

Environmental Induction

OHS Act services

- Audits
- Plans
- Tender Specifications
- Safety Manuals
- Inductions

Environmental Services

- Audits
- Plans
- Enviro Files

Management

- Training Centre
- Construction

Contractor

- Development
- Mentorship
- CCO2

Training

- LIC
- Basic business skills
- Supervisory
- Drainage and services
- Shuttering
- Water reticulation
- Road works
- Building and related
- Tourism opportunities
- HIV/AIDS awareness
- Road safety
- Basic management of the environment
- First aid
- Basic fire fighting
- Safety representative
- Plant operator
- Assessment
- Moderation

Material development

- Training material
- Assessment instruments
- Operating and Maintenance Manuals

Health and Safety
Services and
training

Construction and
Building Training

Environmental
Services

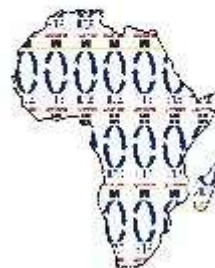


**HEALTH
AND
SAFETY**

TRAINING

AND

**ENVIRONMENTAL
SERVICES**



A QUALITY FUTURE



INDEX

	<u>PAGE</u>
1. INTRODUCTION	3
2. MYTHS ABOUT THE ENVIRONMENT	3
3. THE FIVE R's	3
4. COMMUNITIES CAN TAKE ACTION	5
5. IMPACTS OF OUR ACTIONS ON OUR ENVIRONMENT	8
5.1 General Awareness	9
5.2 The OHS Act says	10
5.3 Practises for the construction industry	12
5.5 Road Projects: HAZMAT / HAZCHEM guidelines.	19
6. OTHER BOOKS WRITTEN BY HTE	21
7. OTHER COURSES AND SERVICES HTE PROVIDES	21

Zec 4:6b; Not by might, nor by power, but by my Ruach, said YHVH Tseva'ot.

לא בחיל ולא בכח כי אם ברוחי אמר יהוה צבאות:

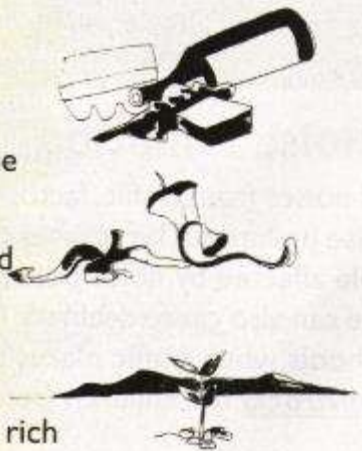
© Copyright By Jan Hartzler: All rights reserved. No part of this prospectus may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copy write holder.

1) INTRODUCTION

These guidelines are applicable to all construction projects to ensure that significant environmental impacts are mitigated or avoided. It aims to ensure environmental protection, meet legal requirements, and maintain good community relations and employee well-being. These guidelines are generic to all sites.

Myths about the Environment

- 1 Littering creates jobs for people.
(FACT) Littering creates dumps and health problems
- 2 I can't make a difference when there is so much wrong with the environment.
(FACT) The environment is everyone's responsibility. If everyone protected the environment the world would be a very different place.
- 3 The environment is only relevant to rich people
(FACT) Pollution usually affects poor people more than rich people. Preserving our environment can create many jobs through the tourist industry.



The 5 R's

The 5 R's are Reduce, Re-use, Repair, Recycle + Refuse

- **Reduce** this means we need to use fewer resources than we do presently.

Water is one of our scarce resources. If we continue using it as we do now, we will run out of water in 10 years. But there are things we can all do to stop wasting water.

At home: We can reduce the amount of water we use by:

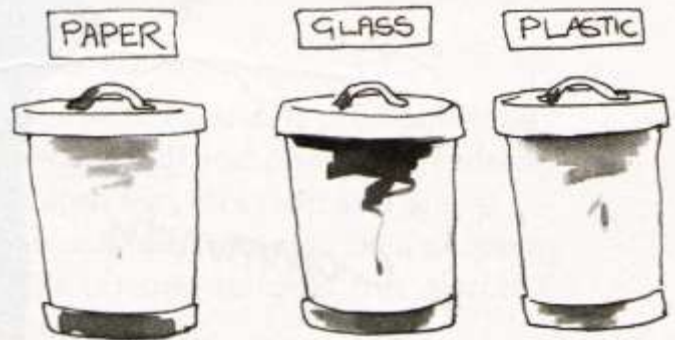
- ★ not washing dishes under running water.
- ★ not letting the tap run when we brush our teeth



- **Recycle** is a process of collecting used items for further use.

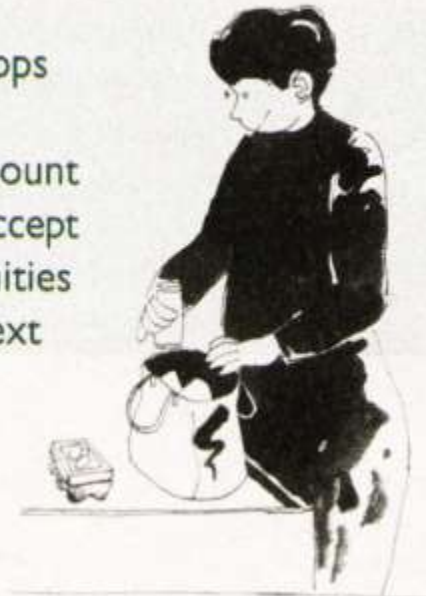
We can arrange to have recycling bins for paper, glass, plastic and cans in our schools and communities.

In our homes we can keep these things separate so that children can take them to school for recycling. (See the Resources at the back of this book for names of organisations that could help). Within the home, we could also use fruit and vegetable waste to make a **compost** heap to **fertilise** our gardens.



- **Refuse**

We can refuse to use plastic bags in the shops if we take our own cloth bags when we go shopping. In this way we can reduce the amount of waste we produce. We can also refuse to accept people littering or dumping in our communities by organising ourselves to stop this. (See next section for suggestions).



- **Repair**

Many people **repair** broken things such as radios, clocks, fridges and stoves. This means fewer resources are used in making new items.

• Re-use

Instead of throwing things away, use things again, for different purposes. We can do this by re-using:

- ★ paper that has only been partly used to write on.
- ★ bottles and jars to store things in.
- ★ large cans such as oil cans to plant plants in.

We can also collect bath water or water we washed dishes in and use it to water the garden or flush the toilet. We can also re-use things like egg trays to make toys.

Communities can take action to improve their environment

Environmental problems affect everyone in the community. You can work together with your community to address some of these environmental problems. Here are some examples.

1. Waste management:

Lack of land planning and refuse removal services, the incorrect creation of rubbish dumps and illegal **dumping** have resulted in serious health risks in some areas. For example, creating dumps close to where people live or near rivers exposes everyone to diseases from waste material. If industrial waste products are also dumped in these places, harmful **chemicals** can get absorbed into the earth and get passed on into the water systems. Chemicals are sometimes also released into the air we breathe.

2. Water and sanitation

Many South Africans, especially in the rural areas, do not have clean water. This leads to poor **hygiene** and diseases such as cholera and diarrhoea which kills many people each year.

We can:

Individual

- ★ Pay for services that are provided by local government. This will help the government to keep communities clean and to provide water and sanitation.
- ★ Keep a bucket of water outside our shacks or classrooms for washing our hands. We can also collect used water to use again.
- ★ Boil river water or add one teaspoon of bleach before drinking it.
- ★ Wash hands before eating and preparing food and after going to the toilet

Community

- ★ Work together to put pressure on government to provide services.
- ★ Keep services in working order
- ★ Report theft and vandalism

3. Noise Pollution

Loud noises from traffic, factories, workplaces and in the community is noise pollution. This causes **psychological** and physical problems. People affected by noise pollution often feel stressed and angry. Noise can also cause deafness. Noise pollution can also be a problem at schools when traffic makes a noise outside schools, this disturbs and **distracts** the children from their lessons.

We can:

Individual

- ★ Contact our local governments and lay a complaint.

Community

- ★ Ask the School Governing Body to meet with the taxi drivers and traffic department and work out an agreement.



4. Safety in homes and playgrounds

Children are exposed to many dangerous things such as exposed wires, poisons and cigarette smoke in their homes. On playgrounds, they are exposed to air pollution from cars, broken glass, rusty tins and used needles from dumping waste. They are also exposed to the dangers of drugs and violence from gangs on the playground, and to the danger of cars on the roads. These dangers can result in diseases, disability or death.



We can:

Individual	Community
<ul style="list-style-type: none"> ★ Make sure that our homes are safe (see the Soul Buddyz book "Raising children to be their best"). 	<ul style="list-style-type: none"> ★ Work together with local government to make public spaces safer.



Individually and as a community, we can:

Individual	Community
<ul style="list-style-type: none"> ★ Contact our local governments to report people who dump; ★ Stop littering or dumping waste illegally. 	<ul style="list-style-type: none"> ★ Put pressure on our local government to provide services if there is no refuse removal service in our areas; ★ Report industrial dumping and air pollution to local authorities

Impact of our actions on our environment

Our actions can make the environment healthy or can destroy it. Many people, companies and countries throw their waste anywhere, they abuse and waste water, and **pollute** the air. People are using up the world's **resources** faster than they can be replaced. For example, cutting down trees to make firewood, build furniture and to make paper is necessary, but trees take a long time to grow. We have to plant as many trees as we cut so that there will be trees in the future.

We cannot destroy nature! Nature will destroy us first!

If we pollute all our water we will die of thirst.

If we kill all our animals and plants we will die of hunger.

If we pollute all the air, we will breathe our last breath.

And long after we are gone and forgotten, nature will heal itself!

A. GENERAL AWARENESS

1. Ensure when loading company vehicles with waste materials, that the materials are adequately covered or tied down.
2. Ensure company vehicles are provided with rubbish bags where required.
3. Ensure where excess dust is generated, provision is made for wetting down.
4. Ensure excess smoke is controlled and reported and ensure no fires are made on site.
5. Ensure powder generated from cements and other operations are controlled.
6. Ensure that stagnant water is controlled and channelled away from living areas.
7. Ensure drains are not polluted with waste and waste foodstuffs.
8. Ensure drinking water is available.
9. Ensure you use the correct colour coded waste receptacle.
10. Ensure you comply with the Safety Policy Statement.
11. Ensure you know where the Safety policy statement is posted in your work area.



IS ALL HAZARDOUS WASTE BEING ADEQUATELY CONTROLLED?

12. Ensure all waste areas controlling hazardous waste is kept clear.
13. Ensure the area housing the hazardous waste is properly bunded to prevent runoff and absorption into the ground water systems.
14. Ensure the area is well demarcated and screened



off.

15. Ensure all spills are reported immediately.
16. Ensure all spills are cleaned immediately.
17. Ensure drips trays are used when the risk to spillage is high.
18. Ensure all waste is removed to approved dumping facility.

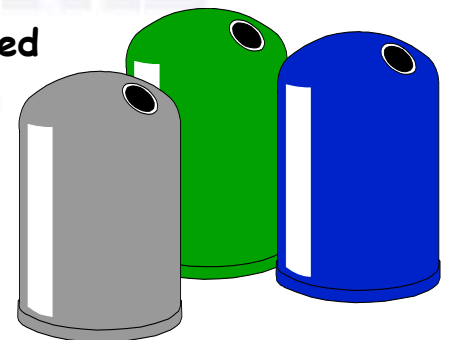
ARE THE EATING AREAS ADEQUATELY CONTROLLED?

19. Ensure that there are adequate rubbish bins to handle food waste.
20. Ensure all users of the facility use the waste bins provided.
21. Ensure all waste bins used to store waste food all have secure fitting lids.
22. Ensure all waste bins used for food stuffs are emptied regularly and are disinfected to remove unwanted odours.
23. Ensure no waste accumulates outside the waste bins.
24. Ensure any defects or deviations are reported to your safety representative, supervisor or safety officer.



HOW DO YOU MANAGE WASTE AND SCRAP AREAS ON SITE?

25. Ensure the waste storage area has sufficient capacity.
26. Ensure that all loose materials are covered and tied down to prevent wind picking the loose items out of the storage area or facility.
27. Ensure the storage areas and facilities are kept neat and tidy at all times.



28. Ensure these areas are cleared regularly of waste material. Do not allow unnecessary accumulation of waste materials.
29. Ensure all hazardous waste is removed to an approved dumping site / facility.
30. Use the correct colour coded waste bin for the waste being discarded.

B. The OCCUPATIONAL HEALTH AND SAFETY ACT says:

(Act No 85 of 1993)

Section 8

8(1) Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.

Exercise 1:

It is your responsibility to assist the employer in complying with the act. You can assist by asking yourself questions (in Table 1) about your working area. Write in the action column what you will do about the situation.

Table 1.

1. WASTE AND SCRAP AREAS	Yes	No	Action
1.1 Is the area Demarcated? (Separation)			
1.2 Is there Adequate capacity?			
1.3 Loose material covered / tied down?			
1.4 Areas kept reasonably neat and tidy?			
1.5 Cleared regularly?			
1.6 Removed to approved dumping site?			
2. EATING AREAS			
2.1 Adequate rubbish bins to handle food waste?			
2.2 Securely fitted lids or covers?			
2.3 Emptied before overflowing?			
2.4 Rubbish accumulation outside the bins?			
3. HAZARDOUS SUBSTANCE MANAGEMENT			
3.1 Area clean?			
3.2 Area demarcated screened off.			
3.3 Area bunded around fuel tanks and bulk oil storage facilities?			
3.4 Diesel and oil spills being attended to immediately?			
3.5 Re-fuelling points being controlled, spillages controlled?			

3.6 Drip trays in use for service areas?			
3.7 Disposal of contaminated materials being managed?(E.g. Batteries)			
4. COMPANY VEHICLES			
4.1 Loose materials being carried, are they tied down?			
4.2 Loose material being transported being covered?			
4.3 Company vehicles provided with rubbish bags?			
5. EMPLOYEE AWARENESS			
5.1 Are employees being trained in the correct waste control?			
6. AIR			
6.1 Is there excessive dust? (Wetting down being done?)			
6.2 Excessive smoke?			
6.3 Excessive powder?			
6.4 Dust, smoke, powder suspended in building or outside?			
7. GROUND CONTAMINATION			
7.1 Excess amount of spilled / un-cleared materials?			
7.2 Stagnant water?			
7.3 Diesel / oil contamination?			
8. WATER			
8.1 Are any drains polluted?			
8.2 Is clean drinking water available?			
8.3 Pooling, present, stagnant water?			
8.4 Condition being found causing increase in mosquitoes?			

C. General Environmental Practices for the construction industry.

1.1 Surface Water



- * Do not impede the flow of any watercourse or water body
- * No disposal of any liquid or solid waste in any watercourse or water body
- * NO stockpiling of soil or any other materials within or adjacent to a watercourse or water body
- * Do not permanently divert the existing natural alignment of watercourses
- * Abstraction of water from existing watercourse and water bodies for construction and domestic purposes will only be done with the necessary permission from the Department of Water Affairs and Forestry
- * Water courses and water bodies will not be used for domestic purposes including bathing, washing, drinking water, etc
- * Runoff from contaminated areas such as offices, stores, workshops, cooking and washing areas, etc. will be channelled into down slope pollution control devices
- * Whenever possible, vehicles will use existing crossings to cross drainage channels on site

1. SYMPTOMS OF CHOLERA

- **Mild Diarrhoea**
 - **Severe watery diarrhoea**
 - **Vomiting**
 - **Dehydration**
 - **Loss of lots of body fluids**
 - **Death due to loss of body fluids**
- Incubation
1 - 5 days**

2. PROCEDURES

- Report the case to your supervisor / foreman immediately.
- If available, commence with immediate intake of prescribed fluids to become re-hydrated in mild cases.
- In severe cases, the person must be evacuated to the nearest equipped medical facility.

1.2 Animals

* No person will be permitted to:

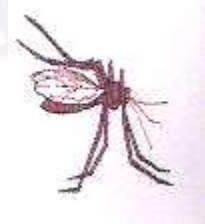
- Hunt, kill, set devices to trap, tamper with or harass wild animals and livestock or interfere with any form of animal shelter;
- Feed animals
- Bring livestock onto construction site



* Make all persons aware of potential animal and / or insect dangers if applicable and advise on preventative measures e.g. mosquitoes in malaria areas, stinging insects (bees, scorpions etc.) and dangerous/ venomous reptiles. This will be particularly relevant where medical facilities are not available in near proximity.

3. SYMPTOMS OF MALARIA

- Continuous Headaches
- Aching Body and muscular pains
- Tiredness
- Sore throat



- Diarrhoea and Nausea
- Fever and shivering attacks
- Sweat

4. PROCEDURES

- Report the case to your supervisor / foreman immediately.
 - If available, an ICT Malaria Self Test must be done.
 - If the test indicates positive, seek immediate medical attention.
 - If test is negative and symptoms continue, do another self test 3-hours later, and if the test is still negative, seek medical attention.
 - If no self test kit is available and the symptoms continue for more than 12-hours, then seek medical attention.
- * cordon off the construction camp and work areas on site using fencing and / or barriers to prevent access by animals to the site and thereby prevent the injury or death of wild animals and livestock.
- * Avoid attracting animal pests by keeping the construction camp and site free of litter and by providing adequate waste receptacles that can be covered to prevent access by animal pests.

1.3

1.4 Dust

- * Strip the minimum amount of vegetation necessary to allow construction to take place
- * Where possible, maintain surface crusts to decrease the susceptibility of erosion
- * Where possible, maintain a buffer zone of vegetation around the site to act

as a windbreak to minimise erosion of the exposed surfaces

- * Re-vegetate exposed surfaces as soon as possible where required and provided for
- * Where practicable use appropriate dust suppression measures when dust generation is unavoidable e.g. dampening with water

1.5 Light Pollution

- * Keep external lighting for the general lighting of the construction camp and site to the minimum permitted
- * Direct the lighting downward and use lighting equipment that minimises the spread of light near to or above the horizontal
- * Where practicable, complete as many activities as possible during daylight hours so there is no need for extensive lighting of the operational area after dark

1.6 Noise Pollution

- * Where the construction site is located within 500m of residences, limit operational hours to between 06:00 and 18:00 and not conduct any noisy construction activities on Sundays where possible and practicable.
- * Where possible, maintain a vegetation buffer around the construction site
- * All equipment will be regularly and systematically checked, maintained and repaired to prevent undue noise especially from exhaust systems
- * All persons will be made aware of not creating unnecessary noise such as hooting, shouting and loud music.

1.7 Visual Aspects

- * Where possible, maintain a vegetation barrier around the construction camp, site and roads to reduce the visual impact of activities
- * Keep all structures and activities as aesthetic and unobtrusive as possible, including trees, existing structures, etc.



1.8 Waste Management

- * All work areas will be cleared of litter and other domestic waste on completion of the days work
- * Adequate and appropriate waste receptacles will be provided at the construction camp and site for the different categories of waste generated. Receptacles will be marked appropriately and cleared regularly
- * Where required and provided for domestic waste will be stored until it can be transported to a permitted domestic disposal site.
- * Domestic waste pit will be located an appropriate distance and downwind from the camp and kept free of pest infestation. Burning of domestic waste will be conducted as regularly as necessary and be strictly supervised.
- * Flammable, toxic or poisonous materials and containers will not be disposed of with the domestic or other waste and will be transported to an appropriate and permitted disposal site. These materials and containers will be stored on a bunded surface until they are transferred to a suitable disposal site.
- * Used oil will be stored in 210 litre drums and will be collected by an approved waste management company when full.
- * Where possible, plastics, paper, glass and metal will be separated from other domestic waste for recycling. If waste is to be recycled, appropriately labelled receptacles will be made available.



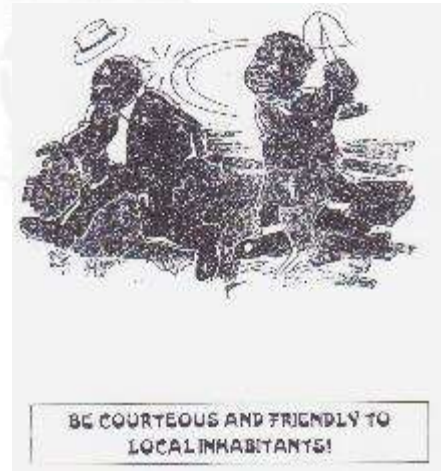
- * Waste materials such as concrete, bricks, asphalt, aggregate, etc, will be consolidated into one area until they can be used in the rehabilitation process to fill voids and incorporate into fills.

1.9 Blasting and Vibration

- * Ensure that all nearby residents and land users are warned of blasting events, and provide them with details of date, time and location.
- * Inspect nearby structures for existing damage and record such
- * Evacuate all people and animals to the minimum distance from the blast location as required by the Explosives Regulations.
- * Ensure the blast site is safe and stable before and after performing blast

1.10 Community liaison

- * All communication with the local communities and authorities will be done via the Community Liaison Officer.
- * Good relations with the surrounding communities will be encouraged and maintained by respecting their property and lifestyles.
- * Any disputes will be directed to the Community Liaison Officer for resolution.
- * Record and attend to any complaints from the community.



D. Road projects - Basic HAZMAT / HAZCHEM Guidelines

All road projects require some measure of environmental protection. The South African Roads Agency Limited (SANRAL) requires in all their tenders the following:

A11 MANAGEMENT OF THE ENVIRONMENT

The Contractor shall be responsible for construction according to an Environmental Management Plan in terms of Part C of the Project Specifications.

The Contractor must take the utmost care to minimise the impact of his establishment and other construction activities on the environment and must adhere to the requirements as set out in Part C of the Project Specifications. Where the contractor fails to adhere to these requirements, the specifications in Part C provide the methodology and cost liability of the remedy.

In general, the same environmental aspects for all construction sites also apply to Road Works Projects. There is, however, extra care that must be taken if, for example, a truck carrying hazardous chemicals is involved in an accident, you should know what procedures to follow. In this section of the training material you will learn more about the procedures to be followed when dealing with such Hazardous Materials (HAZMAT / HAZCHEM) and Emergencies. Do not smoke near any hazardous material or chemical. You may cause a fire.



It is very important to read through the Incident Management System (IMS) of your company or of the main contractor. This document will give you valuable information such as:

- 1) Contact details of relevant people, The Incident Management Team, SAPS, Traffic Services, Fire and Rescue Services, Emergency Medical Rescue (EMS), Forensic Pathology Services and other institutions in the case of an emergency,
- 2) The procedures to follow in the case of an emergency/incident,
- 3) The procedures to follow on the site,
- 4) Alternative route plans,
- 5) Response Protocols,
- 6) Guidelines for the accommodation of traffic,
- 7) Debriefing and reporting procedures,
- 8) Any other information that is applicable to the specific project.

In the event of an incident it must be reported immediately. The following W-questions can be asked:

- 1) Who - Who is reporting the incident? Name and Number.
- 2) Where - Where has the incident occurred?
- 3) What - What happened? How many vehicles involved? What type of vehicles? (trucks/cars/etc). Any injuries? Anyone trapped and how? Is the road Obstructed?

Please handle all HAZMAT emergencies as mixed load / unidentified Cargo

6) BOOKS WRITTEN and COMPILED BY HTE

This list is in no ways comprehensive. Contact HTE for further information..

- ❖ Operate a petrol lawn mower
- ❖ Safety Health and Environment (Various manuals from Induction training to the more advanced courses)
- ❖ Installation of Road Studs
- ❖ Mentorship
- ❖ Stores/Warehousing (various manuals from introduction to stores to the more advanced management courses)
- ❖ Traffic Accommodation/Management (Which includes basics on Incident Management [IMS])
- ❖ Basic Personal Finance (Financial Life skills)
- ❖ Construction Roadworks (Various books from basics in the construction industry to the advanced management courses)
- ❖ Tender for Construction Contracts
- ❖ Please enquire for other books in progress.

8) OTHER COURSES and SERVICES HTE PROVIDES

1. CONSTRUCTION AND TRAINING CENTRE MANAGEMENT
2. CONSTRUCTION CONTRACTOR AND BUSINESS TRAINING (Emerging Sub-contractors and Smme's)
 - 2.1. The National Certificate in construction contracting (CCO2)
 - 2.2. The CDP training course
 - 2.3. The Contractor Development Program and The Contractor Entrepreneurial Training Program

- 2.4. One-Year Diploma in Construction Management or,
 - 2.5. One-Year Diploma in Business Administration or,
 - 2.6. Higher Certificate in Entrepreneurship and Small Business Management
 - 2.7. Diploma in Construction Management
3. ASSESSMENT and MODERATION OF TRAINING
- 3.1. HTE is qualified and may assess and moderate training done by HTE and by other civil engineering training institutions.
4. SKILLS TRAINING
- 4.1. HTE - Special Road Maintenance Modules.
 - 4.2. Supervisory Training
 - 4.3. Drainage and Services Skills
 - 4.4. Shuttering Skills
 - 4.5. Water Reticulation
 - 4.6. National Certificate in Construction Roadworks NQF Level 1
 - 4.7. Building Construction: Bricklaying, Plastering, Plumbing, Carpentry, Painting and Tiling
5. OHS SERVICES AND TRAINING
- 5.1. Safety Consultants
 - 5.2. Site safety procedures manual (OHS act requirement) - Workshops and Audits
 - 5.3. Establish the Health and Safety of a Work Site
 - 5.4. Maintain Site Safety and Health
 - 5.5. Render basic first aid
 - 5.6. Basic fire fighting
 - 5.7. Safety representative

5.8.Environmental Consultants

6. GENERIC TRAINING

6.1. Winning Business Systems - Basic business skills

6.2. Tourism opportunities

6.3. Basic hygiene and HIV/AIDS awareness

6.4. Road safety

6.5. Basic management of the environment

6.6. Start and Improve your business

7. PLANT OPERATOR TRAINING

7.1. The client provides the plant and we provide the training material and trainer.

8. TRAINING MATERIAL AND ASSESSMENT INSTRUMENT DEVELOPMENT

8.1. Training material and assessment instruments are developed based on the NQF registered unit standards to the client's needs and specifications.

9. LIC - LABOUR INTENSIVE CONSTRUCTION METHODS

Level 2 to 5 is presented.