

IDL-55062

a popular guide to

Environment Reconstruction & Development

in the new south africa



Through support for research, Canada's **International Development Research Centre (IDRC)** assists scientists in developing countries to identify long-term workable solutions to pressing development problems. Support is given directly to scientists working in universities, private enterprise, government, and nonprofit organisations. Priority is given to research aimed at achieving equitable and sustainable development worldwide. Projects are designed to maximise the use of local materials and to strengthen human and institutional capacity. Led by the dedication and innovative approach of Third World scientists — often in collaboration with Canadian partners — IDRC-supported research is using science to respond to a wide range of complex issues in the developing world.

IDRC is directed by an international Board of Governors and is funded by the Government of Canada. At the United Nations Conference on Environment and Development (UNCED), IDRC's mandate was broadened to emphasise sustainable development issues. IDRC's international network and expertise will be used to help the world move toward implementation of UNCED's Agenda 21 programme of action.

Le Centre de recherches pour le développement international (CRDI)

soutient des travaux et des activités de recherche dans les pays en développement de manière à assurer un développement durable et équitable à l'échelle mondiale. Les recherches sont menées par des scientifiques affiliés à des institutions, à des entreprises, à des gouvernements ou à des organismes de développement. Des partenaires canadiens y contribuent régulièrement. Les projets soutenus financièrement ou techniquement par le CRDI privilégient le recours aux ressources locales et s'appuient sur le génie, l'intelligence et le sens de l'innovation des chercheurs des pays en développement. Le CRDI contribue au renforcement des connaissances et des capacités de recherche des pays en développement pour lutter contre la pauvreté et pour améliorer les conditions de vie et l'environnement des populations affectées.

Le CRDI est dirigé par un Conseil des gouverneurs international. Ses fonds proviennent du gouvernement du Canada. La Conférence des Nations unies sur l'environnement et le développement (CNUED) a choisi le CRDI pour participer à la mise en oeuvre du développement durable à l'échelle planétaire. Le CRDI verra à concrétiser le programme Action 21 élaboré lors du Sommet de la Terre.

Con el fin de asegurar un desarrollo sostenible y equitativo a escala mundial, el **Centro Internacional de Investigaciones par el Desarrollo (CIID)** financia trabajos y actividades de investigación en los países en desarrollo. Las investigaciones están a cargo de científicos que trabajan en instituciones empresas, gobiernos y organismos dedicados al desarrollo. Estos científicos reciben regularmente la colaboración de sus colegas canadienses.

Los proyectos apoyados financiera o técnicamente por el CIID favorecen el uso de recursos locales y se apoyan en el talento, la inteligencia y el sentido de innovación de los investigadores de los países en desarrollo. El CIID contribuye al fortalecimiento de los conocimientos y a la capacidad investigativa de los países en desarrollo para luchar contra la pobreza y mejorar las condiciones de vida y el medio ambiente de las poblaciones afectadas. Un Consejo de Gobernadores Internacional tiene a su cargo la dirección del CIID, cuyos fondos provienen del Gobierno de Canadá. La Conferencia de Naciones Unidas sobre el Medio Ambiente y el Desarrollo (CNUED) ha seleccionado al CIID para participar en la realización del desarrollo sostenible a escala mundial. El CIID se encargará de hacer realidad el programa Agenda 21, elaborado durante la Cumbre de la Tierra.

Head Office/Siège Social/Oficina central

IDRC/CRDI/CIID
250 Albert
PO Box/BP 8500
Ottawa, Ontario
CANADA K1G 3H9

Tel/Tél: (613) 236-6163
Cable/Câble: RECENTRE OTTAWA
Fax/Télécopieur: (613) 238-7230

Regional Offices/Bureaux régionaux/Oficinas regionales

CRDI, BP 11007, CD Annexe, Dakar, Sénégal

IDRC/CRDI, PO Box 14 Orman, Giza, Cairo, Egypt

IDRC, PO Box 62084, Nairobi, Kenya

IDRC, 9th Floor, Braamfontein Centre, Braamfontein, 2001, Johannesburg, South Africa

IDRC/CRDI, Tanglin PO Box 101, Singapore 9124, Republic of Singapore

IDRC, 11 Jor Nagh, New Delhi, 110003, India

CIID, Casilla de Correos 6379, Montevideo, Uruguay

a popular guide to **Environment Reconstruction & Development**

Text written by Barbara Schreiner

First published Johannesburg, August 1995

Designed and produced for the IDRC by Aloe Communications, Johannesburg

Photographs by Southlight and Cedric Nunn

Cover design based on detail from Bushongo palm cloth, Congo

This book is a plain English guide to the ANC/COSATU/SANCO/SACP International Environmental Policy Mission's Report on Environment, Reconstruction and Development in South Africa.

The full report will be available in September 1995 from:

- IDRC Books, PO Box 8500, Ottawa, Ontario, Canada, K1G 3H9
- Ravan Press, PO Box 31134, Braamfontein 2017, Johannesburg, South Africa

under the title:

IDRC 1995, *Building a New South Africa, Volume 4: Environment, Reconstruction, and Development.*

International Development Research Centre, Ottawa, Canada and Ravan Press, Johannesburg, South Africa.

Note: To make this report easier to understand, we have given explanations of some of the difficult terms. These terms are in italics, and marked with a *, like this: *biodiversity**. The explanation is given in the glossary at the back of this book.

Contents

Foreword -----	3
1. Introduction: Environment and Reconstruction -----	5
2. Environmental policy in the new South Africa -----	8
3. How should we manage our environment? -----	11
4. Land -----	16
5. Water resources -----	20
6. Energy -----	24
7. The urban environment -----	29
8. The coast -----	35
9. Mining -----	39
10. Industry -----	43
11. Waste management -----	47
12. Farming, forestry and fisheries -----	54
13. Nature conservation -----	61
14. Environmental education and training -----	65
15. Links with other countries -----	70
Glossary -----	75
Mission members' details -----	79

What is this report?

In February 1993 the ANC, COSATU, SACP and SANCO put together a group of people to look at environmental issues in South Africa. This was called the International Environmental Policy Mission. It was supported by the International Development Research Centre (IDRC), Canada.

There were twelve full-time people on the Mission: six South Africans and one person from Canada, India, Kenya, Malaysia, Uganda and Zimbabwe. There were also four part-time South African members, and three trainees. The Mission members are listed at the back of this report.



The Mission travelled around South Africa talking to people, communities and organisations about environmental issues.

Then the Mission members wrote a draft report. It was based on what they had learned as they travelled around the country.

Some time later, the Mission members held meetings with organisations, groups and individuals to discuss the draft report. They presented the draft report to President Mandela. They also met with government ministers and officials, industry representatives, trade unions, non-governmental organisations, environmental scientists, and civic organisations.

Many people sent comments to the Mission members about the report. The Mission members then wrote the final report. This document is a simple version of that report. This is so that all South Africans can read it.

The aim of the report is to suggest how the new government, and all South Africans can make sure that our environment is properly protected.

What the Mission had to do:

The Mission was asked to look at the present situation and make suggestions for the future about:

- *policies** and activities in South Africa that affect the environment
- the way environmental policies are made
- whether environmental issues have been included in government policies and actions in areas such as housing, farming, giving people electricity, and so on
- how easy it is for the public to get information about environmental issues
- how environmental programmes in South Africa are paid for
- the laws that protect the environment, and whether these laws are good enough, and
- our relationship to other countries about environmental protection.

The Mission looked at whether environmental policies and programmes in South Africa meet the needs of women and workers.

The Mission looked at environmental education, and how to build capacity and train people on environmental issues.

1

INTRODUCTION: ENVIRONMENT AND RECONSTRUCTION



"Environmental concerns can unite South Africa, going beyond racial, political and economic barriers. In addition to the crisis in education, housing, employment and a host of other problems, the new democracy will be left with apartheid's environmental legacy.... it is often poor communities that are the victims of the government's weak environmental policies."

Nelson Mandela, 15 August 1993.

Why is environmental policy important for *development?**

When the new, democratic government was elected in April 1994 it took over a country that had been environmentally damaged by apartheid. The new government has to heal the damage done to the land, air, water and people. But it also has to make the RDP happen, without doing more damage to our environment. This is not going to be easy.

Our environment provides us with *natural resources**. It takes in our waste. If we don't protect our environment the economy will not grow. If we don't protect our

environment, the people of South Africa will suffer. Poor people will suffer the most.

Under apartheid natural resources were shared unequally between the people. Black people were not allowed to control the use of natural resources around them. The white minority had lots of land, water and other natural resources. The apartheid government did not try to protect our natural resources or the health of the people. This can be seen in the homelands where the land has been damaged by too many people living on too little land. It can also be seen in the pollution in rivers next to sugar plantations. And in the air pollution around communities like Merebank.

We cannot make the RDP happen, or improve the lives of poor people in South Africa unless we look after our environment. All actions of the government must show a concern for our environment. For example:

Jobs:

All jobs depend on natural resources. To grow enough food we need to use our soil

and water better. Mining, plantations and sugar cane need lots of water. If we use our natural resources properly we can create **new jobs**. New jobs can be created in tourism, and by recycling rubbish.

Women's rights:

Women look after the health of their family. In rural areas, women walk long distances and carry heavy loads to get wood and water. When the environment is damaged or unhealthy, poor women have to work harder to look after their families. **A healthy environment means greater equality for women.**

Housing:

Providing housing is a very important job for the new government. But we must build houses which don't damage the environment. For example, we should not build houses on good land that can be used to grow food. Houses should be built in such a way that they stay warm in winter. This will mean that people will not have to burn so much coal to keep warm. No-one should have to live near dirty industries or unhealthy waste dumps.

Health and safety:

Many South Africans get ill because the air is polluted in and around their homes, and because they don't have clean water.

Women in rural areas have health problems from carrying wood and water long distances. **Workers** in factories and on farms have health problems from working in unsafe conditions. Workers also suffer from air and water pollution at home.

Food security:

Farmers use a lot of chemical fertilizers and pesticides on their farms. These are dangerous to farm workers and people living in rural areas. Many are bad for the soil.

Scientists mix wild plants with the plants farmers use to breed crops that can survive drought, or disease. In order to be able to produce enough food for all South Africans in the future we must protect many different kinds of wild plants. Scientists can use these to breed better crops. We must protect the areas in which these plants grow. We must also protect the animals that live among these plants.

Selling our products to other countries.

In the past, South Africa has been able to sell our goods cheaply because industry did not have to pay to look after the environment. Other countries are not happy with this. They do not want to buy things that have been made in a way that has damaged the environment. In order to be able to sell our products to other countries, we have to find cleaner ways of making them. Industries that pollute the environment must pay to clean it up. This is called the **polluter pays** principle.

Money for development:

South Africa needs other countries to put money into creating more jobs in South Africa. These people want to put money into industries that don't damage the environment. Clean industries are often very successful because they don't waste resources. They have good health and safety records for workers. Working for a clean environment can create more, and better, jobs.

Parks and natural areas:

Everyone has the right to enjoy nature. It is important to preserve wild animals and the places in which they live. But the environment is not just about game reserves. It is also about the quality of life in towns. It is about the shade of trees, a space for children to play and for old people to sit and remember. It is about **"parks for people"** and

gardens where people can grow things. We need parks to make our cities healthy.

Nature conservation:

South Africa has a lot of parks in which wild plants and animals are protected. But there are more places that should be protected. In the past some people were forcibly removed to set up these parks. The local people did not get jobs or money from the parks. They were not allowed to use the natural resources in the parks.

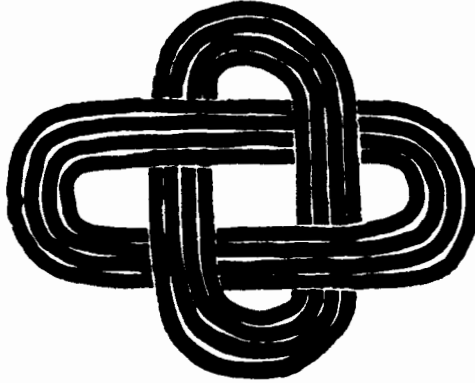
Parks and game reserves can make jobs for local people. They can give local people a place to sell arts and crafts. Rural people can build places for tourists to stay. Rural communities should take part in the management of game reserves next to them.

Looking after our children:

The apartheid government did not worry about making sure that there will be enough natural resources left for our children. We must live in such a way that there will still be natural resources left for people to use in the future. **We must make sure that natural resources are shared among all South Africans in the present. We must also make sure that there is enough for future generations.**

2

ENVIRONMENTAL POLICY IN THE NEW SOUTH AFRICA



In this report, the ANC, COSATU, SACP and SANCO have looked at how to protect our environment.

The apartheid government generally considered that environmental issues were more about protecting wild animals than about the conditions in which people lived in the townships. The protection of wild animals was used to move black South Africans off their land. Because of this many black people were opposed to ideas about protecting the environment.

Under apartheid, South Africa was separated from the rest of the world. Because of this we didn't learn about how important environmental issues were in other countries.

The new government is making new policies that try to give all South Africans jobs, food, houses and clean water. It is important to make sure that all these policies will look after our natural resources as well. We must protect our environment so that the RDP can work properly, for a long time. Box 2 shows

why the protection of the environment is so important to the RDP. Community organisations and non-governmental organisations must work with the government to protect our environment while building houses, creating jobs, and giving people electricity and water.

The interim Constitution gives all South Africans the right to an environment which does not damage their health. It also gives all South Africans the right to any information that the government has that affects their rights. This means that all South Africans can now use the Constitution to make sure that they have a clean and healthy environment at home and at work. It also means that communities can take part in managing their own environment and natural resources. But the new Constitution should also say that people have the duty to look after their environment.

BOX 1: Sustainable Development

In 1987 the *World Commission on Environment and Development* wrote a report about sustainable development. Sustainable development means meeting the needs of the people now, but without damaging the environment so much that future generations can't meet their own needs. Economic growth is needed to make a good life for everyone, particularly poor people. But sustainable

development means one must decide *how* that growth happens. It must not damage the environment. And it must benefit everyone, especially poor people.

But there is a question which still needs to be answered: how long can economic growth go on before the environment is too badly damaged and the *ecosystems** collapse? Another problem is that sustainable development does not help us to stop the rich countries using too many resources.

BOX 2: RDP goals which need natural resources and good management of the environment

MEETING BASIC NEEDS

Housing: finding land for houses for everyone

Water: giving clean water and toilets to everyone

Energy: putting electricity into black areas

Transport: providing cheap public transport

Natural resources: fair division of resources like land, water, fish, and so on

Environment: safe and healthy living and working environments

Nutrition: enough food for every South African

BUILDING THE ECONOMY

- Creating jobs and improving wages
- Selling our products in other countries
- Starting industries that use local resources and meet local needs

- Giving land to small farmers
- Giving farming land to more people
- Helping small farmers produce food for the country
- Making more jobs on farms
- Making sure that everyone has a house, water, food and a job
- Encouraging industry to get bigger and to move to areas where there are not a lot of jobs
- Encouraging small-scale mining and small businesses
- Allowing poor communities to catch fish in their areas
- Encouraging fish farming in dams
- Making government plantations run better
- Encouraging tourism and making sure that the local people benefit from it.

All of the things listed in Box 2 will use natural resources, particularly land, water and energy. Each will also produce waste that must be dealt with safely. We already

have problems with air and water pollution and how to get rid of dangerous waste from industry.

The RDP document and the ANC's Ready to Govern both talk about environmental issues. But we must go further than this. We must make sure that new industries use clean processes. We must clean up the pollution from mines and factories. And we must share our natural resources fairly between all the people.

A new national environmental management system should have four parts to it:

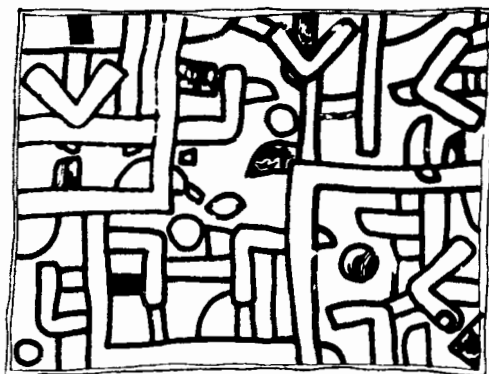
- **a national approach so that those provinces that have good natural resources do not get rich while other provinces stay poor**
- decisions about the environment must be made at local level. But these decisions must be in line with a national approach
- **civil society must be empowered to take part in decision-making** on environmental issues
- environmental issues must be looked at when deciding what land should be used for.

BOX 3: Environmental policy should:

1. make sure that development does not damage the environment; and make sure that our *ecosystems**, which we need in order to live, are protected
2. make sure that we look after all our natural resources as a whole, and not in little bits
3. make sure that poor people get jobs and money
4. make sure that natural resources are shared fairly between all people
5. make sure that everyone has the right to an environment that does not damage their health
6. make sure that there is less fighting about who can use natural resources such as land and water
7. create jobs
8. make sure that we can sell our products successfully throughout the world
9. make sure that industries from other countries build factories in South Africa
10. involve civil society.

3

HOW SHOULD WE MANAGE OUR ENVIRONMENT?



In South Africa we have many laws protecting the environment. But all these laws were put together in bits and pieces over many years. They looked after the white minority best. We need to change these laws so that they protect the environment in the interests of everyone.

Some of the laws and methods that we use to protect the environment are like those used in rich countries in Europe or America. But South Africa is not like those countries. We must find ways of protecting our environment that suit our needs, and which we can afford. We must also find ways of bringing different groups together to protect our environment - including industry, trade unions and community-based organisations.

Many people have written about our environmental problems. Many people agree on the main problems that we must deal with. But not everyone agrees on the best way to fix these problems.

What are the biggest problems in the way we look after the environment now?

Our environmental policy is broken up into small pieces

Environmental policy touches on lots of other areas, such as farming, transport, providing electricity, building houses. We need one environmental policy that guides all these areas. If we don't have this, our natural resources will be over-used and wasted.

Many different government departments look after the environment in some way. For example, the Department of Water Affairs controls water pollution. The Department of Environment Affairs controls air pollution. The Department of Mineral and Energy Affairs controls damage to the environment from mining. Under the interim Constitution, looking after the environment is mainly the job of provincial governments.

Management of the environment is broken up between all these different departments. There is not one special department whose job it is to look after our environment. Because of this, lots of damage has been done to our environment.

Government departments have to check on themselves

There are some government departments which must encourage certain activities, as well as make sure that these activities don't damage the environment. For example, the Department of Agriculture encourages farming. But sometimes the way farming is done can be bad for the environment. So, it is difficult for the Department of Agriculture to encourage farming and protect the environment.

Making sure that people obey the laws

We don't have enough well trained inspectors to check that factories, farms, and businesses are not breaking the laws that protect our environment. Sometimes, if someone is caught breaking the law, the fine that they are given is so small that they don't mind. Not enough people are taken to court for breaking environmental laws.

Lack of information

It is often difficult to get information about pollution from government departments or from the factories causing the pollution. Environmental groups, civic organisations and trade unions are demanding that they be given this information. This information is important for us to understand the health risks from the pollution.

Too few trained people

We have very few properly trained people to work in the government to protect our environment. There are particularly few black people or women. The government does not pay very good salaries. Many well trained people would rather work for industry. We need to set up more courses at universities and technikons to train the staff that we need.

The role of national and provincial departments

Environmental management should usually take place at a local level. At the moment there is too much control at national level. As the provincial departments get better organised they will do more to protect the environment. But provincial and local governments must be given enough money to employ trained people to protect the environment.

Not enough public participation

In the past the public were not consulted when environmental policy or laws were made. Black people were the most excluded from these decisions. But interest in environmental issues is growing in South Africa. The public want to be consulted when policy and laws are made. The public and workers are also demanding that they should be told about pollution, use of dangerous chemicals, and so on.

Partnerships between communities, workers, and NGOs can be very powerful. Also, when people have been part of writing policy, they are committed to making that policy work.

In the past, communities were not involved in checking that the environment was protected. Women, in particular were ignored. But women should be very involved in making decisions about the environment. Women suffer the most when the environment is damaged. Rural women spend long hours searching for wood and carrying water. This is often bad for their health. Also, women look after the health of the family, keep the house clean, and prepare the food. They are therefore very important in building a safe and healthy environment.

The community should not just be consulted about development and about protecting the environment. They should also be part of managing development. This helps them take control of their own lives, and the environment in which they live.

A weak “champion” for the environment

The Department of Environmental Affairs and Tourism is weak, and does not have enough well trained staff to protect our environment properly.

Also, it is not seen by other government departments as an important department. This makes it very difficult for it to protect our environment properly. This means that the “*precautionary principle*” might get ignored because of what other departments want to do. This could cause a lot of damage to our environment.

In the United States, they have a government body called the Environmental Protection Agency. This is a powerful body that protects the environment. Every country should have a government body that can speak loudly about protecting the environment. This body should have strong laws to give it ‘teeth’. It should have a large, well-trained staff. But all this costs money.

We need a stronger agency than the Department of Environment Affairs. We also need a different approach to managing the environment. We need strong laws to protect the environment; enough staff to make sure that people obey these laws; public support for the protection of the environment; and accountability to the public.

We also need to do research so that we understand environmental problems properly and can work out how to deal with them.

Recommendations

Commissioner for the Environment

A national Commissioner for the Environment should be appointed. This person should make sure that the environment is protected. The Commissioner could also investigate whether an activity was against the environmental rights of South Africans. The Commissioner should be able to investigate the actions of government departments.

The Office of the Environmental Commissioner would be the “*environmental ombudsman*”. This Office should be small and work efficiently. It should be independent of other government departments. It should report to the President and to Parliament every year about its investigations. The Environmental Commissioner’s Office could be in the Office of the *Public Protector*.

Forums on Environment and Development

Advisory bodies should be established at national, provincial and local levels. These bodies would give input from civil society to the government about environmental issues and policy, and about *sustainable development*. They could also make sure that environmental issues are included in all RDP projects. They could suggest areas in which research or action were needed.

These advisory forums would consist of people from different sectors of society interested in protecting the environment. They would not be groups of ‘experts’. If necessary, community based organisations should be subsidised so that they can take part in these forums.

Environmental Monitoring and Extension Agency (EMEA)

Many different departments have staff who check whether environmental laws are being broken. They also have staff who teach people about protecting the environment. These include Resource Conservation Inspectors and Agricultural Extension Officers of the Department of Agriculture; Provincial Nature Conservation Officers and Sea Fisheries Inspectors; Air Pollution Inspectors from the Department of Environment Affairs; and Water Pollution Inspectors and Foresters from the Department of Water Affairs and Forestry.

All these staff should be put into one organisation. This would be the Environmental Monitoring and Extension Agency (EMEA). It would report to the Minister for the Environment.

The EMEA should look at environmental protection as a whole. It should not just look at water pollution, or air pollution.

There should be close links between this body and bodies dealing with occupational health. This body should also do environmental education.

This body should be independent. It should have well trained staff. And it should have strong laws that it can use. Members of communities and trade unions could report environmental problems to this body, which could then do further investigations.

The EMEA should work closely with industry, mines, farmers, trade unions, and other government departments. Together these groups could help to set targets and plans to protect the environment better.

The EMEA should make sure that environmental issues are included in all RDP activities.

The EMEA should have a group of inspectors who work at local level. These inspectors should call in more highly trained inspectors when necessary. These inspectors should have enough resources to make sure that no one is breaking environmental laws. They should also be prepared to develop new ways of protecting the environment for the benefit of all South Africans

Improving the laws protecting the environment

The interim Constitution gives all South Africans the right to an environment which does not damage their health. It also gives all South Africans the right to information to protect this right. It divides control of our environment between national, provincial and local government. Our environmental laws must be rewritten to fit in with all these changes.

We should also rewrite all the different laws into one law about the environment. We can learn from other countries about how to do this properly.

We must make it easier for the public to go to court about environmental issues. We must also look at whether government departments should be able to take each other to court.

All government departments and industries should report on how they affect the environment. For example, they should report on what natural resources they use, what waste they produce, and how this affects the environment.

Environmental Assessment and Review Process

Big developments should have to have an *Environmental Impact Assessment**. This should be done according to *Integrated Environmental Management** (IEM) procedures. The guidelines and rules for IEM should be made stronger.

A special Office for Environmental Assessment and Review should be set up. This office would make sure that environmental impact assessments were done properly.

Better integrated environmental administration

The systems that the government uses to protect the environment must be made to work better. A smaller number of departments should be responsible for looking after environmental management. But we must study this problem more carefully in order to find a good way to do this.

We must also make sure that the processes used are right. By process, we mean such things as being able to get good information on which to make decisions. We also mean developing good relationships between government and other groups, especially industry, trade unions, NGOs and community based organisations.

One possibility would be to make a Department of Natural Resources. This department would look after water, air and land resources. This is the system that they have in Uganda.

Another possibility is that we should have a Department of Environment Affairs and Planning. This would mean that environmental issues would be included into

all planning for the country.

A third possibility would be a Department for Sustainable Development. In this department, all the important issues could be brought together. This idea is very difficult to put into practice.

A stronger Department of Environment

The Department of Environment Affairs must be made stronger. It should be able to insist that other departments consult with the Minister for Environment before doing anything that affects the environment. The Department also needs more well-trained staff.

The government must recognise the importance of good environmental management to the country. Government officials must also learn to accept input from civil society.

4

LAND



What is the situation now?

The problem of who owns land has been a major issue in South Africa. We need to redistribute land more fairly. But we must also make sure that we look after the land.

In the past, land was taken away from most black South Africans. Most of the land was owned by whites. Farm workers could be thrown off the land by farmers. Black women had the most difficulty in getting land to own.

Black farmers were only given small pieces of land to farm. It was difficult for them to get the banks to lend them money. They did not get help from the government like the white farmers. This made it difficult for black farmers to farm. Also, because there were too many people living on small pieces of land, the land was overgrazed by cattle, goats and sheep. This caused *soil erosion**, and damage to the land.

Because of this it was not possible to grow good crops any more. This meant that the people got poorer. Their health got worse

because they did not have enough to eat. People tried to farm in areas that were not good for farming, just to try to grow more food. This land has also been damaged. The land in the homelands has been damaged very badly because of these problems.

Too much *irrigation** can also damage the soil. After too much irrigation the soil is not good for growing crops any more.

The soil in South Africa can be damaged very easily. We need to protect the soil. But we need more information about the damage that has already been done so that we can work out how to fix the problem. Damage to the land and soil may be one of the worst problems facing South Africa. But we are not doing enough to stop it. It is very difficult and expensive to make damaged land good again.

The land in South Africa is used mainly for towns, farming, nature conservation and growing trees. More than three quarters of the land is used for farming. About 1.5 million families depend on farming for jobs.

Very little of South African land is very good for growing crops. The western and middle parts of the country get very little rain. This land is used mainly for farming sheep, ostriches and wild animals. It is also used for tourism and nature conservation.

Box 4 on the right shows how the land has been damaged in the homelands.

Managing the land

In the past, the government encouraged a way of farming by white farmers which damaged the land. These farmers have a lot of control over their land, and over the people living on their land.

In the homelands and rural areas, the tribal system no longer works properly. Land that used to be controlled by traditional methods is now being used by everyone. This has caused damage to land that used to be protected by traditional grazing systems.

There are lots of different government departments who look after different aspects of land. There is no joint idea in these departments on how to manage the land. There is no policy for land management that includes environmental issues.

Policy issues for the new government

The government must make sure that black people get back the land that was theirs. The ANC government has already said that they will do this. But at the same time, they must make sure that we still produce enough food, and that we don't do more damage to our land. The government must work out a way to decide what is the best use for land.

The former homelands will need a lot of hard work from the government and the people to heal the land there.

BOX 4: Former homelands

The 1913 and 1936 Land Acts gave the best farming land to whites. Blacks were only allowed to own land in the small homeland areas.

The former homelands suffer from lack of natural resources. They also suffer from poverty, and too many people living on too little land. Most people in the homelands grow mealies and have sheep, cattle and goats. They get money from family members working on the mines.

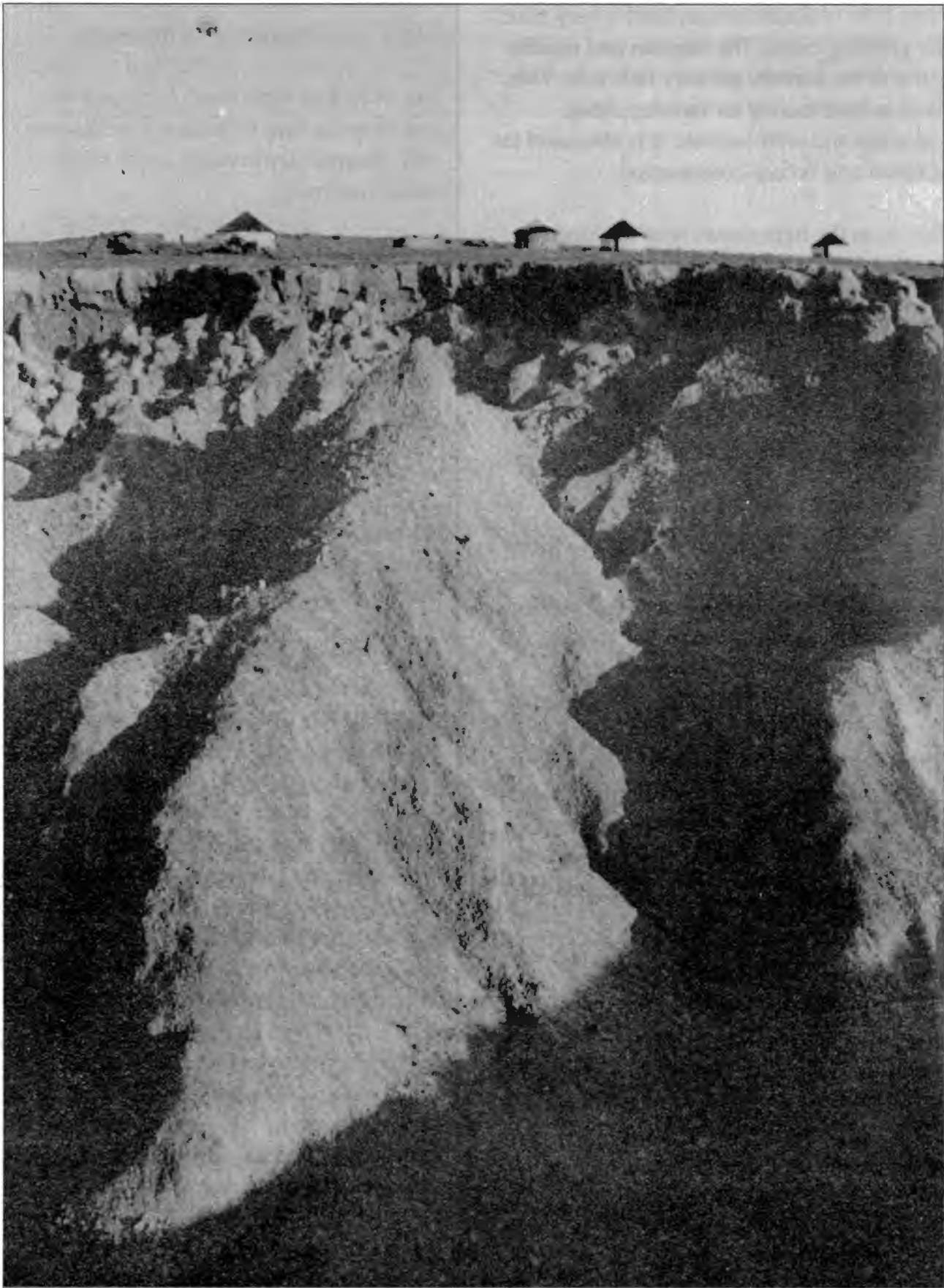
Farmers in the former homelands used a lot of fertilisers and pesticides. These chemicals damaged the soil.

Because there was very little land, too many cattle, sheep and goats grazed the land. This has left very little grass and other plants on the land. This has caused bad soil erosion.

Clean water was not provided in the homelands. People had to get water from rivers and springs. Often this water was polluted and made people ill. In a drought the people living in the former homelands suffer most.

In the last five to ten years the mines have retrenched many workers. These people have gone back to the former homelands and increased the number of people living on the land.

The new government will have to do a lot of work to improve the condition of the land in the former homelands, and to improve the living conditions of people in these areas.



Because there was very little land in the former homelands, too many cattle, sheep and goats grazed the land. This has left very little grass and other plants on the land. This has caused bad soil erosion.

The different government departments that look after our land, such as Environmental Affairs, Water Affairs and Forestry, Agriculture and Land Affairs must work together to manage the land. The national, provincial and local governments must also work together.

1. When land is given back to the people the government must help them to protect the land from damage.
2. The government must develop good policy on how to use the land. National government should set guidelines for the whole country.
3. The local people must be involved in all decisions about how to use the land.
4. Farmers and other people who own or use the land must protect that land.
5. Women must be given equal rights to own land. They must be helped to get land.
6. The rights of farmworkers to live on farms must be improved. These workers must be sure that they are allowed to stay on the farms.

Recommendations

1. The laws about ownership of land and use of resources must make sure that the people who own or rent the land look after it. The redistribution of land must benefit all South Africans, not just a few individuals.
2. The government must collect information on what land is being used for.

3. The Government must use laws, taxes and other ways to stop people damaging the land. All the good farming land should be set aside for farming only. Projects to protect our soil must be made stronger.
4. All decisions about how to use the land should look at how to protect the environment. National, provincial and local governments must work together on this.
5. We need to find out more about how badly our land has been damaged. We need to find out if it is still being damaged, and how fast. Then we must work out how we can stop this damage and make it better. We may need to change the way people farm in order to protect the land. We must also protect the land next to rivers. Bad use of this land can cause soil erosion. If too much soil gets into the water it makes it difficult for plants and animals to live in the river.
6. We need to find out more about how chiefs give land to people. We also need to find out about how the land was given back to the people in other African countries. This will help us to learn from their mistakes.
7. The government must educate people about how important it is to protect our soil and our land.

5

WATER RESOURCES



The present situation

South Africa is a dry country. The western and middle parts of the country get very little rain. There is not much water underground, so rivers are an important source of water. South Africa often has droughts. These can last for many years. Because of this, the management of water is very important in South Africa.

The demand for water is getting more every day. The RDP promises water and toilets to all South Africans. To do this, more water must be taken from rivers and dams. Water is also needed for watering crops, growing trees, industry, mining, and for making electricity. As more water is used for each of these, there is less water left in rivers and lakes. This means that the plants and animals that usually live in these areas find it hard to survive.

The biggest use of water in South Africa is for crops. Making electricity and mining can use a lot of the water in one area. This can have a bad effect on the local environment. Industry, ESKOM, and the mines are trying to

find ways to use less water and to reuse water.

The PWV (Pretoria-Witwatersrand-Vereeniging) area needs a lot of water for industry and for the people living there. It doesn't have any big rivers. It is difficult to get enough water for this area.

South Africa has made agreements with Lesotho and Swaziland to get water from them.

South Africa makes a lot of money by selling wood overseas. Growing trees (forestry) can help stop soil erosion. But it uses a lot of water. Since 1972 you have had to have a permit to grow a lot of trees. This is to make sure that there is enough water left for other people in the area to use.

We need to use about one eighth of all the water in the country to keep our wild plants and animals alive. At the moment, we are taking so much water out of rivers that the plants and animals are struggling to live. This has been made worse by pollution in the

water from cities, industry and farms. We must be extra careful to protect the areas where rivers join the sea (estuaries). These

areas are very important for fish to breed. If they do not get enough fresh water, the fish and other animals can't live there.

BOX 5: ST. LUCIA Conflict over land use

St Lucia is just south of the Mozambican border. It includes Africa's biggest *estuary**, and a string of lakes and wildlife reserves. It has rare mangrove forests, turtle breeding areas, tropical forests, and coral reefs. For almost a hundred years, its wildlife areas have been managed by the Natal Parks Board.

In the 1960s part of the area was set aside for testing weapons by the army. Plantations have been planted on the eastern side. Local communities were forcibly removed from their land.

Some years ago the government gave prospecting rights on the Eastern Shores to Richard's Bay Minerals (RBM). The company wants to mine for titanium in the dunes. Titanium is used, amongst other things, instead of lead in paint.

The CSIR did an environmental impact assessment (EIA) for RBM. The EIA looked at the effects of two possibilities for the area: (1) mining and ecotourism together, and (2) ecotourism by itself. Various experts helped with the study.

Many people were consulted during the process. Some groups in the NUM and the ANC wanted mining to go ahead. Some groups said mining should not be allowed. The local community were only consulted at the end of the process. The land which

RBM wanted to mine is part of the traditional lands of a community which was removed in the 1970s.

Instead of waiting for the new government, the process was rushed so that De Klerk's cabinet could make the decision. In December 1993 the Review Panel decided that mining should not be allowed. But by March 1994, the De Klerk cabinet had not yet made their decision even though the Minister for Mineral and Energy Affairs had promised to agree with the Review Panel.

The Review Panel felt that mining would only last for 17 years. After that time, it would take many years for the area to heal. They felt that ecotourism could start much sooner and last much longer. The Natal Parks Board should work with local communities and the private sector to set up an ecotourism project in the area.

But the ownership of the land has still not been resolved. Will the displaced communities go back to their land or will they be given other land instead? Do they have the right to invite mining companies to St. Lucia? Will ecotourism bring jobs to the local people?

Many of the issues are still to be solved. It is up to the new government to make the decision about what happens now.

How is water managed?

In 1956 the Water Act was passed. This gave the government some control over water. But under South African law, water belongs to the person on whose land the river runs. The government only has control over water which is not used by this owner.

The national Department of Water Affairs and Forestry makes policy on water management. This policy is put into practice by regional offices of the Department. These offices each manage one *catchment area**.

Problems facing the new government

Four million people in towns and cities don't have clean water. These are mainly black people. Many black families in rural areas have to get their water from shared taps or pumps. Often they have to walk a long way to get water. A lot of children get sick from dirty water. At the same time, white families have lots of water for their gardens. And white farmers waste water on their crops. Because they are farmers, they pay less for this water.

The new government must make sure that each person gets enough clean water to stay healthy.

A second issue is how much water is used for different things. The government must make sure that there is enough water for crops and for industry. But it must also make sure that there is enough water for wild animals and plants to survive. These plants and animals are necessary for our survival as well. *Wetlands** are important areas. They clean pollution out of water in a natural way. We must protect these areas.

The government must make sure that people do not waste water. Where possible, water



must be reused. The cost of water is too low for industry and farmers. But the cost of water is high for poor families. The government must make sure that poor families can afford the water that they need to live. People and industries that use a lot of water should pay more. The cost of water must include the cost of protecting the ecosystems which clean the water, and which put water back into dams and rivers.

Another issue is water quality and pollution control. The Department of Water Affairs and Forestry has developed new ways to measure and control pollution. But rivers and dams are still very polluted. The government needs to take a stronger stand against people or organisations that pollute water. The polluters should be made to pay to clean up rivers or dams that they pollute.

The Department of Water Affairs and Forestry and the Department of Environment Affairs need to work together better to

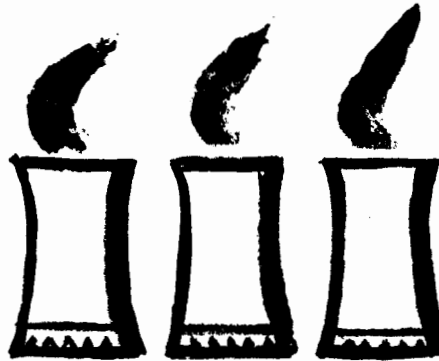
protect our rivers and dams and make sure that our water is clean. Provincial and local governments should also work with these departments.

Recommendations

1. The government should develop a national plan to protect our rivers, dams and wetlands. The plan must try to cut down pollution. The plan should look at water supply, soil erosion, forestry, fisheries and protecting the plants and animals. The plan must protect our wetlands.
2. The government must change its approach to water management. It must make better laws to protect our water. It must organise the government departments better. Different rules and standards must be set for different users of water. All rules and standards must protect the natural environment.
3. The laws about using water and protecting the environment must be changed. These laws should take into account the needs of all South Africans. These laws need to be put into practice more efficiently. Each government department must know clearly what it is meant to do to protect our water.
4. The *catchment area** should be the basic unit for planning and managing water resources.
5. The government must mobilise communities for community based water management. Women should be involved, especially in stopping damage to the environment and pollution of water. The government must also
6. The government should study what the best kinds of toilets are to use in informal settlements and rural areas. These toilets must protect the health of the community and the environment.
7. The government must make sure that it can measure the quality and quantity of water that we have in the country. This must be done at national, regional and community levels. We must make sure that we don't take too much water out of our rivers and lakes. If we do, the plants and animals in and near the rivers and wetlands could die.
8. An environmental impact assessment should be done for any big water development project. Any project that might drain a wetland must have an environmental impact assessment. The EIA must look at the effect on the environment as well as the costs and benefits to local people and to the country as a whole.
9. Water policy at all levels of government must look at environmental issues. It must make sure that there is enough water left in rivers, in wetlands and in the ground to protect our ecosystems. Our wetlands need special protection.
10. The government should look at changing the price of water. The price should show what water really costs, including costs to the environment. Higher costs would encourage people to use less water and to recycle water.

6

ENERGY



The present situation

The process of making electricity causes *greenhouse gases** and *acid rain**. Burning wood and coal in homes causes air pollution. Cars, buses, trucks and taxis all produce air pollution from their exhausts. Because of this, if we want to protect our air, we have to be very careful about how we plan and use *energy**.

Many countries in Europe and the USA in the past twenty years have cut down on how much energy they use. We have not done this in South Africa. This is because we are still using old methods of production. We have not started finding ways to save energy. This is because energy is still given to some industries very cheaply. This means they use a lot of electricity, and this causes more air pollution. It is also because sanctions stopped us from learning new methods from other countries.

Because of sanctions, the old SA government decided we should be able to produce all our own energy. They started projects to make petrol, gas and *nuclear power**.

Under apartheid, white areas had electricity, but many of the black areas didn't. Two out of three people don't have electricity in their homes. Poor families in towns and in the rural areas use wood, paraffin or coal. Many trees in the rural areas and around poor communities have been chopped down for wood. Women have to walk further to collect wood each day. Smoke from wood and coal fires causes pollution inside the house. This can cause chest illnesses.

Most of our energy in South Africa comes from coal. A small amount of our energy comes from oil, wood and nuclear power. We have a lot of coal in South Africa. We sell about one quarter of our coal to other countries. A lot of coal is used to make electricity. Quite a lot of coal is used for cooking and heating in homes.

Large areas of land are dug up to get the coal out of the ground. In order to sell our coal more easily to other countries, we clean it first. This leaves large piles of useless waste behind. Sometimes these piles of waste start burning. This adds to acid rain.

The combination of electricity power stations, coal mines, and heavy industry in the Eastern Transvaal is causing acid rain in that area. This is damaging the local *ecosystems** (Figure 6.1). This is very worrying because about half of our good farming land is in this area. This land could be damaged by the acid rain.

SASOL also has bad effects on the environment. It uses a lot of water and produces a lot of waste. But they have spent a lot of money studying how to re-use their water. They are also studying how to make coal that makes very little smoke.

In South Africa, we do not have good, cheap public transport. We use private cars, taxis, buses and trucks. We need a public transport system that will cut down the number of cars on the roads. This will cut down air pollution.

Electricity for industry

Industry in South Africa pays very little for electricity. This helps us to produce goods more cheaply than some other countries. This helps us to sell these goods to other countries. But, at the same time, this price does not cover the full cost of producing electricity from coal. It does not include the cost of the damage being done to the environment and to people's health by air pollution and acid rain. The acid rain is caused by sulphur getting into the air from power stations. Eskom says that it is too expensive to change the power stations to stop the sulphur getting into the air.

Giving cheap electricity to industries does not make them try to save electricity. In other countries industries have had to find ways of using less electricity in order to save money. This has cut down on the amount of air pollution produced.

Where is energy produced and how is it used?

SASOL makes oil from coal. We have one nuclear power station at Koeberg (the only one in Africa). Moss gas was built in 1987 to make petrol from natural gas.

Three companies, ESKOM, SASOL and Iscor use nearly all of the coal used in South Africa. Eskom uses nearly two thirds of the coal.

ESKOM is looking at how to encourage people to use less electricity. It has also found a way to use less water in its power stations. This is very important because South Africa does not have much water, and we must protect our water from pollution.

The Department of Mineral and Energy Affairs are working to make a low-smoke coal. They hope that by the year 2000 everyone will be using low smoke coal instead of ordinary coal. Also, the RDP programme of putting electricity into everyone's houses should cut down on the pollution from burning coal. In rural areas, it is planned to plant trees for firewood.

Policy issues for the new government

1. The new government must make sure that the following issues are dealt with:
 - (i) the lack of clean, cheap and environmentally friendly energy in poor urban and rural households
 - (ii) the wasteful use of electricity in industry because of its low price
 - (iii) too much use of coal to make electricity, in industry, and in poor households. This causes air pollution.

Coal mining can damage and pollute the land, and

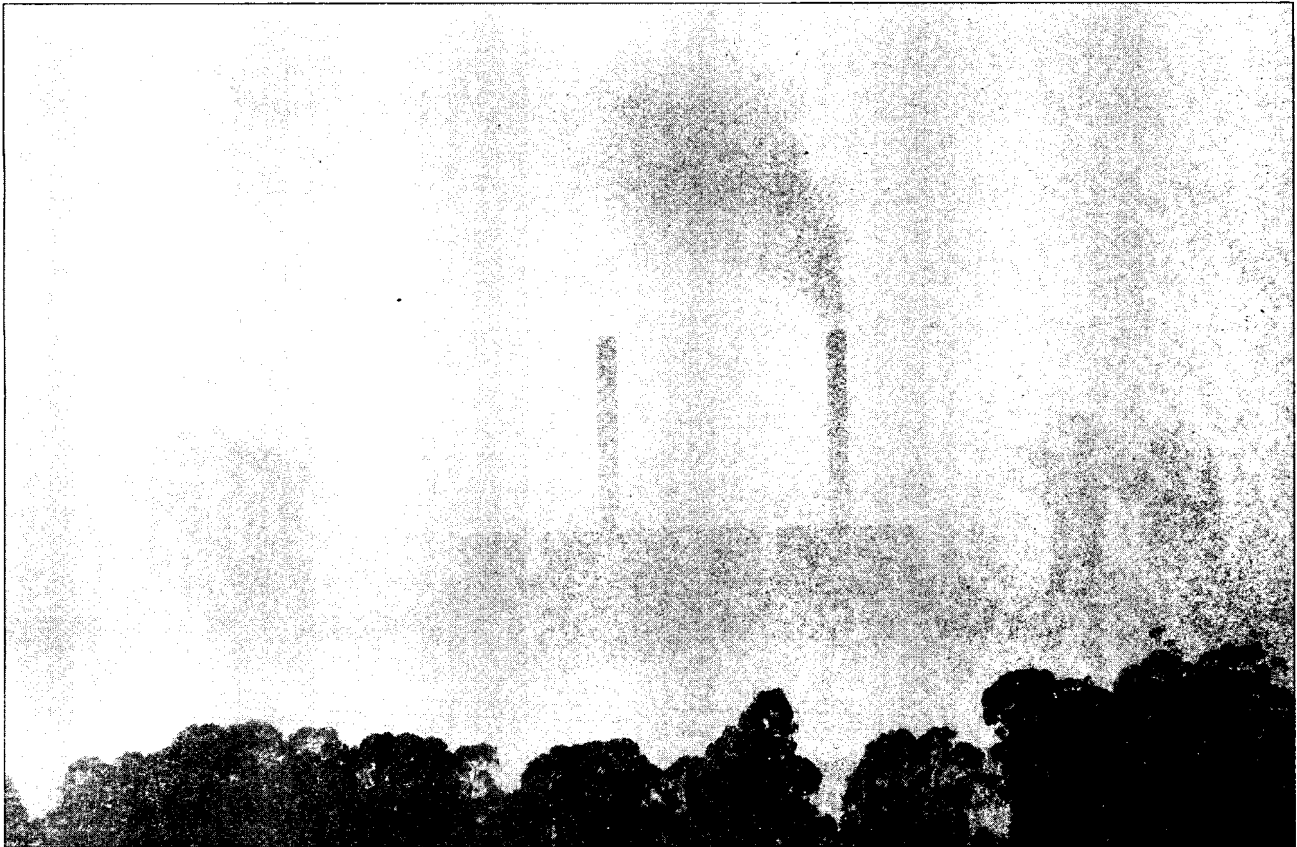
(iv) whether industries such as Sasol, Mossgas and Koeberg should continue. The government must look at how much they cost to run, and how much damage they do to the environment.

These issues agree with the RDP.

2. The government must make sure that poor families, schools and hospitals, small black farmers and rural businesses can get electricity or other kinds of clean energy. For example, families should be able to get low-smoke coal. Better design of houses means they will stay warmer in winter so that families use less coal or electricity to keep warm. The government must also make sure that there is enough wood in rural areas. They must set up projects to grow trees for this. The government must also make sure that people in the rural areas can buy paraffin. Energy from the sun (solar energy) can also be used to make electricity for lights, to heat and pump water, and for other uses in homes and businesses.
3. It will cost a lot of money to make sure that all South Africans have proper energy and electricity to use. The government should stop giving money to industries like Mossgas and SASOL. They should also make those people or industries who can afford it pay more for electricity. This money can be used to make sure poor and rural families can get electricity, wood, paraffin or low-smoke coal. ESKOM should encourage families and industry to save electricity
4. The best way to use less electricity is to make industry, businesses and rich families pay more for it. But the

government must make sure that changes in the price of electricity do not affect poor families badly.

5. Most of our coal is used to make electricity. This causes air pollution, acid rain and greenhouse gases. These pollution problems could be made less by cleaning the smoke before it goes out into the air. But this is very expensive. The government must decide whether this should be done. In the future, new power stations must be built to use the best methods for producing electricity. They must be built so that they do little damage to the environment. The government must look at using coal, gas, water and other systems to produce electricity, and decide which is the best.
6. Low smoke coal, solar energy, better housing design, and better stoves can all cut down pollution inside houses.
7. The government must investigate whether we should carry on producing oil through Sasol or buy it from other countries.
8. The government must look at different ways of producing energy. For example, wind can be used to make electricity. India has set up large wind generators. Studies show that some places in South Africa might be good for wind energy. Industries and local government could pay less tax if they used wind energy. The government could put a tax on petrol and electricity made from coal. This money could be used to pay for research on new ways of making electricity from *renewable resources**. Rural communities can plant and manage woodlots for firewood, with government support.



"Scrubbers" fitted to this electricity plant near Witbank would clean dangerous elements from the smoke, but Eskom says this would be very expensive

Recommendations

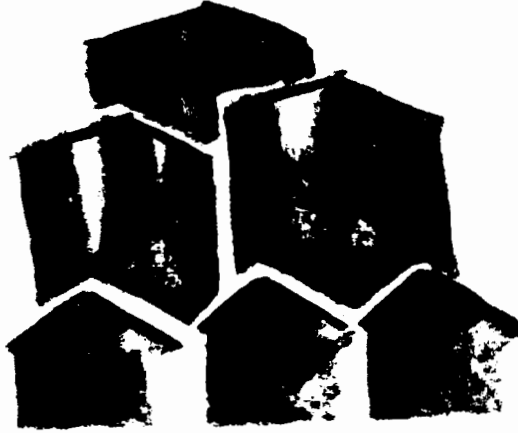
Many of our recommendations agree with those in the RDP.

1. Electricity should be put into all schools, homes and hospitals as soon as possible. Wealthier families, and those who have had electricity for a long time must pay more to cover the cost of putting in electricity to poorer homes. Poorer families should be able to say how much they can afford to spend on electricity each month. They should pay this amount at the beginning of the month. They would only be allowed this much electricity during the month. This would help them not to use more electricity than they could pay for. Eskom should look at giving loans to families to buy fridges and stoves that do not use a lot of electricity.
2. The government must look at combining different kinds energy for use by poor families and in rural areas. This includes planting trees for firewood, planting trees and crops together, better design of houses, using the energy from the sun for lighting, radio, TV, pumps and water heating; selling paraffin and low-smoke coal; and better stoves.
3. Many households use coal for heating and cooking. A national program should be started to make and supply low-smoke coal, as proposed in the RDP. This would reduce the environmental and health impacts from coal use.
4. The state should stop giving money to support Mossgas, SASOL and Koeberg.

5. The costs of electricity (and other energy sources such as wood and coal) must include the cost of damage done to the environment. In the long term, burning coal to make electricity is damaging the environment. The country will pay the cost of this when the land is no longer producing good crops, or trees are dying.
6. The government must look at how much it would cost to stop the pollution from ESKOM power stations. They must look at how much damage will be done to the environment if we don't stop the pollution. They must decide whether to put in the machinery to stop the pollution or not. All new coal power stations must clean the smoke before it goes out into the air.
7. The government must look at the best ways to produce electricity in the future. They should look at using coal, nuclear power, *hydro power**, and natural gas. They must also find ways to use less energy and electricity.
8. The government must look at the best and cheapest way to get petrol and diesel. They must look at whether we should buy oil and petrol from other countries. This may be cheaper than trying to make it ourselves. Paraffin should be cheap so that poor families can afford it.
9. The government must look at how much petrol and diesel are used, and for what. In the past this information was kept secret. They must look at how much petrol and diesel we will need in the future, especially for transport.
10. The government must set up an independent inquiry into the environmental and safety record of the Koeberg nuclear power station. The results of this enquiry should help the government to decide whether to close Koeberg or not.
11. The government must look at whether there is any reason for keeping the industries open which make fuel for Koeberg. It seems that the best and cheapest option is to close them. The people working at these industries must be retrained for use in other industries. Some of them could be used to study how to make electricity from clean, renewable sources. The government must decide whether the Atomic Energy Corporation should continue, or whether it should be changed in some way.
12. The government must find out what kind of energy is used for what purposes in South Africa. We need this information for each province, and for local areas. This information can be used for better planning in the future.
13. The government should spend more time and money on research into renewable energy. They should look particularly at solar and wind energy, and planting trees for firewood. We should learn from other countries, and make their project fit the South African environment.
14. The government must use less energy and electricity in its work. It must use cars and trucks that use less petrol. This is an important leadership role for national and provincial governments.

7

THE URBAN ENVIRONMENT



"Blacks have always had to live in an environment that was neither beautiful nor clean. We have not had the proper housing, roads or services because the authorities would not accept that we were a permanent part of the city scene."

(Japhta Lekgatha, President, National Environmental Awareness Campaign, Soweto)

The present situation

Because of apartheid, black communities are often close to dirty industries. They do not have proper rubbish removal systems or other services. Many informal settlements do not have clean water or proper toilets. They have very few parks. Often there are too many people living in one house or yard. In the cities there are often too many people living in one flat because there are not enough houses or flats.

South African cities are growing very fast. Durban, Cape Town, Port Elizabeth, Pretoria and Johannesburg are the fastest growing

cities. There are millions of people living in these cities. They use a lot of our resources. They produce a lot of waste.

The resources that we use in towns can cause damage to the environment in other places. For example:

- our electricity comes from power stations in the Eastern Transvaal. These power stations cause air pollution in the Eastern Transvaal; and
- Gauteng will get some of its water from Lesotho. The people living in the Lesotho mountains will lose some of their land because of this.

Sometimes towns use good farming land to build houses and industries.

People in cities often waste resources. We need to recycle and reuse things. For example, tins and glass can be recycled instead of being thrown away. We can use land in towns to grow vegetables. We must

make sure that everyone in towns has clean water and electricity. But we also need to learn to use water and electricity carefully.

Who looks after our towns?

In the past our cities were divided by apartheid. Black communities often experienced the worst environmental problems. But black areas did not have enough money, nor did they have properly elected local governments.

White local governments looked at air pollution, waste management and setting up parks and open areas. Some went further and tried to deal with how environmental issues affected people's health.

We now have Transitional Local and Metropolitan Councils. Black and white areas are managed together. Many of these transitional councils are trying to put services into the black areas.

In June 1992 there was an important international conference called the UNCED Earth Summit. This conference adopted a document called Agenda 21. Agenda 21 describes how to look after our environment throughout the world. Chapter 28 of Agenda 21 shows how local governments can set up healthy cities and 'local Agenda 21s' by 1996. It says that they should consult with local people. Johannesburg, Durban and Cape Town are already starting to do this.

Elections for democratic, non-racial local government will be held in 1995. It will be the job of local government to do many of the things recommended in this chapter. Local governments must take environmental issues into account in all their decisions. We suggest that each local government should set up an environmental sub-committee.

Problems that the new government must deal with:

1. **Not enough houses:** There are not enough houses for poor families. Families that are headed by women are often the poorest. Under the RDP millions of houses will be built. But we must make sure that these houses are built in such a way that they do not damage our environment.

In many black areas lots of people live in one house. There are shacks in the back yards of houses. There is also overcrowding in areas like Hillbrow. Because there are not enough houses, families and women are forced to live in hostels. The toilet and water services in all these areas were not designed for so many people. They often break down.

2. **Badly built houses:** Many houses in black townships are badly built. Many don't have chimneys. When people use coal for cooking the smoke stays inside the house. This causes chest illnesses. Many township houses have been built with unhealthy materials. Asbestos can be dangerous if it gets damaged or broken. Some houses have cracks and are damp inside.

The new houses must be designed to stay warm in winter and cool in summer. People will use less coal or electricity to keep warm.

3. **Building in the wrong places:** South African towns spread over a lot of ground. Land that should be used for farming or nature conservation has been used to build towns instead. It costs more to put services into houses

because they are far from the centre of the town. It costs people a lot to travel long distances to get to work. And there is more air pollution from the cars and taxis that people use to travel.

Some informal settlements are in bad places. Some are next to rivers where they get flooded when it rains. Some are on dangerous ground in places like Bekkersdal. Some are in areas that we should be protecting for the health of our country.

4. **Soil erosion:** Many black townships have untarred roads. They do not have proper storm water drains. Rain water washes away the soil. This is worse in places that are built on the side of hills.

Sometimes, when new townships are built, all the plants are taken out. There

is nothing left to stop the wind blowing the soil away. The rain also washes the soil away. These places are very dusty. This causes chest problems for people living there. We need plants to keep the soil from being washed and blown away.

5. **Air pollution:** The air inside and outside our houses is polluted. It is very polluted inside houses in which coal is used for cooking. These people can get lung illnesses from the coal smoke.

Air pollution comes from factories, cars and trucks, and burning coal and wood in homes. Some of the worst air pollution in South Africa is in Merebank (Durban) (see Box 6 on the next page), Cape Town, the Vaal Triangle, Soweto and other black townships in the PWV area.



Many black urban communities - like this one at Sasolburg - are situated right next to polluting industries

BOX 6: MEREBANK - A case of bad planning

In Merebank, bad planning has allowed houses to be built close to dirty industries. About 50 000 people live in Merebank. It is just south of Durban. It has dirty industries all around it. There are two oil refineries, a paper mill, a chrome processing plant, an airport and lots of chemical industries. Some industries are growing and are moving even closer to the houses. Some families live only 20 metres from an oil refinery.

The environmental problems include noise from industry and aeroplanes. The air is very polluted. The land, river and sea are polluted. The pollution is worse in winter.

For nearly 30 years no one was worried about the health of the people living there. The community could not get information from the industries or from the local government. They could not find out what chemicals were polluting

the air. Because of this they could not find out exactly what danger there was to the health of workers or the community.

Studies done in the last few years have shown that a lot of people have problems with their lungs. This is because of the amount of pollution in the air. The children in Merebank are ten times more likely to get lung diseases than children from other places. There have also been a lot of industrial accidents in the area.

The Merewent Ratepayers' Association (MRA) has set up an Environmental Project Unit (EPU). The EPU has brought local industries and the local government together to discuss the problems. The EPU wants industries to meet good environmental, health and safety standards. They want to increase environmental awareness in the community. The EPU wants a full study of the area to be done. This will help them to work out how to control the pollution in the area.

When electricity is put in to the townships, people will use less coal. This will make the pollution less. But this will take a long time. The use of low-smoke coal will also make things better.

The government must set up better systems to control air pollution.

6. **Getting rid of our rubbish:** We must learn to recycle our rubbish, not just to throw it away. For example, tins, glass, paper and some plastic can be recycled. Local governments must encourage families and industry to recycle their rubbish. Rubbish that we throw away

goes to a dump which takes up a lot of space and can cause water pollution.

A lot of rubbish is illegally dumped in our towns. Some of this rubbish might be poisonous. This is dangerous to the health of our people. Rubbish removal services in black areas are very bad. The build up of rubbish in the streets is bad for the health of the people living there.

7. **Use of water:** South Africa is a dry country. We must protect our water. Four million people in towns do not have clean water. Many families get their water from a shared tap. They fetch water in buckets or other containers.

Sometimes these containers have had chemicals in them. This can be dangerous. Not having clean water can make the chances of getting ill higher.

In 'white' areas there is plenty of clean water.

The rivers in our towns are very polluted. This is from waste from industry and from rubbish getting into the rivers. It is also from informal settlements that don't have proper toilets.

8. **Parks and open areas:** There are very few parks in black townships. There are very few places for people to enjoy themselves outside. These open areas are also important to help to clean the air and water. They also provide spaces for birds, insects and small animals to live.

In many parks in 'white' areas, the plants and trees are not from South Africa. Many of them need a lot of water to stay alive. Some towns have started planting South African trees and plants.

9. **Growing crops in towns:** We can use open areas in our towns to grow crops. This could help local people to make money and to make sure that everyone had food. It could help black women in particular, because they usually grow crops. Some of the rubbish from people's houses could be used to make compost.
10. **Transport:** We do not have good public transport. Many people use taxis or cars. These cause air pollution. This pollution contains lead, which can cause brain damage in children. The government

must find a way to improve transport in cities. They must look at the environmental issues. They must also look at how good public transport can improve the lives of people in towns.

11. **A new way of planning:** All local governments should look at environmental issues when making decisions about their towns. Communities should be involved in these decisions.

Recommendations

Planning:

- All planning in towns must look at environmental issues.
- Houses and factories should not be built on good farming land, or land that we need for nature conservation.
- Local government officials should be trained to understand environmental problems.
- Communities, industry, trade unions and so on should be involved in making sure that our cities are healthy.

Local Agenda 21:

- A national programme for 'local Agenda 21' programmes should be started with provincial and local government.

Air pollution:

- Air pollution must be dealt with as a matter of urgency.

Water management:

- The government must find ways to get people to use less water. Those people who use very little water, like the poor, should pay a little. Factories and people who use lots of water should pay a lot.

- The government must improve the control of pollution of rivers in our towns. Industries must pay to clean up if they pollute water. Local communities should check on water pollution in their areas, and report problems to the government.
- Local governments must work together to manage our rivers.

Recycling rubbish:

- Local governments must find ways to get industries and families to recycle rubbish.

Land:

- When deciding what to use land for, the government must think about the environment. They must work out the best use for that land.
- The government should help people who want to farm crops in our towns.
- We need plans for open spaces in our towns.
- The government must investigate how much food could be grown by small farmers in our towns and cities.

Designing and building houses:

- Dangerous materials should not be used in houses.
- All new houses should be built to use less electricity and to save water. Rainwater tanks could be used.
- Local government officials must be trained to make sure that building causes as little damage to the environment as possible.

Transport:

- The government must set up good public transport systems that do not damage our environment.
- When big roads or railway lines are to be built, their effect on the environment

must be studied. They must be built so that they do as little damage to the environment as possible.

- The government must start selling petrol that does not have lead in it.

Research:

- The government must find out how we can make our cities more environmentally friendly. They must look at ways of getting people to recycle their rubbish.

8

THE COAST



The present situation

South Africa has a very rich coast. It has many different kinds of fish. There are important minerals in some areas. Parts of the coast are very beautiful and good for tourism. There are many communities living along the coast. Some are very rich. Some are very poor. The number of people who live on the coast is growing. More tourists are visiting our coast.

In the past few years, a lot of development has happened on the coast. Some of it has caused damage to the land and the sea. Some *estuaries** have been damaged.

More than three quarters of the pollution in the sea comes from the land. It comes from factories and sewage from towns. Rain water running off from farms into the sea is polluted with fertiliser and chemicals used to kill insects. Oil is spilt into the sea from damaged ships.

The shallow part of the sea close to the coast contains a lot of fish. Lobsters are also found here. South Africa is a medium-sized fishing

country. The main fish that are caught are hake, pilchard and anchovy. Large fishing companies catch most of the fish. There are less small companies and community fishermen than there used to be. Lots of people fish for fun. This adds to the already large number of fish caught every year. The numbers of fish in the sea have got less.

Management of the coast has not been well planned. But since the 1980s people have realised that it is important to have a better planned way of looking after our coast.

Key policy issues for the new government

1. A lot of development is happening along the coast. There is no overall plan for the coast. A lot of different plans are being used. Many of these plans do not worry about environmental issues.
2. The coast is a very sensitive area. The government must make laws and systems that will make sure that environmental issues are looked after along the whole coast.

3. There are lots of different kinds of development happening on the coast. The government will have to decide on what kind of development can happen along the coast. For example, the government must decide whether fishing licences are given to community fishermen or to big fishing companies

on the West coast (see Box 7). The government will also have to decide whether to allow mining or ecotourism at St. Lucia (see Box 5, p21). The government must find a way to make these decisions properly. The people must be allowed to participate in these decisions.

**BOX 7:
EBENHAESER FISHING
COMMUNITY
Where have the fish gone?**

Ebenhaeser, in Namaqualand was set up as mission station to give the local black people somewhere to live. Today it is run by the community through elected management councils. At Olifantsdrif the Mission met members of the Ebenhaeser Fishing Committee.

The community explained that it needs to catch fish to live and to make money. Licences to fish in the river are given by the Cape Nature Conservation office in Vanrhynsdorp. But no licences had been given to them since the end of 1993. People are getting desperate.

Some of the people had lost their jobs at the crayfish factory at Doringbaai. Now they wanted licences to fish in the river.

But for the past four years the fishermen have only caught enough fish to feed

their families. They can't catch enough to sell.

Oom Dawid, a community leader, said that there were so few fish because of two things. One was the diamond boats at the mouth of the river. These boats suck up diamonds from the bottom of the sea. The noise and the lights of the boats drive the fish away. The second problem was growing numbers of seals. Seals swim up the river and break the community's nets in search of fish. New nets can cost R500 or more. The community can't afford this.

The seals and the diamond boats have taken away the community's ability to make money. The community have not been paid anything by the owners of the diamond boats. And the community are not allowed to fish in the river.

Our visit showed us how the new government will have to sort out who is allowed to use our natural resources.

4. We need to protect our natural resources along the coast. Nearly one quarter of the coast has been protected through national parks, provincial and private nature reserves, and so on.

But some very important areas have not been protected. Also, these protected

areas do not protect the shallow water of the sea. The public were not involved in deciding which areas should be protected. Local communities have not benefitted enough from these protected areas.



Nature reserves have often competed with local communities for natural resources. This northern KwaZulu Natal community discusses fishing rights in the Kosi Bay area with KwaZulu Natal nature conservation officials

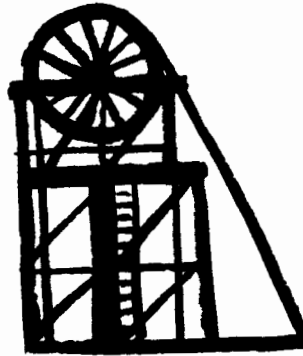
5. Very little has been done to protect areas that are important for historical and cultural reasons or places that would be good for education or for people to relax and enjoy themselves. We need to find ways to make sure that these places are kept open for the public.
6. There are lots of different laws that protect the natural resources along our coast. But there are not enough staff or money to make sure that people don't break them. Also, the different government departments do not work together well to make sure that the laws are not broken.
7. The Water Act controls what waste factories and local governments can put into the sea. But a new way of looking at this problem is to look at the condition of the sea and to say how much waste it can take without being damaged. This is called the Receiving Water Quality Objectives Approach. But it is difficult to prove when someone has broken the law. And if they do, the fines are too small. There are also problems in controlling what happens to storm water.
8. There has been a lot of scientific research along our coast. But there has not been a lot of research about the conditions of people living on the coast and how they affect the environment. Research must be done in this area. The people must be involved in this research. This research must also help to solve the problems that disadvantaged communities have.
9. Tourism along the coast is growing. But this tourism needs to be environmentally friendly. We must not build too many hotels and roads. We must educate tourists to respect and care for our coast.

Recommendations

1. We must define what we mean by the coast (or coastal zone). The national government must decide on policy for this area. Provincial and local governments must take part in making this policy.
2. Management of the coast must include management of the estuaries. There are also other areas such as *mangroves** and swamps which should be protected.
3. New policy for the coast should include the following principles and objectives: (1) the coast belongs to all South Africans and must be open to all; (2) the government should own or control resources along the coast as much as possible; (3) development on the coast must benefit as many people as possible. But this development must not damage our environment.
4. The people must be involved in making policy for the coast.
5. Until the government has decided on how to look after the coast, they should not sell any government land in this area. They should also be very strict about how private land is used.
6. The government must look at how different ways of using the land will affect *estuaries**.
7. We must educate school children, the public and tourists about how valuable and easily damaged our coast is.
8. All the laws that deal with the coast should be brought together. The Department of Environment Affairs and Tourism should be in charge of these laws.
9. *All* development along the coast should have an *environmental impact assessment**, according to the *IEM** process.
10. The government should develop ways to stop pollution before it gets into the sea.
11. Better laws should be made to control pollution. The government must make sure that people do not break these laws. The Department of Environment Affairs and Tourism should control pollution.
12. Environmentally friendly tourism along the coast should be promoted.

9

MINING



The present situation

Mining is the most important part of the South African economy. Almost half of the money that we make from selling things overseas comes from selling *minerals**.

Gold is the most important mineral in South Africa. We produce more gold than any other country in the world. But in the last few years, gold mines have not been doing so well. About 150,000 workers have lost their jobs. But there are still about 700,000 people working on the gold mines.

Coal is the second most important mineral that we mine. It is used to make electricity, in industry, and in our homes. About 90, 000 people work on the coal mines. South Africa also produces other minerals.

Mining can have bad effects on land and water quality. But *minerals processing** can cause air pollution which can travel over long distances.

Gold mining leaves a lot of crushed rock and liquid waste with acid in it. This is put into slimes dams (often called mine dumps). Slimes dams can cause water and dust pollution.

In February 1994 a slimes dam broke in Merriespruit. A huge mud slide flooded the town. Many people died or were injured.

In the Witwatersrand the water underneath the gold mines is very salty. During mining this water is brought up to the surface. It is put into shallow ponds where the water evaporates. The salt is left behind in the ponds.

In the eastern Witwatersrand area, the waste water from the gold mines has salt, acid, iron and manganese in it. It is pumped into the Klip and Elsberg rivers. This puts a lot of salt into the Vaal river every day.

Asbestos is found in the Northern Cape. South Africa sells a lot of asbestos to other countries. Asbestos can cause very bad lung cancer and other lung diseases. Sometimes these diseases take twenty years to show. The asbestos dust from the mines is blown into the air by the wind. The water that runs off the mine dumps has asbestos in it.

From the early 1980's the asbestos industry started to put in very strict safety standards. The workers on these mines do not breathe in dangerous amounts of asbestos any

longer. There is a joint Safety and Health Programme run by management and workers. They are trying to cover the dumps so that the dust does not blow around. They are also trying to stop water from running off the dumps into the streams. But the health effects from the past will stay with the workers and their families for a long time.

Coal mining can have bad effects on the environment. This can also affect workers and nearby communities. Many coal mines are very close to rivers. Acid from the mines pollutes the water in the ground. Cleaning the coal to sell it overseas leaves a lot of waste. This is put into big dumps. Sometimes these dumps start burning. This causes air pollution.

Mining companies and government departments

In South Africa mining is done by private companies. Most of our minerals are owned by private companies. Cheap labour has helped to make the mining industry very rich.

The mining companies have had a close relationship with the government departments that are meant to control them. Trade unions and environmental groups have criticised this. They feel that this has caused risks to workers and to the environment. In the past few years the mining companies have started new ways of controlling the damage done to the environment by mines. They are also trying to work on old mines and mine dumps to stop them polluting the water and air.

Each mine must put together a plan on how they will control the damage to the environment. This plan (called an Environmental Management Programme

Report) must start with the opening of the mine and go right through until it is closed. The government must approve this plan.

The Environmental Management Programme Report is better than not having any plan. But the mines write their own report. It is not written by an independent person or organisation. The Regional Director of Mineral and Energy Affairs can say that a particular mine doesn't have to write this report. Another problem with the EMPR is that the mine does not have to consult the public. Also, the EMPR does not have to look at whether the mine should be allowed there in the first place. The EMPR only looks at what effect the mine will have on the environment. A proper environmental impact assessment should be done. This would have to look at whether the mine should be allowed at all.

The mining companies and the Department of Mineral and Energy Affairs say that they do a full environmental impact assessment. They also say that the public are consulted.

There are not enough inspectors to make sure that the mines do what the EMPR says they should do.

Policy issues for the new government

1. The new environmental laws in the Minerals Act are better than they used to be. But it is difficult to make sure that mining companies do what they say they will do in their EMPRs. The government must find out how to make the EMPRs better and how to use IEM processes on the mines. They must also look at which government department should approve the EMPR.



Hundreds of thousand of workers have been injured, disabled or killed on the mines. Health and safety laws must be improved and strictly enforced and injured workers paid adequate compensation. Both workers and management must be involved in monitoring health and safety standards.

2. There are old mines and mine dumps that are no longer owned by any company. There is no law about who must look after these so that they don't damage the environment.
3. The right to mine certain minerals is owned by private companies or individuals. The government cannot stop these companies or people mining. The government can only say that the mining must take place under certain conditions.
4. Mining is mainly done by large companies. The government must look for ways for small businesses to start mining as well. But the government must also find ways to make sure that small mines do not damage the environment.
5. The gold mines are not doing well at the moment. Workers are losing their jobs. We need strict laws about protecting the environment. But we must make sure that these strict laws do not mean more workers will lose their jobs.
6. One day there will be no minerals left to mine and the mines will have to close. The government must look at how to help miners find other work. New factories must be set up in areas where mines will have to close.

Recommendations

1. Mining has caused a lot of damage to the environment. The government should not give the right to mine to any more companies until we have better ways to protect our environment. The RDP says that the government should own all mineral rights. If this happens,

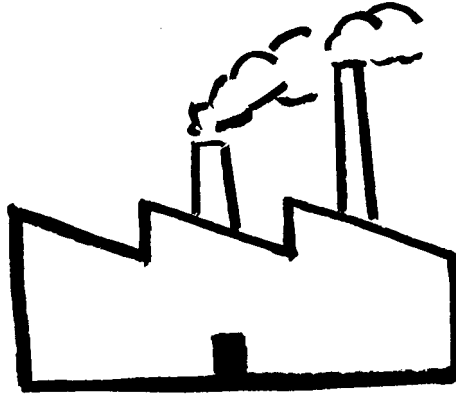
then the government can have more control over protecting the environment. They would also have more control over workers health on mines. The government could also make sure that the benefits from mining were shared better.

2. The mines will have to close when there is no more gold or coal to mine. The mining companies must pay money into a special fund. This money should be used to fix up any damage done to the environment. It could also be used to train or re-train workers who lose their jobs when mines close. It could also be used to set up new factories or industries to make jobs for workers from the mines.
3. An independent EIA should be done on all mines. The EIA must also look at how the mine will affect the lives of workers and the community. Only after this study has been done should a permit be given to the mine.
4. The Department of Environmental Affairs and Tourism must check whether mines are protecting the environment properly. They must also approve the certificate that is given when a mine closes down. They should also have the power to close a mine if it is not protecting the environment properly.
5. The government must look at old mines and mine dumps to see which ones must be looked after to stop pollution.
6. The mining companies and the government must find out the best way to protect the environment around mines and mine dumps.

7. The government should set up a Responsible Care Programme on the mines. They should work with the mining companies to use resources better, to cut down on how much waste is produced, and to protect the environment.

10

INDUSTRY



The present situation

South Africa has a lot of industries that work with metal and chemicals. These industries can do a lot of damage to the environment. South African industries use a lot of energy.

Quite a lot of the machinery used in South African industries is old. We need to put money into new machinery. This new machinery must cause less pollution and use less energy.

We need more industry in South Africa. This will give more jobs to our people. But we must make sure that these new industries do not do too much damage to the environment. Some countries have already found ways of working that do not damage the environment. We can learn from these countries.

Industry, laws and government departments

South Africa has some strict environmental laws for industry. But there are also some very weak laws. The government does not have enough staff to make sure that the laws are not broken. Industry can break the law without being punished.

This problem must be dealt with urgently.

But the government must also work with industry and other groups to find ways for industry to cause less damage to the environment and to the health of workers and the public.

The national government must set strict standards for industry. If each province has different standards, the dirty industries might move to the province with the lowest standards.

Policy issues

1. The government must decide on whether industry can check for themselves on how much damage they are doing to the environment. Trade unions and NGOs say that this won't work. Some Mission members feel that industries must check on the damage that they do to the environment themselves. But the government must set standards for this. And the government must check regularly to see that these standards are being met.

But the government must find other ways to get industry to do less damage to the environment, as well. The government, trade unions and industry could form a partnership to find ways to



***There are not adequate controls over what industries do with their hazardous waste.
This community lives right next to a dangerous toxic waste dump***

improve the way industry works. It could also protect the health of workers. The chemical companies have started a programme called "Responsible Care". This is an example of how industry can work to do less damage to the environment. But we must make sure that programmes like this are real, and not just to make the industry look good.

2. There is a strong link between damage to the environment and worker health and safety. Often the same thing which damages the environment also affects workers' health. But there are different laws for environment, and for health and safety. There are different government departments responsible for them. Health and safety is more about preventing accidents than about worker health. Workers are not given

information about health problems that they might get from their work. At Thor Chemicals bad management caused the death of workers as well as bad damage to the environment (See Box 9, pp50, 51). Safety, health and environment should be dealt with together.

Trade Unions must show workers the link between health, safety and environment. South African trade unions are getting more involved in health, safety and environment issues especially in the chemical industry. Workers should be trained about environmental issues. This would help them to see dangers in the workplace. The workers also need rights so that they can take action. The trade unions need support on these matters.

Pollution from industry often damages the health of neighbouring communities (see Box 6, p22). Getting information has always been a problem. The interim Constitution says that South Africans have the right to information. This will help communities in the fight against pollution.

But even when communities are some distance away from industry, pollution can still affect their health. But it can be very difficult to prove this. So it is very difficult for communities to demand action. New laws may not be enough to fix this problem. Another idea would be a partnership between companies, trade unions, community organisations and the government to negotiate the best way to deal with the problem.

Workers and communities are important in protecting our environment. Both groups need the information and chance to take part in the management of their environment. This should be based on six principles:

- The right to know about danger
- The right to be told about danger
- The right to take part in decision making
- The right to refuse dangerous work
- The right to appropriate education and training
- The right to be paid for any damage done to worker or community health.

At the moment we don't have these rights.

Workers and communities need more environmental education in order to take part in decision making.

3. Many companies in South Africa have a bad environmental record. The mining, chemical and heavy industries have been especially bad for the environment. In other countries companies have to report on the damage they could do to the environment, and what they are doing to stop it. The government should start this in South Africa.

Recommendations

1. The government should set up an **independent industrial inspectorate**. This body should control air and water pollution, the production of waste and the safety of workers. Each province should have a body like this. The national government should set clear standards for this body to use. The inspectorate would need well trained staff.
2. South African companies should have to include environmental issues in all their plans. They should also have to do **environmental impact assessments**. But it will take some time to set this up properly. In the meantime, the Department of Environment Affairs and Tourism must decide what sort of industries must do environmental impact assessments first. These must be the industries that do the most damage to the environment.
3. Health, safety and environment issues should be dealt with together. The following could be done:
 - 3.1 Health and Safety representatives in companies should become **Health,**

Safety and Environment representatives.

They should be given training and powers to identify and address health, safety and environmental dangers at work. All workers should be given broad training in health, safety and environment. They should be able to tell management and the government about dangers. Health, Safety and Environment representatives should be able to call government inspectors to their plant to check it.

3.2 Inspectors should be able to speak to workers in their own language. When inspections take place, workers and managers should receive a report.

3.3 The Departments of Labour, Health and Trade and Industry must look at the question of how to pay workers and communities for damage to their health. They must look at the possibility of extending the Workman's Compensation scheme.

3.4 A national committee of government, trade unions and industry should be set up to look at a better system for health, safety and environmental management.

4. All companies should have to write a report on what effect they have and what they are doing about it. The report must include a study done by an independent expert.
5. Each industrial sector (such as the steel industry) should put together an **environmental plan**. They should work together with government departments, trade unions, NGOs and community based organisations on this. These plans could include:

5.1 A study to find out the most serious environmental and health and safety problems in the industry.

5.2 A three year plan to deal with these problems. Industry bodies, companies, unions and government departments must agree to take part in this plan.

5.3 Checking whether the plan is being put into practice. Reports should be given to the trade unions, government departments and industry.

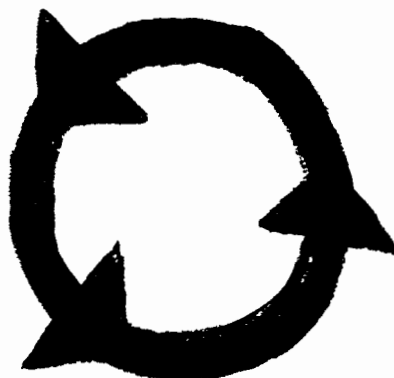
6. The government should set up an **Office for Cleaner Production**. This body would help to find cleaner ways for industry to do their work. This body could link up with the Regional Centre for Clean Production in Harare.

BOX 8: Health, safety and environment

There is a strong link between damage to the environment and worker health and safety. Often the same thing which damages the environment also affects workers' health. But there are different laws for environment, and for health and safety. There are different government departments responsible for them. Health and safety is more about preventing accidents than about worker health. Workers are not given about information about health problems that they might get from their work. At Thor Chemicals bad management caused the death of workers as well as bad damage to the environment (See Box 9). Safety, health and environment should be dealt with together.

11

WASTE MANAGEMENT*



The present situation

South Africa produces a lot of waste. We have a lot of mines that produce waste. We also allow industries to use a lot of natural resources and to produce a lot of waste. The laws and systems to stop pollution and to control waste are very weak.

Recently, people have started to worry about the problem of waste. The case of Thor Chemicals in Natal helped to make people worry about this issue. Thor Chemicals was importing poisonous waste from other countries. This waste was damaging worker health and the environment.

Modern society produces a lot of different kinds of waste. Some of it goes into the air. Some goes into water. And some is stored on land. Some waste is sold to or bought from other countries. Air pollution and water pollution can move across borders between countries.

Industry produces a lot of waste. This waste can be gas, liquid or solid. Some wastes are more dangerous to health than others. Where there are a lot of industries close

together the amount of waste produced can be very dangerous to health if it is not dealt with properly.

Cars, trucks and buses cause a lot of air pollution. Many farms use a lot of chemicals (fertilizer, pesticides, etc.). These can pollute rivers, dams, and water under the ground. There is a lot of waste from households. This includes sewage, and solid waste ranging from vegetable peels to plastic packets. Burning coal and wood for cooking or heating the house also causes pollution inside the house and outside.

In 1991 and 1992 the Council for Scientific and Industrial Research (CSIR) published two reports. The first report looked at waste management and pollution control in general. The second one looked at *hazardous** waste. These reports say that South Africa produces between 340 and 480 million tons of solid waste every year. We produce about 1.9 million tons of hazardous waste every year. Hazardous waste must be treated very carefully because it is dangerous. There are special laws to say how it must be dealt with.



This community in Umtata earns income through a project which recycles waste from a municipal dump

TABLE 11.1:
Solid waste sources and amounts

Source	Amount (in million tons each year)
Waste from mines	240 - 380
Coal ash from power stations	20
Chemical, metals, manufacturing industries	20
Urban (municipal) waste	15
Other	45
TOTAL	340 - 480

About 147 million tons of waste goes into the air every year, either as gas or smoke. About 1.2 million tons of liquid waste goes into rivers and the sea every year.

There are a lot of mines and power stations in the Eastern Transvaal. These cause a lot of air pollution. In other places, such as Merebank, in Natal, there are also a lot of industries close together. It is usually poorer people who live close to dirty factories. Their health suffers because they live close to these factories. Since 1965 some areas in cities have been made 'smoke free zones'. The air pollution in these areas has got less. But these 'smoke free zones' are only in white areas.

The black townships usually have a lot of air pollution. Rubbish removal services don't work properly. Many poor people in townships do not seem to be interested in cleaning up their areas. They do not seem to understand the problems with leaving

rubbish in the street. This is true in rural areas and towns.

Many people in townships and rural areas use coal and wood to cook and to heat the house. Often their houses do not have proper chimneys. The smoke from the wood and coal causes pollution inside and outside the house.

White South Africans tend to buy a lot of things. This is particularly true of richer people. These things are often wrapped in plastic, or in boxes. This wrapping gets thrown away. In other countries, industries are trying to use less paper and plastic for wrapping up goods to be sold. But this has not happened in South Africa yet. In other countries industries also try to recycle materials a lot more than we do here. We also need to make things that last longer, and which can be repaired. This would be better than making things that we throw away when they break down. We could do a lot to cut down on how much waste we produce.

Laws and government departments

There are lots of different laws which control waste. Different departments are responsible for different kinds of pollution. (see table 11.2).

TABLE 11.2:
Which government departments are responsible for controlling waste?

Type of waste or pollution	Government department
1. Air pollution	Environment Affairs and Tourism
2. Household and non-hazardous industrial waste	Local Government
3. Hazardous waste dumps	Water Affairs and Forestry
4. Transport of hazardous substances	National Health and Population Development
5. Soil quality (including use of pesticides)	Agriculture
6. Pollution of the sea	Environment Affairs (cleaning up pollution); Transport (preventing pollution and taking people to court).
7. Radioactive fuel cycle	Council for Nuclear Safety
8. Other radioactive materials	National Health and Population Development
9. Water pollution	Water Affairs and Forestry National Health and Population Development
10. Mining waste Affairs	Mineral and Energy
11. Noise pollution	Local government
12. Occupational health and workplace safety	Labour
13. Waste on roads	Provincial administrations

The splitting up of waste management between so many departments is not good. One factory has to obey a lot of different laws and report to lots of different departments. This is difficult for them and for the government. Each department has inspectors who only look at one particular thing. Like air pollution. Or noise. Or occupational health. No one is looking at all these problems together. It would be better to be able to look at all the problems together.

There are no clear standards set for pollution. In some waste management there is not enough control. For example, there are nearly 200 landfill sites (waste dumps) in the country where solid and liquid waste is got rid of. Only a few of these are licensed. Many of them are badly managed. Some are causing water pollution. For nearly half of them there is very little information about the health, safety and environmental record.

This problem is made worse because we do not have enough inspectors. For example, there are only a few national air pollution inspectors. We need to train more inspectors. The government must make money available to train and pay these inspectors.

Thor Chemicals is a good example of these problems (see Box 9). Thor Chemicals was working with poisonous chemicals. They were dealing with a lot of different government departments. The problems at Thor Chemicals were all because of the same process. But different departments made different decisions. The Department of Population and National Health issued permits for Thor to bring poisonous waste into the country. The Department of Water Affairs and Forestry gave a permit for them to store the waste. And the Department of

BOX 9: THOR CHEMICALS RETURN TO SENDER!

Thor Chemicals in Natal has three warehouses full of drums of toxic waste containing mercury. Mercury is very poisonous. The waste comes mainly from the U.S.A. Some is from Britain, some from Singapore and Indonesia. Some of the barrels are rusty and leaking. They have been stored here for up to 10 years. Outside the warehouses is a dam of 2,500 tons of sludge. This sludge is toxic waste containing mercury.

Thor Chemicals agreed with companies overseas that they buy mercury waste. They said they would re-process this waste. In the USA you are not allowed to put mercury waste on waste dumps. It is very expensive to get rid of it there.

The national Department of Health had to give a permit for the factory. They did not give Thor a permit. But Thor started testing the reprocessing anyway. They set up an *incinerator.**

Studies in the U.S.A. have shown that it is very hard to stop mercury going out through the chimney from an incinerator. This poisonous gas stays in the air for a long time, until the rain washes it onto the ground. The ash from burning the toxic waste is also dangerous. It should be put into a toxic waste site. But it seems that someone told Thor that they could store the waste at the factory.

People are worried that the soil and water

Manpower (now Labour) checked on the effect on workers' health. But these departments couldn't stop very bad damage to the environment, or to the health of workers.

have been polluted in the area. They are also concerned that plants and animals are now polluted with mercury. To try to stop this, Thor Chemicals have dammed the Mgcweni River where runs off their premises. They are pumping the polluted water back into their property. The water then is returned to the ground.

The Attorney General of Natal has ordered more investigations into Thor Chemicals. Its three top managers have been charged with culpable homicide, fraud and 42 other offences.

What is the best thing to do? Thor Chemicals wants to burn all the waste that they have at the factory. They say that they will not bring in any more waste from outside the country. Another possibility is that all the drums and sludge be put into a toxic waste dump. A third possibility is that the waste be sent back to the countries that it came from. This would cost Thor Chemicals money and would require negotiation by the government. But there are other cases where this has been done. For example, public pressure in Germany forced the German government to pay to send back pesticide wastes to eastern Europe.

In February 1994 more toxic waste from the USA was turned back at Durban Harbour.

The government must call an independent inquiry to look into the environmental and worker health problems at Thor.

There are laws about getting rid of waste. But it is not clear how it is decided how much waste can be got rid of in a particular way. There is too little control over hazardous waste in particular.

It also seems that the punishment for breaking the law is too little. It is cheaper for companies to pay fines for polluting than to clean up their factories.

The Department of Trade and Industry does not seem to be concerned about the effect of industry on the environment. People involved in industry must look at the bigger picture. They must also look at environmental problems from industry.

Policy issues for the government

1. The most important issue is how to include environmental issues into our industries. In the past industries were not worried about the environment or the dangers of pollution. Often the environment was damaged. The "*precautionary principle*"* could move industry towards looking after the environment better. Industry in other countries has saved money by cutting down on how much waste it produces. It can also save money by recycling or re-using waste.
2. In South Africa, we have tried to control waste and pollution by saying that the air can take a certain amount of different kinds of chemicals. We say that water can take a certain amount. We say that the land can take a certain amount. But it is very difficult to decide how much pollution the air, water and land can take without being damaged.
3. We have separate laws for pollution in air, water and land. Different government departments are responsible for these laws. But it is better to look at all the pollution and waste from one factory together. For this to work the government must put all the laws and inspectors for pollution control into one

department. Otherwise they must make sure that different departments work together better.

4. The fines for pollution are too low. Often companies do not have to pay to clean up their pollution. The "polluter-pays" principle should be introduced. This would mean that industry would pay a lot for permits to get rid of waste (into the air, water or land). They would have to pay big fines if they broke the law. They would also have to pay for the damage done to the environment by their pollution.
5. Government departments usually use something called the "Best Practical Means" (BPM) to decide whether to give an industry a permit. They use this to decide how much waste an industry can produce. But the BPM does not look at environmental issues. It should be replaced with the "Best Practical Environmental Option" (BPEO) system. This allows government to look at environmental issues as well when giving permits.
6. The government should find ways of encouraging industries to use cleaner ways of making their products. This will also help us to sell our products to other countries. Many other countries are worried about the environment. They don't want to buy products that were made by dirty factories.
7. South Africa does not have a good system for controlling hazardous waste. The government must look at this as a matter of urgency.
8. The government must decide whether South African industries should be

allowed to buy hazardous waste from other countries.

9. The government must look at the problem of nuclear waste. Nuclear waste comes from Koeberg nuclear power station. Most of it is stored at Vaalputs in the Northern Cape. Some is still kept at Koeberg.

The government must look at the laws about nuclear waste. The nuclear waste has to be looked after for a very long time. It stays dangerous for many thousands of years. The government will have to decide what to do about the nuclear waste at Vaalputs and at Koeberg.

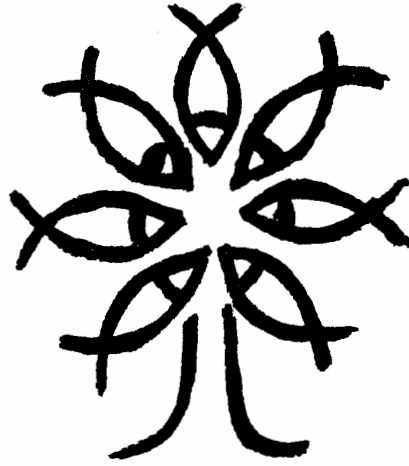
10. The government must look at policy on household waste. Households produce wood and coal smoke, sewage and ordinary rubbish. Air pollution inside houses happens mainly in poor areas. Rubbish from houses goes onto dumps which take up a lot of land. The government must encourage people to recycle and re-use 'waste' materials.
11. The government must find ways to encourage industry to stop producing products that are used once or twice and then thrown away. They should be encouraged to make products that last for a long time. Shoppers must be educated so that they buy environmentally friendly products and refuse to buy products that are bad for the environment.

Recommendations

1. All the laws about waste and pollution control should be put together. One Department should be responsible for waste management and pollution control. Industry should report on all waste that they produce. This would help to control illegal dumping.
2. The "precautionary principle" should be used in all decisions that might affect the environment.
3. The "polluter-pays" principle should be used to help to get industry to do less damage to the environment.
4. The government must act fast about hazardous waste. A new system must be set up to control hazardous waste from *cradle-to-grave-to-cradle**. This system must be part of the whole system of waste management and pollution control. Workers who handle hazardous waste need better protection.
5. The government must look at laws and standards for controlling nuclear waste.
6. No toxic waste should be brought into the country from other countries. The government must keep a list of all hazardous substances coming into or going out of the country.
7. South Africa should sign the Bamako Convention. This is a convention to stop hazardous waste being brought into Africa from other countries.
8. The government should use the Best Practical Environmental Option when giving permits to industry for pollution.
9. The government must help industry to move towards environmentally friendly ways of making their products. The government should also help industry to make more jobs.
10. The government should make new laws about labels for products. Labels should give information about the environmental effects of making and using the product. A South African *eco-labelling** system could be started.
11. The government must find ways to encourage people to produce less waste. They must encourage people to recycle their waste.
12. The government needs more staff to control waste management and pollution. These staff need to be well-trained.
13. The public should be allowed to get information on waste and pollution.
14. The government must look at the problem of people who go to dump sites to look for food, clothes and other things. These people could get ill from doing this. Managers of waste sites should keep records of what is being dumped on the site.
15. Provincial waste management departments should be set up. They should work with industry and local communities to control waste management.

12

FARMING, FORESTRY AND FISHERIES



Farming

Farming is very important for South Africa. We must develop new ways of farming which will protect our resources like land, soil, and water.

Only a small part of our land is very good for farming. Most of this good land is being used to grow crops. There is very little rain in most of the country. This makes it difficult to farm. About half of our water is used for farming.

The big farms have supplied a lot of food to us. But sometimes they have used methods of farming which have damaged the land. They have used a lot of chemicals such as fertilizer and pesticides. They have also planted only one kind of crop. These things, as well as using a lot of water on the crops and using heavy machinery, have damaged the soil. The apartheid government gave farmers money for this kind of farming. The use of too many chemicals for farming has also damaged our rivers and killed many kinds of birds.

There is very little control of the chemicals used for farming. When farmers use too much fertiliser, pesticides, and other chemicals, these chemicals are washed into the rivers by the rain. The chemicals then pollute the water. Using too many chemicals can be bad for the health of farm workers. Some farmers will not allow union representatives onto their farms to talk to the workers.

A lot of the land that we use for grazing cattle has been damaged by too many cattle eating the grass and other plants. This is very bad in the former homelands.

For a long time farmers did not want to use traditional seeds and kinds of cattle. But now some farmers are trying to use these. They are finding that South African plants and cattle survive better than ones from overseas. South African cattle do not suffer so badly from drought or disease.

Recommendations for farming

1. The government should encourage farming that does not use a lot of chemicals. They will have to educate farmers and show them how to do this. The most important aim of farming must be to produce enough food for our people. It must also give a living wage to farm workers.
2. A lot of the land that will be redistributed is already damaged. The government must give support to new farmers to help them heal the land. The government must also give these new farmers education and support so that they can farm properly.
3. The government must find new ways to protect our soil. This is very important. The government must make more money and staff available for this. The government must not help farmers to buy heavy machinery which damages our soil.
4. The help and education that the government gives to farmers must reach small and poor farmers.
5. The government must encourage farmers to plant many different crops together. They must also encourage farmers to plant different crops each year. The government must give farmers education about these things. The laws must be changed to encourage this.
6. The government must study how the sugar farms in Natal are damaging the environment. The government must work out ways to stop this damage.
7. The government should study new ways of farming that do not damage the land. This should be linked to farmers' needs.
8. The government must decide whether dangerous chemicals can be used on our farms. Some chemicals that are used here are banned in other countries. Farmers and workers must be educated about the dangers of chemicals that they are working with. They should wear protective clothing.
9. We need better systems to check what chemicals are being used on farms and how they are affecting the environment. These systems should involve local farmers and communities.
10. The government must collect information on how much damage has already been done to our grazing land. They must work out how to protect this land from more damage.
11. The government must study what South African plants can be used for farming. They must also study traditional ways of farming and see if these can be used to protect the environment on our farms.

Forestry

Indigenous forests*: South Africa has very little indigenous forest left. Most of our natural forests were cut down over the past 100 years. Indigenous forest is managed by the Department of Water Affairs and Forestry.

Commercial plantations*: Nearly three quarters of our plantations are owned by private companies. The rest is owned by the

government through the South Africa Forestry Company (SAFCOL). Half of the plantations are pine trees. The other half is gum trees and wattle. Most of the plantations are in Natal and the Eastern Cape.

Most of the wood from the plantations is used for making paper. A lot of our wood is sold overseas. Some of the wood is used for underground supports in mines. Plantations give jobs to people in the rural areas.

Small farmers can grow trees as well. This can help our economy to grow. But plantations can have bad effects on the environment, such as:

- a) loss of *biodiversity**. Only one kind of tree is grown in a plantation. In the grasslands or natural forests that were there before the plantation there were many different kinds of plants and animals
- b) plantations use a lot of water
- c) as more wood is needed by industry, they will need to plant more plantations. This will leave less land for other uses.

Woodlots*: There is not a lot of information about how many woodlots there are in South Africa. Many white farmers grow trees for firewood for their workers.

In the former homelands, there are five different kinds of woodlots:

- a) Departmental woodlots: These were set up by the Forestry Department on land given by a Tribal Authority. Some of them were planted around indigenous forests and grasslands to protect them.

- b) Municipal woodlots: The city council grows wood to sell.
- c) Community woodlots: In community woodlots the trees are grown and owned by the whole community.
- d) Tribal Authority woodlots: These woodlots are started by the forestry department. They are handed over to the tribal authority to look after.
- e) Individual woodlots: Many rural households plant their own small woodlots. In Kwazulu many woodlot owners are planting wattle to sell the bark. Wattle wood is very good firewood. Small farmers in Kwazulu are growing gum trees to produce poles for large companies. The left over wood is used as firewood.

There is no overall policy about the proper management of forestry. But the companies made their own code of conduct in 1989. Since 1972 a company must get a permit from the Department of Water Affairs and Forestry before they can plant a new plantation. The Department must check how much water will be used by the plantation. They must also check what effect the plantation will have on the environment. Plantations may not be planted on the banks of rivers.

The permit system tries to protect our water. But the standards for the permit were set over twenty years ago. A lot has changed since then. The permit system should be looked at again and changed. It also seems that some people are breaking their permits without being punished. The river areas in privately owned plantations are better looked after than in government owned plantations.



Social forestry — This tree nursery in the Transkei will one day provide the community with wood for cooking and heating without damaging natural forests.

Nearly three quarters of our plantations were planted before the permits were started. These plantations do not need permits. Permits were not used in the former homelands. So there is no proper control over these plantations.

Policy issues for the new government

Our natural forests are very important. They protect biodiversity and protect our water. They are important for the health of the country. They can also benefit local communities.

We need a national policy which brings together the needs of the people and the needs of the forestry companies.

The government needs to look at the effect that plantations have on the environment. The companies must look at trying to use the land that they have better, rather than plant new plantations on more land.

Recommendations for forestry

1. The government must develop forestry policy that looks at the environment, as well as the needs of the people. The government must also look at which Department should be in charge of forestry.
2. Local communities and small farmers must take part in making this policy.
3. Indigenous forests should be looked after by a special forestry body in the government.
4. Paraffin, wood and coal must be made available to people in the former homelands. This will stop people cutting down too many trees for wood.
5. We must help our indigenous forests to grow. The government must set up forestry programmes that involve local communities. The government must set up programmes to plant indigenous trees.
6. The government must study the effects of plantations on the environment and on the people living in the area.
7. The government must look at the permit system again. Issues of water shortages, the loss of biodiversity, and protecting beautiful areas should be looked at. Plantations that have existed for a long time and ones in the former homelands must also have to get permits.
8. All companies and farmers growing trees should have a charter which helps them to farm properly. The charter

should tell them how to protect the environment. A forestry forum could also be set up.

9. The government must be very careful about planting more plantations. This could have a bad effect on our environment.
10. The public should be consulted about whether to sell government owned forests to private companies. The government must look very carefully at what will happen if indigenous forests are sold to a private company. Indigenous forests should be controlled by the government.

Sea fisheries

Under apartheid the right to catch fish, crayfish and so on was taken away from many local communities. The government gave these rights to white-owned companies. Profits from these companies do not go to the local communities. Fishermen from these communities have had to work for the big fishing companies in order to make a living. The poor communities that live on the coast need to be allowed to catch fish in order to live. They need fishing licences and quotas. They also need money to buy nets and boats.

The government decides each year how many fish may be caught. This is called the total allowable catch (TAC). They have to make sure that not too many fish are caught. If too many fish are caught then there will not be enough the next year, or the year after that. The government gives out licences to fish based on this TAC. The TAC should be set as low as possible to make sure that our fish supplies are not damaged by catching too many in one year.



Traditional fishing methods — unlike industrial methods — do not overuse fish resources

Recommendations for fisheries policy

1. The government must change the way that fishing licences and quotas are given. They must make sure that communities also get fishing licences. They must also do more to stop people without licences catching fish.
2. Communities, industry and unions must take part in changing the system.
3. Community-based fishing should be encouraged. This will create more jobs for poor people living on the coast. The community can help to make sure that people without licences do not catch fish.
4. The government should look at helping local communities to set up co-operatives to process and sell fish.
5. The rights of small-scale fishermen must be protected. For example, when trek-net fishermen are harassed by ski-boat owners at False Bay they should be protected so that they can carry on fishing.
6. Local communities must be allowed to catch a certain amount of fish. The government must help these communities to buy nets and boats.

In New Zealand, disadvantaged communities are allowed to catch one tenth of all the fish caught in the country. The government gives them grants to buy equipment.

7. The government must look at new ways of deciding how much fish big companies are allowed to catch. These companies need some kind of security from year to year about how much they can catch.

8. The conditions and rights of workers in fishing companies should be improved.
9. The right to catch fish should be given to South African companies, not companies from other countries.
10. The Department of Agriculture should be responsible for looking after fishing, not the Department of Environment Affairs.
11. More research should be done in this area. Communities should take part in this research. Research should also look at how to help local communities.

13

NATURE CONSERVATION



The present situation

The main function of game reserves and nature reserves is to protect *ecosystems** and *biodiversity**. They also protect rare plants and animals. They allow us to do research into how nature works. In the future, nature conservation should include more environmental education.

Nature conservation must also make sure that local communities benefit from nature reserves. Nature conservation can be used to create jobs for local communities. Nature conservation can be used to make the RDP work in rural areas.

South Africa has a lot of *protected areas**. We have 17 National Parks, and many provincial parks. There are also lots of private nature reserves. We have eight National Botanical Gardens where plants are protected and where people can learn about our plants.

Many visitors from other countries like South Africa because it is very beautiful. They also come to see the wild animals. National Parks

and nature reserves are very important for tourism. This could bring a lot of money into the country. Tourism could also bring money to the rural areas. But we must make sure that the local communities benefit from tourism.

Tourism is growing very fast around the world. South Africa could take a lot more tourists than we do now. We could make a lot of money from tourism. But we must be careful that tourism does not damage our environment. We must also make sure that it benefits poor communities.

When some National Parks were set up, some communities were forced to move. They were not paid properly for the land they lost (see Box 10 on the next page).

They were not allowed to use the land they lost for grazing their cattle. They were not allowed to collect plants for medicines or firewood and thatching grass from the reserves. Because of this they lost some of the knowledge they had about the natural environment.

BOX 10: KOSI BAY: People or nature conservation

Kosi Bay is in Maputoland near the Mozambique border. It has four lakes. You can only get to some areas on foot or by boat. The KwaDapha, eMalangeni and Nkovukeni communities have lived in Maputoland for over 700 years. They are the last communities living in Kosi Bay.

On the western side of Kosi Bay every one has moved except one person. On the other side the three communities of KwaDapha, Nkovukeni and Emalangeni are still in the reserve. These communities do not want to move. They have set up the KwaDapha, eMalangeni and Nkovukeni (KEN) Community Resource and Development Project.

The KEN Community Resource and Development Project is setting up an ecotourism project managed and owned by the community. The Kwa Zulu Department of Nature Conservation has agreed to help set it up. The Kosi Bay project could show other communities how to set up a nature reserve. In Kosi Bay, farming, conservation and ecotourism could all work together.

The community want to stay on the land and take part in the conservation and development of the area. They want to set up places where community knowledge about the environment can be recorded. This knowledge will be used to help conservation in the area.

In the past, nature conservation in South Africa mainly served white people. For nature conservation to work, it must serve all South Africans. The local communities must benefit from nature conservation.

All South Africans must be able to go to our National and Provincial Parks. This is important to educate people about the environment.

Nature areas in towns are also important for environmental education. Poor people in towns can visit these places to get in touch with nature. These nature areas can be small open spaces. Or they can be much larger nature reserves.

Policy issues for the new government

There are six main issues facing the new government about nature conservation:

1. The first issue is giving land or money to people who lost their land for nature reserves. This will be dealt with by the Land Claims Court.
2. The second issue is making sure that all South Africans can visit our National Parks and other protected areas. People must be able to afford to get in. But the government must also work out ways for poor people to get to the parks and to stay in them.
3. We need better relationships between parks and local communities. They must work together to protect our resources. Local communities must benefit from our parks.
4. The government must encourage tourism - but in a way which will look after our natural resources.

5. The government must look at who benefits from nature conservation. Local communities must benefit from tourism and from nature conservation. We need projects for rural development around our parks. The government must help with capacity-building in environmental education, natural resource management and tourist services for local communities.
6. The nature conservation bodies must change their public image. The nature conservation staff need to be more open to communities. The only staff who need to dress like police or soldiers are those in anti-poaching units and the gate guards.

Recommendations

Changes to the law and the way parks are run

1. The National Parks Board must be made more accountable to the public. New, representative National and Provincial Parks Boards should be chosen in a transparent and democratic way. All parks should be controlled by one law. There should be regional representatives at the national level. We need a national plan for the protection and development of parks and reserves.
2. A National Liaison Committee between National, Provincial and local Parks could look at conservation across the whole country.
3. The government must set up **Bioregional Forums**. These should have representatives from National Parks, Provincial Parks, farming organisations, industry, NGOs and local communities.

Each forum would cover one *catchment area**. It would allow civil society to take part in planning and checking on conservation in these areas. The needs of people living in or near conservation areas should be taken into account.

4. **Community Liaison Committees** should be set up in all parks. Community Liaison Committees would help neighbouring communities to take part in decision-making for the park. It would also help them to benefit from the park's resources.
5. National and Provincial Parks and other nature reserves must employ more black people and more women. We need to build capacity in disadvantaged communities.
6. The provincial departments could take over some of the management of National Parks. This would help to bring management of provincial, national and private parks together in each province. But the National Parks Board should set national standards for their parks.

Community-based conservation and rural development

7. National and Provincial Parks can help rural development. Some of the money from parks should go into making jobs in the region. Parks should buy the things they need from the local community if possible and try to employ people from the local community.
8. The park management must work with the community to decide on benefits the community can get from the park. This could include grazing cattle in the park. Or using plants, firewood and thatching grass from the park.

9. Communities living next to parks should be involved in stopping *poaching** in those parks. If the community benefit from the park then they will want to protect the park.

The system of Community Game Guards could be used: guards are appointed by the community to protect the park. They are accountable to the community.

10. National Parks and nature reserves should help to introduce wildlife into communal and farming areas. They could teach people to farm wild animals such as kudu or springbok. Communities could make money from this. These animals are less likely to die in a drought than cattle.
11. There should be areas around National and Provincial Parks in which wildlife and cattle are farmed together.

Tourism

12. Tourism can damage the environment. We must control the numbers of tourists that go to areas. We must make sure that tourists don't waste water and energy. We must make sure that tourists are sensitive to local cultures.
13. Nature reserves must create more jobs. Small bush camps can offer game drives and bush walks with a guide. This gives more opportunities to the tourists and creates more jobs.
14. Nature reserves should sell local crafts rather than crafts from other places. Rural communities should also be helped to sell their crafts in cities.
15. The government must look at setting up arts and crafts training centres near the

parks. These centres could use animal skins from National and Provincial Parks for leather work. They could also teach people other crafts.

16. Eco-tourism can bring in money to help protect our nature conservation areas.
17. The government must make sure that some of the money made by National, Provincial and local parks goes into protecting our environment and parks.

Research and education

18. We must study nature so that protected areas are managed properly. Traditional knowledge about the environment and the knowledge of traditional healers and trackers should be respected, recorded and used where possible.
19. The knowledge of local communities must be protected by law. Communities should be paid when their knowledge is used. Local communities have been working with nature for a long time. They have learned a lot about the places in which they live. We must study and record this knowledge.
20. All parks should have places for environmental education. All school children should visit nature reserves. Nature reserves in cities can be important for this. Environmental education should include traditional environmental knowledge. Education should involve all sectors of the community, including farmers, as both teachers and students.
21. The government must study what people feel and understand about nature. They must study how communities can be involved in managing parks.

14

ENVIRONMENTAL EDUCATION AND TRAINING



This report has made many suggestions about how we can protect our environment. But we do not have enough well-trained people in South Africa to do all these things. Because of apartheid many black South Africans have not had a proper education. Many black South Africans can't read. The new government must start an education campaign for children and adults. They must also train the people we need to protect the environment.

It will take many years to train all the people we need to protect our environment. It will also take many years for all schools to start teaching environmental education.

Environmental awareness and environmental responsibility should be taught in all our schools. The children of today will be making decisions about the country in the future. They must understand how important the environment is so that they can make the right decisions.

In the past, environmental education was mostly about the protection of plants and

animals. Often it was taught as if the teacher knew all the answers and the students knew nothing.

But there is a new way of learning about the environment. In this new way, the students find out the answers for themselves. They don't wait for the teacher to tell them what is right or wrong.

Environmental education in primary and secondary schools

Some people feel that environmental education should be a separate subject at school. Other people feel that it should be part of all the other subjects, like English, History, Geography, Art. One of the problems at the moment is that there are not enough teachers who have been trained in environmental education. First we must train the teachers.

The Environmental Education Policy Initiative was started by the Department of Environment Affairs and the Environmental Education Association of Southern Africa (EEASA). They held consultations with many

people around the country. From these consultations they have made some suggestions for environmental education. They suggest that:

- environmental education should be included in all other subjects. For example, in history, students should look at how the environment changed through history, and why. In English they could write poetry or essays about the environment
- there should be three separate environmental courses at schools. The first would be Environmental Studies in lower primary school. The second would be "Education for Sustainable Living" at middle school level. The third would be a separate subject at senior secondary level. This could include, for example, environmental law, environmental planning, primary health care, conservation management
- students should be involved in environmental action outside the school grounds.

Environmental education at schools should include traditional environmental knowledge. Students should also look at how different cultures have managed their natural resources. This should include how black South Africans managed their natural resources in the past.

Environmental education and training at universities and technikons

South Africa needs more environmental scientists, engineers, and technicians to work in industry. We need more black people and more women to study these subjects.

Many of the subjects taught at university must be changed so that they include environmental education. For example, scientists and economists must learn about the effect of their work on the environment.

We must improve our courses in water, waste management, and soil conservation. We must set up new courses to train more inspectors who can look at water, air and land pollution together, and not just at one of these.

The government must also organise "on-the-job" training for people in government departments, so that they can protect the environment better. We should learn from other countries about how to train the people that we need.

This training could include:

- **in-service training** and **short courses** in environmental management
- **being sent to work outside South Africa for a while.** Newly-appointed government officials could be sent to other countries for a few months to learn about how they protect the environment, and
- **short visits** for ministers or senior officials to other countries to learn about how they protect the environment.

Photograph on the RIGHT

An active, informed civil society can act to stop companies from polluting the environment and endangering the community.



A WORKING
CLASS UNITED
WILL NEVER
BE DEFEATED



WE
ABHOR
THOR

SOUTH AFRICA
IS NOT A
FIRST-WORLD
TRASHHEAP

SA
ENVIRONMENT
NOT
FOR SALE!

HEALTH SAFETY
& ENVIRONMENT
BEFORE PROFITS

COSATU
NO
CYRUS

Workplace education

Workers can help to protect the environment. They can help to check whether industry is breaking the law or not. But workers need training and education to do this. Environment courses for workers in industry need to be developed. Worker health and safety representatives should become health, safety *and environment* representatives. Their reports should be part of the company's environmental reports.

Research

There is a lot of research that must be done on environmental issues. The local people should take part in this research. Their local knowledge should be respected. They should own the results of the research with the research organisation.

Environmental education outside the schools

Environmental education should not only happen inside classrooms. Environmental education should empower people to understand their community and work environments. It should empower them to take action to make their lives better.

Environmental awareness and education should be based on the knowledge of the local community about their environment. It should help communities to solve local environmental problems.

Environmental education must help communities to take part in making decisions about environmental issues that affect their daily lives. Communities must also be empowered to measure the quality of their environment.

Rich people must be educated about how their lives damage the environment. The more people use water, paper, electricity, and the more things they buy and throw

away, the more effect they have on our environment.

NGOs and private companies must help in environmental education in communities and factories.

Rural training institutions should be set up as suggested in the RDP. These could build capacity in community tourism management, resource management, building tourist lodges, and other skills needed for making money from tourism. This could help the rural areas to develop.

Environmental education can also take place through primary health care services, water committees and so on.

Environmental education must be available to women, particularly black women.

Women are often very active in environmental issues that affect the health of their families.

Finding the money for environmental education

The suggestions that we have made will all need money. The new government must find the money for these things. It is very important that we educate all our people about environmental issues.

Recommendations

1. At primary and secondary schools, environmental education should include:
 - environmental education as a part of all subjects
 - three separate environmental courses:
 - (i) an Environmental Studies course in lower primary,

- (ii) "Education for Sustainable Living" at middle school level, and
 - (iii) a separate subject at senior secondary level
 - environmental activities in the community.
2. At universities and technikons:
 - science courses must include environmental education
 - technical courses for water and waste management, and soil conservation must be improved
 - more students must be trained as environmental scientists and engineers.
 3. Education and training in the workplace:
 - industry should develop courses in health, safety and environment for workers
 - more government officials must be trained in environmental management.
 4. Non-formal education:
 - a programme of action around environmental awareness and education should be started by the government, the private sector and environmental NGOs.
 5. Gender:
 - special effort must be made to make sure that women, especially black women, can study environmental education at all levels.
 6. Research
 - the government should study the best ways to teach environmental education.

15

LINKS WITH OTHER COUNTRIES



Rejoining the rest of the world

Under apartheid, many countries did not want to have links with South Africa. This has now changed. We are setting up strong links with other countries. This means that decisions taken in other parts of the world affect us. Changes in other countries also affect us. Also, South Africa has agreements with and responsibilities to other countries.

South Africa was not officially part of the United Nations Conference on Environment and Development (UNCED). But our government has committed itself to the principles and agreements of that conference. These principles and agreements are in a document called Agenda 21. Agenda 21 promises money to poor countries, to help them protect the environment and get rid of poverty. But so far no money has been given to these countries.

South Africa is a member of over twenty international *environmental conventions**. But the government must still look at the following issues:

1. Should the new government *ratify** the conventions that it has signed, including the Law of the Sea, Climate Change and Biodiversity.
2. South Africa should show that it is committed to not bringing hazardous waste to Africa. It should sign and ratify the Bamako Convention (see Chapter 11).
3. South Africa should encourage national debate on the Convention on Drought and Desertification.
4. South Africa should ratify the Framework Convention on Climate Change. This would show that we support the interests of developing countries.
5. South Africa is a member of the Nuclear Non-Proliferation Treaty. We must work to set up a treaty which will make Africa a continent on which there are no nuclear weapons.

Many big international companies are setting up factories in South Africa. We must make sure that these companies do not bring dirty industries into South Africa. We do not want them to pollute our country. In the same way, South African companies are setting up factories in other countries in Africa. We must make sure that these factories do not pollute those countries.

The World Bank and the IMF

South Africa is already linked to the International Monetary Fund (IMF) and the World Bank. The Reconstruction and Development Programme depends on other countries lending us money. But we must be very careful. The World Bank and the IMF have lent money to other African countries. But they have only done this if the countries set up Structural Adjustment Programmes (SAPs). These are programmes to change the way the economy of the country is run. These programmes have resulted in more poor people in these countries. They have made life worse for women, children, old people and the unemployed. They have caused damage to the environment. We must make sure that this does not happen in South Africa.

The World Bank has other projects that have also damaged the environment. The Lesotho Highlands Water Project will pump water from the Orange River in Lesotho to Gauteng. The World Bank supports this project. Already the environment and the people in the Lesotho mountains have suffered from this project. The Orange River could also be seriously damaged by the project. There might not be enough water left to keep the river flowing properly. This will affect people in Namaqualand and parts of the Northern Cape province.

South Africa must set up better ways to

measure what effect big projects will have on the environment.

Some people want South Africa to set up Export Processing Zones (EPZs). In these special areas, industry does not have to worry about labour laws or about laws protecting the environment. EPZs weaken the ability of workers to demand a living wage. EPZs also allow damage to be done to our environment.

Southern Africa

Until very recently, South Africa did not have good links with other countries in Southern Africa.

There are some problems facing Southern Africa in relation to protecting our environment. These include: an environment that is easily damaged; low levels of technology in rural areas; lack of protection of natural resources; lack of capacity to manage the environment properly; and weak laws.

It would be better if countries in Southern Africa worked together to protect the environment. Some of the issues on which these countries could work together are listed here:

Population and migration: Many people move from one country to another in Southern Africa. With peace in Mozambique and Angola and democracy in South Africa, people will travel more.

Management of resources across borders (grazing, wildlife, forests and minerals): The natural resources in Southern Africa will need careful management. Joint management plans between countries will become more and more important.



The Lesotho Highlands water scheme will supply water to South Africa. But has the cost to Lesotho been measured?

Management of shared rivers: The Southern African region often has droughts. Shared rivers should be managed together. South Africa is already taking water from Lesotho. As we need more water we might use other rivers like the Zambezi.

Energy: South Africa can produce more electricity than it needs. We could sell this electricity to other countries in Southern Africa.

Pollution that crosses borders: Air and water pollution travel easily across borders. Countries in Southern Africa must make laws and agreements to control this problem.

Scientific and technical cooperation: South Africa is more advanced in some scientific and technical areas than its neighbours. But

we can also learn from other countries in the region about things like social forestry and land ownership.

Pest control: Pests, such as locusts, don't stop at borders. Countries must work together to control pests.

Food security: South Africa must co-operate with other countries in Southern Africa to make sure that we produce enough food for our people.

Trade: South Africa can become very important in the Southern African economy. Investors from other countries might choose to put their money into South Africa. Southern Africa has quite a few trade agreements. The size of the South African economy will mean it is stronger than its neighbours. The governments will have to make sure that South Africa does not dominate other countries.

War, the army and the environment

South Africa has the most powerful army in sub-Saharan Africa. South Africa can also make a lot of weapons.

The apartheid government destabilised our neighbouring countries, especially Mozambique and Angola. This damaged their environment as well. Producing and testing weapons, building military bases, and getting rid of toxic wastes, has all damaged the environment. Actual war and fighting has also damaged the environment.

The SANDF owns large pieces of land. This includes land for testing missiles. Parts of natural protected areas in St Lucia and De Hoop were also used for this. The SANDF is one of the biggest landowners in the country. The testing of chemicals for use by the army

has upset communities living next to the testing sites.

Some people think we should keep making weapons so that we can sell them overseas. Other people think that South Africa should help to make peace in Africa. The scientists who helped to make South African nuclear weapons could help to develop clean technologies instead.

People are beginning to realise that environmental issues are important for national security. There could be conflict over access to environmental resources in the region. Southern Africa could get caught up in the "greenwar factor". In the "greenwar factor" damage to the environment causes local conflict and violence. This then leads to civil war or wars between countries. These wars cause more damage to the environment.

Environment and trade

South Africa's economy should grow for the next few years. But the new government has debts that it will have to pay off. It will also have to find money for the RDP. We must sell more of our products overseas. This will give us more money to pay our debts to other countries and to buy the things from them that we need. Most of the products that we sell overseas are minerals and agricultural products. This means that our farms and mines will have to produce more. This could do more damage to the environment.

Many countries recently made an agreement called the Uruguay Round Agreement of the General Agreement on Trade and Tariffs (GATT). This agreement sets out the way that trade will happen between countries. It is meant to make it easier for developing countries like South Africa to sell their goods

to rich countries. But it will only help us *if we join with other poor countries to look after our own interests*. One issue that we must look at is agricultural exports and how they will affect farming in South Africa.

The agreement says that governments must stop giving *subsidies** to industries. Some subsidies to farmers may still be allowed. Subsidies for environmental projects and research will probably still be allowed.

The agreement says that countries have the right to own information and ideas that come from that country. This includes community knowledge about the environment. The government must set up systems to protect these rights. This is important for the protection of local and traditional knowledge, farmers rights and community management of natural resources.

Under this agreement, proposals will probably be made on how to protect the environment. There will probably be rules about how products must be packed and what information is on the label. These rules are to protect the environment. We must look at how they will affect our trade.

Environmental issues are becoming more important when we try to sell products to other countries. Agreements between countries might stop them buying products that damage the environment. This means that if our industries do not look after the environment they might not be able to sell their goods to other countries. Our industries might have to clean up so that they can sell their products to other countries. This would be good for our environment.

When we make agreements with other countries South Africa must remember that

we need development, we need more industry, we need more jobs. But we also need to protect our environment. We must also make sure that companies from other countries do not bring dirty factories to South Africa that will pollute our country.

Recommendations

1. The government must work with other countries in Southern Africa to make sure that new trade agreements protect the environment. They must develop trade and environment policies at the national, regional and international levels. These policies must help Southern Africa achieve sustainable development.
2. The government must try to stop other countries dumping their products in South Africa. Countries with low environmental standards must be helped to raise them. South Africa should lead this process.
3. The government should ratify the Law of the Sea Convention. This convention would help to control sea pollution and to protect our fish. It would also help to control mining in the deep sea.
4. The Convention on Biodiversity has been ratified by South Africa. But laws must be made to protect the rights of local communities.
5. The Proposed Policy on Global Environmental Change should be looked at again before the Climate Change Convention is ratified. We must have a public participation process and a framework policy before we ratify this convention.
6. The government should sign and ratify the Bamako Convention to stop people bringing hazardous waste into South Africa from outside Africa. We should also make our own laws to stop this.
7. South Africa should work with other countries in Southern Africa to set up a proper environmental management strategy.
8. The government should put less money into military research. It should rather put money and scientists into developing cleaner ways for industry to work. It should also put money and skills into cleaner ways to produce electricity and energy.

GLOSSARY

Acid rain

Some industries make smoke which puts chemicals into the air. When chemicals such as sulphur dioxide are in the air and it rains, the chemicals make the rain more acid. This causes damage to the soil and to plants.

Biodiversity

Biodiversity is a term used to describe the number of different kinds of plants and animals in an area. For example, if there are many different kinds of plants and animals in an area, such as the Kruger National Park, we say it has a high biodiversity. But if, on a farm, only mealies are grown, and there are not many different kinds of birds, animals or insects on that farm, we say it has a low biodiversity.

Catchment areas

A catchment area is the area of ground from which the rainwater all runs off into one river. The rainwater might run off into smaller streams and rivers that all flow into a bigger river. For example, the catchment area of the Vaal river is all the ground from which the water finally runs into the Vaal river.

Commercial plantations

In a commercial plantation trees are planted and grown to be sold for their wood or to make paper. Usually the trees are all of the same kind. In a commercial plantation there are usually very many trees on a very big piece of ground. Most plantations in South Africa are either pine trees, gum trees or wattle trees.

Cradle-to-grave-to-cradle

This refers to the cycle of a product from the raw material, to making the product, to the

end of that product's life. The product is then recycled into another new product. For example, a tree is the raw material. It is cut down and made into paper. The paper is used to wrap up a piece of meat in the butcher. Then the paper is thrown away. This throwing away is what we call the 'grave' part of the cycle. But the paper can be recycled into more paper or cardboard. This is the 'cradle' stage again.

Development

By development, we mean changes that will improve the quality of life of people living in an area. For example, putting in schools and hospitals is an example of development. Giving people jobs is development. But the word can also be used to mean the building of a new industry or factory or dam. For example, we talk about big developments having a bad effect on the environment. By this we mean the building of big projects like dams or factories.

Eco-labelling

Eco-labelling is a way of labelling food and products so that the person who buys them knows what kind of effect that product has had on the environment. For example, an eco-label might tell you that food has been grown without any pesticides or chemical fertiliser. Or it might tell you that the paper was made without using any chlorine (a chemical which damages the ozone layer).

Ecosystems

An ecosystem is a natural system in which all the parts interact. All living things are part of an ecosystem. For example, a forest can be described as an ecosystem. All the plants, birds, animals and insects in a forest live together and keep the forest alive.

Sometimes, if you take one or two important plants or animals away from an ecosystem, the ecosystem dies or changes a lot. Human

beings are part of the ecosystems around us. We need these ecosystems in order to live.

Energy

Energy is a word that describes all the different kinds of fuel that we use to cook, to make machines work, to keep warm, to give us light, and so on. When we burn wood, paraffin, and coal they give us energy for cooking and heating things. Electricity is a kind of energy.

Environmental conventions

An environmental convention is an agreement between two or more countries about how to look after the environment.

Environmental impact assessment

An environmental impact assessment is a way of studying and measuring what kind of effect a project or development is going to have on the environment. For example, when Richards Bay Minerals wanted to mine at St Lucia, they had to do an environmental impact assessment first to see what effect they would have on the environment at St Lucia.

Environmental ombudsman

An environmental ombudsman is a person or group of people that the public can take their complaints about environmental issues to. The ombudsman will then investigate these complaints on behalf of the public. For example, Mandla could complain to the ombudsman that the Department of Transport had built a road in such a way that it blocked up the spring where his cattle used to drink. The ombudsman would investigate. If this was true, then the ombudsman would try to get the Department of Transport to fix the problem. If the Department of Transport didn't fix the problem, then the ombudsman could take them to court on behalf of Mandla.

Estuary

An estuary is the place where a river runs into the sea. In an estuary the sea water and the river water meet each other and mix. They are usually very rich in fish and plant life. Many fish need estuaries to breed in.

Greenhouse gases

Some gases, when they get into the air, cause the air and earth to get warmer. They do this by stopping heat going out from the earth into space. These gases are called greenhouse gases. Carbon dioxide, which is released when coal and wood burn, is a greenhouse gas.

Hydro power

Hydro power is electricity made by using the water from a dam or river. The movement of the water is used to make the electricity.

Integrated Environmental Management (IEM)

Integrated Environmental Management is a process worked out by the Department of Environment Affairs to include environmental issues into all development projects. In IEM, the public must be consulted about the environmental issues. IEM is a particular way of checking what the environmental effects of a project will be, and how to make it damage the environment as little as possible.

Incinerator

An incinerator is a large oven used for burning waste at very high temperatures.

Indigenous forests

Indigenous forests are forests that grow naturally in an area. The forest at Knysna in the Eastern Cape is an indigenous forest. It takes a very long time for the trees and other plants to all grow in an indigenous forest.

Mangroves

A kind of tree that grows on the edge of rivers or the coast. The roots of the trees can be seen above the ground.

Minerals

A mineral is something that we mine out of the ground, like coal, gold, asbestos, uranium, iron, and so on.

Minerals processing

When minerals are processed, they are turned from the raw mineral that came out of the ground, into something more useful. For example, iron is processed into iron bars or rods. Asbestos is processed into asbestos sheets to be used for making roofs.

Natural resources

Our natural resources are all those things that we find naturally in the world that we use to survive and to live. They include water, air, land, soil, trees, minerals, animals, plants, the sea.

Nuclear power

Nuclear power is electricity made by using radioactive material like uranium. The materials used in nuclear power are very dangerous, and the waste is dangerous for many thousands of years.

Poaching

Poaching is catching and killing wild animals illegally.

Policy

A policy is a general plan of action or way of doing things for the government. The policy outlines the government's vision and plan of how things should be done.

Precautionary principle

The precautionary principle says that when you are not sure about the effect something

will have on the environment, it is better to be very cautious. One should rather be too strict in protecting the environment than let something cause damage.

Protected areas

A protected area is an area that has been set aside for nature conservation and is protected by laws. It can be owned by a private company, by one person, or by the government.

Public protector

The Public Protector is a government official who's job it is to make sure that government officials do their job properly. Any person can complain to the public protector about how the government is doing its job. The public protector will then investigate and make sure that it is done properly.

Ratify

This is a term that is used to describe what happens to international *environmental conventions**. When a country decides they want to be part of an international convention, the first thing they do is to sign the convention. Then they have to go back to their own parliament and get parliament to accept that they are part of the convention. They also have to pass any laws that they need to make the convention work in their country. This is called ratifying the convention. Only after the convention has been ratified is it like a law in that country.

Renewable resources

Renewable resources are resources which can grow again, such as trees, animals, plants. We can use these resources, and if we use them wisely, they will grow again and we will always have them as resources. Minerals are non-renewable resources. Once we have dug up and burned all the coal, there will be no coal left.

Subsidies

A subsidy is money given by the government to help an industry or farmer. For example, the government gave lots of money to Mossgas and Sasol to try to make petrol and fuel. This money is called a subsidy.

Sustainable development

See Box 1, p9

Waste management

Waste is all the left-over or unwanted material and things that we throw away or get rid of. Waste can be gas, or liquid, or solid. Waste management is the systems for trying to control how much waste we produce, and what happens to it. The three most important things in waste management are reduce, recycle and reuse. One should first try to produce as little waste as possible. Then one should try to recycle as much as one can. And one should try to reuse as much of it as one can. One should throw away as little as possible.

Wetlands

Wetlands are important parts of our rivers and water systems. Wetlands are flat open areas of water or very wet ground. They often have a lot of reeds. Many birds come to wetlands. Wetlands can be very useful for cleaning pollution out of water. For example, you often find wetlands near mine dumps. These wetlands clean a lot of the pollution from the mine dump out of the water before it gets further into the river.

Woodlots

When trees are planted to be used for firewood, it is called a woodlot. A woodlot is usually not as big as a plantation.

Names of Mission members:

Name	Phone/Fax	Address	E.Mail	
Mr Chris Albertyn	0331 65410	EJNF PO Box 100029 Scotsville 3209	ejnf@wn.apc.org	Internal members
Saliem Fakir	T: 403 7272 F: 339 6423	LAPC PO Box 243 Wits 2050		
Prof Stan Sangweni	T: 012 3147186 T: 021 4184940 F: 012 3268686	Public Service Com Room 1210 TVL Hs. PTA	sangweni@SRCD. UNP.AC.ZA	
Maria Mbengashe	T&F: 041 631069	ANC Enviro Desk PO Box 8031 Schauderville 6060		
Tebogo Phadu	T: 330 7322	ANC National RDP Dept 51 Plein Street Marshalltown, JHB 2001		
Sandile Ndawonde	T: 0331 984220 F: 0331 65410	GREEN PO Box 418 Plessislaer 4500		
Tami Sokutu	T: 01311 554800	Head: Dept Environmental Affairs P/Bag 11233 Nelspruit 1200		
Dr David Fig	T: 8385449 w T: 7265734 h F: 8387613 w F: 4031948 h	GEM 195 Smit Street PO Box 5551 Newtown 2113	gem@wn.apc.org	
Lael Bethlehem	T: 403 2122 T: 6480983 F: 4031948	COSATU PO Box 5665 JHB 2000		
Louis Liebenberg	T: 021 615 648	4 Leith Road Rondebosch 7700		
Siva Chetty	T: 031 3024647 w T: 031 478249 h F: 031 4611640	67 Andora Road Bluff 4052		
Barbara Schreiner (Dept: Develop. Planning, Envir. & Works)	T: 8253235 w T: 6162440 h F: 873 8112	H: 110 Derby Rd Kensington 2094 W: 40 Catlin Street Germiston		
Dr Anne Whyte	T: 091613 2366163 F: 091613 5677749	IDRC PO Box 8500 Ottawa, Canada	IDRC	External members
Meenakshi Raman	T: 60 4 2293612 w T: 60 4 8905846 h F: 60 4 2298106	228 MacAlister Rd 10400 Pulau Penang, Malaysia		
Dr Yemi Katerere	T: 4984369 F: 497066	PO Box HG 139 Highlands, Harare Zimbabwe		
Dr Hartmut Krugman	T: 254 2 713160 T: 254 2 520381 F: 259 2 711063	IDRC PO Box 62084 Nairobi, Kenya	IDRC	
Dr Jyoti Parik	T: 09122 8402754 w T: 09122 8400919 w T: 09122 8402770 h F: 09122 8402752 F: 09122 8402026	Indira Gandhi Inst. of Development Research Bombay - 400 065 India	jp@agni.ernet.in	
Hon David Pulkol	T: 256 41 245719 w T: 256 41 220317 h F: 256 41 244394	Dep Min Education & Sports PO Box 7063 Kampala, Uganda	CBR@Mukla.gn.apc.org	