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UNIVERSITY OF FORT HARE

Eastern Cape Education Department

Distance Education Project

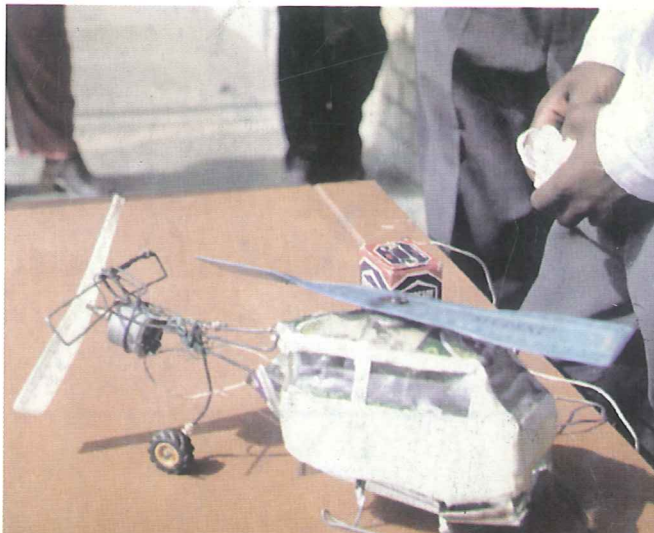
Core Learning Areas Course

Technology Education

5th Umthamo

Thinking Globally Acting Locally

Pilot Edition – February 2001



The Value of Working Together with Others - Useful Addresses

East Cape Environmental Education Network
Environmental Unit
School of Education
Rhodes University
Grahamstown.
Contact: Ingrid Timmermans (046) 603-8389

Enviro Teach magazine
PO Box 7870
Johannesburg, 2000
Contact number: (011) 835-2221

EnviroKids magazine
PO Box 30145
Tokai
7966

Enviro Plastics Recovery
PO Box 14
Isando
1600
Contact: Enoch Dlamini (011) 828-0720/0725
(082) 501-0271

Department of Environmental Affairs & Tourism
Private Bag X447
Pretoria
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Department of Water Affairs & Forestry (DWAF)
Eastern Cape
Private Bag X7485
King William's Town
5600
Contact number: (043) 643-3011

Eskom
Megawatt Park
PO Box 1091
Johannesburg
2000
Contact: Josiah Maphanga (011) 800-3419
(082) 630-5781

Share-Net
PO Box 394
Howick
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Contact number: (033) 330-3931

Wildlife and Environment Society of South Africa
Border Region
PO Box 11021
Southernwood
5213
Contact number: (043) 727-0726

The Value of Sharing – Michael's Letter

Why I want to be involved

I am really interested in learning about our environment and ways in which we can help it to survive and be better.

I would love to be able to participate in a worldwide environment program and have the opportunity to share with other students ways in which we have learned and are still learning to protect our lands, vegetation and animals.

I think education about the environment is very important to all of us, no matter where we live. Group discussions are a very good way of learning and it would be nice to come back to my school and community with many good ideas.

It would be nice if we could take some photos of our projects and share these with other people. It makes me proud to be able to learn how to protect our environment and to help others to do it. There is so much more to learn and I think that by attending this meeting I will most certainly be more understanding of many more subjects and ways in which to improve our country.

Michael Cullen
Sorrell District Primary,
Tasmania.

In *The Advertiser.* Tuesday, 3 October 2000.

". . . . .environmentalism is both ideology and action. As ideology, it is a broad set of beliefs about the desirability and possibility of changing the human relationship with the environment. Environmentalism is also purposive action intended to change the way people relate to the environment. It includes individual purposive action, but more significantly, environmentalism means the collective action of many individuals as they form groups and organizations intended to transform the way communities, companies, and societies impact their environments. In other words, as collective action, environmentalism becomes social movements. Social movements emerge when problems are defined and framed ideologically to mobilize people coherently in collective action."

Charles L Harper. 1996. Environment and Society. (New Jersey: Prentice Hall)

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Contents

Introduction

In this fifth umthamo of the Technology Education strand in the core Learning Areas Course, we plan to combine two important educational imperatives that have emerged in recent decades. Both **Technology Education** and **Environmental Education** have recently contested, and seriously demanded space in the formal curriculum. By combining the two, we hope to give you a reasonable taste of a whole field of **Environmental Education** that might otherwise be missed.

It can be argued that both Technology Education and Environmental Education provide a means to bring real world needs, tensions and issues closer to the otherwise rather artificial world of the school classroom.

> .....the world of school appears to be totally divorced from the everyday world in children's minds. The consequence of this is that a marked division clearly exists within children's minds between the world of the school and the world outside the school. They appear to be separate domains - two different experiences - worlds which touch but rarely overlap each other. (Uzzell et al, 1994:8)

By now you have a good idea and quite extensive experience of implementing Technology Education in your own classroom. We hope to show how the Technology Education approach of **design, make (or do),** and **appraise** applies not just to physical things that can be designed and made using technological skills, but that it also applies to systems or plans that can be designed and acted on to solve problems that might exist in the local environment.

The understanding of what Environmental Education is, has been evolving and developing over time. One current view has been expressed as follows:

> Environmental education is more than just about raising levels of awareness and changing attitudes and behaviours. Environmental education has to been seen in (the) larger context ..... of the acquisition of action competence. To have action competence is more than just being aware of or having an attitude towards environmental problems, or even having a set of skills. It requires a positive approach to cooperative decision-making, a respect for democracy and an understanding of participatory processes. ..... Since the school ..... is part of the environment, it ..... will have to open itself in new ways to families and the local community; it will have to be come to be seen as an active agent in the creation of change, rather than a passive transmitter of information or values. (Uzzell et al, 1994:2)

If Environmental Education is to be of any value it should be meaningful.

> Meaningful environmental learning can involve simply finding information 'about' issues, exploring these through encounter experiences 'in' the environment, and taking action based on what we know, 'for' a better world, all of which contributes to a better environment .....(O'Donoghue, 2001:5)

Another view would be to say that Environmental Education attempts to develop the big picture of the world as a complex set of inter-related systems *(Think Global).* But to appreciate that at a local level, tensions between the **natural** and the **built** environment will result in problems or risks and issues that need our attention *(Act Local).* So Environmental Education is about **values, ideas** and **understanding.** But more importantly, it's also about **taking action.**

We have adapted the first activity in this umthamo from some questions at the end of a chapter in *Environment and Society* (Harper, 1996:330). You will carry out this activity at the face-to-face session where this umthamo is introduced.

If for some reason you are unable to attend the face-to-face session where this umthamo is introduced, you will need to carry out this activity with a friend or colleague.

Activity 1 - Environmental Activists

People who make sacrifices and take action by giving time and energy to a cause are known as *activists.* In our country political activists helped bring about political change. People who strive to change or improve things for the environment could be called **environmental activists.**

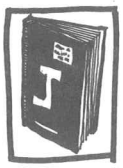
Now read the story about Titus Mankgela, a gardener from the Northern Province. Namhla Sotuku found this story in *Drum* at the end of December 2000. As you read through the article, ask yourself:

- Who is the environmental activist in this story?
- What sacrifices or actions did this person take?
- What have been the outcomes?
- How successful have this person's actions been?
- What have been the benefits to the local people?
- How has the environment benefited?

Have you, or somebody you know, ever demonstrated support for environmental concerns by taking part in an environmental event, meeting, rally, celebration, or the like? What kinds of things occurred at the event? Did they change or reinforce your thinking, or your behaviour? What effects did the event have on the people you know and work with, at your school and in your community? How did this experience get shared with other people in your surroundings, and why? How did they react or respond?

Now think of the people in your own community. Think of somebody who has taken action to solve or overcome a problem, and has resolved that problem successfully - an environmental activist. Tell the other people in your group about this person. Mention the problem, the possible alternative courses of action, the action that was taken, and the outcomes.

When you worked through Umthamo 22 and Umthamo 30, you identified a problem at your school. Next you drew up a plan of action, and shared this plan with your Principal, the rest of the staff, the School Governing Body and the local community. Then you wrote up your experiences and what happened when you put the plan into action.



Open your Journal and write down your responses to these questions. When you have finished, share what you have written with two or three other people. What is similar, and what is different in your experiences?

The next activity is an **awareness** generating activity which we would like you to try with your learners. The intention is to start an **ongoing** process in which learners **explore** and try to **understand** the relationships between **natural** and **built** resources in their local environment. It would be hoped that this in turn would lead to a more critical level of awareness. As they become more critical, learners will begin to analyse the **effects** and **consequences** of such interactions and relationships. Such a constructive critical awareness could in turn lead to a sensitive reading of the dynamics (how things work) of their locality, and the identification of local problems, and even risks and dangers.

It is similar to the activity in Umthamo 7, in which learners identify natural and technological things. But this activity takes the matter further.

When learners become critically aware of actual problems and possible dangers, then the time is ripe to think of ways (plan) to take **action.** *Environmental* literacy has the potential to promote environmental action.

When action is to be taken, then the technological process can play a part. The group taking action needs to be systematic as they identify a problem, find out more, consider possible solutions, decide on a plan of action, execute their plan, assess the process, and report on the outcomes.

Activity 2 - An Audit of the Natural and the Built Environment

A way to start - An encounter!

Take the class out on 4 short survey walks. Explain that you want them to use all their senses to **imbibe** (soak up) what the environment has to offer. What do they *feel, see, smell?*

You could decide to use 4 groups. Take each group in a different direction, and let them share their different experiences.

Using the school as a base, walk out from the school in an **easterly** direction. Walk about 500 metres to a convenient safe place to stand. Get everybody to stand quietly facing **east** for a few minutes with their eyes shut, and to be very sensitive to what they *feel, hear and smell.* What sensations, sounds and smells does the environment have to offer?

Then with their eyes open, ask them to observe carefully all that the environment to the **east** of the school has to offer. What has **nature** to offer? What does the **built** environment provide? Then ask them to think of the resources beyond, resources that are out of sight, but in that direction.

Tell them that as they walk slowly back to the school you want them to **ruminate** *(ukwetyisa)* on the richness of what they have

individually become aware of. They have a responsibility to share this with their classmates. When they get back to the classroom, give them some time to write their thoughts in their Journals.

Repeat the activity to the **west,** the **north,** and the **south.**

Mapping the Environment (Sharing and Recording)

The sophistication or quality of this work will depend on the ages and stages of your learners.

The outcome of this task is for you and your class to have constructed a symbolic map that is a clear record of the features of the **natural** and **built** environments.

There are a number of ways that this can be dealt with. You need to make your own decisions about how much time you want to spend and how detailed you want to make the project. What you do *should* include at least the following:

- A 'first draft' map that gives a rough idea of what makes up the local environment. You want a sketch map that shows the position of resources and features.
- Small group or pair work, closer observation, careful drawing, note-making and reporting.
- The construction of a finished map or representation of the **built** and **natural** environment that can be displayed in the classroom.

The First Draft

You need to decide or discuss with your class how you can capture the results of their sensory *'encounter'* with the environment.

You could clear your desk, place a matchbox in the centre to represent the school, and then write the names of different local resources on small cards. The cards could be placed in a position that represents the direction and distance of each place or feature. You could even colour-code so that one colour card represents a **natural** feature, and another colour represents a **built** item. Perhaps if there is a road, river or stream, you could use ribbon, or a strip of cloth, rope, string, or wool to show **shape** and **direction.**

You could build up a diagram on the chalkboard, or you could use sheets of newsprint so that you have a record of this work. You could go outside and mark out the features on a clear patch of sand. You could use stones to hold any names written on scrap paper in place. There are many possibilities.

The end result should be that you and your learners have a rough plan/model/map of the local environment that you are happy with.

Further investigation - exploring, visiting research

We suggest you now ask your learners to find out more about the natural and built elements of the environment. Each small group or pair could volunteer to find out more about something. They should

find out something about the **history** of the place, and how it was used in the past. How is it used now? What does it look like? Is it safe, or at risk? Are there any stories about that place (Nongqawuse's Pool, Ntaba kaNdoda)?

This may require a visit. They might need to interview people.

They should make careful notes of what they have found out. And they should draw the thing or place. It would be good if their drawing showed how people interact with that place (eg playing soccer and grazing cattle on the open field).

You and your learners have experience of finding out more from Umthamo 27. You may want to borrow some ideas or remind them of what they did before.

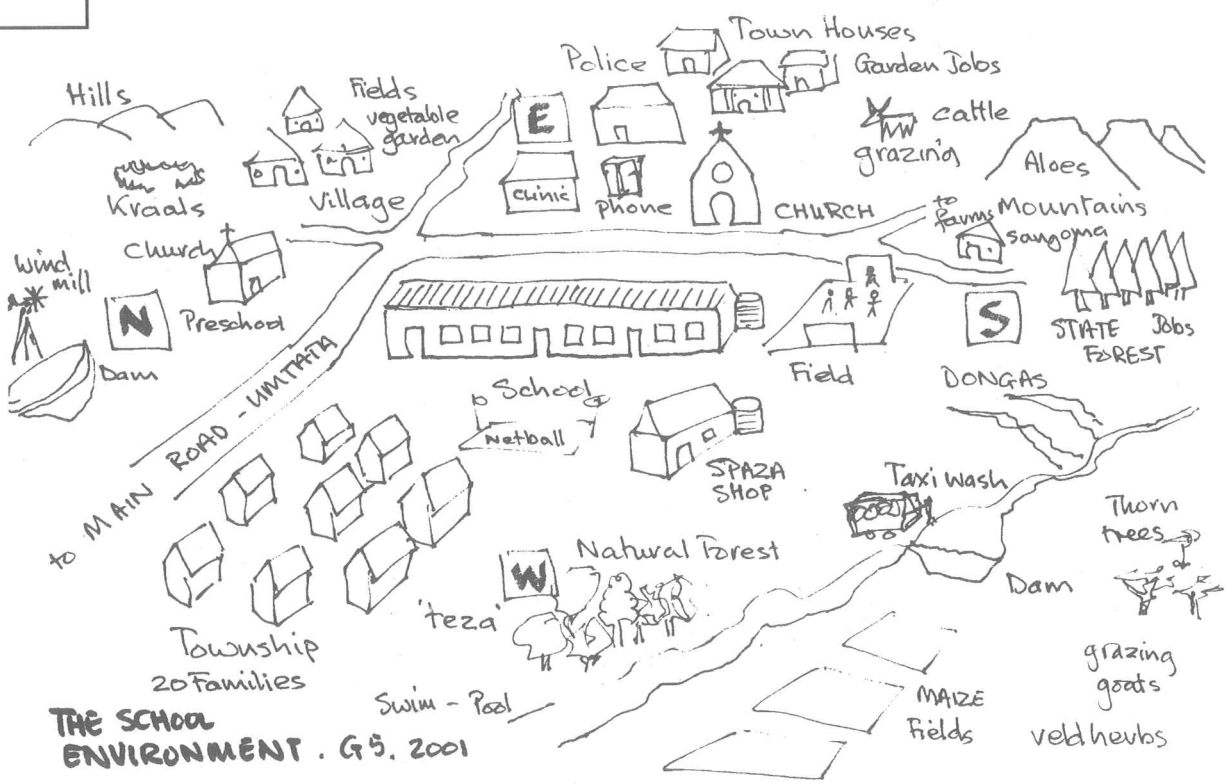
With older learners this is a good opportunity to introduce the basic ideas of **scale** (from Mathematics). How big must the drawings be? Perhaps for smaller features, buildings, etc, the scale can be something like *1 pace = 1cm.* For bigger things like mountains or villages *1 pace = 1mm.* So when they visit or explore they will have to **measure** what they can, and **estimate** what they can't measure.

Representing what has been researched

Option If the work has gone well, they may want to develop a special project which would be to make a permanent mural on a school wall, of what the environment of the school has to offer.

The audit is complete when the groups or pairs have **reported back** and their work has been documented in the form of a finished map or display. Again, you and your learners have choices. Do you want to use the four walls of the classroom and have a poster or map on each wall representing the environment in that direction?

They could also decide to make models.



You and your learners are now ready for the next stage. This will be to list and discuss any problems or dangers they are aware of in and for people and the environment itself.

What you will find in this umthamo

The focus of this fifth Technology Education umthamo is solving environmental problems. In Unit 1 you will find two stories to use with your learners. These texts show how two environmental problems have been solved. You should carry out both activities so that you can compare the reactions of learners in the foundation phase and the intermediate phase.

Unit 2 provides some case studies of teachers and learners who have become environmental activists in their communities. It is interesting to see the effect their actions have had on the other people around them. You will see from those case studies that what we are asking you to think about and do in this umthamo builds on what you have done as you worked through Umthamo 22 and Umthamo 30 in the *Schools as Learning Communities* strand.

You will realise this when you read Case Study 2 about Auckland Primary School.

You will find the first part of the Key Activity in Unit 3. We ask you to identify environmental issues or problems with your learners, then to isolate one, draw up a plan of action and start to carry out your plan. We realise that it is likely to take weeks, and even months to carry out your plan. At the end of the first month, you will be expected to hand in a *Work in Progress* Report. This needs to include the plan you and your learners have drawn up, and a report of what your learners have done so far. You will be able to add to this before the Portfolio Presentation at the end of this academic year.

The second part of the Key Activity is in Unit 4. You will need to reflect critically on what your learners have planned and done, write down the learning areas that are involved in carrying out their plan, and the activities and tasks involved. You will be expected to hand this in, together with your *Work in Progress* report for your umkhwezeli to appraise.

In the Conclusion, we have included a Content Audit, and a Reading. This Reading provides theoretical support for the action we have asked you to take with your learners, as you provide them with an opportunity, and encourage them to become environmental activists.

Environmental Education is a huge area of study. People have devoted their lives to Environmental Education. Whole courses are offered at post graduate level in Environmental Education. And there is an Environmental Education Association for South Africa which convenes an annual conference and produces a journal. In this umthamo we can only begin to touch on some of this important area of study.

We hope that both you and your learners are excited and inspired by the action you take as you work through this umthamo.

Unit 1 - Frameworks for Action

In September 2000, we met as a group and discussed ideas for this umthamo with Kathy Paige from the University of South Australia. We explained that we wanted to focus on environmental issues in this particular umthamo in the Technology Education strand. Kathy pointed out that in South Australia, teachers use the following stages to guide their learners when they have a problem to solve.

Stages

- survey - investigate, gather data - identify problems - isolate a problem
- consider/explore possible solutions
- design a plan of action
- take action
- assess outcomes.

U K U H L A L U T Y A

*You will remember that when you worked through the first Technology Education umthamo in this course, Umthamo 7, you followed a technology process - **DMA** - design, make, assess.*

Using this model, teachers and learners follow the stages step-by-step, in order. It is *linear.* In other words, it is important to follow the line, or steps. You may repeat the order, again and again. But you should follow the order exactly.

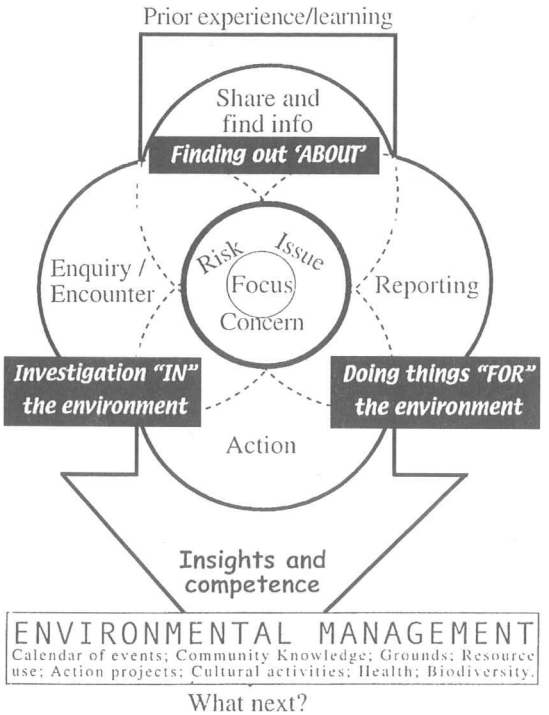
Ukuhlalutya (reflecting analytically)

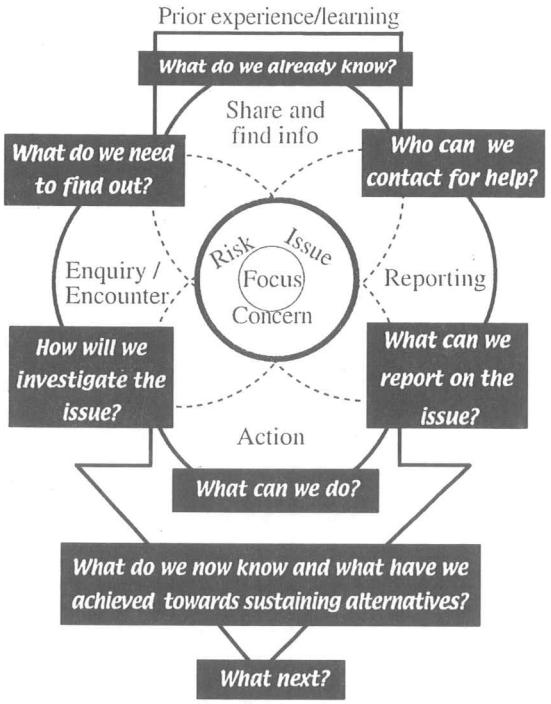
As we try to solve problems, we constantly assess and reassess what we are doing, and think about the action we should take next. Throughout the process, at every stage, we reflect on the action we are taking, and analyse how successful it is *(ukuhlalutya).* Sometimes this means designing a new plan of action, or in some way altering the plan of action which we had designed. The process of reflecting analytically *(ukuhlalutya)* is a natural one.

We would urge you to encourage this natural critical reflection in your learners. As they survey, investigate, gather data, identify problems, and isolate one particular problem, encourage them to articulate (say) why they have done what they have. As they think about and discuss possible solutions, again encourage them to think of what is most appropriate for that particular situation. They will need to think about the possible effects of a plan of action and make thoughtful decisions about what is likely to be the best solution for both the environment and the people in that environment.

After taking action, and assessing the outcomes of that action, their reflection might well suggest further explorations of possible actions, and require further planning, and the carrying out of that action. This in turn will require further analytical reflection *(ukuhlalutya).*

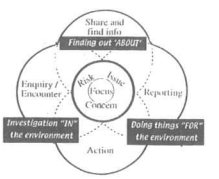
When we shared our ideas with Ingrid Timmermans and Heila Lotz-Sisitka, of the Environmental Education Unit at Rhodes University, Grahamstown, Heila told us about a different model to guide problem solving action, developed by Dr Rob O'Donoghue in KwaZulu-Natal. Rob O'Donoghue has designed a model in the form of a framework to support learning activities.





With this model, teachers and learners can start anywhere. There is not just one place to start, and it is possible to create one's own path. This model is very flexible. There is not one correct line, or order. You can choose the path you want or need to follow, and the stage which is the most appropriate and useful to take next.

During Arbour Week, in early September, children could decide to plant an indigenous tree outside the classroom **(action).** This could lead to an interest in trees. What different trees grow in the local environment **(enquiry)?** As a result of this, children want to know the names of different trees and whether they are indigenous or aliens **(finding information).** They discover that Black Wattle is an invasive alien, and a survey **(enquiry)** shows that this is the dominant tree around their village. They decide to make posters and to put on a play to share what they have found out with their families and community **(reporting).** This leads to the joint *"Hack Attack"* project with people from the Department of Water Affairs and Forestry **(action).**



A-E-I-E-R-A

We would like you to work with your learners to think more about these two models of the stages in problem-solving which different people follow. To do this we want you to carry out the following two activities. For Activity 3, you will need to work with learners in Grade 6 or 7 and you will use the copies of the story of Titus Mankgela from *Drum* magazine.

Activity 3 - Titus Mankgela

We recommend that you set a group the task of carrying out this activity. Hand out copies of the story of Titus Mankgela which come with this umthamo. Give the group of learners you are working with a tip. Tell them to read through the questions **before** they read the article. Explain that then when they are reading, their minds will be looking for information to answer those questions.

Don't tell your learners the story. Let them read it for themselves. By now, you are used to giving your learners opportunities to discover things for themselves. You have set them activities in which they have been able to **produce** work themselves, and not simply **reproduce** what you have told them. This is another chance for them to come up with their own answers.

Encourage your learners to work collaboratively in twos or threes to answer the questions. Then encourage the whole group to share their answers to the questions.

Chair the discussion sensitively. Try to focus the learners' attention on the stages or steps taken. You could ask questions like, *What were some of the problems in this community? What do you think was the plan of action?* At the end of the day write about this experience in your Journal.

Gardener with a heart of gold

By DON MAKATILE
Pictures: JOHNNY ONVERWACHT

He works with his crippled legs folded beneath him and he gets about by propelling himself along on his strong, rugged hands.

But every day of his busy life Titus does a man-size job, feeding not only his own family of six kids but most of the small rural township of Lenyenye at Tzaneen in the far Northern Province.

Seeing him hop about as he tends his beloved plants I instinctively want to give him a helping hand, but his firm handshake tells me he's too self-reliant and independent to want it.

Calm and strong, Titus temporarily loses his infectious smile when I ask about his disability. He was born like this, he says almost irritably, and he has no idea why his legs never developed properly. Although he was taken to several doctors they couldn't solve the problem, but he's grown up believing that despite his disability he's really no different to other people.

But he is different – in a positive way. When a talented gardener was sought to run the vegetable project everyone pointed to him. He took up the challenge and now, years later, everybody is convinced there's no better man for the job.

The garden is one of several community self-help projects run by Ithuseng Community Association, set up by former University of Cape Town Chancellor Dr Mamphela Ramphele, who's now with the World Bank.

While able men, some much younger than 60-year-old Titus, walk the township streets like hungry wolves he pushes himself along between neat rows of vegetables, growing food that will also feed the loafers.

Born on a farm in the district, he fondly recalls herding the family cattle and sheep as a child, and patiently waiting to see what the bird snares had trapped.

His family soon learned the best way to annoy him was to give him passive tasks than those given to able-bodied people, and he carried this self-reliant attitude into adult life. He once worked for the railways in Pietersburg and colleagues threatened to protest on his behalf when he was about to be moved to a softer job he'd already turned down.

For a while he worked for a magistrate in his home town but stopped on doctors' advice.

"It was then approached to come and help here," Titus says.

The lush garden is in the yard of the clinic founded by Dr Ramphele when she was banished to the town by apartheid's rulers.

"Many of the patients she saw bore signs of malnutrition and the rest were just poor people who couldn't afford to eat properly," Titus says. "She felt they needed a garden to provide a balanced diet."

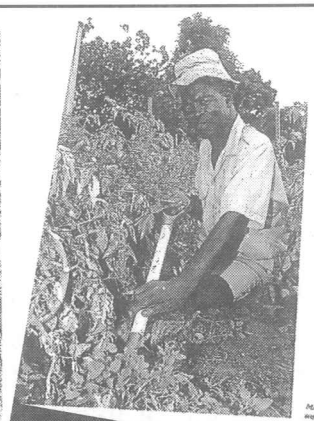
Apart from vegetables, the garden also yields bananas and pawpaws. The only time Titus needs help is when bananas have to be picked from the high trees then he shouts instructions from the ground.

Every morning at seven he's out watering the plants or weeding the beds that are his pride. "Now and then someone comes to buy tomatoes or potatoes," he says, "and I have to see to it they get good ones."

Proceeds from the garden sales stock the clinic with medicines.

Titus is evidently happy and at peace with his world. He bids us goodbye, grabs a spade and disappears into the shrubbery. Soon only the top of the spade and his bobbing head are visible.

At that moment it appears to me it doesn't matter what his feet look like. What I see is a hard-working man trying his best to help others.



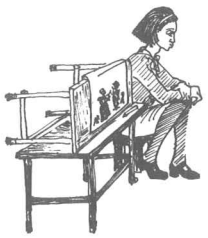
MAIN PICTURE: Titus Mankgela watches as a helper picks a pawpaw for him.
LEFT: Titus shows by people emphasising his disability.

Despite his disability, Titus (60) grows food for almost an entire township

Some questions to think about before you read the story
This story is about a man and a project.
- Who set up the project, and why?
- What have been the outcomes of this project?
- In what ways has this project improved the lives of the people?
- How has this project improved the environment?

Some things to think about, and discuss, after reading the story
- Make a list of any environmental activists in your local area.
- What environmental projects have they been involved in?
- In what ways do the projects in your community benefit (improve and help) the lives of the people and the environment?
- Try to find out more about Dr Mamphela Ramphele from somebody in your community.

Now we would like you to try a similar activity with younger learners. We have included a copy of a picture book, *The Project,* written by Bra Basil Siwisa. This book was used when you were introduced to Umthamo 25. This story models how the animals in the *intsomi* tackle a problem, or problems that face them and their environment.

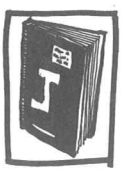


Activity 4 - "The Project"

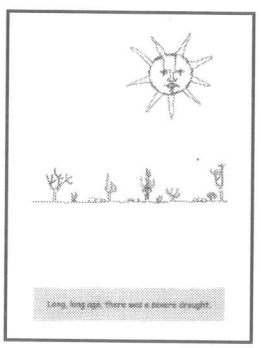
You will need to make a choice about whether you tell this story in your learners' first (primary) language, or whether you read it aloud in English. Whatever you decide, sit with a group and share the pictures as you share the story.

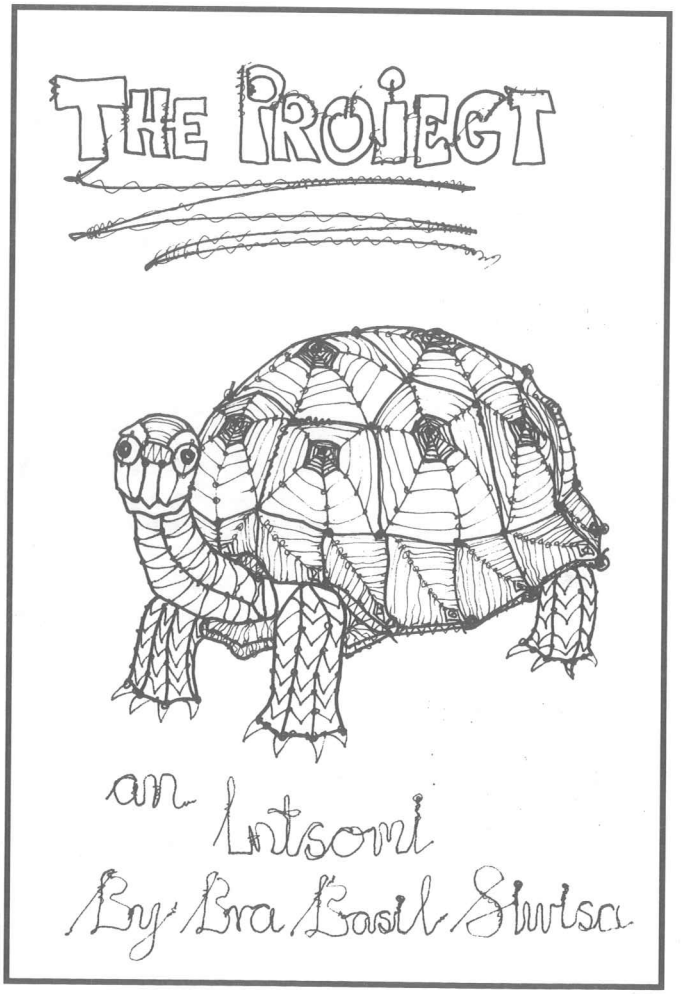
Then ask the learners questions. **Remember,** you are **not testing** whether they have listened to the story. Instead you want to focus their attention on what the animals did. What did the animals do first? When the animals had solved the first problem, what was the next problem they had to deal with? What actions did they take? What were the outcomes of their actions?

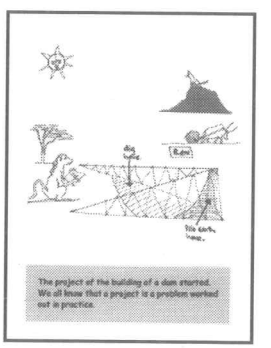
As they share their ideas, record these ideas on a large sheet of paper. This will give status to their ideas. Then you can display this sheet on a classroom wall, near to where you display the picture book.

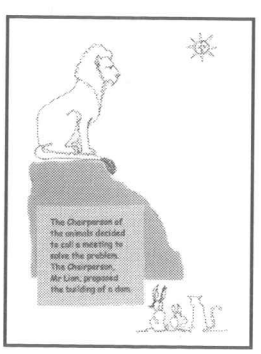


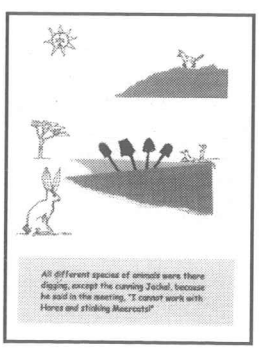
At the end of the day, write about this experience in your Journal.











In the next unit you will find case studies which tell of the environmental problems that different teachers and learners have solved.

Unit 2 - Acting for the Environment

In preparing for the development of this umthamo, one of our abakhwezeli, Cecilia Songxaba from Maluti, offered to find out and report about the work of an educator in Matatiele. This teacher has become known as an effective environmental education activist. She and the learners at her school do wonderful things for the environment.

Case Study 1 - Mango School - a long term approach

Ntsundu Ndaba has activated a great deal of environmental problem-solving at her school, Mango Junior Secondary School over the last few years. This is what she has to say about environmental problem-solving.

Miss Ndaba surveys (studies) different zones or areas of the local environment, in preparation for work with learners and the community.

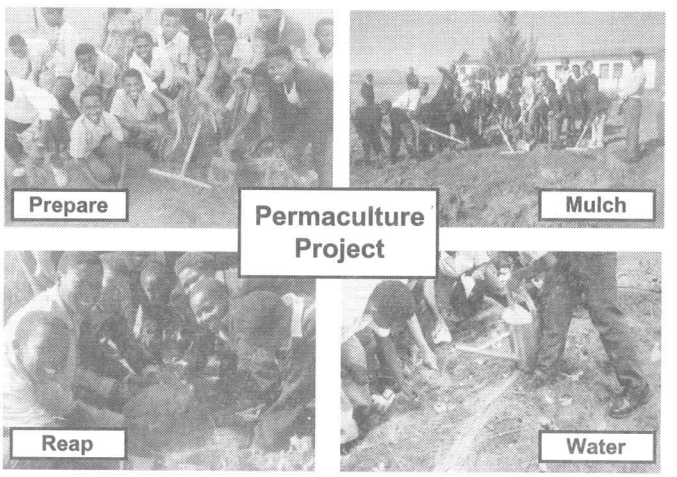
An important goal in education is to develop good citizens. We need to increase our pupils' awareness of their own environment. And we need to provide them with opportunities to solve their problems using their experiences and indigenous knowledge. To be successful, we need to be formal and informal so that necessary action is widely understood. And we need to develop our learners' knowledge and skills based on their out-of-school experiences.

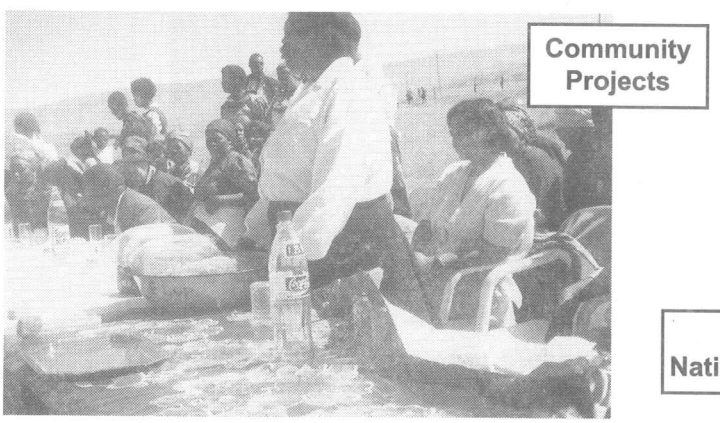
Looking at the problems caused by littering in our area, we devised means of solving some of the problems. We started by raising the awareness of both our learners and the community of the crisis hanging like a dark cloud over our own country. People, learners and teachers started to take action in solving environmental problems. We need to take care of, and respect the natural resources because our lives depend on them.

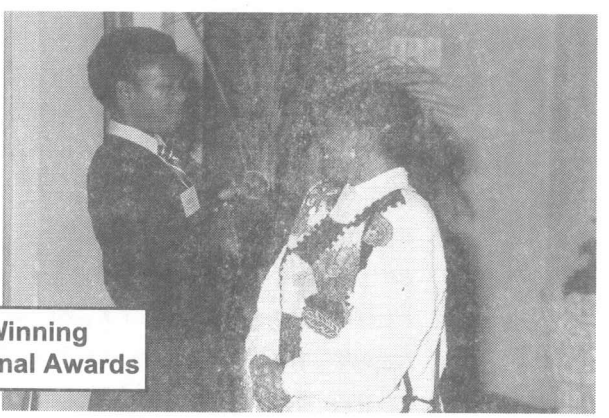
We started our projects at Mango Junior Secondary School in 1993. I felt confident because of the experiences I had from SEP (Transkei), EDA (Matatiele), Umngeni Valley Project (Howick), the Wild Life Society and Trees for Africa. We started by recycling different materials, followed by greening the school grounds, and then water and sanitation. This spread to other schools and other local areas through workshops which were run by us together with EDA, Umngeni Valley and Umngeni Water, followed by Trees for Africa and DWAF.

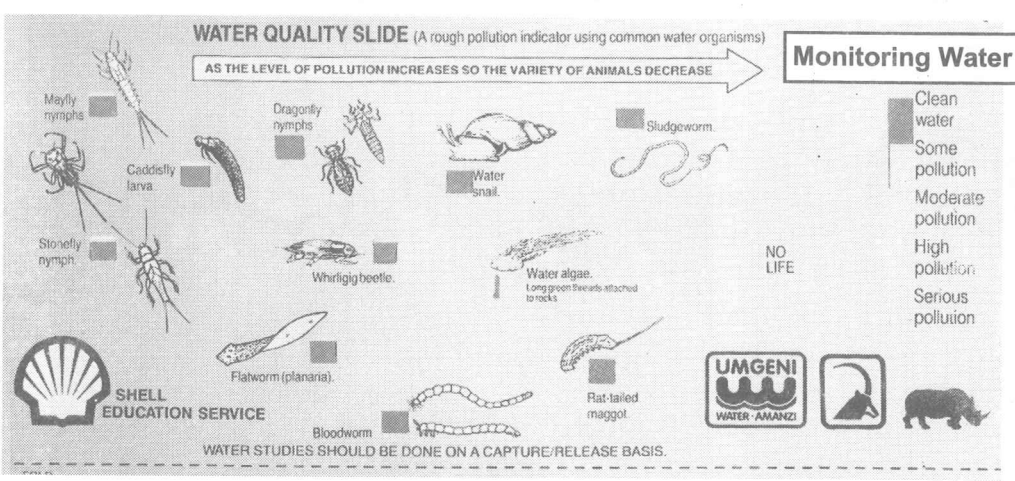
We went on involving ourselves in competitions run by the Wild Life Society, Trees for Africa, 2020 Vision for Water run by DWAF and Enviro 2000 by Treasure Beach. We experienced a lot from them through sharing ideas on how to recycle, green our schools and communities, formation of clubs, etc. In 1997, we involved ourselves in exhibitions, through help from the Open Society Foundation. That aroused the interest of the whole district, in so much that every year exhibitions are run, and we present whatever we can.

If you look at the following pictures, you can get some idea of the range and richness of the environmental education work that Miss Ndaba has initiated and promoted at her school.









Deforestation

This is how the learners and Miss Ndaba tackled problems of **deforestation** in their local area. Here is what she and her learners have to say about background to the problem.

Deforestation is the result of cutting or burning down forest trees without replacing them. This is mostly done so that land can be used for agriculture or grazing, for firewood, timber, housing development and the construction of roads. As the populations grows, it means more land is need for human settlement. Our houses are built from forest trees, and need to be replaced at least every 20 years as they are thatched by wood and grass.

In rural areas, we depend mostly on firewood as our source of fuel for cooking. Women have to walk long distances to fetch and carry firewood or cow dung, which is also used for fuel. Our indigenous trees are also used for medicines, and are quite scarce these days because of veldt fires caused by the carelessness of men. Birds, insects, animals, etc spend their lives in forests, and in turn they provide nutrients in the soil. Careful management of forests is vital for these reasons.

How they went about taking action – Tree Planting

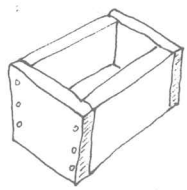
Miss Ndaba and the learners from Mango JS School started by planning to work together with the community.

Working together with the community has played an important role in changing the community to care and to protect their environment. The project was stimulated by the activities done by pupils on Arbour day 1993, where more than 30 trees were planted by pupils, teachers and the community. The idea of inviting the community was to help them understand that trees and other green vegetation contribute to life on earth. We formed a stage play together with pupils with a title "The Pattern in Nature", to dramatise the dangers of deforestation and the importance of reforestation. That made people more aware of dangers of tree depletion and the importance of replacing them.

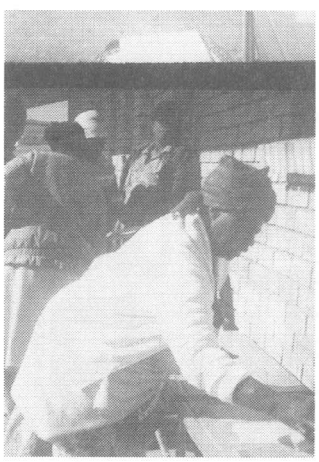
A Substitute Fuel

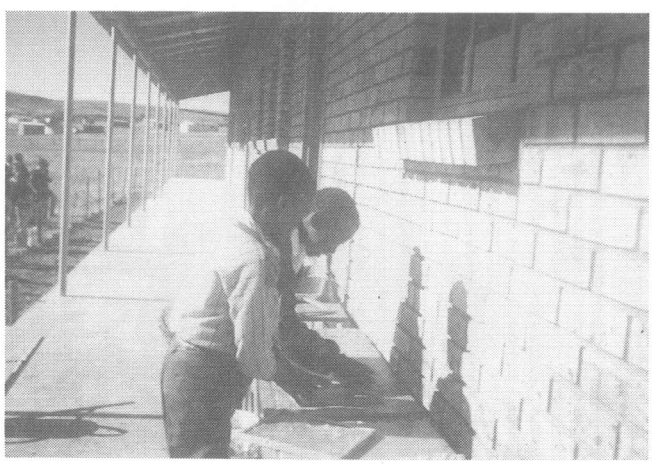
Another project was to design a way to recycle paper as a substitute for wood as a fuel. The more paper we save and recycle, the less trees need to be cut down to make paper. Paper collected for recycling first needs to be sorted.

1. If certain pages or the backs of pages are blank, then they can be stored as scrap **writing paper** or for **drawing.**
2. Brightly coloured paper and magazine pictures can be saved for **art work** (collage, picture making, pattern-making, paper mosaic art, and montage).
3. Clean paper can be used to line boxes, drawers and shelves. It can also be used to make patterns for dresses (in needlework).
4. Soiled or excess scrap paper, with no other possible use, can be soaked in a drum or barrel, and softened into a pulp (a soggy, thick, shapeless, wet mass). Small brick-shaped moulds can be made by nailing scrap planks together. The mixture can then be pressed into the moulds to make compressed paper bricks. Then the mould can be removed and the bricks can dry in the sunlight. These dry paper bricks can be a substitute for firewood or cow dung for cooking or heating. (Just remember the dangers of using a *mbaula* in a small closed room. Carbon monoxide poisoning causes unnecessary deaths every year. It would be useful to look for, cut out and keep any newspaper item as evidence of this danger.)



Mould for Compressed Paper Fuel bricks





Case Study 2 - Port Elizabeth Schools Permaculture Project

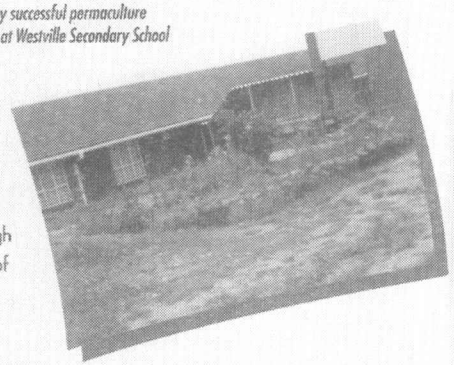
When the Department of Environmental Affairs and Tourism commissioned a group to embark on an action research project, the group discovered that there were many action projects in different local environments. They found that *"Youth were getting involved in school-based projects such as clean-ups, recycling, greening, permaculture and food production projects and hiking projects."* (Clacherty, Adatia & Clacherty, 1996:3) We have included a story from a book about these projects on the next page. As you read through this case study, note the subheadings. We saw a parallel between these subheadings and the stages in problem-solving outlined in the models in Unit 1.

Port Elizabeth Schools Permaculture Project

"Once the garden starts growing, so does the interest of the school. Most of the areas where the gardens are situated were previously barren and ignored. With the wastelands blossoming, interest and observation has to follow."

Sue Spies, Project Coordinator

The very successful permaculture garden at Westville Secondary School



The Port Elizabeth Schools Permaculture Project was initiated by the Eastern Cape Branch of the Wildlife and Environment Society. The main aim of the project was to start permaculture vegetable gardens in schools. These gardens have not only become learning sites for environmental education but through their development participants have gained a wider range of social and organisational skills.

How was the project started?

"The project started with four schools. We first spoke to the teachers and the principals about the gardening project. After they agreed that it was a good idea we discussed it with the students. At the beginning of the project we focused on gardening skills, but it soon became clear that there were other skills that needed to be developed first. For example, the students had no previous experience of working on a project in a group.

So, we began to develop a relationship with the students through workshops. The gardens became a springboard for developing skills such as financial planning and management, marketing and problem-solving as well as the development of self-esteem, confidence and leadership skills. We established and supported committees in each school that developed a project plan for each garden."

It's not just a gardening project

"The gardens were the start of a much larger process. Permaculture was the tool that we used to encourage discussion about the environment - to find out how natural systems work and to understand some of the environmental problems in the local community.

We are hoping that at the end of three years we will have a group of pupils who are environmental activists with the skills to turn words into action."

"I wanted to change things overnight, but you can't rush things. So after many frustrations, problems and failures, we realised that we were on a journey with the participants. The journey was a process of learning and growing at the same time as we worked together on the permaculture gardens, and we couldn't be in a hurry."

What the project has achieved

- An improvement in the physical environment of the schools.
- Project participants and their families now benefit from the vegetables grown in the gardens.
- An improvement in the social environment of the schools:
  - teachers have become involved and they spontaneously formed a teachers' environmental committee;
  - participants are now able to work as a team, to share out the produce from the gardens democratically, without conflict;
  - one of the school principals has become an active member of the Wildlife and Environment Society whereas before he had little interest;
  - people in the communities outside the schools have developed an interest in the project.

Mulching the vegetable garden

Involving wider groups

It is important to link with local organisations if you want to extend the project and find new leadership. The Wildlife and Environment Society linked with the Community Environment Network (CEN), a local community-based organisation. There are now three new fieldworkers based at CEN who are developing the project. This means that now 17 more schools are involved in the project.

What we can learn from this project

- *Do not be in a hurry! Developing such projects takes more than one or two workshops. You are working with people not objects and social processes are complex, unpredictable and time-consuming.*
- *Be flexible. Involve project participants in the planning stages and be prepared to change your aims to reflect their needs and concerns.*
- *Involve other groups in the community.*
- *Respect other people's knowledge - do not walk in as an expert who knows everything.*
- *Do not try to do too much. The four schools this project started with made up quite a busy programme and demanded much time and on-going effort.*
- *Ensure the project carries on - look for new leadership and capacity-building potential in members of the groups, teachers, principals, members of parent communities.*

EROSION, DISAPPEARING SPECIES AND SINKING ISLANDS ALARM YOUNG ACTIVISTS

Sharing ideas to save the planet

Picture: BRENTON EDWARDS

By THEA WILLIAMS

THE star of the first international Kids' Congress on the environment in Adelaide yesterday was an 11-year-old veteran campaigner.

It was Bethany Henderson from Tuross Head, NSW, who convinced Olympic organisers not to release balloons during the Games, and the NSW Government to consider banning balloon releases altogether.

Yesterday she received a barrage of questions from congress delegates aged 11 to 13 wanting to know how to start a campaign and whether she had sponsorship. "It's taken me four years to get this far with balloons," she said.

The 450 delegates are attending the congress at the University of Adelaide. Four of them told *The Advertiser* what concerned them about the environment.

James Chaffey, 11,
of Tamworth, NSW:
"Our problem at home is erosion. We have been doing some work at school and on our family farm planting trees and making rock walls to stop the silt coming off the mountain.

"The environment is very important because we made the mistake of doing the wrong things, and the younger generation has to clean it up."

Ntsika Dimbaza , 12,
of South Africa:
"At school we do environment studies so I get to learn how to plan a garden.

"I have learnt to make trenches. I planted parsley and cabbage, onion and carrots for the whole family.

"If people can make a garden they can eat the vegetables and sell them.

"Near Port Elizabeth in the river you see some people washing themselves. They swim there but you see people getting water there to drink – that is a problem."

Josianne Tambe, 12,
of Vanuatu:
"I had a display at school about Vanuatu's endemic species like the mountain starling and purple orchids.

"Endemic species are endangered because people from other places take them. We must hide them.

"People in Vanuatu worry about the greenhouse effect. We have seasonal cyclones and earthquakes and storms. They have worried (that) the island of Pentecost was sinking."

Nick Burrows, 11,
of Hamilton, NZ:
"I have done a lot of planting in the gully that we live in. We plant native trees to bring back the birds and butterflies.

"We also have New Zealand's longest river that's really badly polluted. A timber company and a paper mill, they heaped all this stuff in the river and all our water comes from that.

"I'm here to share ideas."

Case Study 3 - Auckland Primary School

Auckland Primary School is in a rural community close to the Amatola Mountains. Most of the learners at this school live with their grandparents, as their parents have had to leave to find work in cities like Cape Town and Johannesburg. Money is scarce. Like many rural schools, Auckland Primary was sorely neglected during the education administration of the apartheid government.

Up until 2000, this was still the case. The school and community had been waiting patiently for the new government to help them improve the conditions in which they and their learners were working. But change takes time. The number of schools in our province which were ignored during the past were many, and it will take time and money to provide quality facilities for all our learners.

In February 2000, Mrs Ntshatsha, a University of Fort Hare DEP teacher-learner from Auckland Primary School, received Umthamo 22. The Key Activity in that umthamo required her to design and draw up a School Development Plan which would address and attempt to resolve a problem identified in Umthamo 6 *(Schools as Organisations or Disorganisations)*. Mrs Ntshatsha was unhappy about the appearance of her school.

I want to improve the school yard first because the classrooms are not secure enough - that is why thieves steal the peanut-butter stores, garden tools, school balls, etc. Animals come into the school-yard and eat the flowers and plants. The water tanks are not safe because some of the parents carry water to their homes. Everybody locally uses the school toilets. There are no playing fields because when we have cement poles, some people come and take those poles to use at their homes. Tuition is delayed because we have to clean cow dung from the veranda before we start. Our school is not welcoming because even the grounds have no flowers. Learners, teachers and cars are not safe, especially in these days of high crime.

Mrs Ntshatsha drew up a plan of action, which would involve the staff and learners, the School Governing Body (SGB) and the whole community. She thought of ways that the school could raise funds to pay for the school to be fenced. Then she approached her Principal. She explained her plan to him. Her Principal was very supportive and arranged that she could share her ideas and plan with the school management that same afternoon. She found the management committee also very supportive, and the Head of Department for the Intermediate Phase learners volunteered to help Mrs Ntshatsha.

On the 7/03/00 I met with the Principal, Management and staff. I explained my task. They showed interest because everybody knew what was happening to our school because of the school yard. Some staff members asked me why I chose fencing because our classrooms are in

bad condition, especially inside. We smear the floors and the walls are very bad. I told them that that will cost a lot because it requires cement, sand, concrete, water, etc. The task of fencing will need poles and wire only. I promised to do something about the classrooms when I have finished this.

On the 9/03/00 one teacher asked another one about when would I start this task because they are sick and tired of the cows.

Her Principal arranged for Mrs Ntshatsha to meet with the School Governing Body, which she did just before the end of the first term. Their response to her proposed plan was positive, and they agreed that it should be the first matter to be addressed and dealt with in the second term.

On the 18/04/00 I met with parents in the Parents Meeting. I told them about this task. I gave them the reasons for this task. I told them that I am learning B Prim at UFH. This is an OBE course. OBE needs the involvement of parents, learners and SGBs. I showed them my imithamo. I told them that sometimes I will be visited by my abakhwezeli. I told them that our school is not welcoming to visitors. I gave them all the reasons why I want to improve my school. The parents were so interested about my task, in so much that some volunteered to be my committee members.

During the course of the year, Mrs Ntshatsha, the committee members (or School Development Team - SDT), the learners, and the whole community worked towards fencing the school. Funds were raised in a number of ways. Special days were arranged for learners to wear clothes other than their school uniform and to pay a "tax" - 50c for learners in Grades 1 - 3, and R1,00 for learners in Grades 4 - 7. Empty bottles were collected. Each home was asked to donate R5,00. A businessman donated a roll of barbed wire, and the company who had bought the empty bottles also offered to make a donation.

Mrs Ntshatsha convened regular meetings with the SDT, who continued to be supportive. The plan to fence the school was carried out in stages, as and when there were funds to buy fence poles and wire. One of the teachers and some of the learners helped two of the committee members to erect the fence. As the work progressed, Mrs Ntshatsha and the SDT reported regularly to the community at Parents' Meetings. The parents were very impressed by what was being done.

On 29/08/00 we had a Parents' Meeting where I had to give them the financial report of the fencing from the start.

Mrs Ntshatsha gave the parents a complete breakdown of what money had been raised and how, and then showed how each cent had been spent.

Parents appreciated the report so much that those who didn't give the five rand donation, donated the money at that meeting. Others donated the following day.

Mrs Ntshatsha and the SDT continued to raise funds, to buy fence posts and wire, and to work towards completing the fence. Owing to heavy rains towards the end of the year, it was not possible for the fence to be completed. However, at the beginning of the school year when Mrs Ntshatsha arrived at the school, she was pleasantly surprised.

On our Reporting Day on 22/01/01 I found a surprise. At my school we had some flowering flowers - something we were not used to seeing at our school. Our veranda was clean. The grass was long, but other plants had been eaten by goats because I'm sure they jumped in between the wires because we were short of net wire. The tanks were full of water, although they had not been locked. We had only locked the gates. The toilets had been used because we hadn't yet finished the side where the toilets are.

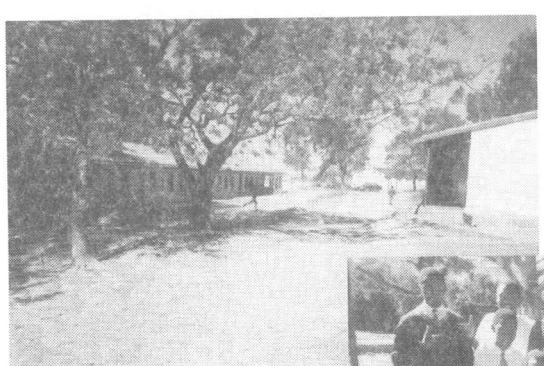
I found a lot of improvement because of this school yard. In all I appreciate these imithamo. They have done a lot for me, my colleagues, principal, school, parents and learners.

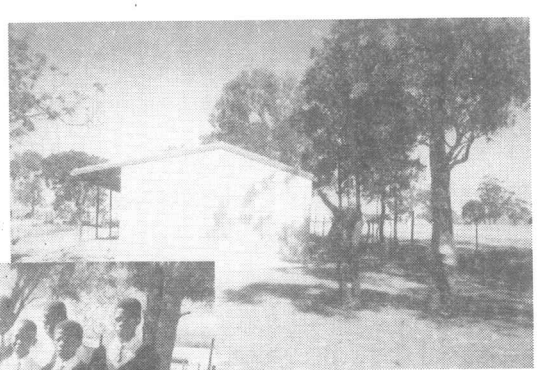
There was a great deal of technology in this problem-solving action. Alternatives were considered and a plan was designed. Systems were developed to:

- *raise funds*
- *transport the materials*
- *make a fence.*

There was ongoing appraisal of a project that made a difference.

It is interesting that by developing a plan of action, and seeing it through with the help of the staff and local community, Mrs Ntshatsha and Auckland Primary have managed to solve a problem at their school, and in their community. This has had a remarkable affect on the community. They have a school which they can be proud of. Everybody has worked together towards the common good of the school. The environment of the school is more pleasant, and learning and teaching are not being hindered by the inappropriate use of the school's resources.





Activity 5 - Mapping stages of problem solving and identifying cross-curricular activities in the case studies

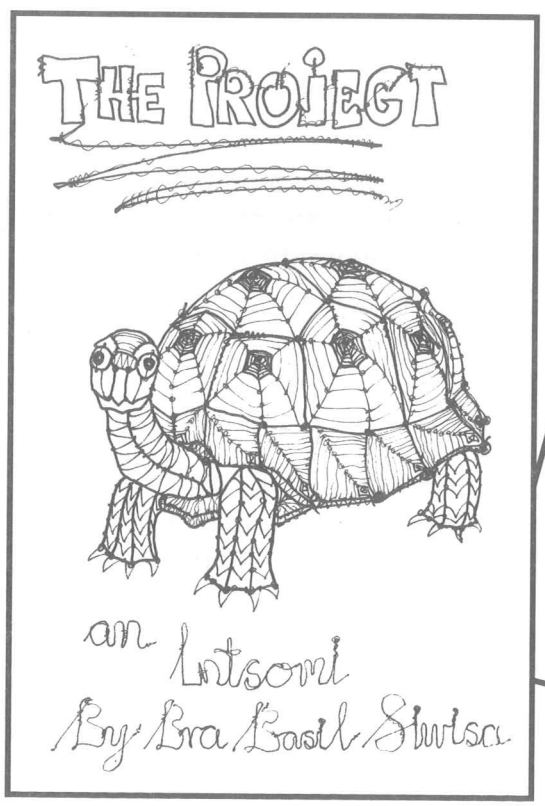
After you have read these case studies, refer back to the suggested steps for a technological process of designing a system of action for the environment on page 8. Also remind your self of Rob O'Donoghue's framework to support action on page 9. Then re-read the case studies and try to identify what is happening. You might want to write words like - *'design of plan', 'taking action', 'assessment',* lightly in pencil near where it happens.

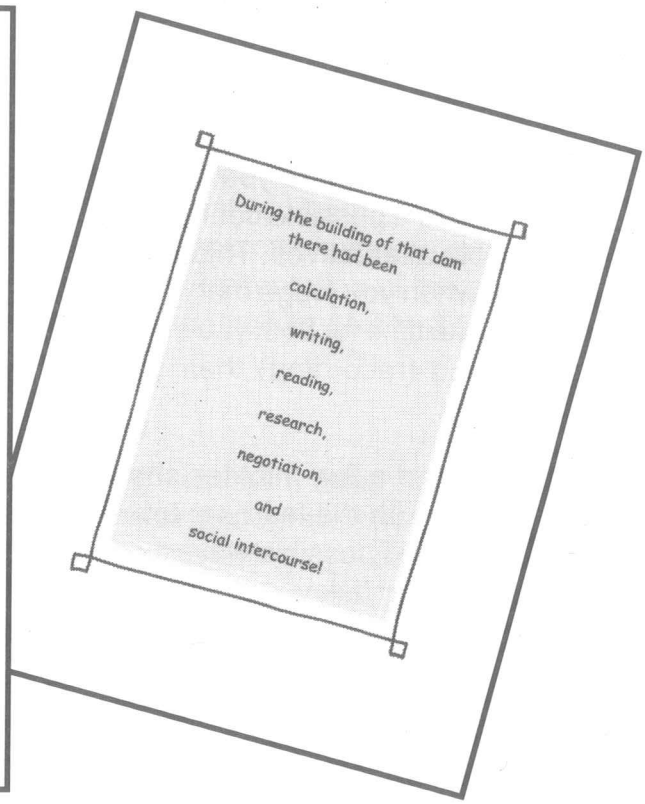
Then spend some time identifying where the action that is taken touches on areas of the curriculum **other than** technology education. Again, write lightly in pencil where you feel that another learning area has been touched. For example, if the action involves measuring or calculation, you could write, *Maths.* If there is discussion, or reporting, you could write, *Language & Communication.*

At the face-to-face session where this umthamo is monitored, you need to be prepared to discuss how **useful** you think the model or framework is.

*By **mapping** we mean we want you to see how you can **match** the stages in a technological approach to solving problems to a case study or story.*

The case studies in this Unit provide models of ways in which an environmental problem which has been isolated can be solved. Possible solutions are considered, a plan of action is drawn up, implemented and the outcomes assessed. In the next Unit you will work with your learners to start the process of dealing with an environmental problem in the area around your school.





Unit 3 - Taking Action

So far in working through this umthamo you and your learners will have made an **audit** based on an encounter in their **natural** and **built** environment, using the school as a base. They will have read or heard, and thought about, a story of some successful action being taken to resolve an environmental problem.

*Either the article from **Drum** or the intsomi of **The Project.***

As an outcome of the audit and the map or model, you will have listed and started thinking together about possible dangers and problems that reveal themselves in their environment. And you have probably begun to prioritise some issues or problems that lend themselves to some form of planned action for the environment.

In this Unit, we hope to guide you as you facilitate the technological process of learners designing a holistic collective environmental action to resolve a problem, or a risk, faced by the environment.

This is another point where you will have choices.

We have presented 2 possible approaches in Unit 1. You have also read examples in Unit 2 where action of this nature has taken place. Now you are ready to initiate your own class project. You need to decide if you want this to be a whole class project, or you may want to ask a group of interested learners to volunteer to do a special project in their own time with your guidance.

*This might be a good way to go if you are **still** subject-teaching at your school, and don't have a class of your own. It could also be the start of a club for the environment at your school, if you don't already have one.*

Activity 6 - Key Activity - Learning through Action

Option A - A Step-by-step Approach

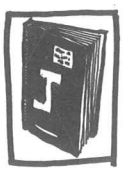
You have started the process of generating awareness about the environment. Learners have been doing some research in the environment. This will have lead to an awareness of some problems or potential problems in the environment.

*If your learners are too young to write freely, you have a number of alternatives. You could arrange to 'borrow' some older learners in the school to act as **scribes** if they have free time, or you could let your learners draw their ideas.*

Sit with the learners you have worked with, and spend some time discussing a possible course of action. Start to share ideas of some probable alternatives. This is just a provisional 'brainstorm'. After a while, when you judge that ideas are close to being exhausted, stop and make time for both you and your learners to spend a few minutes capturing (recording) their personal feelings and views in their Journals.

Then spend a few minutes sharing personal views and feelings as you work with the learners towards a consensus of what needs to be done, and possible ways it could be done. Set a time for the next meeting, and ask your learners to go on thinking in their own time, and even to share what they are thinking with others at home.

They can add further ideas by writing and drawing in their Journals.



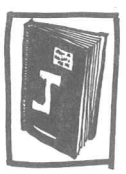
Do the same yourself, and add your own ideas and further thinking in your own Journal.

Designing a Plan of Action

At this next meeting (or meetings) you and your learners will be turning ideas into proposals and commenting constructively and critically on the ideas which are being shared. This stage of **deliberation** is very important. Pay careful attention to the way ideas are developed and challenged. Make sure that quieter learners are taken seriously.

The outcome of this meeting (or meetings) should be an agreed **plan of action** in a written form. Set a time for the next meeting when the plan will get turned into **action.**

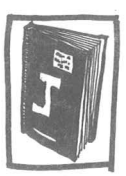
Just before you finish, spend a short while with the learners assessing the actual process of developing a plan of action. What went well? What could have helped things go better? What aspects of the plan might need review? In this way you are modelling 'reflection' *(ukuhlalutya)* for learners themselves as they re-consider and appraise their own work.



In your own time, write up the process so far. Try to trace and comment on the way the learners co-constructed the plan of action. Try to reflect on your role as facilitator. When and why did your contribution have a positive effect? What might have been a problem? What could you possibly do to improve your facilitation skills?

Taking Action

This stage will depend on your learners and the nature of their project. Your role will be to encourage, praise and support their action. You will do this by smoothing the way, making sure that they are 'safe' in whatever they do, and by giving them positive feedback and sound advice.



Remember, the action stage of some projects may take weeks or even months. But you need to make sure that you keep good records of **progress** (what is happening) so that you can report on 'work in progress' at any stage. At your Portfolio Presentation at the end of the third academic year, you will be expected to give a thorough **account** of this work.

Assessing outcomes and reporting

Although this can be seen as a final activity, it need not be. An ongoing continuous process of appraising progress should be put in place. Regular meetings to report on how things are going should happen and you **must** document **all** the 'ins' and 'outs', and **all** the 'ups' and 'downs' of the project.

You will be reporting on the process as part of your B Prim Ed. But you also need to encourage the learners to think of how they will share and report on their work. Read the letter on the inside back

cover. It is from a potential candidate to a 4-day International Conference for primary-aged learners called, *Making a Difference.* What are his views on the value of sharing?

Writing a Report on *Work in Progress*

Introduce your work by describing how you and your learners decided on a **focus.** This answers the question, *What needs to be done for our environment?*

Next, describe how the **plan of action** was developed. Include a copy of the plan and explain how you and your learners reflected on the quality of planning.

Then, depending on what you and your learners have chosen to do, write brief notes explaining what has happened so far, and what is likely to still happen. Try to include some **analysis** of the **value** of the **action** (ukuhlalutya).

Conclude this brief *Work in Progress* report by charting the ongoing assessment process.

You can remind yourself of this by turning back to page 8.

If you feel that a step-by-step approach is too restricting, then you might want to try the open-ended process of active learning that Rob O'Donoghue suggests.

Activity 6 - Key Activity - Isolating a cause for Action

Option B - Active Learning

Turn back to page 9 in Unit 1 and remind yourself of this approach. Make sure that you understand the diagrams. After the **encounter** experience and the **audit** of the environment, you might find that one issue dominates, and that there is an obvious focus that your learners want to tackle and do something about.

Where do you want to start?

Sit with your learners and talk about their feelings as a result of the **encounter, audit** and **map** activity.

Do they have an urgent need to tell people about what they have seen and what they feel? Then the **Reporting** sphere is the place to start.

Do they have the urge to go out and fix things right away? Then the **Action** sphere is for them.

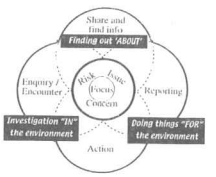
Do they feel a need to find out more? Then there are two possibilities.

1. They may need to start **seeking information** as they try to find out more. Or
2. They need to get back to the environment to experience and **enquire** more.

In an open-ended approach, you may not be certain of the exact path you will follow. But you can be certain that one thing will lead to another as the need arises, and that the spheres will start overlapping. You will cover everything in some way.

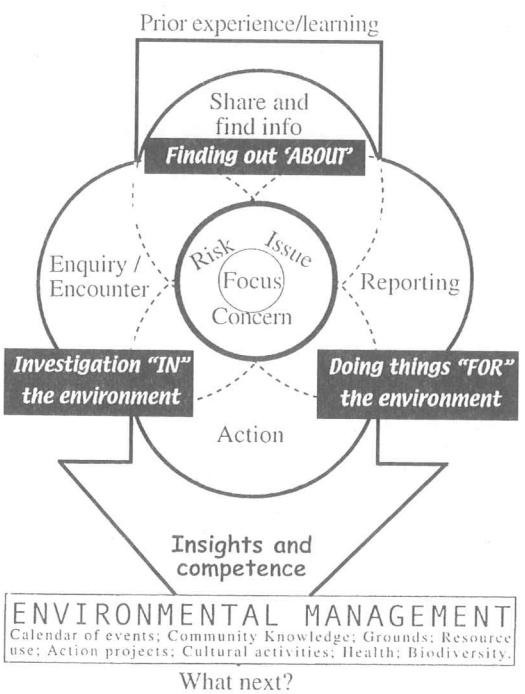
One of the writers once heard the woman who was Director of Education for the whole of Inner London quote the English politician, Oliver Cromwell, in defence of an open approach to primary education. She quoted, "You travel further when you don't know exactly where you are going." An open approach may be more 'uncertain', but it is invariably 'richer and more exciting'.

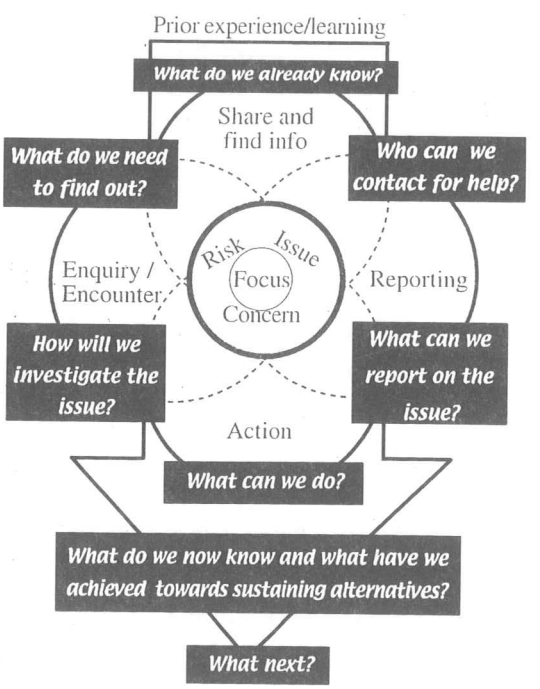
For example, the sight of litter and waste may cause an immediate need for **action** to get the environment cleaned up. Everyone brings a black plastic bag and a 'clean-up' campaign happens. But what do you do with the rubbish? Identify it and sort it - that's **enquiry.** And what are safe ways to dispose of it? That leads to finding out more **information,** and then more **action.** If you want to prevent more littering, then you will have to start informing people, that means **reporting.** (And if you want to **report** with authority, you need more **information**.)



A-E-I-A-R

The challenge for teacher-learners brave enough to choose this option, will be to think of a good way to report on it. You won't be able to write about each step in a linear sequence, and then reflect on what you did. There won't be a clear pattern for you to follow. You will have to tell a story - a **true** narration that weaves together a complex set of actions. You will have to write a dynamic story that has *flash-backs* and interwoven themes. It will be a much more creative process in which you incorporate learners' work and pictures. It will be more like a story, and less like an assignment.





Unit 4 - Cross Curricular Work

From your experiences working through the Technology Education strand of the Core Learning Areas Course, you will have realised that this learning area lends itself really well to cross-curricular work. In other words, when you carry out Technology Education activities with your learners they need to investigate, research and experiment (science); measure and calculate (mathematics); discuss, record findings and report on what is discovered (language). It is very similar with Environmental Education.

You might want to remind yourself of some of the activities that the learners at Mango Junior Secondary School, and what the school and community at Auckland Primary School did when they carried out their projects. As we re-read the case studies, we can see that a number of curriculum areas are involved as activities and tasks are completed.

At Mango JSS they made working models from recycled materials (Technology), and put on plays (Language/Arts and Culture). They measured out fields and did surveys (Mathematics). At Auckland Primary, raising money involved a lot of Mathematics.

As we develop professionally, it is important that we can *justify* and *give reasons* for what we do with our learners. In many parts of the world, teachers in primary school classrooms are expected to be able to explain what they have planned and are doing with their learners to their principals, heads of department, and even to subject advisors. If somebody were to ask you to explain what you are doing with your learners, and why, what would your response be? Could you justify your choices with sound educational theory?

Go back to the little book you used in Activity 4. The writer, Bra Basil, is not a formally qualified educator, but he knows the value of a project for bringing people together (social cohesion). He also is aware of how many skills from different learning areas are involved when a project is a *"real"* one. But do all parents know this?

There is another important reason for a teacher to be able to identify cross-curricular elements in project work in Technology Education and Environmental Education. The learners really get excited about what they are doing and really enjoy it. But they and their parents don't see the project as "work". It is seen as "play". This can result in the learning that is happening being devalued. And that is a very dangerous thing.

What a tragedy that we have a situation where what is done at school is valued only if it is seen as boring, painful, repetitive, and is seen as unpleasant 'hard' work. If it is exciting, interesting, and learners are enthusiastic, it isn't 'proper' work, and cannot be of educational value. It is merely 'play' and a waste of time. What terrible "Nonsense"!

As teachers, we have an important responsibility to reveal and emphasise the value of such cross-curricular work. We need to help learners and parents see the value of work that isn't just doing exercises from a text-book, copying notes to memorise, and completing work-sheets.

In the second part of the Key Activity we want you to think about the plan of action which you have drawn up with your learners. You need to identify and record the learning areas involved in the activities.

Activity 7 - Key Activity (Part 2) - Identifying cross-curricular work in a project

This activity is an exercise in teasing out the educational value when **active learning** is taking place. Because you want to be honestly **learner-centred,** you cannot know exactly what direction the learning will take. As a responsible professional educator, you need to be able to note, chart and highlight the learning that is taking place. This is so that you can give feedback to the learners which helps them appreciate the value of the work that they have done.

On your own, reflect on the work which you and your learners have done so far from Unit 3. As you do this, identify the different learning areas which were covered, and assess the level and quality of the work. This is not always an easy task because an integrated approach blurs the boundaries between subject areas. The skill of picking out and valuing the quality of different aspects of cross-curricular work is one which a teacher needs to develop over time.

Then have a serious discussion with a group of your learners to ask them to think about what they have **gained** so far. What can they do now that they have not done before? Watch yourself as you help them see the educational value in the work which they have been doing, and the merit in the time spent. Include a brief reflection of this discussion in your report, and highlight your role.

You can write this part of your report as a *story* in which you highlight the contribution of different learning areas as you go. Or if you want to be more technical, you can make a table in which you itemise or list what has been covered. See the examples below.

When the learners drew their own map of the local environment, I noticed that there was a great deal of measurement using rulers. Some were even getting the idea of co-ordinates to identify position. And their drawings of houses, were very artistic and showed a great deal of care.

Language, Literacy and Communication	Lists of isiXhosa names for plants
	Play written by learners (direct speech in English)
	6 Journal Writes (Vuyelwa - 20 pages of writing. Sipho has started writing in paragraphs.)
Maths	Data gathering - traffic survey
	Graph work - bar graphs comparing traffic at different times of day

Hand in this story or information with your *Work in Progress* report.

Conclusion

Content Audit - What do you know about these ideas and issues?

THINK GLOBAL ACT LOCAL

Recycling

The threatening forces of ECONOMIC GLOBALISATION

IDEAS – Sustainable Development

ethno-botany

Environmental Education – Recycling

BIODIVERSITY in ECOSYSTEMS made up of HABITATS like WETLANDS

EE deals with

Gaia Hypothesis

GREEN POLITICS – the Green Party

inter-dependence

SPACESHIP EARTH

BIOLOGICAL

PHYSICAL

OUR BLUE PLANET

Resources - Limited

- Women's Ecology Movements

IMPACTS / RISKS – PRESSURES – INDICATORS

Agencies + Activists

- The Greenhouse Effect Global Warming
- Ozone Depletion
- Deforestation
- Desertification
- Pollution
- WAR
- POVERTY
- Population
- Plant Invaders
- Monoculture
- Disease

WWF-SA

WESSA

- World Wildlife Fund
- Greenpeace
- Environmental Policies - National Forest Act (84-1998)
- Robert Mazikuko
- Dr Vandana Shiva
- You?

Keep an eye open for issues like these in the press and magazines

Reading - based on "Environmentalism: Ideology, Action, and Movements" in *Environment and Society* by Charles L Harper

When we were researching this umthamo, we found an exciting book in the Library of Rhodes University. It's called, *Environment and Society* by Charles Harper. In one chapter, Harper writes about the philosophy and ideas (ideology) behind environmentalism. In this chapter he also focusses on action that different groups have taken, and environmental movements in America and internationally. There will be a few copies of the whole chapter at each Centre.

Harper traces the environmental movement in America back to the nineteenth century, and mentions a book, *The Earth as Modified by Human Action,* by George Marsh, which was published in 1874. This book documented

> ..... connections between cutting of forests and the erosion of soil, between the draining of marshes and lakes and the decline of animal life, between the forced decline of one species and alterations in the population of others and even between human activity and the climate. (Harper, 1996:296)

Here in South Africa, Sol Plaatje wrote a very important book, *Native Life in South Africa* published in 1916. In this book Plaatje wrote about the negative effects the colonial government's Land Act of 1913 had on the black people of South Africa.

In his book, Charles Harper writes about different environmental organisations which have formed during the twentieth century. He distinguishes between three kinds of environmental organisations, *national, grass-roots, and radical environmental* organisations.

According to Harper, *national organisations* include groups promoting educational programmes, advocating research into the environment, using the law to shape the development and enforcement of a national environmental policy, and buying land to set aside for national parks. The people in these organisations tend to be middle-class people who are concerned about the quality of life and leisure.

Grass-roots environmentalism movements are more localised. They often grow out of a situation where a community faces a hazard such as toxic waste dumps, contaminated water supplies, and polluted air. Generally, the people involved in this kind of action come from poorer communities, and they are often forced to live in areas where health risks and hazards are greater.

Radical environmentalism organisations are usually made up of people who are dissatisfied with national organisations. Members of radical environmentalism organisations believe that all species and their habitats are inter-dependent. And they believe that there is a need for a complete change in "human values, beliefs and society from the bottom to the top" (Harper, 1996:306). These organisations protest issues

through non-violent action. This includes documenting illegal pollution and dumping, stopping traffic, leading demonstrations, and even risking their lives as they protest.

Harper also writes about *anti-environmentalism* groups. These are groups of people opposed to the work of environmental groups. They are usually companies or corporations who are affected *negatively* by the actions of radical environmentalists. The publicity these companies get through protests and demonstrations is negative, and it can therefore affect their profits. In some cases these companies have taken legal action against environmentalists. In others, *illegal* action has been taken. Harper mentions a Greeenpeace worker in Arkansas whose home was burned. Another worker, Karen Silkwood, was harassed when she tried to expose her companies fraudulent safety-reporting procedures, and she died in questionable circumstances.

One of the writers of this umthamo was particularly interested in two international grass-roots environmental groups which Harper writes about. The first is the *chipko* movement. In 1993, a timber company in India planned to cut down the forest near a very poor village. A woman in the village persuaded the men, women and children to rush ahead to the trees before the loggers arrived. Each person hugged a tree, daring the loggers to let their axes fall on the backs of the people. This movement was very successful, and the trees were protected. Harper writes that the people of this village have gone beyond protecting the trees, to planting trees, and building soil-retention walls.

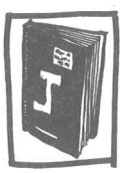
The second grass-roots movement was also started by a woman - Wangari Maathai, a Kenyan woman. In 1974, after attending an international United Nations meeting, Wangari Maathai returned to Kenya and started a reforestation movement among Kenyan women. It was known as the Green Belt. The goals of this movement were to staunch soil erosion, to educate people about the way environmental concerns are linked to food production and health, and to improve the income and sense of self-respect of Kenyan women.

Despite difficulties, slowly this movement has grown and even thrived. The women have adopted strategies of consensus and non-confrontation, instead of conflict strategies. By 1992 the women had planted about 10 million trees which had survived. There were approximately 80,000 women involved in the work! They learned that planting and nurturing trees prevented soil erosion and also loss of soil fertility. And they discovered that there was a link between poor soil fertility, poor crops and famine.

The Green Belt movement enabled the women involved to increase their income. And as a result of finding that they could help themselves, they were empowered.

Harper points out that the number of people who have become involved in environmental movements has increased world-wide. However, there

are still many problems as the earth's resources are being used and depleted. As Ntsundu Ndaba states, it is important that we provide our learners with opportunities to explore, research, identify *"real"* issues in their local area, and to take action. But as the "Children as Catalysts of Environmental Change" project found, we also need to involve parents and the whole community. In this way we can address *current* problems, risks and issues, as well as prepare our learners so that they can solve the problems of the *future.*



Spend some time mulling over (thinking about) what you have just read. Now open your journal and write down your thoughts and feelings.

Outcomes

Now you have worked through this umthamo, you will have

- thought more about the natural and the built environment with your learners
- read some case studies of ways in which other teachers and learners have taken action to solve problems in their local environments
- developed a plan of action with your learners to resolve a local environmental issue, and begun to carry it out
- written up what has happened so far, and thought about the way that this project involves a number of learning areas
- heard about the plans of action other teacher-learners and their students have begun to carry out.

We look forward to hearing about what you have been doing with your learners to improve and benefit the environment you are living and working in. If you and your learners are interested in doing more, you can contact the agencies listed on the inside back cover of this book.

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UNIVERSITY OF FORT HARE

DISTANCE EDUCATION PROJECT

CORE LEARNING AREAS COURSE

Technology Education

5th Umthamo

Thinking Globally, Acting Locally

First Pilot Edition 2001

Auckland Primary School

Members of the Rhodes Environmental Education Unit. Ms Ingrid Schudel, Associate Professor Eureta Janse van Rensburg, Mr Sibanelo Mbanjwa, Ms Veronique Slas and Dr Heila Lotz Sisitka

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Co-ordinated, illustrated and edited by
Alan and Viv Kenyon

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