for the following reasons:

- Flies which breed in rubbish can carry disease-causing germs, like those that cause food poisoning or eye infections such as trachoma, directly to our bodies and to our food.



Fig. 4.2: Flies carry germs to our food.

Flies can carry germs which cause trachoma and other eye infections.



Fig. 4.3: Flies spread the germs which cause trachoma.

Sores, cuts and burns can also become infected when germs are transmitted to them by flies.

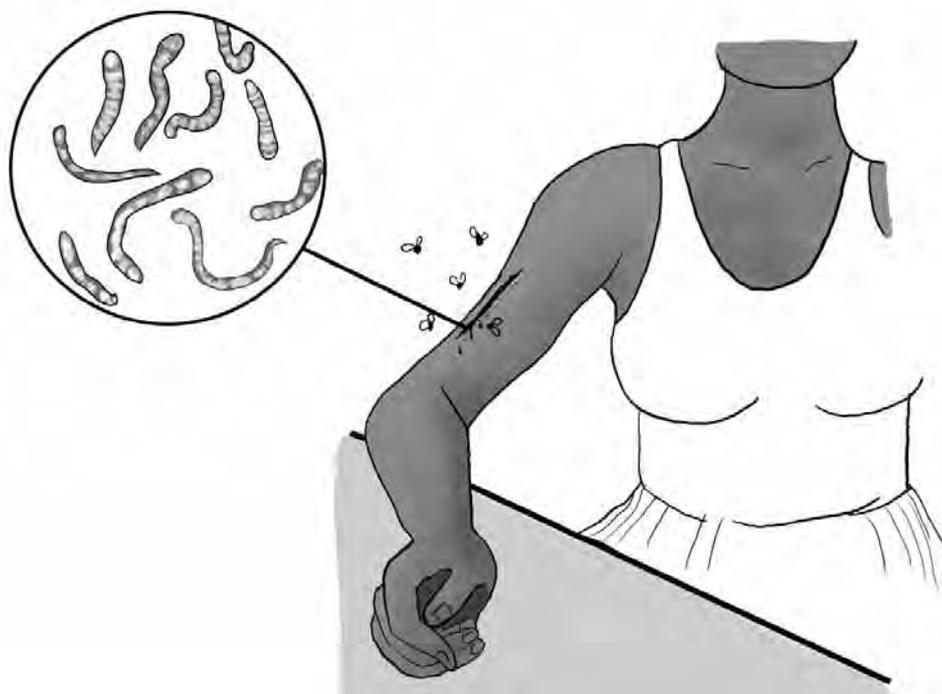
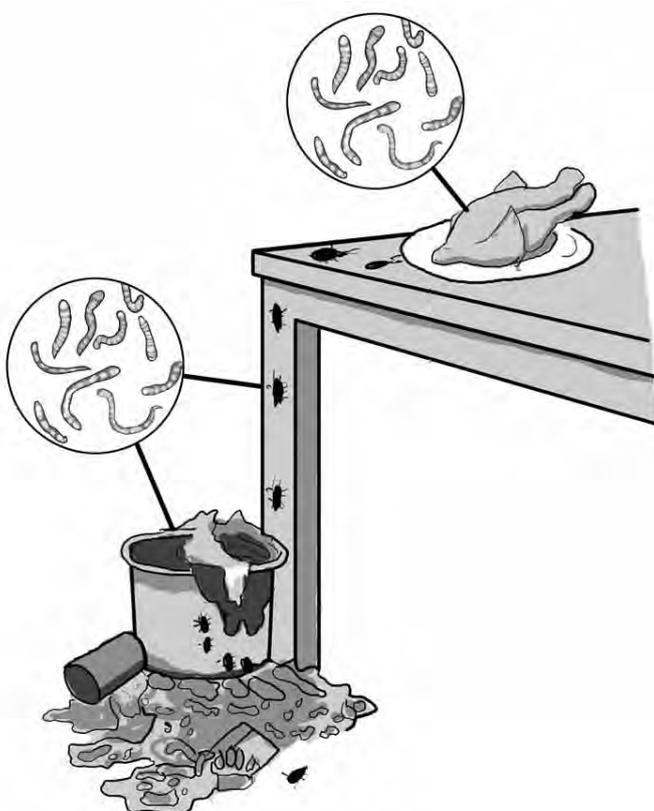


Fig. 4.4: Flies carry germs which can cause cuts and burns to become infected.



- Cockroaches breed in rubbish and can carry disease-causing germs, like those that cause food poisoning, to food and cooking utensils.

Fig. 4.5: Cockroaches carry disease-causing germs to people's food.

- Mosquitoes can breed in water trapped in old containers left lying around. This could include water trapped in old refrigerators, washing machines, tins, bottles or other containers.

Most of the mosquitoes in non tropical areas of Australia which like to breed in containers are just annoying. However, in tropical places such as areas of Queensland and the Top End, these containers can provide breeding places for mosquitoes which carry dengue fever.

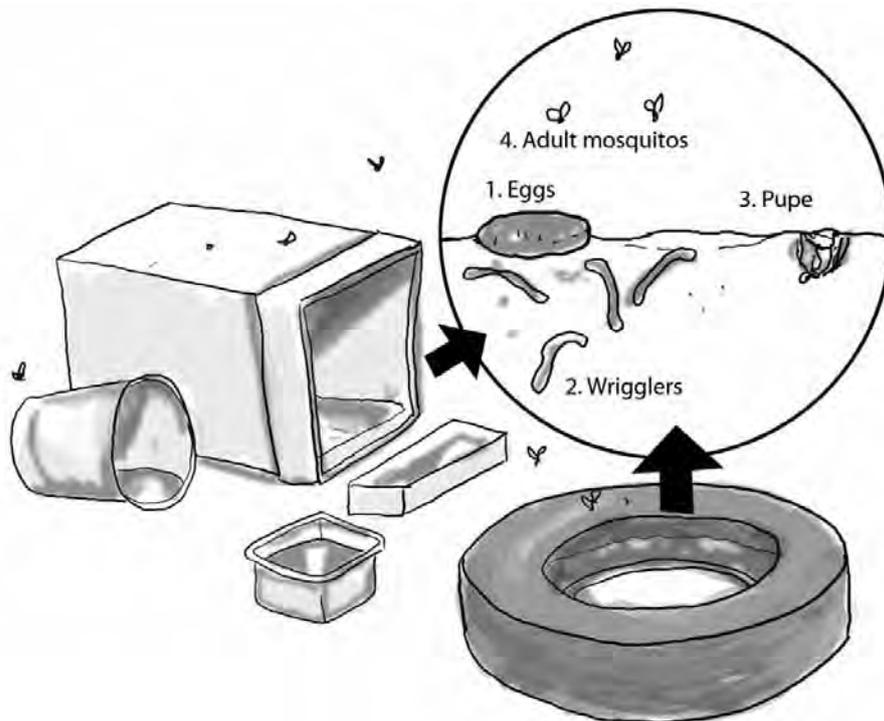


Fig. 4.6: Many mosquitoes breed in water which collects in containers.

People can get infected sores from cutting themselves on broken bottles, old tins or sharp-edged metal objects which have germs on them

When people cut themselves on these things, the germs get into the cuts and the cuts can become infected.



Fig.4.7: Infected sores often come when people cut themselves on glass which has germs on it.

Rubbish must be stored properly, disposed of often and in the proper way.

3 Domestic rubbish

Besides food scraps, there are many things people use in their daily lives that end up as rubbish. Some examples are given below.

Food containers



Fig. 4.8: Empty food containers like this are usually thrown away.

Other containers



Fig. 4.9: Empty plastic bags, detergent bottles, cartons and many other different containers are thrown away.

Unwanted household equipment, clothes, paper products and plant material from the garden

People often get rid of old clothes, cars, refrigerators, lawn clippings, paper and other things they do not want.



Fig. 4.10: Household rubbish like this should not be left lying around.

4 Disposal of rubbish

4.1 HANDLING RUBBISH

Unless it is too large, all rubbish should be put into the house bin as soon as possible. The items which are too big for the bin should be taken to the community rubbish tip as soon as possible.

Some items of household rubbish need special treatment before they are put in the house bin. Some examples of these are given below.



Food scraps

If possible, these should be wrapped tightly in paper before being put in the bin. This will stop the smells which attract insects and animals to the bin.

Fig. 4.11: Food and moist rubbish should always be wrapped before it is put in a rubbish bin.

Disposable nappies

The faeces should be scraped off and put down the toilet. The nappies should then be wrapped tightly in paper and put in the bin.

Bottles, cartons, paper, tin cans and similar items

Usually these can go straight into the bin. However, if they contain food they should be wrapped first. If they contain poisons (pesticides, household cleaners, medicines), the poison should be disposed of safely and the container washed out before it is put in the bin. In the case of pesticides and their containers there are special rules for their safe disposal (see Chapter 5).

Large household items

Some items of rubbish that occur around the home are too large for the regular household bin. These include:

- large cartons
- car parts and bodies
- sheets of iron
- worn out washing machines and refrigerators
- branches of trees.

These things should not be allowed to lie around the house/yard where they can become health hazards. For example, they may collect water which provides a place for disease-carrying mosquitoes to breed. These unwanted things should be taken to the community rubbish tip as soon as possible.

4.2 RECYCLING RUBBISH

Today, many people are worried that the earth's supplies of raw materials, such as iron ore and bauxite from which metals such as steel and aluminium are made, will soon be all used up. The same applies to trees from which paper products are made. As a result, governments are encouraging people to collect metal and paper products which people no longer need and use them to make new products. This is called **recycling**.

Much of the material which people throw away as rubbish can actually be recycled. For example, many aluminium products coming out of today's factories are made from recycled aluminium drink cans, window frames and other discarded aluminium products.

Recycling is becoming a big business in our modern world.

In some places, particularly near towns, some types of rubbish are collected for recycling. Manufacturers will pay money for aluminium cans and other kinds of scrap metal so these can be well worth saving.

The main items which can be recycled are:

- aluminium products such as drink cans, old window frames, flyscreens, and aluminium foil
- paper products such as newspaper, cardboard and old cartons
- plain and coloured glass products, such as bottles and broken drinking glasses
- iron, copper, brass, and some other metal products, such as car bodies, electrical appliances, bicycles, copper wire, brass taps and machinery
- motor oil.

Recycling is difficult in remote places because of the problem of transporting the items to the buyer. Recycling is easier for those communities which are close to towns where a recycling project is operating.

Plant material and some food items can be **composted** to make a natural fertiliser for gardens or any community vegetable or fruit growing activities. **Composting** is a process in which bacteria are used to break down plant materials to a type of substance which can be used as a fertiliser. Items which could be used are vegetable food scraps, grass clippings and leaves.

Making compost for community gardens and food growing activities is probably the easiest recycling activity in which communities can become involved. However, composting must be controlled because if it is not done properly it can smell and allow disease-carrying insects to breed.

If the community wants to consider recycling items of rubbish it is best to contact its local authority to see if this is possible.

Before becoming involved in a recycling project the community will need to:

- agree about the idea
- make arrangements to sell the recycled items direct to an outside agency which will buy the material. Sometimes the items can be sold to a central agency in a nearby town. This is often a charitable organisation like Apex. These groups then make all the arrangements to sell to the central buyer
- set up a way of collecting the items for recycling from the people in the community. This might be to locate bins for collecting the items to be recycled at convenient places in the community

- make arrangements to transport the items to be recycled to the outside agency.

Type of rubbish treatment		Recyclable
Food scraps	Wrapped then to bin	Yes*
Bottles	Bin	Yes
Cans	Bin	Yes
Plastic articles	Bin	Yes**
Paper products	Bin	Yes
Rags	Bin	Yes
Nappies (disposable)	Wrapped then to bin	No
Bones	Bin	Yes*

* Can be composted.
 ** Some plastic items cannot be recycled.

Table 4.1 Proper disposal of rubbish

5 Rubbish bins

5.1 RUBBISH BINS INSIDE THE HOUSE

There are several containers which can be used to store rubbish inside a house before it is emptied into the main bin outside the house. These are:

- pedal bins bought from the shop
- plastic buckets or something similar
- plastic shopping bags.

Rubbish bins inside the house should be kept clean and washed out regularly.

If a pedal bin or plastic bucket is used it is a good idea to use a bin liner. This is a plastic bag which is put inside the bin to hold the rubbish. Rubbish liners stop the bin from getting too dirty and make it easier to take out the rubbish. Plastic shopping bags make good liners.

When the bin liner is full of rubbish, it should be tied up tightly before it is put in the outside bin.



Fig. 4.12: Plastic shopping bags can be used to line kitchen rubbish bins.

5.2 RUBBISH BINS OUTSIDE BUILDINGS

Each home should have an outside rubbish bin with a strong, tight-fitting lid to keep out insects and rain. Sometimes a large plastic bag can be put into the bin first, to act as a liner. These bags not only help stop the bin from getting very dirty, they also make it easy to get rid of the rubbish. It is important to remember to tie bags when they are full.

It is important to stop dogs and other animals knocking rubbish bins over to get to the food scraps. The best way to do this is to raise the rubbish bins off the ground and attach them firmly to a frame or post.

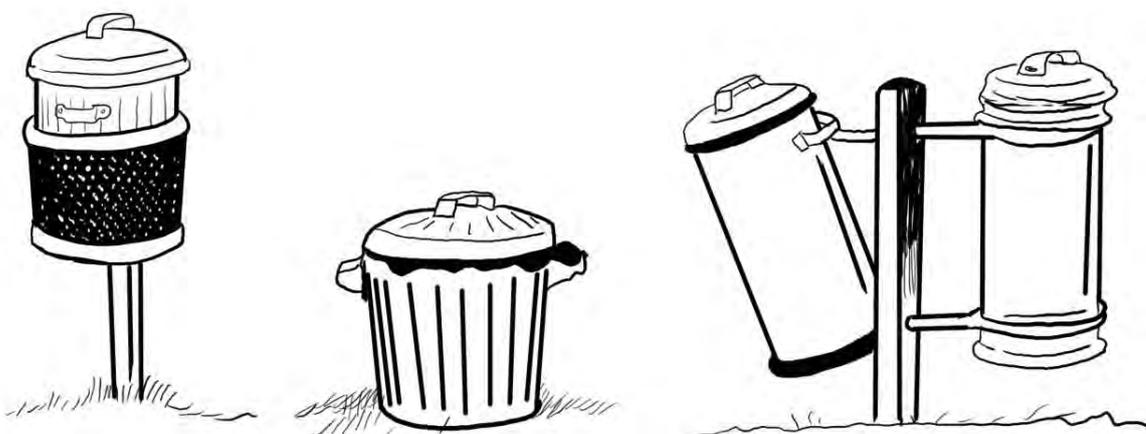


Fig. 4.13: Different types of household rubbish bins.

Bins for use outside the house can be made of metal or plastic. These bins can be bought from a shop or made from old metal drums or other large metal containers. These bins:

- must be strong
- must have a tight-fitting lid which should always be kept on the bin
- should be washed regularly with soapy water and then hosed out.

Rubbish bins should not be too big or heavy. If they are too big, they will be hard to lift when full. If old drums, such as 44 gallon drums, are used to make rubbish bins they may need to be cut down so that they are not too big or heavy. Well-fitting lids will need to be made for these drums to keep out the flies.

Rubbish bins should be emptied before they are too full, that is, before there is so much rubbish in the bin that the lid cannot close properly. Emptying household bins twice a week is usually often enough. However, bins around the community and near shops may need to be emptied every day.

Outside the store and other community buildings

Metal rubbish bins should be provided at the store, office, school and around the community.

The store may need to have a bulk bin which can contain large amounts of rubbish. Some examples of rubbish from the store are transport cartons and drums, protective plastic sheeting, old or damaged stock such as canned foods, dairy products, vegetables and cooked meats.

Community rubbish bins should have drain holes in the base (bottom) to allow water to get out. This is because they are not usually fitted with lids.

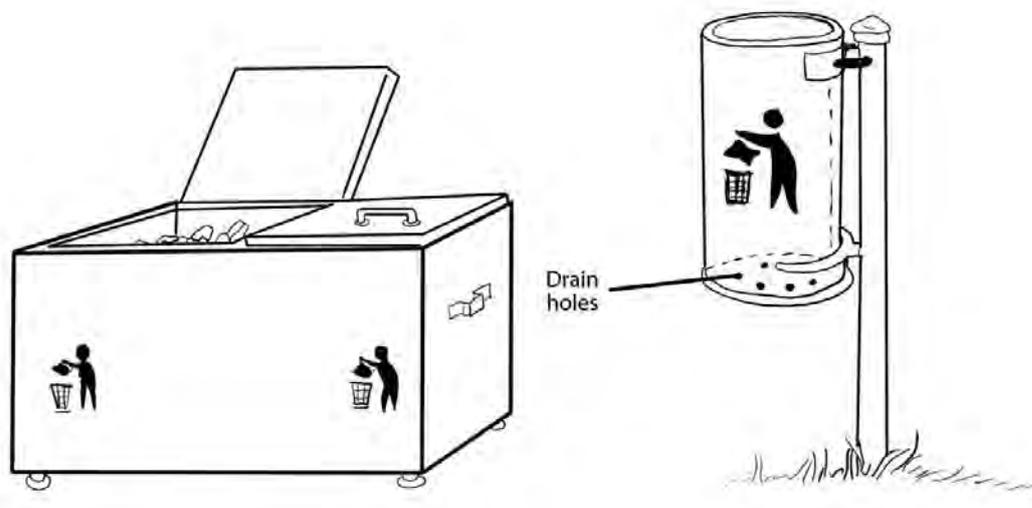


Fig. 4.14: Community rubbish bins.

5.3 RUBBISH DISPOSAL GUIDELINES

The main things to remember for the proper disposal of rubbish are listed below.

- Every house should have its own rubbish bin.
- Rubbish bins must have tight-fitting lids.
- If possible, the bin should be raised off the ground and be firmly supported by a frame or attached firmly to a post.
- Bins must be kept clean to stop germs breeding and to discourage flies. They should be washed after they are emptied and before the next lot of rubbish is put in them.
- All food scraps and disposable nappies should be wrapped before they are placed in the bin.
- There should be rubbish bins around the community, in the school grounds, and outside the store and office.
- Bins should be emptied before there is so much rubbish it overflows onto the ground or the lid cannot be put on properly.



Fig. 4.15: Overflowing rubbish bins attract flies and cockroaches.

6 Household incinerators

Burning of household waste and industrial waste is prohibited.

7 Rubbish collection

Rubbish should not be left in a bin until it rots or the bin gets so full that the rubbish spills onto the ground.

Rubbish collection is a very important service for the community. The risks to health increase greatly if this service breaks down. It is the responsibility of the Community Council through its administrative staff and EHP to make sure this service is carried out properly.

Every rubbish bin in the community should be emptied frequently and regularly, at least twice a week. The rubbish should then be taken away and buried so that:

- the risk of direct contact with disease-causing germs is reduced
- flies, cockroaches and rats cannot live and breed in the rubbish.

Usually it is someone's paid job to go around to the bins and collect the rubbish. Rubbish collection from houses is usually done twice a week and from shops, rubbish is often collected every day.

Sometimes it is necessary to have special rubbish collections for old furniture, mattresses, stoves, fridges and other large items.

The EHP should encourage the householders to wash out their rubbish bins regularly. Rubbish collection day is a good time to do it.

7.1 RUBBISH COLLECTION VEHICLES

Tractors and trailers, utilities (utes), or small trucks are commonly used for collecting rubbish in small to medium sized communities. These vehicles are probably the most readily available in a community.

The two methods outlined below can be used to transport the rubbish to the tip site.

Rubbish transported to the tip in a vehicle which does not have a cage

If the truck, utility or trailer does not have a cage, it is best to take the full bins to the tip. While the bins are being taken to the tip, their lids must be on tightly.

All the bins can be placed on the vehicle and then taken to the rubbish tip and emptied. Each bin must be labelled with the owner's name or house number so that it can be returned to the correct house.

Rubbish transported to the tip in a vehicle which has a cage

If the rubbish vehicle, such as a ute or trailer, is fitted with a cage, the bins can be emptied directly into the cage at the house. The rubbish is then taken to the tip. A rubbish vehicle cage must be enclosed on all sides, including the roof. There will need to be a loading door to allow access to the inside of the cage.

This method may be a little more efficient than taking the bins because more rubbish can be transported per trip. However, it is messy because all the rubbish must be cleaned out of the cage at tip following each trip. It is also important to wash the vehicle down at the end of the collection day and to make sure no rubbish falls off the vehicle or blows away during loading and transport.

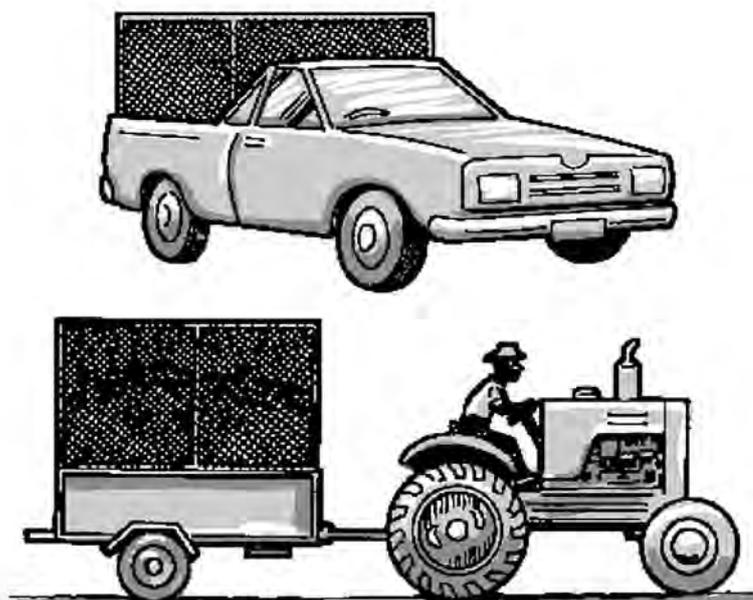


Fig. 4.16: Community rubbish collection vehicles.

Another type of rubbish vehicle is a tip truck with a cage. These are mainly used in very large communities or towns.

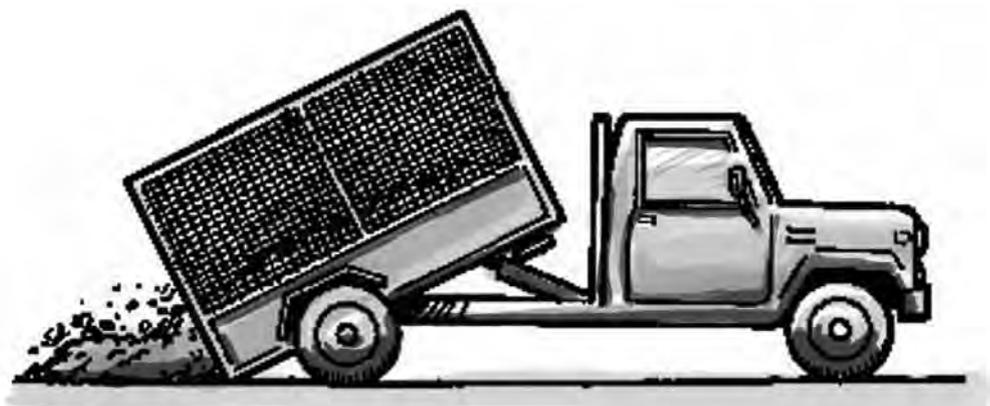


Fig. 4.17: A tip truck with cage.

Different types of rubbish compactor trucks are available and are used within communities provided with sulo bins.



Fig. 4.18: A rubbish compactor.

Rubbish compactors are large trucks which are fitted with special compacting equipment. This equipment compacts (presses together) the rubbish into a smaller space. This means that the truck can hold a lot more rubbish and as a result fewer trips have to be made to the tip to empty the rubbish. This saves time and money.

Where rubbish compactors are used, it is most usual for each household, shop, factory or office to have special plastic or metal bins on wheels. These can be lifted by special equipment on the truck and emptied mechanically into the compactor.

The truck which is used to carry the rubbish to the tip must be looked after and be available when it is required for rubbish collection. If it breaks down or is not regularly available, the community will not be able to get rid of the rubbish and a health risk may occur.

8 Setting up a community rubbish collection system

A community rubbish collection and disposal system is very important to maintaining a good standard of environmental health. Getting the system started and working properly, will be one of the most important tasks for the community council and EHP.

It is an important part of an EHP's job to help organise the community's rubbish collection system.

The EHP does this by:

- educating community members about the great importance of proper community rubbish disposal. All community members, including children, should be taught about:
 - » the risks to health of an inadequate rubbish disposal system
 - » everything that goes to make up a proper rubbish disposal system
- encouraging community members to ask their Council to establish and maintain a proper rubbish disposal system.

If the community does not have a proper rubbish disposal system, the EHP will need to talk to people about putting pressure on the Council to establish and run one properly

- discussing with the Community Council about how to set up and maintain a system.

The EHP may get help from the local EHO to explain the importance of rubbish collection/disposal to the Council and what needs to be done. This includes getting advice as to the best system and disposal site for the community

- talking to the local authorities or other government agencies about provision of equipment, materials and vehicles to operate a rubbish collection/disposal system.

Some local authorities might be able to help the Council with the actual collection and disposal of rubbish. For example, if the community is close to a town the local authority may be able to provide a regular collection service if the Community Council will support it. If not, it may be able to help in other ways, for example, by making earthmoving equipment available at times to dig rubbish disposal trenches.

The local EHO would be able to advise on these matters.

Other government agencies can assist the community in technical and onsite support

- encouraging the community to use the rubbish disposal system properly.

When the rubbish disposal system is operating it will be necessary to tell people how to use it properly and to keep reminding them what to do.

People can be reminded by posters and stickers with rubbish disposal messages on them. These can be displayed around the community, particularly near community bins

- checking that the rubbish collection system is operating and that people are using it properly.

It is important that EHPs do frequent and regular checks to see that:

- » people are putting their rubbish in their house bins and making sure that their bins are put out to be emptied at rubbish collection time
- » the rubbish is being collected from houses and other places in the community at least once each week and taken to the tip
- » the rubbish is being properly disposed of at the tip
- » the rubbish vehicle is being properly cleaned and maintained and is always available for the regular collection runs.

If the Environmental Health Practitioner has any difficulties with the setting up and operating a rubbish collection/disposal system, he/she should contact the Environmental Health supervisor or the local EHO. The EHP can also assist in community education.

9 Community and yard clean-ups

Homes and yards must be kept free of rubbish and of any unwanted materials such as old drums, refrigerators, washing machines or car bodies which can collect water. To do this, a special clean-up should be organised once a year or more often if necessary. This is very important in cyclone areas because this kind of rubbish can get blown around and cause damage to buildings and injuries to people.

By removing unwanted items, yards will look better and pests such as rats, mice, cockroaches, flies and mosquitoes will not be able to live and breed.

The community clean-up will need to be discussed at a full community meeting. The Council and other community members will need to know why the clean-up is needed, and about its benefits. Everyone should be encouraged to get involved and help to clean up all the places that need it.

Plans must be made which set out the day the clean-up will happen, which community members are going to help, and how it will be done.

Posters and reminders during community meetings and can be used to advertise the clean-up. This publicity should be started 3 weeks before collection day. If people cannot read, the posters will need to explain the message with pictures.

When doing clean-ups of this kind, it is necessary for householders to place all their unwanted items at the front of their houses near the road edge. The collection vehicles then pick it up and take it away to the rubbish tip. It is not the pick-up team's job to go into houses and carry out the item/s.

Large items like car bodies will probably need a special trip to get them out to the tip. These items are often difficult to handle and the community may need to use a front-end loader or similar equipment to pick them up. If this is not possible, it may be necessary to try and break the items up before taking them to the tip.

The community may wish to consider hiring the necessary equipment to do this or any other jobs around the community that need large or special equipment, such as tip maintenance. Equipment required for this kind of work might include bulldozers or front-end loaders.

If a local authority supplies a rubbish service to the community, it may agree to help in a community and yard clean-up. However, the EHP will need to discuss these arrangements with the EHO so that plans can be made.

10 Rubbish tips

The **rubbish tip** is the place where all of the community rubbish is taken and buried after it is collected from houses and yards.

The rubbish tip is usually well away from the community. Rubbish tips are unhealthy places and children should not be allowed to play around them.

10.1 FINDING THE BEST SITE FOR THE RUBBISH TIP

Many things have to be remembered when a community is planning the best place to put its rubbish tip.

The tip should:

- be down wind from the community, to help stop smells from the tip being blown back towards the community

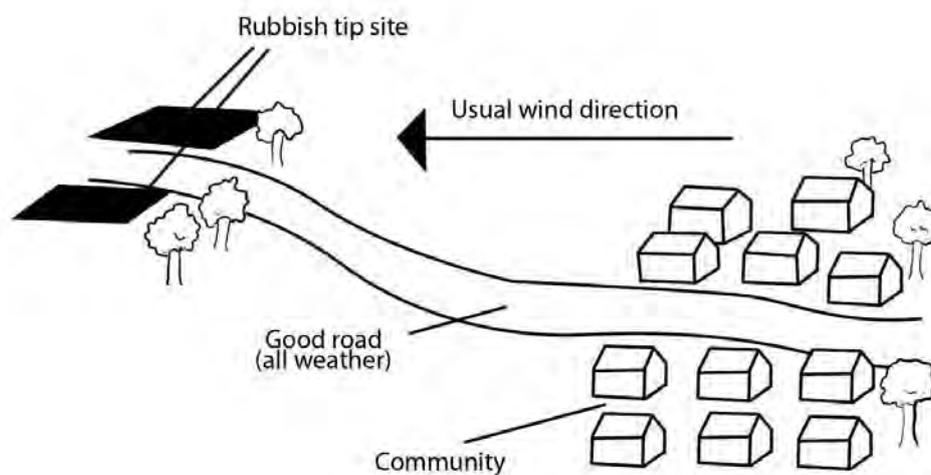


Fig. 4.19: Rubbish tips should be down wind of community buildings.

- not be too close to any rivers or creeks. This is to stop the creek from being polluted by solid rubbish blowing into the creek or by liquid waste soaking through the ground into the water
- not be placed where the water table is close to the surface. This stops the water being contaminated when rain washes toxic materials and pollutants from the rubbish into the underground water
- not be placed in or near an area which is important to the community, such as a sacred site, men's area, children's playground
- be placed in an area where earthmoving machines will be able to get to it
- if possible, be placed in a depression or hollow. This makes it easier to cover the tip with soil. It also hides the tip from view more than if it was on fiat ground. However, first check that the depression or hollow is not a natural water body, such as a soak
- if possible, be placed in an area where the soil is easy to dig.

10.2 BURYING COMMUNITY RUBBISH

The ideal rubbish tip is a hole dug ready for the rubbish. This is usually a large **trench** (a rectangular hole). The soil is taken out of the trench and is piled to one side of it.

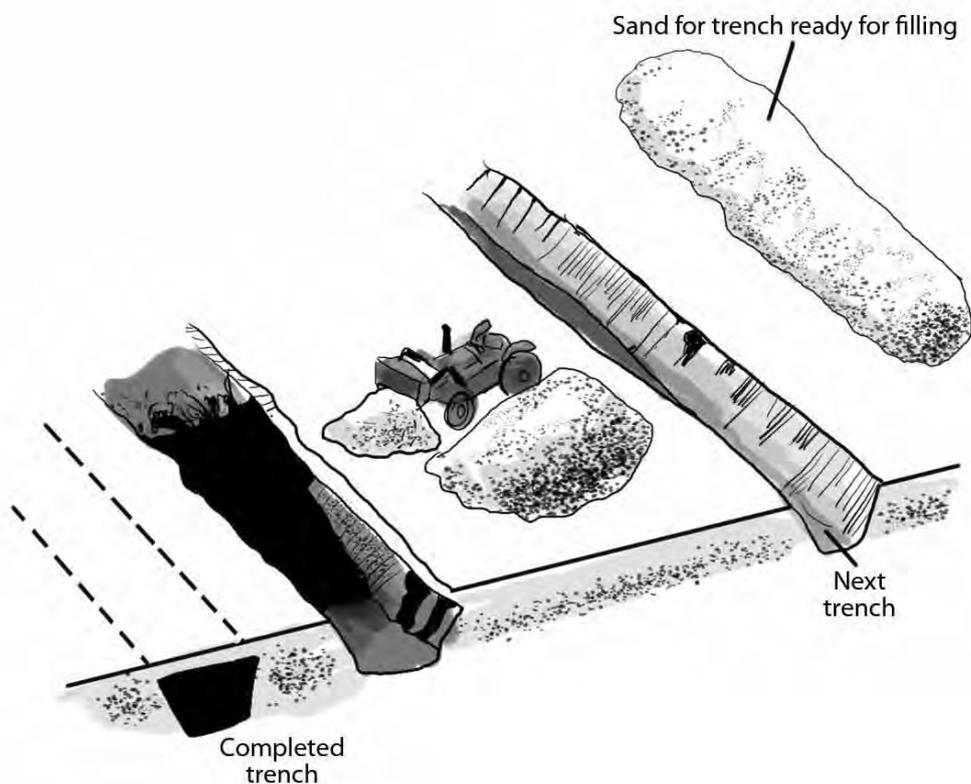


Fig. 4.20: Diagram of rubbish trench in which community rubbish can be buried.

Sewage and effluent should also be dumped at the rubbish tip. There should be a separate place at the tip where trenches are dug in which to empty sewage and effluent.

A track for vehicles will need to be made from the road to the working area of the trench. The track must be kept clear of rubbish so that trucks can get in and out easily to dump their loads in the right place.

Posts, guide fences, or old drums can be used to mark the place where the rubbish is to be put as the trench is used. Otherwise, people will not know where to dump their rubbish and it will end up all over the place.

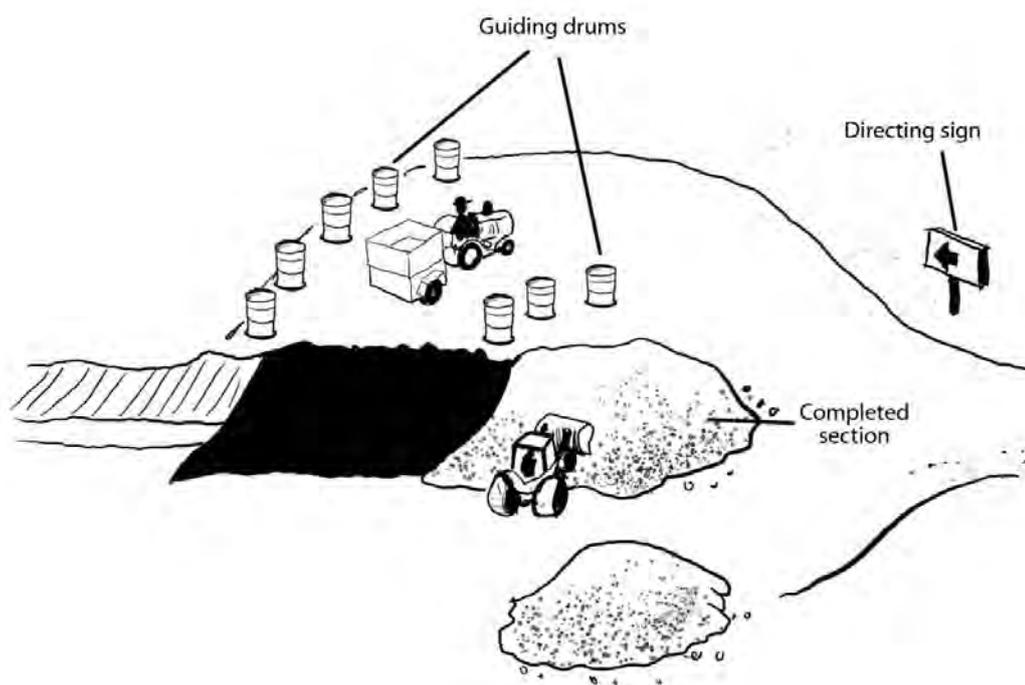


Fig. 4.21: The place where rubbish is to be dumped should be marked.

Unless they are dumping rubbish, people should be kept away from the tip because of the risk of injury and of coming into contact with disease-causing germs. If possible, the rubbish tip site should have a fence around it with a lockable gate. There should also be a notice near the gate warning people of the dangers.

10.3 TRENCHING METHOD OF RUBBISH DISPOSAL

Before any rubbish is collected it is important to make sure that trenches are dug ready to receive the rubbish. Whether the tip is to be used by a large or a small community, each trench should be large enough to take at least 3-4 weeks' rubbish.

Where the community is a large permanent one, it is usual to dig several large trenches at one time. This is a more efficient use of tractor and operator time, particularly if the tractor is being borrowed or hired.

In the case of camps and small permanent communities, it is more efficient to dig enough trenches to take all the rubbish for the length of time of the camp or to meet the needs of a small permanent community for one year.

It is important to remember to dig a special trench to take sewage. A notice warning people that it contains dangerous sewage should be put next to this trench.

Constructing rubbish disposal trenches

Where large trenches are needed they may have to be dug with a **front-end loader**. This is a large tractor with a scoop on the front. Each trench should be about 2 or 3 metres deep, 5 or 6 metres wide and about 20 metres long.

If the community is a large one, it is important that a suitable machine is used to dig the trenches. If the community does not have one and wants to buy or hire one, it is important to get advice from the local EHO or Environmental Health supervisor as to the best type for the job which needs to be done.

An arrangement may be made with the local authority to have trenches dug by its machines when they are in the area.

For camps and small communities the trenches can be smaller and may be constructed and filled by hand using a pick and shovel. They may take advantage of a natural hollow providing it is not a natural water body.

The EHP should consult with the local EHO as to the required size of rubbish trenches for their community.



Fig. 4.22: A rubbish tip for a small community or a temporary camp.

Filling the trench with rubbish

When the trench is being used, the rubbish is first put in at one end. When this section is filled with rubbish to within 150 mm (6 inches) of the top (ground level), it is covered with soil and the filling of the next section is started. Move along the length of the trench repeating this process until the trench is filled. Each section should be between 2 and 4 metres long and the operators use only one section at a time.

It is important to always place the rubbish as close as possible to the working area, rather than in the middle of the section.

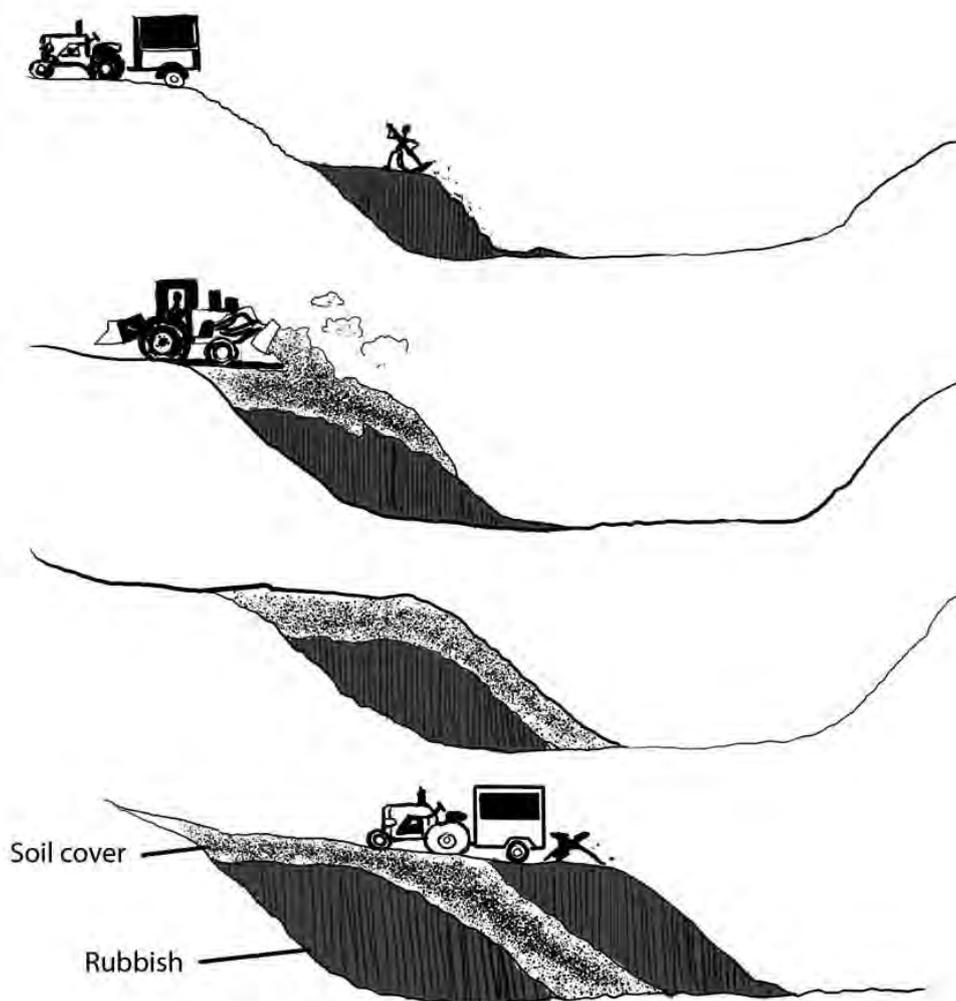


Fig. 4.23: Diagrams showing rubbish trenches which are completed, being filled and yet to be used.

Because the rubbish is loose when it is put in the trench, it should be compacted if possible. If the rubbish is just covered and compacted, the ground will sink later on. This is dangerous because people who walk on top of full trenches can fall through holes where the rubbish is loose. If the area cannot be compacted it should be

topped up with covering soil as it settles. Keep people away from these areas.

When sewage is dumped in a trench, the sewage should be covered with a layer of soil as soon as the water has soaked away.

Rubbish and sewage trenches are always separate.

10.4 SANITARY LANDFILL RUBBISH DISPOSAL METHOD

A **sanitary landfill site** is an area of land where rubbish is dumped in layers or cells. Each layer or cell is covered with sand. Disused quarries, depressions or hollows make good sanitary landfill sites. This rubbish disposal method has been used extensively around cities to fill and level areas for later development.

Care must be taken when choosing a place for this kind of rubbish tip. This is because there may be small rivers or streams underground or a high water table and contaminants in the rubbish tip could soak through the soil into the water beneath. As a result, people and wildlife drinking the water could be poisoned.

It is necessary to contact an EHO to help choose a sanitary landfill site.

This method also requires a reliable vehicle or machine to maintain the tip and a supply of sand, because each time the rubbish is taken to the tip it must be covered.

11 Litter

litter is any kind of rubbish dropped on the ground by people when they are moving from place to place. Litter includes drink cans, bottles, cigarette packets, fast-food containers, paper wrapping and many other things.



Fig. 4.24: Many people throw rubbish out of moving cars.

11.1 WHY PEOPLE LITTER

Traditionally, Indigenous people did not stay in one place for long and they usually moved around the land in small family groups, so very little rubbish collected in one place. What rubbish they did leave behind was just faeces, urine and the remains of plant and animal foods. This was not a problem because waste material soon dried up and became free of bacteria, or other animals used it for their food.

When Indigenous people began to live in houses they did not understand how to get rid of new types of rubbish like glass, plastic, paper and cans. Today, there are many Indigenous people who have still not yet learned about this. However, there are also many people who do know that they should not litter but still throw their rubbish about.

Some of the reasons they do this are:

- a lack of rubbish bins
- no system being in place to deal with rubbish and litter
- not understanding the links between rubbish and disease or injury
- lack of community spirit—some people are not interested in keeping the community clean, tidy and healthy
- adults failing to set a good example for children—if the adults are always dropping litter then children will think it is the right thing to do and they will do the same thing. Children must be shown how to use rubbish bins.



Fig. 4.25: Some people are too lazy to make sure rubbish is put in bins.



Fig. 4.26: The people who live in this dirty, unhealthy community do not get rid of their rubbish properly.

11.2 IDEAS TO STOP PEOPLE LITTERING

When people in a community drop rubbish on the ground, they should be encouraged to stop doing it. To do this the EHP could try the following ideas:

- Set up a system for dealing with rubbish in the community.
- Have enough rubbish bins around the community.
- Place rubbish bins where people usually meet to talk and play, for example, outside the store, near playgrounds, meeting places and schools.
- Empty the rubbish bins regularly.
- Educate people so they understand:
 - » the health problems caused by litter
 - » the danger of injury from litter
 - » the pleasure of a clean and tidy environment.
- Encourage community spirit. This can be done by:
 - » organising community clean-ups
 - » planting trees and gardens

- » making playgrounds
- » painting fences, walls and buildings.
- Encourage the Community Council to set fines for people who litter. This means the Council will make people pay some money when they are caught dropping litter.

It will be necessary for the Council to get advice from the local authority on how to go about making littering an offence which can be punished by a fine.

- Encourage people to recycle rubbish. Not all rubbish can be recycled but some can, such as:
 - » metals
 - » glass
 - » paper
 - » aluminium cans.

The EHP may be able to make arrangements for people in the community to sell some items of rubbish, such as aluminium cans, for recycling. Getting money for their rubbish is a very good way of encouraging people not to litter.



Fig. 4.27: *The people in this clean, healthy community dispose of their rubbish properly all the time.*

12 Environmental management – area beautification

it is important for people's good health that the community they live in is not only clean and free from rubbish, but that it is a comfortable and pleasant place in other ways. There is a greater chance of achieving these things if people plan the community layout before building starts. People should give a lot of thought to:

- where buildings and other facilities should be located
- what the buildings and their surroundings will look like.

12.1 ENVIRONMENTAL PLANNING

Working out ahead of time where schools, playing fields, houses, shops and other buildings and facilities will be built in a community is called **environmental planning**.

This can be done by people in a community discussing their ideas and deciding together what they need and where the buildings and facilities should be located. However, in Australia, environmental planning is usually done by specially trained planners who are employed by local authorities or government town planning authorities.

Environmental planning can be done before anything is built in a new community or before changes are made to an existing community.

A good community plan provides for:

- areas such as roadside reserves, playgrounds, gardens and parks which can be made more attractive by planting trees, shrubs and grass
- plenty of good places to play and exercise
- shady places in which to sit and talk
- shops, public toilets, health centres and other important facilities which are easy to reach
- roads, footpaths and street lighting which allow people to get around the community easily and safely
- water and power supplies to every house and public facility
- sewage and rubbish disposal systems which will meet the community's requirements
- placing houses so that people have privacy but can mix easily with neighbours if they wish.

Some of these facilities, such as rubbish tips, bores and sewage ponds require special consideration when finding a place to put them.

12.2 BENEFITS OF ENVIRONMENTAL PLANNING

For people who live in a well planned community, the benefits can be very great, particularly if the community:

- looks after the buildings and facilities
- makes sure that water and power supplies and hygiene systems operate properly.

These benefits can include:

- a clean and healthy environment
- a nice, pleasant place in which to live
- plenty of places to play and exercise
- healthier people
- people living longer
- people feeling happy.

12.3 HOW TO PLAN FOR A HEALTHY COMMUNITY

Australian cities, towns and some Indigenous communities have a **town plan**. A town plan is like a map. It is a document which sets out where all the buildings, roads and facilities are to be located. It may also set out where and what kind of sewage and rubbish disposal systems are to be built, the width of the roads, the size of the playing fields, parks and gardens and so on.

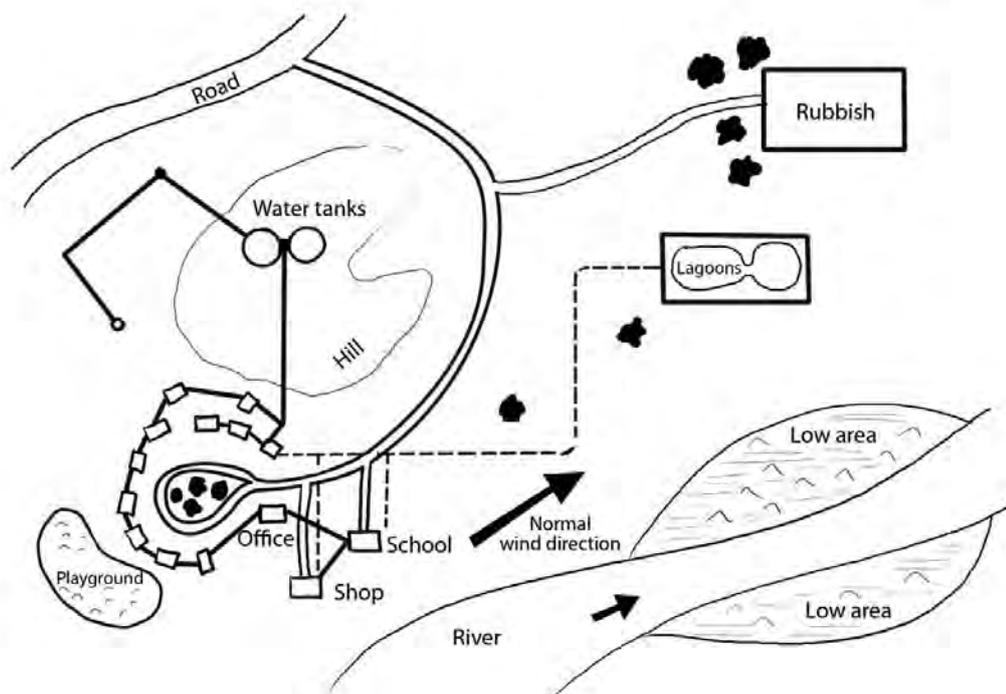


Fig. 4.28: An example of a community town plan.

These plans are usually prepared by a government department or local authority which has the power to make sure that people who live in the city, town or community follow the plan. This means that people cannot just put any kind of building anywhere they like. For example, they can only build a house in a place which has been specially set aside for housing.

Town plans are usually prepared before a town or community is built. When the town planning authority decides that a city, town or community needs to be changed, a new plan for the area will be drawn up. The local planning authority may also be able to assist.

Changes to cities, towns and communities usually come about because people see that there are better ways of doing things. For example:

- people may find that the road layout is dangerous and is causing a lot of accidents and needs to be changed
- a lot of people in the community may want a swimming pool or playing field
- health authorities may want to have the rubbish tip shifted because it is too close to some buildings.

When town planning authorities produce a new town plan, they usually ask people living in the town, city or community to look at it and give their opinions as to whether or not they are happy with it. When people do not agree with it, it is often changed to meet their needs.

If people in Indigenous communities think that their community needs changing, they should decide among themselves what changes they need. When they do this they might decide that:

- the community needs one or more new buildings, such as a preschool centre, a community centre, public toilets or a new community health centre
- some buildings would be better in other places. For example, moving a building away from the river to prevent damage during floods, or relocating communal toilets so that they are easier to reach
- the community needs to be a more beautiful place, by doing things like planting more trees, making a park or putting in place better systems for managing rubbish
- the community needs a new sewage system.

They should then discuss the changes they think need to be made with the appropriate town planning authority. It would probably be best to discuss any changes to rubbish and sewage disposal systems and water supplies with the local EHO or the state or territory government department who can advise on what action needs to be taken.

12.4 IDEAS TO IMPROVE THE COMMUNITY ENVIRONMENT

There are many changes which can be made to a community to make it a much more pleasant place to live in. The community should make its own list of priorities.

Here are some suggestions:

- build children's playgrounds
- make sportsfields
- provide BBQ areas
- plant trees and grass or ground cover for shade and dust control in the community
- paint houses and fences
- organise community clean-ups
- provide park benches.

It is important to take steps to beautify a community and make it a more pleasant place. For example, planting more trees and taking care of existing ones makes a community a more pleasant place to be in. Everyone likes to be able to sit in the shade of a big tree. Trees around a house can help to keep it cool and they look good. Trees are also important because they give out oxygen which people and other animals need to survive.

Gardens are not just for flowers. They can also be for growing vegetables and fruit. The roots of plants help hold the soil in place during floods and strong winds.

If there is grass or ground cover it can provide a good place to sit or rest. Children can play on the grass or meetings can be held there. Grassed areas are good for playing on too. Sports such as basketball, football, softball and netball can be played there. Ground covers also help to control dust in the community.