Environmental Guidelines for Village Tourism

1. Introduction

Small-scale tourism development by rural communities, especially in the Yasawas group of islands, is becoming an important part of the Fijian tourism package. Such developments are usually small-scale, low-technology, minimal planning, low investment and are aimed at the budget traveller.

Given this, the Ministry of Tourism has asked that environmental guidelines be prepared for the construction and operation of such facilities. Developers may have difficulty in funding a formal environment impact assessment. It is hoped that developers, by following these guidelines, will increase the likelihood of success by:

- having a safer and more attractive resort
- lowering costs
- maintaining an environment that will continue to attract tourists
- maintaining good community support for the project

Developments within an established village do not require development permission, however, any development outside of a village (which we think is better for such projects) does require planning permission through the Rural Local Authority, under the Public Health Act and the Town and Country Planning Act.

These guidelines are meant to be simple and easily understood. Only major issues are covered, additional information is available in the booklet, "Guide to Setting up Environmentally Sustainable Small Hotels and Resorts." Topics covered in this booklet are:

- Planning
- Design and Siting
- Construction
- Operation
    - Waste Management
    - Energy and Water
    - Landscape
    - Visitor Activities
- Social Issues
- Where to Get Information/Assistance

2. Planning/Carrying Capacity

In thinking about setting up a resort, especially in a remote, outer-island location, there are many things to think about and plan first. The Carrying Capacity of the area should be taken into account. This is the maximum number of people that the area can support. It is based on the following:

- Physical - how many can be accommodated
- Environmental - without causing damage
- Economic - without causing price rises
- Social - without causing cultural damage
- Infrastructure - number of beds, toilets, airline seats, hotel rooms etc
- Perceptual - without destroying site concept

It is recommended to seek advice from government or others already operating a village-based resort to consider what resources you will need. These include:

- transportation - how will tourists get to the resort?
- communication - how will you get bookings and how can guests contact people back home?
- number of guests - what is the maximum number of guests you are planning for?
- water - tourists use a lot of water, is there enough available? Do you plan to provide hot water?
- food and supplies - what will you need to operate the resort and how will you obtain them, what about guests who do not like local food?
- construction materials - is what you need available on the island? If not, how will you get it?
- emergencies and health care - how will guests be transported quickly to the mainland if there is a serious injury or illness? (they will expect this). They will also need to have basic medical care available. In the case of cyclones there will need to be a strong, cyclone-resistant building nearby where guest can retreat.
- money - all of the above cost lots and you will need extra as most business take some time to become profitable.

3. Design/Siting

3.1. Stability

The most important thing in planning where to build is to ensure the safety of the buildings and the tourists. Most village-based resorts are being built in coastal areas. Fiji law requires buildings to be built at least thirty metres inland. This helps ensure that the building is protected from wave action and also so construction does not damage the beach. Resorts should also avoid siting on beaches, eroding areas and river mouths as these are unstable areas.

Remember that Fiji is subject to tropical cyclones and storm surges. Talk to elders in the area and make sure that the area where you are planning to build is not reached by floods or waves during cyclones. If elevated areas or hill tops are available they will be safest. The design of the building should also be able to withstand natural climate conditions such as strong winds.

3.2. Impacts on Biodiversity

Village-based resorts should avoid impacting on ecologically important areas such as mangroves. Sites of important flora or fauna such as turtle nesting areas should be avoided.

A site that provides a pleasant view of plants and sea is also desirable.

3.3. Minimise Noise/Maximise Privacy

It is also recommended that the buildings be built away from the village. Most tourists, even though they may want to take part in village activities, will want a quiet private location for the room they stay in. This also means the rooms should be as far as possible from each other and especially from a central eating or meeting area where there may be a lot of noise.

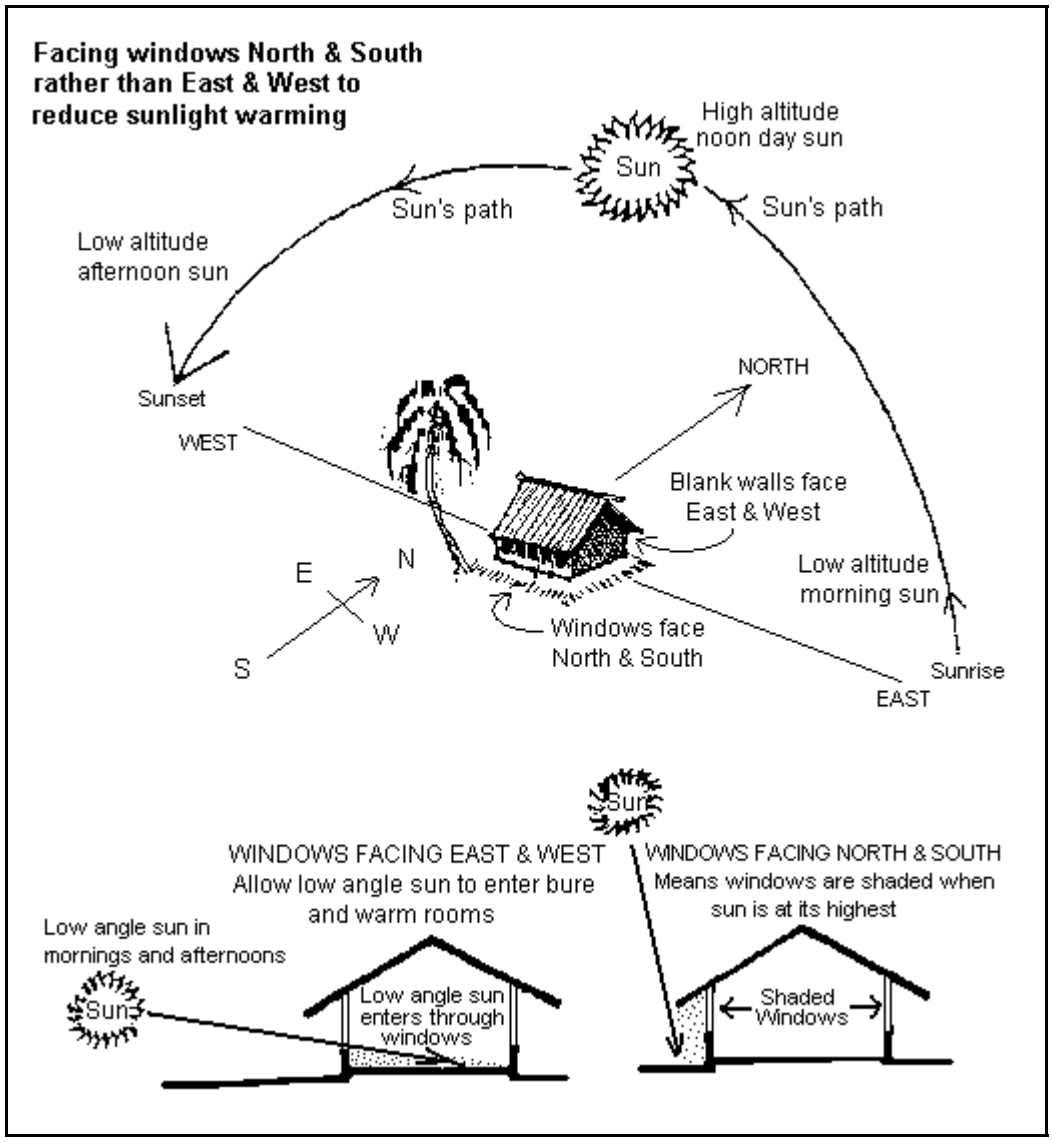
3.4. Keep it Cool

Most visitors will find the Fiji climate hot. The placement of the rooms can help keep things cooler.

- Build with traditional materials such as thatched roofs and reed/bamboo walls
- Have solid walls facing east and west in the path of the sun

- Have many windows in the sides of the house facing north and south

Figure 1: Location of windows for best cooling



- Have tall trees and shrubs shading the house from the sun but not blocking the wind

Figure 2: Traditional design that shades windows and allows a good flow of cooling breeze.

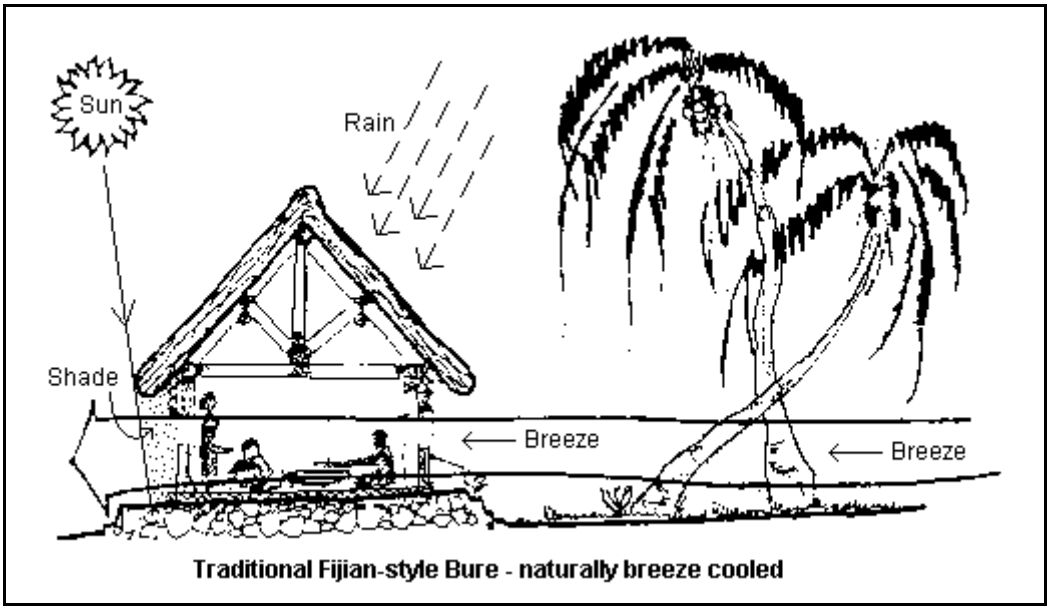
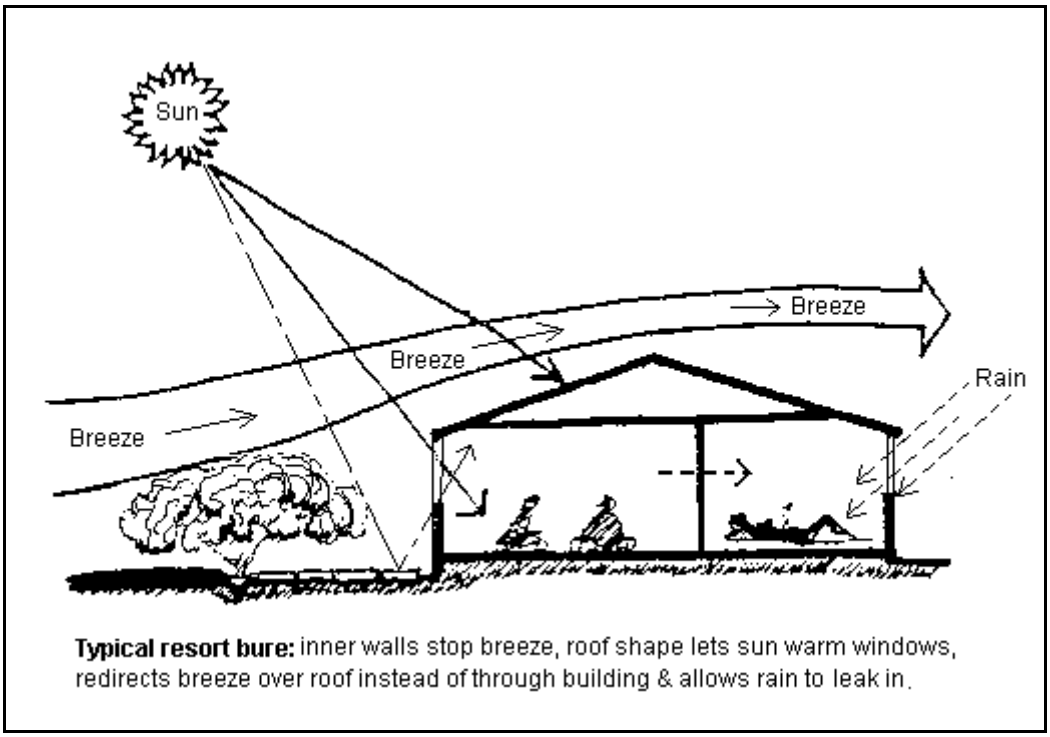


Figure 3: Non-traditional design that heats up quickly and prevents cooling airflow



- If you must have a metal roof paint it a light colour so that the heat is reflected and the metal does not glare

Figure 4: Dark roof absorbs heat and creates a hot room inside

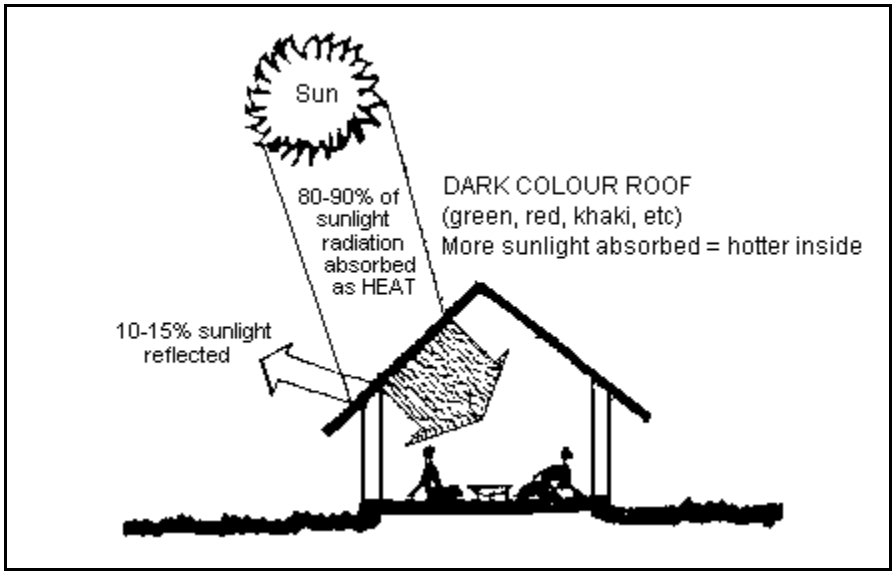
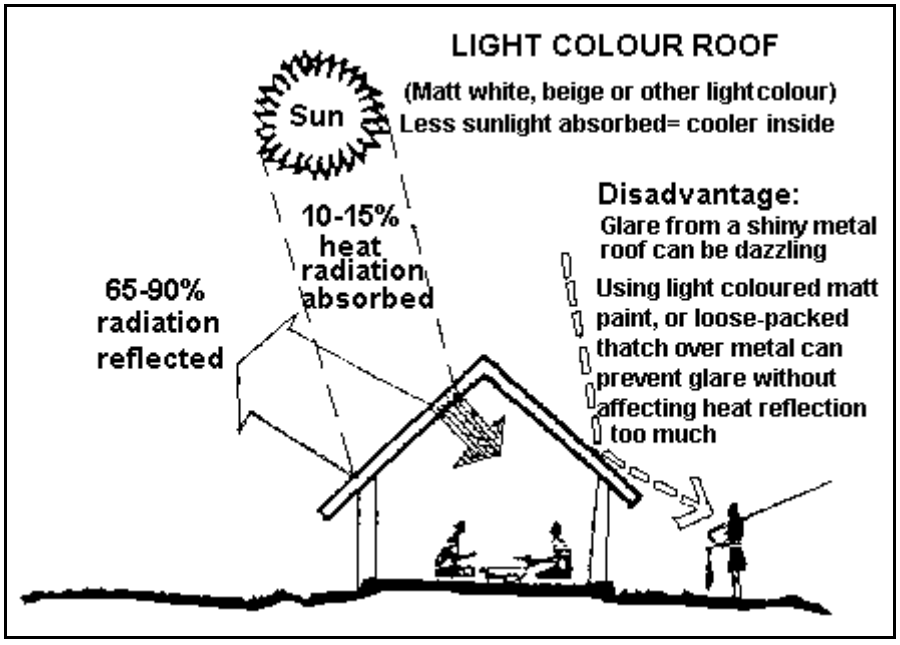


Figure 5: Light roof reflects heat and stays cooler inside.



3.5. Rainfall and Drainage

Fiji is known for its periods of heavy rainfall and so in siting make sure that the area will not be flooded and also that the roof has overhang and windows/louvers close tightly so heavy rain does not enter the room.

3.6. Social Issues

Ensure that the siting of the resort has the approval of the nearby community and that no important cultural or historical sites will be violated.

Another important issue is what people see when they approach the resort. This first impression will often affect how they think about the resort. Buildings should fit in with the natural landscape and use colours that do not contrast.

4. Construction

Given the small-scale nature of village-based tourism, it is unlikely that heavy construction equipment will be used. This is actually beneficial as major guidelines are:

- minimise removal of plants and vegetation
- minimise land clearing and earthwork
- do not change important marine features such as coral reefs, mangroves or other wetlands
- do not build sea walls or features that restrict the flow of water and sand along the coast

Figure 6: Coastal erosion can cause an increase in the slope of the beach

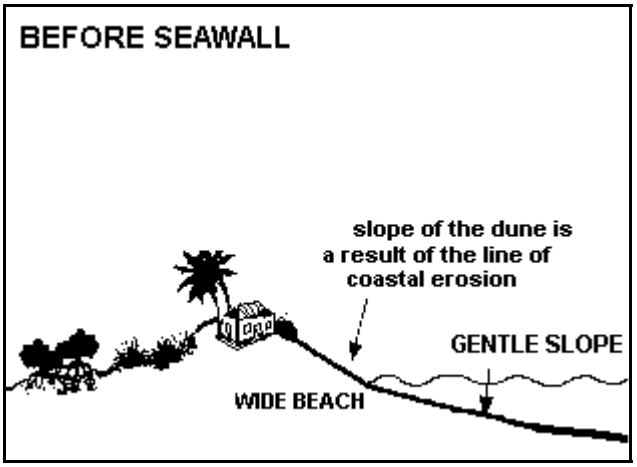


Figure 7: Over time, more erosion removes the last of the beach, and the wall collapses

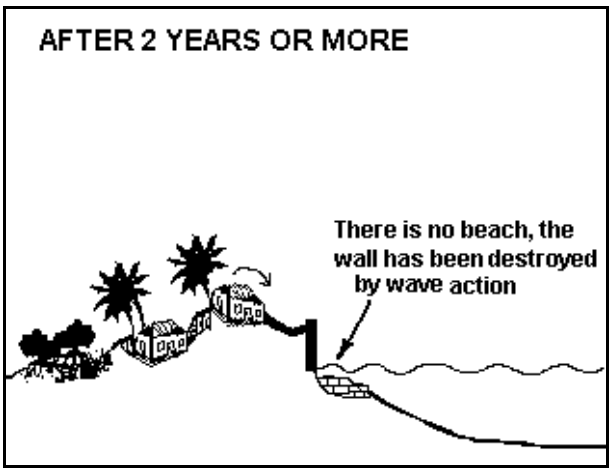


Figure 8: If an upright wall is built the increased energy of the waves breaking against it removes more sand from the base of the wall, and the beach is made smaller.

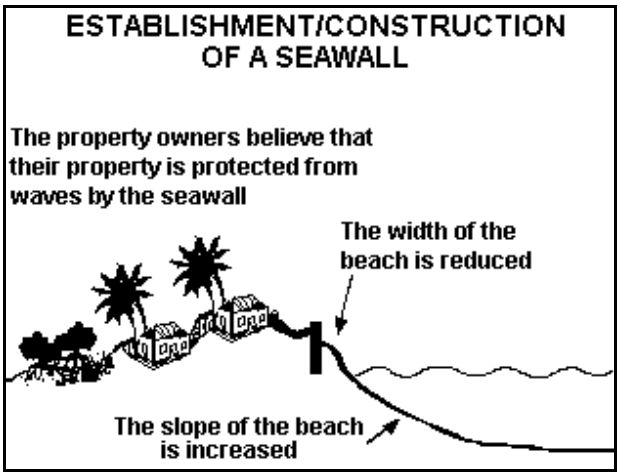
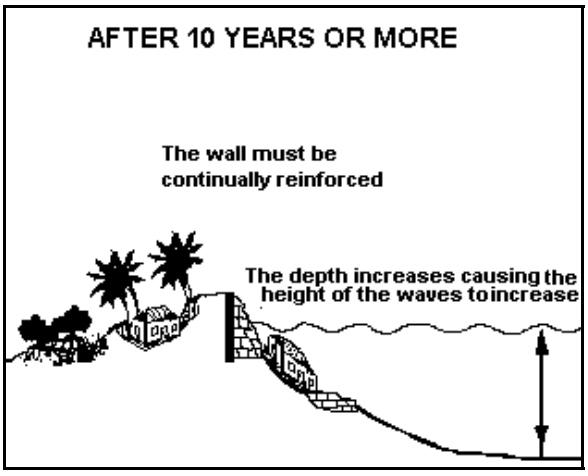


Figure 9: The problem continues with beach sand being continually removed and walls being continually rebuilt, so that the beach erodes more than it would have done without a wall.



The basic idea is to cause as little change to the environment as possible and preferably build in already cleared areas rather than clearing new areas. If at all possible sand from the beach and coral rock from the reef should not be used in construction. If construction does involve baring the earth try and prevent soil from washing into streams and the sea. This can be done by placing layers of palm fronds around the bare earth.

For use of oil and fuel ensure that there is minimal spillage and that storage is done safely on high ground away from the sea or river.

Another issue when planning construction is to carefully think about what materials are needed for building so that there is minimum left-over materials to dispose of.

5. Operation

5.1. Waste Management

Especially relevant in the operation of the resort is waste management (solid and liquid). Guest will not want to come if there is a bad smell or they get sick from the water or there is rubbish everywhere or if the coral reefs have been killed by pollution.

Sewerage

This is obviously a major concern. Sewerage contains materials harmful to human health and to corals. Care must be taken to ensure that this waste does not enter wells, rivers or the ocean. In coastal areas, the soil is sandy and liquids move through it easily (for example from septic tanks to groundwater and the sea).

Care must also be taken when choosing the depth to place a septic tank in relation to the groundwater level and type of underground rock.

Figure 10 A well dug too close to the sea and downstream from a septic tank. This would normally give salty water or water with bacteria in it that can cause disease.

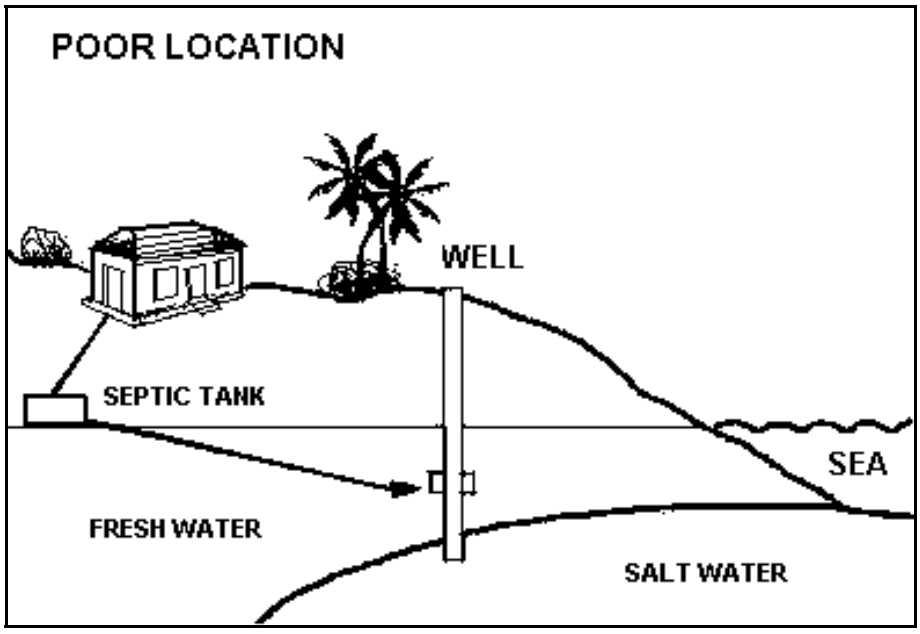


Figure 11: A well placed far away from the shore and septic tanks. This would give clean, fresh water.

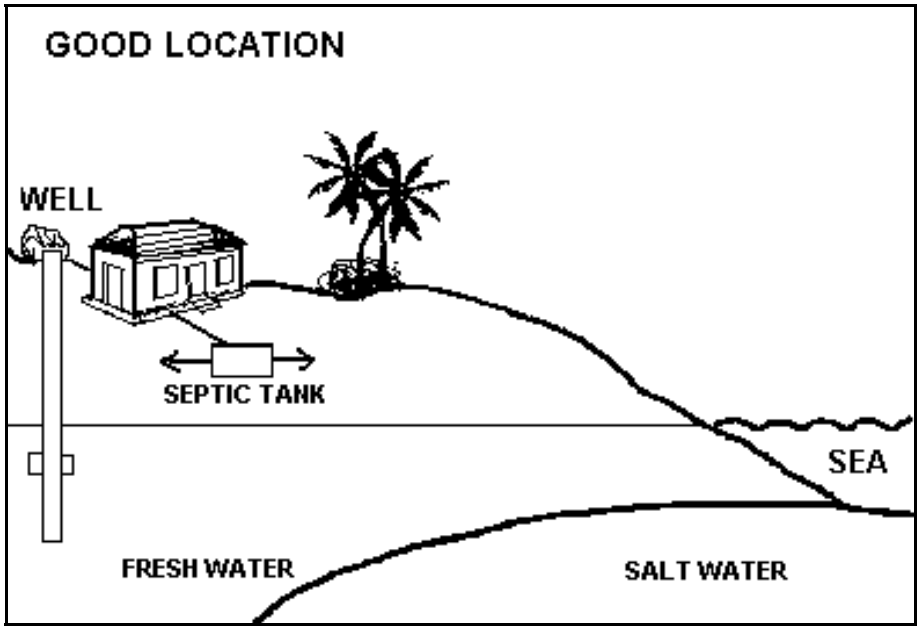


Figure 12: GOOD PLACEMENT. If there is water underground, shallow septic tanks will not pollute it.

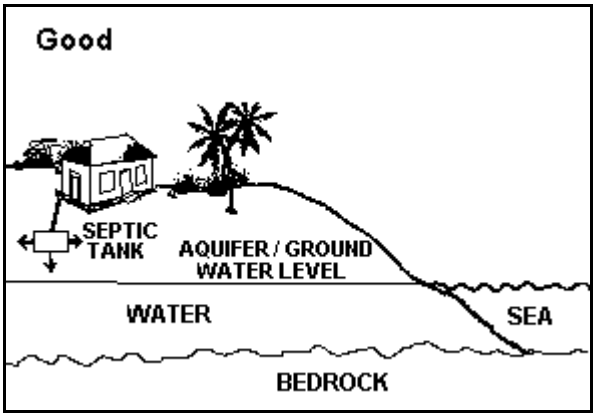


Figure 13: BAD PLACEMENT. If there is water underground, deep septic tanks will pollute it, and the sea.

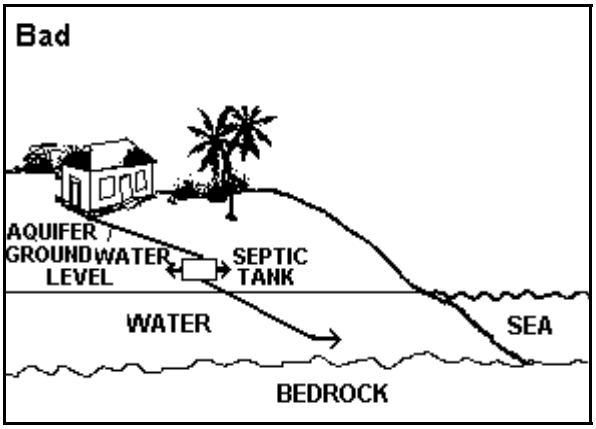


Figure 14: GOOD PLACEMENT. If there is rock underground, shallow septic tanks built behind bures will mean waste stays in the soil and does not pollute the sea.

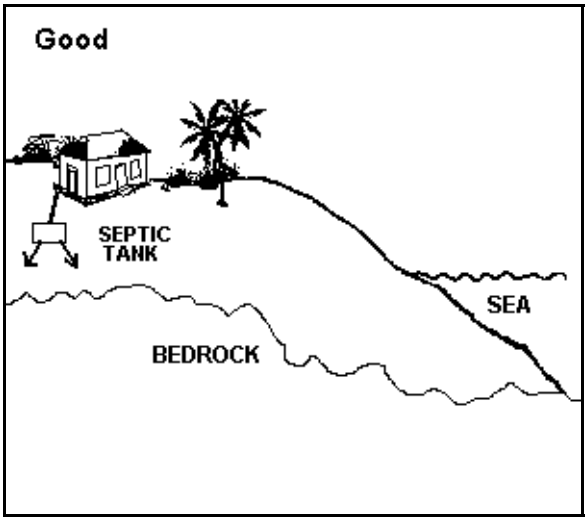
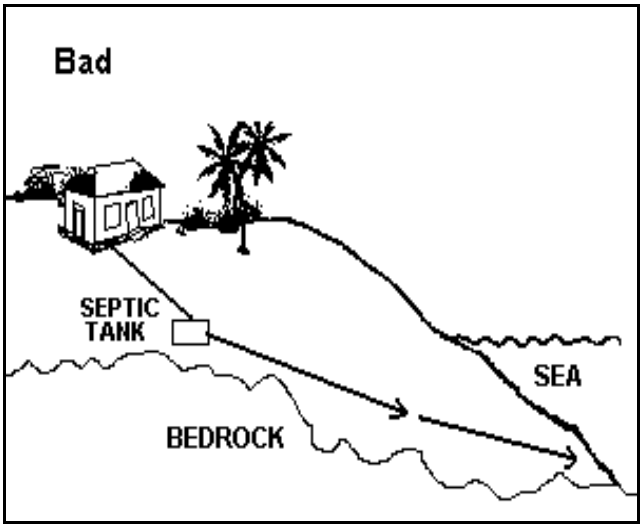


Figure 15: BAD PLACEMENT. If there is rock underground, deep septic tanks built near the sea will allow sewage to wash down and pollute the sea.



It is therefore recommended that dry, composting toilets be used. There are a number of designs for these that range from indoor facilities to outdoor ones. The basic idea is that little or no water is used (also a benefit) and that solid waste eventually becomes sterile and can be used in the gardens. Two designs are given below. The outdoor toilet costs about F$1,000 in materials and can accommodate use by 10-15 people. There are two compartments built entirely above ground. When one side is full the other is used until the full one has turned to compost and can be shovelled onto the

garden. During operation several leaves are added each day to speed this process. Fly and odour nuisance is reduced by facing the door toward the wind and having a pipe vent. This ventilation can also be used in pit latrines. If pit latrines are used they should be located at least 30 metres from seashore, well or stream and the drainage outlet or pit bottom is at least one metre above groundwater level.

Figure 16: Photos of system components in use - toilet seat, bin outside bure and netting in bin

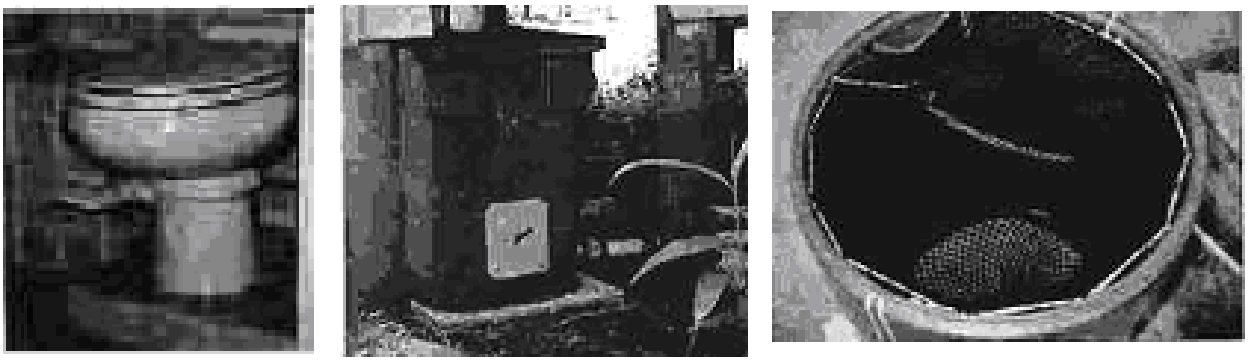
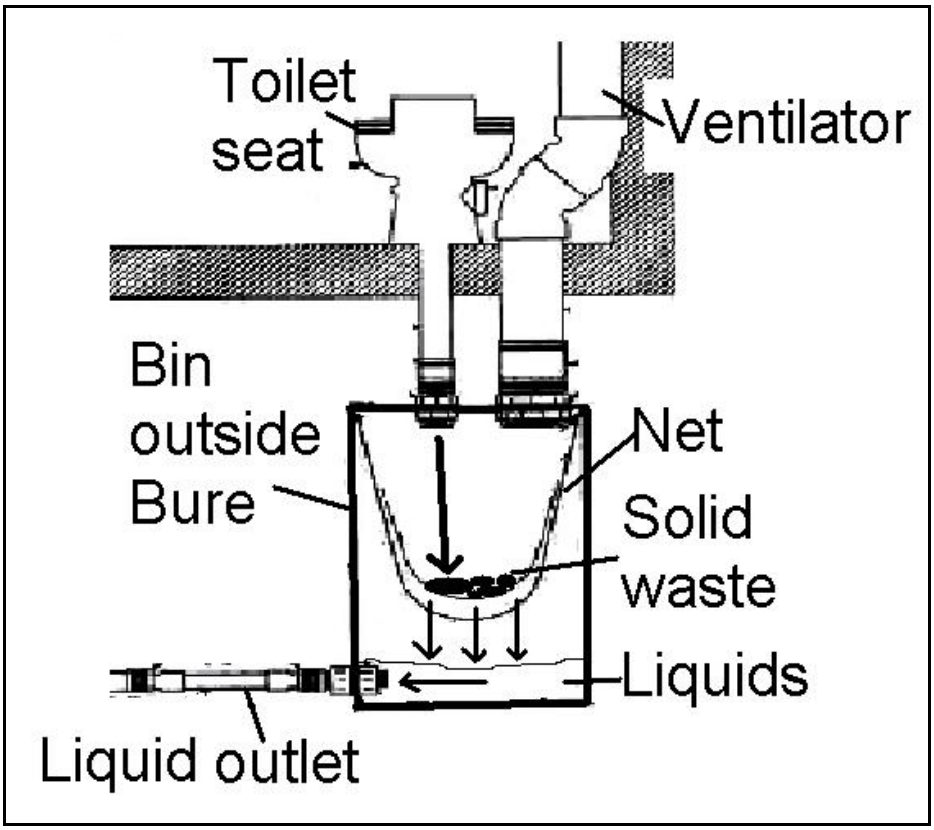


Figure 17: Basic design of a container net batch composting toilet system.



If septic tanks are used they should be designed as in the diagram below so that solids settle out and excess water enters the ground. It is also good to have plants near the water outflow to "soak up" the nitrogen and phosphorus nutrients.

Figure 18: Fiji-style Cesspit sewage disposal tank.

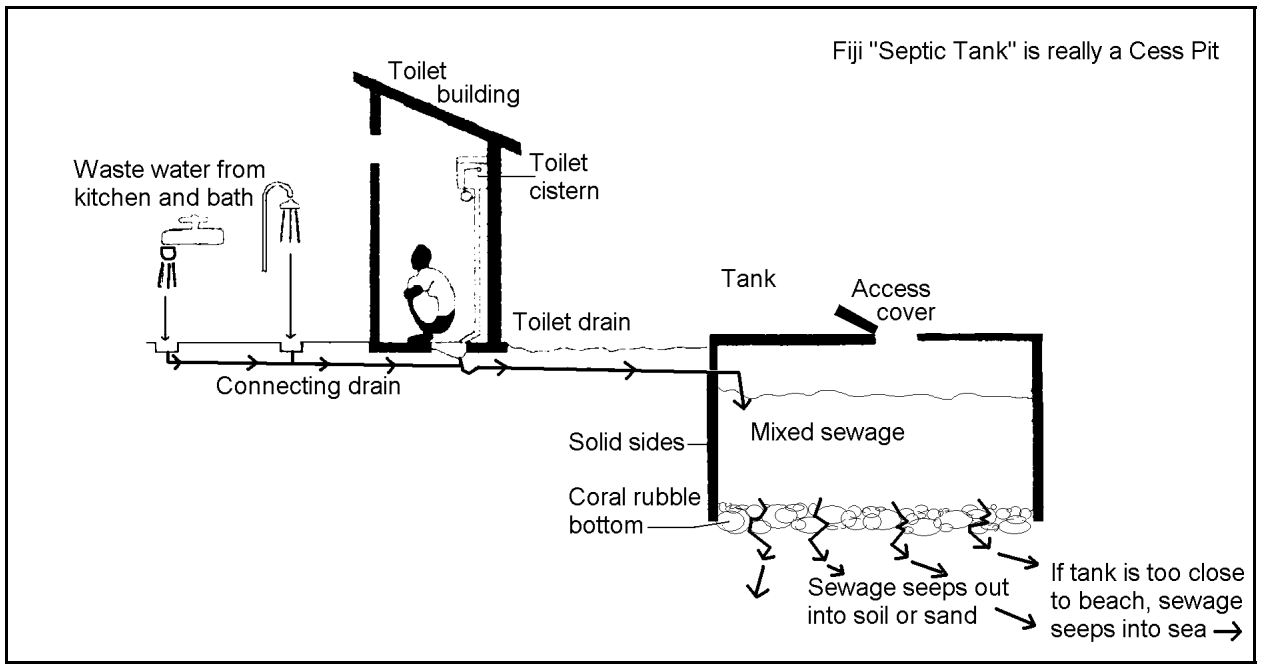


Figure 19: True Septic sewage disposal tank.

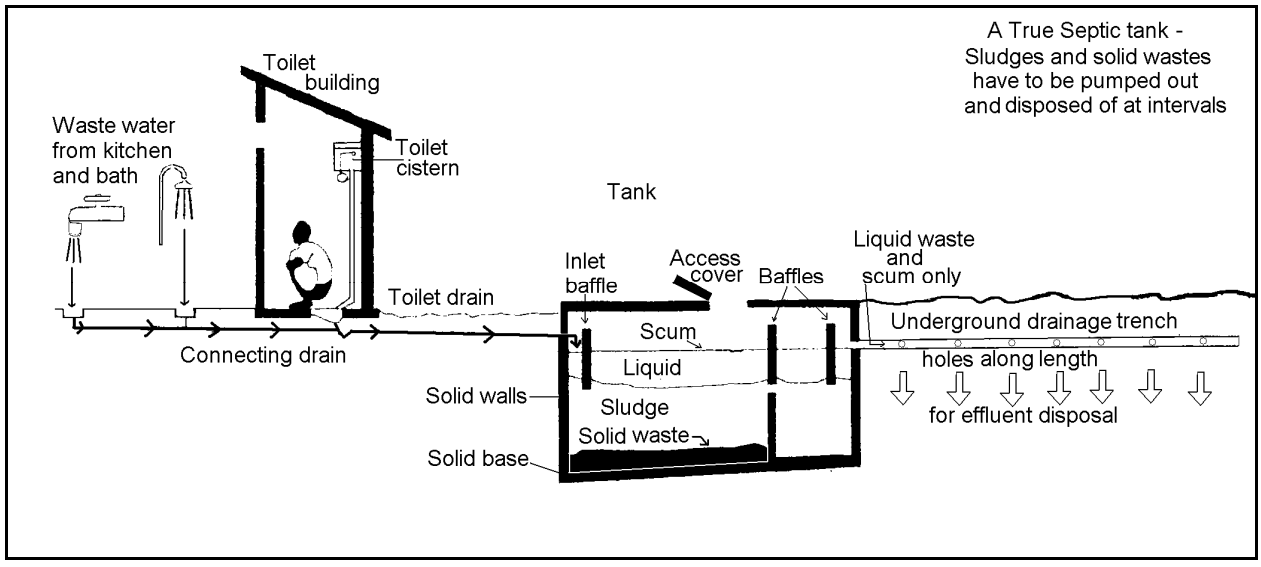
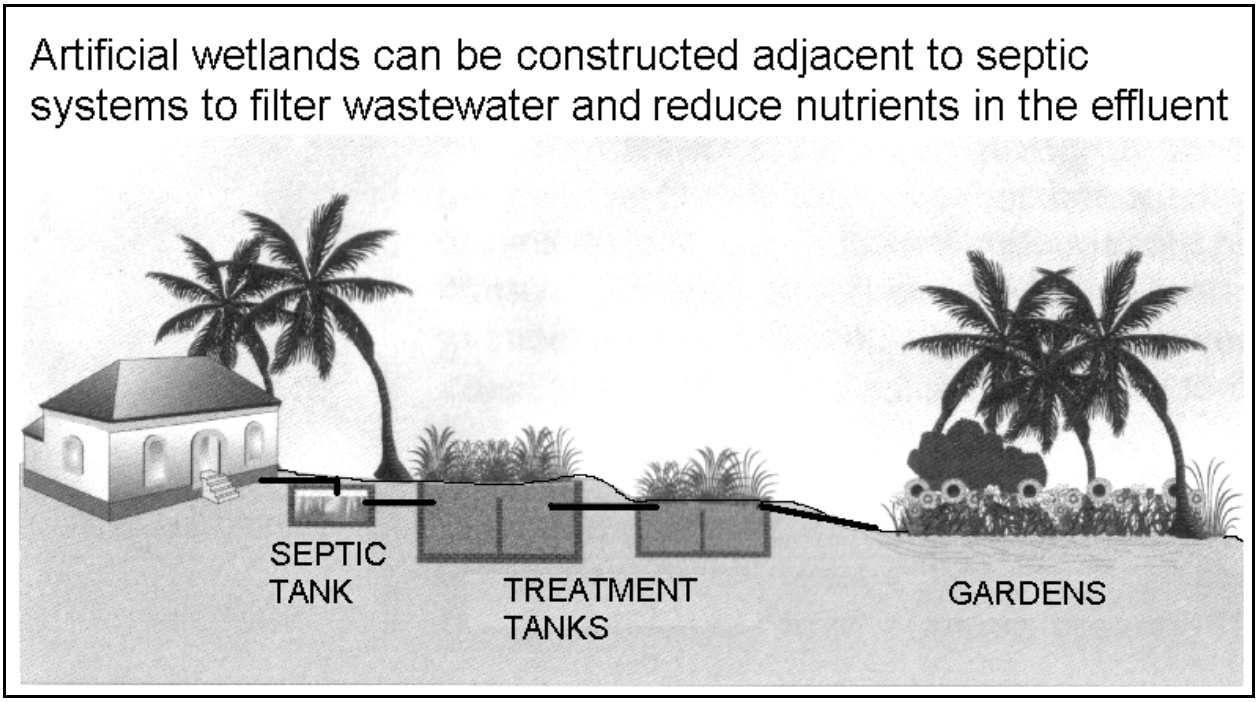


Figure 20: - True Septic sewage disposal tank with Artificial Wetlands treatment.



Greywater

This is water from showers, washing and basins. It is high in nutrients (nitrogen and especially phosphorus from detergents that can damage coral reefs) so should drain to a wetland where plants are grown to use the nutrients or put through the septic tank. It is also highly recommended that you use phosphate-free soaps and detergents (such as Black and Gold). Ask your supplier for the names of others.

Solid Waste

One key is to try to minimise waste (see Guide to Setting up Environmentally Sustainable Small Hotels and Resorts) and to think how used materials can be reused. Many materials such as aluminium and plastic and glass can be reused and these can be sold to companies that do this. The second key concept is to separate waste. Examples of how major waste can be best dealt with follow:

- Kitchen Scraps - compost or feed to pigs
- Cardboard boxes, paper - compost or incinerate;
- Aluminium cans - store, compress and sell to scrap metal trader;
- Glass Bottles - recycle where possible, landfill; grind up and use in concrete or dispose the ground material at sea on sand;
- PET bottles - compress and sell to trader or discard to landfill (Do not burn);
- Plastics - landfill (Do not burn)

Three structures you will have to develop are an incinerator, a composting area and a landfill. These should all be as far as possible from guest areas. The incinerator should ensure all material (no plastics) is well burnt and partly-burned paper does not escape. Plastics produce dangerous poisonous fumes when burned so this should be avoided.

A composting pile can consist of kitchen waste, grass, leaves and any other material that can decompose to soil (including material from a composting toilet). This material can then be used for vegetable gardens or general landscaping. If there is a lot of leaves or small branches around your operation buying a shredder may be useful that cuts these materials into small pieces so that they compost faster. Compost piles should not get too wet or dry and should be turned every few weeks with a garden fork.

A landfill is an area where waste that cannot be reused or burned is buried. This should be at a site at least ten metres above the water table and in an area not prone to flooding.

5.2. Energy and Water

For details on ways to save energy and water, see the "Guide to Setting Up Environmentally Sustainable Small Hotels and Resorts"

For most village settings electricity may not be necessary, hurricane and benzene lamps and torches are usually satisfactory and add to the South Pacific flavour of the tourist experience. If electricity is needed, find out about the use of solar panels to provide this. If you do not have electricity, make sure that each room has a kerosene lantern.

To save water, rainwater can be collected from roofs and stored in tanks for later use, any leaks should be repaired quickly, water from the showers and sinks can be used to water the garden, if using a washing machine only operate it when there is a full load, and ask guests whether they want their towels and sheets changed daily.

5.3. Landscaping

Minimise planting a lot of new plants, instead maximise use of `natural habitats'; retaining native species and enhancing their interest with interpretive signs that can greatly increase visitor interest and appreciation.

The following are some ideas:

- Retain and modify original vegetation around construction site, rather than clear fell
- Plant native species - they consume less water and are more resistant to cyclones
- Plant native species which are known to attract birds
- Use organic fertilizers and natural pest control methods
- Avoid (or minimise) use of chemical pesticides, herbicides, bactericides and fungicides
- Compost plant and grass clippings
- Chip woody garden waste and use it as mulching material - reduces weeding and water requirements
- Water your garden at night to minimise loss of water from the plants and soil
- Include plaques on native species to educate visitors

5.4. Visitor Activities

Many people have chosen to come to this kind of resort to learn more about Fijian people and their culture. Things that are very boring to you such as how to plant cassava (or even what cassava looks like) will be interesting to many guests. Plan a variety of activities that give people the chance to participate in cultural activities. Among these might be: [Randy's list]

a. Establishment of low-impact trails and guided tours of the forests and other appropriate ecosystems
b. Mangrove tours in boats, or canoes
c. Ethnobotanical, or ethnobiological tours of selected ecosystems
d. Tours of gardens
e. Medicinal plant tours that highlight and share with visitors the wealth of traditional knowledge about the wide range of plants used for medicinal/healing purposes
f. Birdwatching tours, with checklists of birds known to be resident in a given area
g. Informed snorkelling and diving that minimises destruction to reefs and reef biodiversity
h. Beach walks
i. Reef walks/reef gleaning walks at low tide with local fishers
j. Ocean kayaking/boat tours with designated ecostops.
k. Village tours highlighting historical, environmental, architectural and natural resource-use aspects
l. Learning to make local handicrafts and products
m. Learning to cook/prepare local foods (e.g., palusami, raw fish, seaweed, bele, etc.)

6. Social Issues

Many village ventures, including, tourists ones, fail because of disagreements. These can be internal ones within the community or with outsiders. The important thing here is communication, make sure everyone agrees to what is happening and why. Bringing in outsiders, either tourists or workers, can often cause problems. Visitors often bring in new ideas and different ways of doing things. It is important to discuss these issues and the types of problems that might arise at community and staff meetings and how to minimise such problems. It might also be a good idea for the community to determine a "code of conduct" for visitors if they enter the village or in their relationships with village people. This needs to be shared carefully with tourists so they see it not as commands but guidelines that reflect Fijian culture.

Another important social issue is benefit sharing from the tourism operation, who will get the jobs, how will the money be spent, who will look after the money. There are no set guidelines on this except that these issues need to be discussed with everyone involved in and affected by the project taking part in these discussions. Good financial record keeping and a completely honest money handler who regularly reports to the community (if it is a community venture) on financial matters is especially important.