DFID Department for International Development

issues

uk@earth.people

poverty & the environment

ingredients

Treat the world well: it was not given to you by your parents – it was willed to you by your children.

Kenyan proverb

GROWING A FUTURE FOR THE PLANET AND ITS PEOPLE IS A GLOBAL EFFORT.

THE BILLIONS LIVING IN POVERTY ARE CRUCIAL TO SUCCESS.

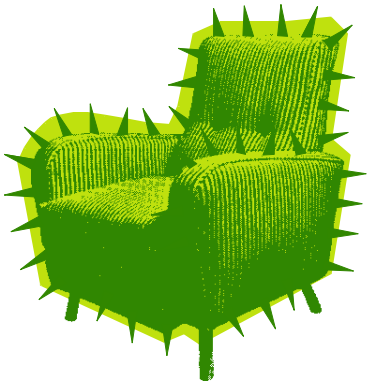
HOW CAN BRITAIN, AS A RICHER NATION, HELP?

IN MANY WAYS...

the lie of the land

Let us not be weary in well doing:
for in due season we shall reap,
if we faint not.

Bible, *Galatians* 6:9



Are you sitting comfortably?

FOR YEARS, CHILDREN IN BRITAIN COULD SWITCH ON THE RADIO AND 'LISTEN WITH MOTHER' TO A GOOD STORY. AS ADULTS, ESPECIALLY IN RICHER COUNTRIES, WE HAVE LESS TIME FOR STORIES. WE TEND TO LEARN ABOUT A CHANGING WORLD THROUGH SOUND BITES, 60 SECOND TV NEWS CLIPS AND ATTENTION-GRABBING HEADLINES.

THE BIG PICTURE GETS BIGGER, BUT WE HAVE LESS TIME TO LOOK.

POVERTY AND THE ENVIRONMENT ARE USUALLY PRESENTED SIMPLY AS DISTRESSING NEWS. BUT THE REAL STORY IS MORE INTERESTING, MORE HOPEFUL – AND RATHER DIFFERENT.

uk@earth.people TELLS SOME OF THAT STORY.

an elderly planet with a weight problem

We live on the thin, cracked and crusty exterior of an elderly planet – with a weight problem.

6 billion years old, hits the scales at some 6,000 billion tonnes, and gains weight at 25 tonnes a day (all that meteor dust). Dieting isn't an option. Apart from a few hundredweight of orbiting litter left by space missions, everything stays.

A long time ago, people began using their enormous brains to fashion the natural world – and its gifts – into a new world. A world of tools and possibilities. A built world.

Take a look. Wherever you are, you'll see people living in communities built with the stuff of Nature. Nature's resources are limited. Our minds are not – and it's time to use them to improve our relationship with Planet Earth.

the world about us

There's an old joke, possibly from India, and sometimes told against the French:

'Why did the sun never set on the British Empire?'

'Because God didn't trust the English in the dark.'

Britain has a long history of interfering overseas – yet its history is not simply colonial. A non-conformist streak in the British psyche influenced the modern world, from the anti-slavery movement to campaigning groups.

Oxfam, Amnesty, Christian Aid, Friends of the Earth, Survival International and Live Aid are just some of the international groups or charities which began at home.

Not surprisingly, both sides still exert influence. Britain plays a global role through the UN and Commonwealth, for instance. More recently, Britain has backed the global fight against poverty.

charity begins at home

In 1601, Parliament passed *The Charitable Uses Act,* listing four areas of charity: poverty relief; education; church work and 'other purposes of benefit to the community'.

In the 20th century we have begun to realise that the 'community' is not just local, it's global. On the threshold of the 21st century, it's a lesson we are still learning.

David Bryer, Director of Oxfam: 'In a world where the gaps between rich and poor – that's rich and poor people, and rich and poor nations – are still increasing, there's a moral demand that we do something. There's also an enlightened self-interest

in the world coming closer together. Britain needs trade with the rest of the world. So it needs a world that's peaceful, growing and economically sound'.

It's not just those at the top who think this way. Steve Morley is an Oxfam volunteer in his twenties, based in Bristol. He's excited by fair trade and the possibilities it offers. When he started, he still saw things with something of a student's eye:

'Before I volunteered I thought Oxfam was just old women meeting in church halls. But fair trade was something I could really link into. On a global level, everything we buy as consumers has an impact. But the main thing about fair trade for me is that it's about people.'

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As you may have guessed by now, this is a story about people and their earth.

The Department for International Development (DFID) is the new Department set up by the UK Government in May 1997. Its focus is on world poverty.

Its first Cabinet Secretary, Clare Short, has publicly committed her Department to an ambitious but achievable target: to halve the proportion of people living in extreme poverty by 2015. That's before a baby born in Britain in 1997 can vote.

DFID is the spearhead of the development effort run on behalf of the British people. And it's quite an effort. About two billion pounds of effort, in fact. Each year. Over £30 for every man, woman and child in the country. (No, you can't have it back.)

So what do you get for your money? What are DFID up to? Quite a lot.

We don't want concessions for poor people – we want opportunities.

Michael Taylor, Director, *Christian Aid*

back to growing things

DFID is a well-known farmer in the development field, giving technical support, expert help, financial assistance and emergency relief.

There are plenty of others involved, too. DFID works with governments and villages – and points between. It pools intelligence, ideas, people and resources with other groups and agencies.

In richer countries, development and the environment struggle to make the news. In poorer countries, newspapers, radio and TV are full of it.

Stimulated by the extraordinary success of the Earth Summit in 1992, a new harvest of ideas is coming through.

Some of the best come from communities around the world, from people in villages, towns and cities. And from other communities, too – whether scientists, foresters or campaign groups.

What is remarkable – and exciting – is that many of these ideas are beginning to converge.

people first

At the Earth Summit in 1992, everyone agreed: 'Human beings are at the centre of [our] concerns... they're entitled to a healthy and productive life in harmony with nature.'

from Principle 1, *Rio Declaration,* 1992.

It was also obvious that the world's poor – struggling daily for the basics of life – could do with some *assistance*: 'presence, helping, aiding... relief'.

And help with *development*: 'a gradual unfolding; fuller working out of the details... growth of what is in the germ, growth from within'.

Dictionary definitions make it seem simple, but most of us are still confused. Just how bad is the environmental crisis? Is it too late? Can anything be done?

These simple questions need answers. But first let's look at some of the myths choking the field.

All yu Presidents
Think of de residents,
Queens and Kings
Start sharing,
City Planners
Hav sum manners,
Prime Ministers please,
Think of de trees.
Those dat sail
Tek care of de whales,
De strong should seek
To strengthen de weak,
Lovers of art
Should play their part,
An all those upon it
Tek care of de planet.

Benjamin Zephaniah,
Healthcare, 1996

clearing

the

undergrowth

"we're all DOOMED."

"humans are BAD for the planet."

"there are TOO MANY people."

"it's getting WORSE."

"NOTHING to be done."

"development DOESN'T work."

They tend to go for a very simple script: here is a starving victim, here is a villain. (The villain is an optional extra. Sometimes the weather is the villain.)
And here is an outside saviour coming in to save the victim. This is akin to a fairytale.
Alex de Waal, Co-director, *African Rights*

I see two major myths. The first is 'there's no problem' – and if there is, it will be solved by trade. The other is that it's all hopeless and there's no point doing anything.
David Bryer, Director, *Oxfam*

MOST STORIES WE GET ABOUT POVERTY AND THE ENVIRONMENT ARE, LET'S FACE IT, SOAKED IN CLICHÉ.

IN THE LAST THIRTY YEARS, A WHOLE MOB OF MYTHS HAVE DONE THE ROUNDS, MUTTERING MENACES, DEMANDING ATTENTION.

MYTHS GET IN THE WAY. TIME TO UPROOT A FEW.

myth 1:
'nothing to do with me'

But it is.

From the ozone hole to the food on your plate, and from acid rain to tourism, the world is linked together. Every move you make – especially as a consumer – has complex impacts which ricochet around the world. Each act of Nature is the same.

Development is the best contraceptive.

***attributed to* Karan Singh, former Indian diplomat.**

Development plays an important part in changing the world – and so do you, because the taxpayer funds DFID. But people share in growing a better future in many ways: as volunteers, using charity cards, fairly-traded tea or coffee, or taking part in Local Agenda 21 (the bit of the Earth Summit declaration promoting local involvement in local affairs). Or by reading this.

THE GRANDCHILDREN OF THE RICHEST PEOPLE IN THE WORLD NEED A HEALTHY PLANET AS MUCH AS THE MOST HUNGRY STREET CHILD.

Clare Short

myth 2:
crowded house

There are too many of us. Over-population is the real problem. Six billion and counting. The planet can't cope. The house is crowded. Move up. Make room. Go away.

THE BATTLE...IS OVER. IN THE 1970S HUNDREDS OF MILLIONS OF PEOPLE ARE GOING TO STARVE TO DEATH.

Paul R. Ehrlich, opening words, *The Population Bomb* (1968)

Let's take a look. In 1974, Bangladesh and Ethiopia had severe famines. Each killed some 100,000 people. In the late 1970s, a *million* Cambodians starved to death. Many others regularly went without food. But 'hundreds of millions of people' did not starve. Here's the real story...

Almost a quarter of the people on earth went hungry in 1950 – one in ten do now. That's one in ten too many – but by any measure, it *is* progress. The last fifty years have seen massive increases in global food production.

The rate of population growth peaked at 2% in 1968, when *The Population Bomb* came out. It's now under 1.5% per year. According to the UN, 'the growth of the world's population has slowed

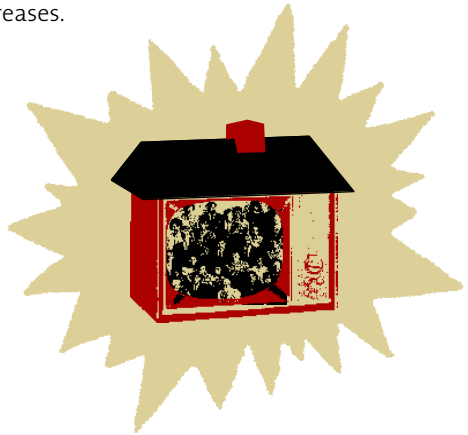
dramatically.' Earth gets 80 million newborn a year these days – compared to 90 million at the start of the 1990s.

One reason poor people tend to have more children is because they can help on the land, fetch water and wood. Children mean security – and their work can increase income.

So if supplies of food, water and wood can be made more reliable, and income increased, population pressure is reduced. Instead of struggling to get by, extra resources can be (and are) devoted to giving fewer children more education – and a better start in life.

Today, over half of all couples use contraception – back in the sixties, about 10% did. In Asia, parts of Africa and Europe, the average number of children born to each woman is *falling*.

Progress *is* being made, even as population increases.



myth 3: 'nothing to be done'

OK, so the problem isn't just about population, it's about development. Everyone wants a fridge, a car, a new outfit, a chunk of brown meat and red sauce in a white bap, another electronic whatnot... You can't stop it. There's nothing to be done.

Samuel Beckett's play *Waiting for Godot* has two tramps, Estragon and Vladimir, saying 'nothing to be done' so often, and about so little, that it becomes painfully funny.

It's not so funny when people say the same thing about the planet, or the people it supports. Especially when so many live in extreme poverty. Then it becomes *ignorance* – the act of ignoring.

People say 'we are destroying the planet'. We're not. We're *changing* the planet – but the *planet* will survive even if people, tigers and whales don't.

Forests will continue to become fields (and vice versa), rivers be dammed for power and coral dug up to build houses. But at the same time, the UN points out that life expectancies, literacy rates and nutrition are all improving throughout the developing world. This is important. When did you

last live through a famine?

The interactions between people and their planet are enormously complex. Simple answers just don't exist. There are, however, some simple and powerful *ideas* with which to seek solutions.

Can we do something? Of course we can. We forget that finding enough food was a major problem for richer countries not so long ago. (Not surprising if you have to learn 19th century British history. All those dreary Corn Laws.)

In 1929, barely a lifetime ago using Western life expectancies, 90% of children in the East End of London were malnourished and suffered rickets, and many children went barefoot. So change *is* possible – if we have the will.

Trekking into the future, we need to boldly *think* – and to *act*, too. After all, sometimes people are actually *good* for the environment.

Time for a box.

a hundred years of solitude

SINCE OUR ANCESTORS' TIME WE HAVE WORKED THIS LAND, AND YOU SEE TREES. THERE, THE LAND HAS NOT BEEN WORKED. NO TREES.

Layebe Mansare, Toly village elder, Guinea, West Africa

For a hundred years, colonial administrators, local governments and others thought they had a handle on the front line between scrubby grasslands – savanna – in West Africa and the remaining forest. 'It's an ecologically fragile area,' they said. 'There's a deforestation crisis,' they agreed. Scenes of burning trees were described as 'wanton destruction'.

DFID funded two British researchers, Melissa Leach and James Fairhead, to look at local views on 'the problem'.

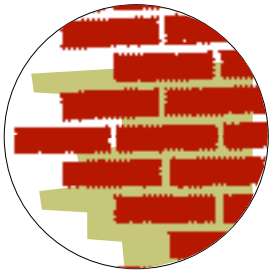
First they talked to elderly villagers about their memories of the local area. Then they dug out aerial photos from the 1950s and colonial records from the last century.

Piece by piece they built up a jigsaw of new information. Forests grow in 'islands' around the local villages of North Guinea *because of people*. Clearing savanna land for agriculture and homes *encouraged* trees.

THE TREES COME, SO NEW LAND BECOMES OLD – WATER HAS ENTERED, THE HOE HAS SOFTENED IT. IT HAS BECOME LIKE OLD LAND.

Layebe Mansare

When people create new villages, forests follow. When villages are abandoned, Nature ensures the savanna quickly creeps back. The farmers in the



Kissidougou region use techniques which date back centuries – and include burning trees to clear and enrich farmland. Forests *increase* as a result of these activities.

For thousands of years, people and the environment have found ways to work together. In this part of West Africa humans nurture the Nature – and improve it.

myth 4: 'development doesn't work'

PEOPLE ARE JUST FED UP, PARTICULARLY WITH THE AFRICAN SITUATION WHERE BILLIONS OF POUNDS HAVE GONE IN AND THE SITUATION REMAINS THE SAME.

Robert Whelan, *Institute for Economic Affairs.*

It's easy to see how this myth came about. Richer countries have given to poorer countries for years, and still the TV shows poverty, famines, floods and disease. Our attention is repeatedly drawn to all the sorrows of the world. Nothing seems to change. Again, we donate to a charity as another crisis goes prime-time .

But take South Korea. It received lots of assistance over the years, spent much of it on education, and became a 'Tiger' economy. Was this news? It should have been.

Or Sri Lanka. Between 1947 and 1977 it virtually eradicated malaria at a cost of around $52 million.

Or Tanzania. DFID is involved in work showing infection rates for HIV, the AIDS virus, fall by 40% when other sexual diseases get early treatment. Using clever statistical techniques, the researchers work out how much has been spent for each year of life gained. About seven pounds. Hardly billions – and hardly a situation which 'remains the same'.

To be fair, 'development doesn't work' is wrapped round a grain of truth. For years, many international development projects concentrated on short-term relief – and big 'glamorous' projects.

Rich countries tended to give things to poorer countries – from airports to overblown conference centres. Money was siphoned off by corrupt politicians or wasted on 'vanity' projects. (A bit like vanity tables, only the size of large buildings.)

Development organisations gave what they thought other countries wanted (and looked for direct returns in terms of trade). Donors sometimes found it easier to listen not to the poor, but to the powerful.

a word from the Prof.

Myth 4 became so common a number of organisations, including DFID, turned to an independent expert, Oxford University Professor Richard Cassen, to see if development worked.

He found it did. But there are problems: 'It takes an awfully long time. The average aid project is around five to eight years, and evaluation takes two or three years more. So it's a ten year process. And then you've got the learning time.'

Spot that last phrase: 'the learning time'. Assistance doesn't always work – and mistakes will happen – but there's now *plenty* of evidence showing real progress. Affecting real lives. But 'the learning time' means this news takes time to filter through to the wider world.

myth 5: 'so there's no problem, then?'

As if.

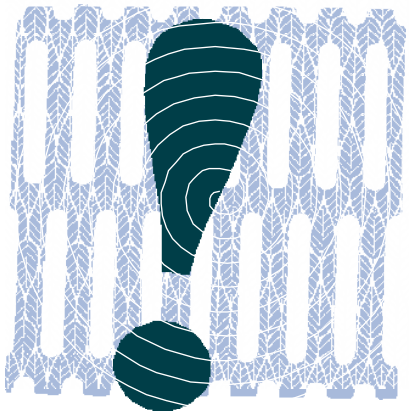
This is a new myth. The one to fall back on when the others have been cleared away.

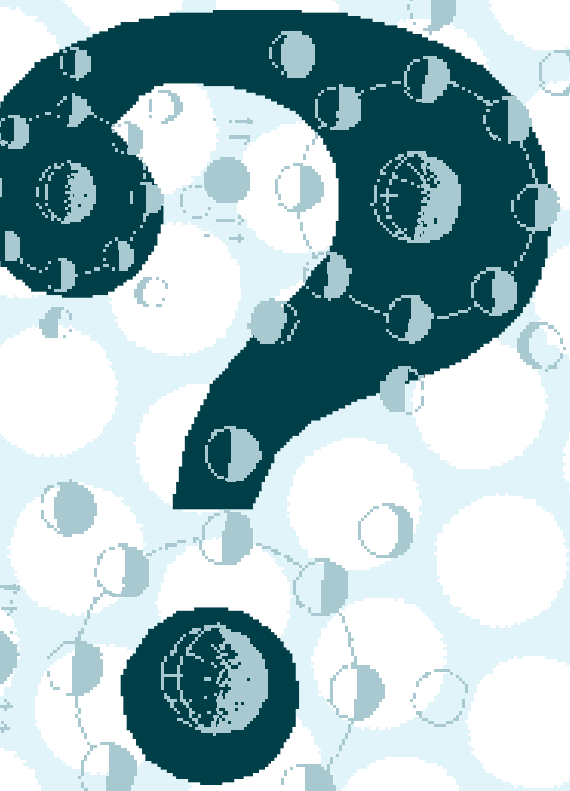
It's tempting to think that if there's news of successful development projects then we can all relax.

Far from it.

The following pages look at what's happening on the ground, and how DFID – and many others – are supporting change.

After years of trial and error, people may be starting to get it right. But the answers are not simple – and the war by no means won.





Development works.

On a grand scale in South Asia where the green revolution can mean three crops a year.

In the eyes of the women proudly showing me household goods bought with profits from collector well community gardens.

Or the eyes of a Nairobi slum baker showing me his oven, bought with a loan from a DFID-backed credit scheme.

Don't try telling *them* it's all wasted.

John Vereker, Permanent Secretary, *DFID*

hard

earth

ASK MOST PEOPLE TO THINK ABOUT AID, AND THEY THINK OF STARVING CHILDREN. FROM BOSNIA AND BANGLADESH TO BURUNDI AND BEIRUT, IT'S TRAGEDY THAT BRINGS THE NEWS CREWS.

THERE'S ONE TRAGEDY YOU'RE PROBABLY UNAWARE OF: THE FACT THAT YOU RARELY SEE STORIES ABOUT POOR PEOPLE SUCCEEDING. WITH GUTS, DETERMINATION – AND A LITTLE HELP FROM THEIR FRIENDS.

We have suffered four major famines. The first was AMZAYTONE,'the time we sold our necklaces'. The second, EL HARIGUE, 'the year when everything burnt'. Our crops shrivelled under the heat of the sun. The third, in 1982, was ALCHOUIL, 'the year of the sack'. Traders came with sacks of millet. As long as you had the means, you did not starve. Finally, in 1985 the big famine came upon us. We called this L ITCHE, 'the year when everyone fled'.

Nizela Idriss, Mara village, Chad,
from: *At the Desert's Edge*

imagine

You're a refugee. In a camp.

You've got problems.

First things first: food.

There's a basic handout of maize, maybe some milk powder for the children, but it's not enough. There's a market – but you were poor before you became a refugee.

Then there's water. It has to be collected from a river until a borehole is drilled. But is it clean?

And you need fuel, to heat water, cook and keep warm at night. Women and children, who collect most fuelwood, walk further every day – putting them at personal risk.

At night in northern Pakistan or India, say, temperatures can fall to minus 40 degrees centigrade. Fuel matters.

Your camp has a population density that doesn't bear thinking about. And the numbers grow: refugee camps have one of the highest birth rates in the world.

The camp is like a small world – schools, shops, roads, hospitals, forests, small farms, crowded housing... but like the big world, the basic problems don't change: food, water, fuel, shelter, income.

How are you doing?

emergency

Disasters, we hope, are short-lived. But every year, new disasters take their toll. On average, DFID is involved in around a hundred relief operations each year – somewhat more than make the TV news.

Take earthquakes alone: on average, they've killed nearly 22,000 people *annually* since 1969.

And famine and drought are much bigger problems.

DFID is by far the biggest source of UK funds for disaster-related activities. About 10% of the DFID budget now goes to emergency relief (compared to about 2% in the early 1980s). A large proportion of this is channelled through others, from the UN High Commission on Refugees (UNHCR) and World Health Organisation (WHO) to CARE International, Oxfam, the Red Cross and other such groups.

Money goes where it's needed. In just one month in Rwanda, Britain directed money into food aid, water tankers and sanitation schemes, police training, books, radios for women's groups, fire engines – and helping refugees return home, .

biblical

Fortunately, better communications now make for a quicker response, as this group of elders from the village of Gourga in Burkina Faso testify:

'In the *Suya* ['grasshoppers'] famine, we were plagued for three years in a row by grasshoppers. Other famines were as bad, but we didn't give them names, because the hardship was alleviated by modern transport and other kinds of aid.'

from: *At the Desert's Edge*

This almost Biblical account of a plague of grasshoppers reminds us that Nature and mankind have an ancient relationship, with both highs and lows.

There are other examples of aid provision by enlightened rulers, too. In 123BC, the Roman tribune Gaius Gracchus pushed through a law to protect the poor from famine. In 1006 the Chinese Emperor Song built granaries as insurance against famine. In 1281, Kubla Khan had inspectors check crops and buy surpluses for the same reason.

poorest of the poor

It's not enough to tackle disaster when it happens. DFID is determined to help prevent them from happening in the first place.

This is not a new approach. In 1663, the Royal Society had a suggestion to prevent famine. It urged people to try planting those new-fangled potato things. Within a hundred years, they were all over Europe.

Individuals, too, can make a difference. Ray Simpson is a retired legal consultant from Britain. In the Second World War he was a wireless operator in the RAF, but for the past 50 years he's lived in Zimbabwe. He witnessed one of Zimbabwe's worst droughts in living memory:

'We were distributing relief in remote areas of Matebeleland. In one village they made me a cup of tea. It tasted awful, and I asked them how they made it. They said "we get some newspaper and burn it, and put the ashes in hot water". You drink it because they've gone to so much trouble, but it shows you – these are the poorest of the poor.'

Ray used a long-standing interest in agriculture to cast around for solutions. He recently came up with one type of tree, known as the physic nut tree.

> **Let them gather all the food of those good years that come, and lay up corn under the hand of Pharaoh, and let them keep food in the cities.**
>
> **Bible, *Genesis* 41 (Joseph to the Pharaoh)**

After distress, solace.

Swahili proverb

This tree grows quickly and resists drought. Animals avoid eating its leaves, so it can act as a 'living fence' to protect crops from greedy goats, cattle and wild life. It even appears to be unattractive to mosquitoes.

It also produces a valuable oil for which there is a cash market – a crop that can be harvested a year or so after planting.

Since then, a group of Ndebele girls from a youth club in Bulawayo have helped Ray pack and distribute hundreds of thousands of seeds to over half the schools in Matabeleland.

DFID funds are not unlike the seeds of Ray Simpson's *Tree Plan Zimbabwe*. The start of a process. But it takes the ideas, enthusiasm and involvement of local people to make them grow.

stormin' Norman

You may not have heard of Norman Borlaug, an American Nobel Peace Prize winner in his eighties. He too saw better plants as a way to avoid human disaster.

In *Forgotten Benefactor of Humanity* (Atlantic Monthly), Greg Easterbrook writes: 'Perhaps more than anyone else, Borlaug is responsible for the fact that throughout the post-war era, except in sub-Saharan Africa, global food production has expanded faster than the human population.'

It all comes down to seeds. In the 1940s, Norman helped develop the high-yield, low-pesticide dwarf wheat that a large part of the world depends on.

This strain of wheat helped reduce the widespread hunger that haunted India and Pakistan in the 1960s (and which many still associate with those countries). It grows rapidly, needs less water – and gives spectacular improvements.

It wasn't easy for Norman. Back in the sixties, he was in India and Pakistan trying to persuade reluctant governments to back his new dwarf wheat. The sheer depth of famine in 1965 changed things, and they agreed to try it.

Norman had a 35 truck convoy take the seed from New Mexico to Los Angeles for shipment. Mexican police held up the convoy. So did US border agents. Riots in LA stopped access to the port. Finally, the seed set sail. Norman recalls 'I went to bed thinking the problem was at last solved, and woke up to the news that war had broken out between India and Pakistan.'

Even so, a late sowing with poor germination increased yields by 70%. This prevented war-time

starvation – the most common cause of famine. Norman recalls the next harvest as 'beautiful, a 98% improvement'.

By 1974 India was self-sufficient in cereals, and since Norman's seed arrived in Pakistan, cereal production has increased by a factor of about six.

This incredible achievement came to be known as the Green Revolution. Thanks to it, world food production has almost quadrupled since 1950 – using just 1% more land.

WITHOUT HIGH-YIELD AGRICULTURE EITHER MILLIONS WOULD HAVE STARVED OR INCREASES IN FOOD OUTPUT WOULD HAVE BEEN REALISED THROUGH LOSSES OF PRISTINE LAND A HUNDRED TIMES GREATER THAN ALL LOSSES TO URBAN AND SUBURBAN EXPANSION.

Norman Borlaug

spice the world

Not everyone was a fan of the Green Revolution.

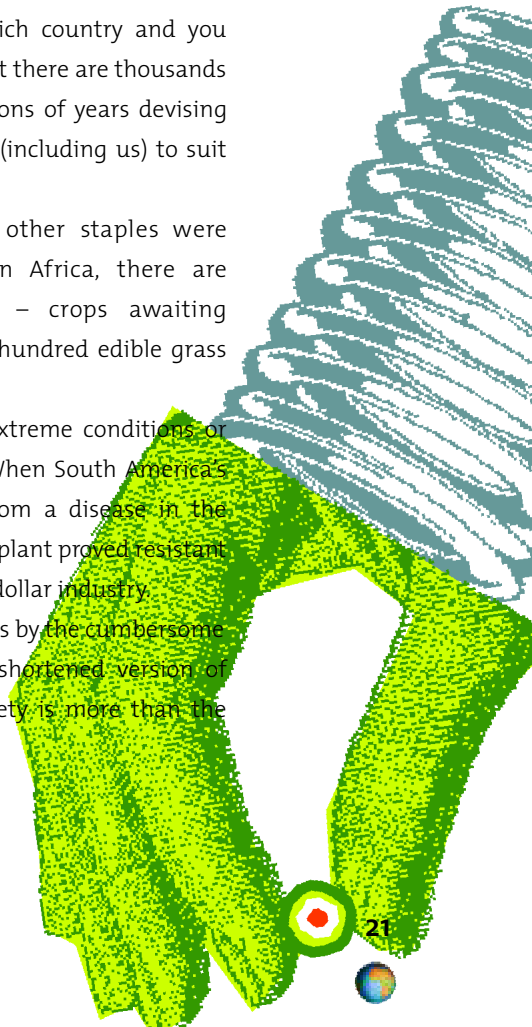
As Neil Thin of Edinburgh University reports: 'there were problems with the promotion of "miracle seeds". Mono-cropping, intensive production and irrigation carry environmental risks. These problems are not insuperable, and most sceptics have been humbled into agreeing that the Green Revolution helped both rich and poor by dramatically reducing food insecurity.'

Mono-cropping reduces the *variety* of modern agriculture and is a global problem. It's easy to forget just how many crop varieties there are. Walk round a supermarket in a rich country and you might see a hundred or so. But there are thousands more. Nature has spent millions of years devising different plants and animals (including us) to suit local conditions.

Before wheat, rice and other staples were farmed, they grew wild. In Africa, there are thousands of 'lost crops' – crops awaiting rediscovery. Including over a hundred edible grass seeds.

Many varieties grow in extreme conditions or are good at resisting pests. When South America's coffee crop faced disaster from a disease in the 1960s, a wild Ethiopian coffee plant proved resistant – and rescued a multi-billion dollar industry.

The total variety of life goes by the cumbersome name *biodiversity* – itself a shortened version of *biological diversity*. Such variety is more than the spice of life. It's essential to it.



> **Go down to Kew in lilac-time, in lilac-time, in lilac-time; Go down to Kew in lilac-time (it isn't far from London).**
>
> Alfred Noyes, *Barrel-Organ*

roots

St. Helena, a tiny island 1200 miles West of Angola, preserves plants in a national park, and stores their seeds in a 'seed orchard'.

Similar work goes on at Wakehurst Place, Kew Gardens' West Sussex estate. The 'Millennium Seed Bank' there will draw together 20 years of research into a vast seed store.

By 2000, Kew hope to have stashed away seeds from all UK species. By 2010, they aim to have rounded up seeds from 10% of the world's plants.

To start with, Kew will concentrate on seeds from the world's arid areas – parts of Africa, India and Latin America. These are the species most at risk, with a quarter of the world's population depending on them for food, building materials and fodder.

This will be a co-operative bank, with Kew making close links with overseas countries. Everyone will benefit.

Once banked, seeds can keep for centuries, even millennia. (Scientists once made a ten *thousand* year old seed germinate and sprout. It was an Arctic lupin – a common garden plant, with a name meaning 'wolf-like' – discovered in Yukon, Canada.)

DFID works closely with universities and internationally important centres like Kew, the Oxford Forestry Institute and the Centre for Tropical Veterinary Medicine in Edinburgh.

Ask people what characterises the British development effort, and they often point to the strength of British institutions – and how deep their roots are. DFID also supports many international agricultural research centres, from the International Potato Centre to the International Rice Research Institute.

on the road

These institutional roots and connections lie behind another story.

There's a modern phenomenon which is environmental, and looks like it's here to stay: road accidents.

Currently, almost two thirds of a million people lose their lives on the roads each year. Around ¾ of these deaths happen in poorer countries.

In fact, in developing countries, only respiratory diseases are bigger killers of those aged 5–44. DFID helped the British *Transport Research Laboratory*

(TRL) to study this. TRL found as many as half those dying are pedestrians – mostly children.

One way to reduce accidents is by better planning and design of road networks, and so DFID funded TRL to develop and distribute (to 130 countries) a manual, *Towards Safer Roads in Developing Countries*.

TRL also dreamt up MAAP – the *Microcomputer Accident Analysis Package,* now used successfully in Africa and Asia. It's a low-cost system to store and analyse accident data. It's user-friendly, too, so non-computer types can use it to help identify accident-prone spots – and make low-cost improvements.

How to design a cross-roads. Where to put traffic lights (or 'robots' as they say in Southern Africa). What signs people need – and where they should go. Hardly headline-grabbing stuff, but an important example of global research helping local people make the world safer for their children.

tsetse suicide

Disasters can be man-made or natural.

Take insects. They can spread disease to animals and humans or blight crops. In modern times farmers, who bear the brunt of this, have responded aggressively with powerful chemicals including pesticides. Some of these chemicals are pretty nasty, both for people and their environment. An example of the 'solution' breeding new problems.

DFID searches out solutions with less impact on people and the land. Well over £150 million has been committed to sustainable agriculture since the Earth Summit, and one area where DFID has had considerable success is with insects.

Tsetse flies are infamous as carriers of sleeping sickness. For many years they were controlled by planes flying over infested areas, drenching them with extremely toxic, planet-hostile chemicals known as *organochlorines*.

The alternative wasn't much better. Tsetse flies live on animals, and so forests were felled – and the wildlife shot.

DFID-supported research came up with an ingenious solution using cotton screens. These are soaked in a chemical which, to the tsetse, stinks of cow. Attracted to the screens, they discover an insecticide. Effectively, they commit suicide. It deals with the problem – but with a much lower impact on the environment.

Then there's malaria.

Some historians think half the people who *ever* lived died of malaria. Alexander the Great and Oliver

Cromwell were two well-known victims. (Cromwell because he refused 'the Papish cure', as the quinine discovered by Jesuits was sometimes known.)

Today, malaria is on the rise. It's possibly the third biggest killer on earth. Britain is affected, too, with thousands of new cases each year.

Once, people thought malaria was spread by 'bad air' – hence the name. But today, we know malaria is caused by one of the tiniest creatures on earth: a plasmodium. In 1897, Ronald Ross demonstrated the malaria cycle. A century on, new vaccines are being developed.

the collywobbles

Diseases don't always need insects to get around.

Nine days after the premiere of his *Pathetique Symphony* (No. 6), Tchaikovsky died aged 53. He had succumbed to what was then called *cholera morbus*. The disease is remembered in 'the collywobbles' – a corrupt version of the old term. Cholera epidemics have often swept by – and influenced history. Some historians think this water- and food-borne disease triggered the spate of revolutions last century.

Sandy Cairncross, of the London School of Hygiene and Tropical Medicine, is setting up a centre on infectious diseases for DFID. It will give information and training to everyone from sanitation engineers and doctors to relief workers and local government officials. He explains just how tough the cholera bacteria, called a *vibrio,* is:

'When the first spacecraft from the moon landed, it was whisked off to a safe area for decontamination. They feared Apollo might have brought back bacteria from space.

'What they discovered were large quantities of vibrios – from the surface of the sea. These bacteria love latching onto solid surfaces. Imagine: there they are and suddenly Apollo arrives, full of lovely surfaces. It's this desire to latch onto the surface of the gut which gives you cholera in the first place.'

To attack cholera, first you sort out better drains, a job DFID is helping with in shanty towns in Brazil – and elsewhere. This stops the disease jumping from house to house. Then you look at people's behaviour. As Sandy says, good habits start early:

'Washing hands with soap is one of the single most important things you can do. One researcher in Bangladesh found free soap and basic education could cut dysentery by about 85%.'

The earth can be a hard place. But even simple science can make it softer.


minute object

hoe

down

Justice begins with the recognition of the necessity of sharing.

Elias Canetti, *Crowds and Power*

TO GROW INTO STRONG AND HEALTHY PLANTS, SEEDS NEED RAIN, SHINE AND NUTRIENTS. THE SUM IS GREATER THAN THE PARTS.

IN DEVELOPMENT, IT'S THE SAME. IF PEOPLE GET TOGETHER, THEY CAN MAKE A DIFFERENCE. SHARING THE EFFORT – WHETHER WORKING THE LAND OR LANDING THE WORK – IS RECKONED TO BE THE WAY FORWARD.

TAKE YOUR PARTNERS BY THE HAND...

Ideas won't keep: something must be done about them.

Alfred North Whitehead

share value

Is there a big idea around? Something simple but with the power to change the way everything is done? James Wolfensohn, head of the World Bank, thinks so: 'The message is very simple: participation works'.

Sharing, participation, ownership (call it what you will), all these concepts crystallise around a central idea. As the Earth Summit put it, people, and the way they live, are at the centre of our concerns for Nature.

THE BIGGEST LESSON THE DONORS HAVE LEARNED IS THAT AID HAS GOT TO BE 'OWNED' BY THE PEOPLE WHO RECEIVE IT. BOTH THE PEOPLE AND THE GOVERNMENTS. UNLESS THAT IS SO, IT'S NOT LIKELY TO WORK.

Prof. Richard Cassen, *Oxford University*

Sharing or 'participatory' approaches are now used in forestry, wildlife management, agriculture, sanitation, infrastructure – you name it, wherever development is occurring. It's happening locally, nationally, regionally and internationally – and as combinations of all these.

Here are some real world examples from the World Bank.

In Cote d'Ivoire in West Africa, village committees took responsibility for the water-pumps. Maintenance costs fell by over half, and breakdowns from 50% to 11%. In Nicaragua, local supervision of a *barrio* (shanty) upgrading project helped complete the project in 3½ years instead of five. While in the Philippines, local management of irrigation increased crop yields – and income – by up to 50%.

Every other agency worldwide can point to similar findings.

share and share alike

In the past, some environmentalists put saving trees or whales or elephants or Nature at the top of their list. People trailed a poor second. A very poor second.

SOME ENVIRONMENTAL LOBBYISTS... ARE THE SALT OF THE EARTH, BUT MANY ARE ELITISTS. THEY'VE NEVER EXPERIENCED THE PHYSICAL SENSATION OF HUNGER. THEY DO THEIR LOBBYING FROM COMFORTABLE OFFICES.

Norman Borlaug

Yet gradually *people*-people and *Nature*-people are coming together. Because the answer is to find better ways for people to relate to Nature.

The last twenty years have seen Britain and many of its partners using sharing or 'participatory'

methods. It's an approach which can work for hippos and humans, medicine and plants.

Take forests. The locals are the main users of forests – 80% of African and Asian fuel is wood. But for years, large numbers of local people were excluded from decisions about (and responsibility for) their forests. Instead, power rested with governments, forest departments and private companies.

The UK–Nepal community forest project has been running for decades. It's led to impressive results. By involving everyone, from the bottom up, people are more likely to feel they have 'a share' in their forests.

Local communities are often the real experts – they know what works and what help is needed. By jointly managing their forests, and sharing overall responsibility, relationships change for the better.

Of course, sharing approaches still need money. They take a long time to set up. In Nepal, for instance, project workers spoke with individual households and local village committees and local officials and national officials and international foresters and... the list goes on. And on. But an awful lot of useful stuff comes out in the wash of words.

Nepal now has better-quality forests. Villagers report the project is improving water-supply, reducing soil-erosion and increasing the number and variety of species – the 'biological diversity'.

Some benefits are particularly encouraging. DFID-supported projects in Nepal, Nigeria, Niger and Sudan have all stimulated people to plant more trees privately – by improving awareness and skills.

With participation people come together in terms of management.

Dr N. Kaji Shrestha, *Women Acting Together for Change*, Nepal

Mohamed el Awad Ali is a Sudanese elder who fought with the Allied Middle East forces in the Second World War. Since then, he has farmed in his village, El Ushare in Shendi. His region is the biggest producer of onions and beans in the country, but loss of forests and soil-erosion are big problems. Solutions *are* possible. He reports that:

THESE NEW MESQUITE TREES NEED LITTLE WATER AND PROTECT THE SOIL. WE DIDN'T KNOW THESE ADVANTAGES BEFORE THE DEVELOPMENT PROJECT.

From: *At the Desert's Edge*

wet, wet, dry

'Save the rainforest' was a popular slogan for many years. But there are other types of 'wet' forest which are important and in need of support, like cloud forest, moist forest and monsoon forest. (And let's not forget 'dry' forest, either.)

DFID support for forests, wet or dry, varies as much as the forests. A major project might help a country redefine its forestry strategy. Smaller programmes support communities who rely on forests for basics like fuel, food and earning money (from honey to tooth-picks). The secret lies in knowing the facts, and working with local people.

Sometimes the best way to help local communities, or very valuable forests, is to look at the whole country. Martin Wright describes a project Britain supports in Ghana:

'During the 1980s, economic recession and pressure from foreign banks pushed Ghanaians into destructive logging of their dwindling forests. The British response has been to conduct an exhaustive inventory of the remaining forests (largely in reserves), charting the different types of forest and the mix of tree species, fauna and flora.

'This has helped Ghana's foresters work out ways of selectively felling high-value trees without destroying the forest canopy or breaking up its delicate ecosystem... Next is an equally detailed survey of local people's needs – to ensure that their use of the forest for fruit, nuts, game and medicines is not hampered by the logging programmes.'

from: *Forests for Life*, WWF

Forestry is in some ways less about trees and more about people. For a secure future, complex links between forestry and agriculture, population, land ownership and economic reform all need to be explored – and addressed.

If everyone can be drawn into decisions about forests, and a framework for good practice put in place, forests – and the people who rely on them – will be safer in the long run.

cousin Gokwe

Zimbabwe is in many ways fortunate. It has rich natural resources (the Victoria Falls, for starters) and a well-defined administration.

Zimbabwe's government is like a pyramid – from centre to province to district to ward and, finally, to villages. It works, but tends to keep control (and money) at national and provincial levels.

Gokwe is sometimes described as 'the poor cousin' of Zimbabwe's districts. For years Gokwe put

together plans, sent them to provincial level (where the money was) and waited. And waited.

Zimbabwe was keen to explore a more local approach, so 10 years ago it agreed to a very unusual idea to help out Gokwe.

DFID knew that if local planning was to have an impact, it needed to be driven by, and visibly benefit, local people. Asked why they were so poor, Gokwe District Administrators always gave the same answer: 'money'. So DFID handed some over. With no strings – except local involvement.

Great! Bit by bit, villagers were encouraged to think about what they *really* wanted. A school, a nursery, a hospital or maybe a road? And which should come first? Initially, a DFID 'technical co-operation officer' helped point villagers to key issues – but adamantly refused to take any decisions. That was the district's job.

There were problems though. The money was there, but budgets became overdrawn. Contractors weren't properly supervised – and did bad work. The district officials got together to deal with the problems. Through experience, training and new procedures, the district learned it wasn't *just* about money, after all.

Soon, Zimbabwean Ministers were reading the best development plans they had seen – from Gokwe, the poor cousin. 'What's going on down there?' they asked. So the Ministry came to visit – and decided to apply the scheme across the country.

GOVERNMENTS NEED TO ACCEPT THEY DON'T HAVE A MONOPOLY. WHERE A SMALL GROUP OR NON-GOVERNMENT ORGANISATION HAS THE ADVANTAGE, SUPPORT THEM. AND IF IT'S NOT WORKING – THEN GET OUT.

Yemi Katerere, *World Conservation Union*

water can

Propped between trees
and water
Dylan Thomas

Water, water,
everywhere,
Nor any drop to drink.
Samuel Taylor Coleridge
The Ancient Mariner

IF FISH RULED THE EARTH, IT WOULD BE CALLED PLANET WATER.

WATER, EVEN MORE THAN FOOD, IS ESSENTIAL TO LIFE. (YOU DIE OF THIRST, FIRST.)

3% OF WATER IS FRESH (TWO THIRDS OF THAT IS LOCKED IN THE ICE CAPS). BRITAIN HAS WATER ON TAP. SO WE TEND TO WASTE IT. BUT WATER IS ALREADY A GLOBAL ISSUE. SOON, WATER COULD BE THE GLOBAL ISSUE.

In the drought, we had terrible problems. But now, we are like chiefs.

Luke Chikwera, Chairman,
Gokota village community garden

dreamer

HIS DREAM WAS HONOURED. Terence Dube, agriculturalist at *Chiredzi Research Station*, Zimbabwe

In tropical countries, as the sun rises or sets, a river of people walk along roads to fetch water from a pipe. With buckets and jugs, they may walk miles to the nearest supply. Getting water is heavy and tiring work – often falling to women and children. The water may not even be safe, but it's all there is.

In 1967, Chirikure Mawadze had a dream. He lived in a poor and arid region of Zimbabwe (then Rhodesia), populated by stone ruins of the medieval civilisation, Great Zimbabwe, from which the country took its name. It was a place where water brought disease – but only after you had walked miles to fetch it. His dream told him that one day, in his village, there would a really fine well – and a beautiful garden.

Twenty years later, as a result of the DFID Groundwater Collector Wells Pilot Project, his dream is a reality.

The project, based around the Rumwe water catchment area, has introduced nine wells of a unique design. The clever bit is that as well as a big main hole, horizontal feeder pipes are drilled sideways from the well to supply more water.

Chirikure died before the well was built, but as the village finished digging the well, they remembered his dream – and named the well after him.

gushing water

SO LET MAN CONSIDER OF WHAT HE WAS CREATED; HE WAS CREATED OF GUSHING WATER.

Koran, *The Night-Star*

Dr Godwin Mtetwe, part of the team monitoring the collector well project, remembers his own childhood, and how much work was involved to get water:

'When I was young we woke at 1 a.m. to water the animals. The nearest borehole was four kilometres away. If you got up at 4 a.m., you would wait hours for your turn.'

Godwin notes that a community garden around each well means the villagers now grow vegetables all year. They sell the surplus, getting much-needed extra cash, and are even engaged in competitions for 'best kept plot' and 'best garden'.

The wells and gardens become a social focus too. A meeting place to talk and discuss life, to share

problems – and hopes. Younger villagers like to get together there. Caroline Kurauone's surname is a mark of how difficult life can be: it's Shona for 'grow up and see the problems'. Fortunately, Caroline is not marred by her surname: she's a local beauty.

Collecting water at the well, she recently received a written proposal from an admirer to become 'my mother's daughter-in-law' – a traditional and delicate African proposal of marriage.

Dr Chris Lovell is a British engineer working for the Institute of Hydrology on the project. He says the success of the pilot project led to another kind of proposal from the Zimbabweans – to create a further hundred collector-well community gardens across the region.

John Vereker is DFID's Sir Humphrey – its top civil servant (or 'Permanent Secretary'). He officially opened the Gokota well and was somewhat surprised when, as he made his speech, the local women brought out cups, pots, pans, knives and forks – and laid them on the ground.

A Shona translator explained: these were goods bought with the extra income from growing vegetables. A silent and eloquent statement.

mother's little helper

Water is not enough – it needs to be clean.

Seeds help here, too. Geoff Folkard, a researcher at the University of Leicester's Engineering Department, used DFID funds to look at the potential of seeds from a sub-tropical tree called, in Latin, *Moringa oleifera*.

Moringa has many different names like the *Horse-Radish, Ben-Oil* and *Drumstick* tree, but in East Africa it is known as 'mother's best friend' – showing that people have long known its value.

It's attractive, withstands long periods of drought, needs little attention and grows phenomenally fast – over six foot in the first four months. The flowers, fruit and leaves can be eaten, the roots used to flavour food – and all parts of the tree are used in local medicines.

The fact that the *moringa* flowers all year led Ray Simpson (see **poorest of the poor,** above) to look to bees for *Tree Plan Zimbabwe*'s next project: small-scale honey-making in Matabeleland.

The first possibility of rural cleanliness lies in *water supply*.

Florence Nightingale

Geoff Folkard homed in on the way Sudanese people put crushed *moringa* seeds in their water vessels at home. After oil is extracted from the seeds, a 'cake' is left. Dr Folkard's research found it coagulated water, removing up to 98% of bacteria and viruses by sedimentation and simple filtration – a process which can be done at home.

Unlike alum, the relatively expensive commercial chemical normally used in water treatments of this kind, mother's best friend seed-cake is 'much more compact and rather than being a polluting agent, also has potential as a useful conditioner and fertiliser for soils.'

As Dr Geoff Folkard and his colleague Dr John Sutherland write: 'Technologies for treating water in developing countries must be robust, cheap to install and maintain, and no more complex than is absolutely necessary.'

from small seeds

Relatively few of the benefits of *moringa* trees were understood when DFID provided 'seed-funding' to research it. Now promotion of the positive results forms a vital part of 'growth from within'. Only a hundred miles from Matabeleland, in Northern Gokwe, local people thought so little of *moringa* trees they tried to eradicate them.

Keith Machell is a Liverpudlian who spent many years working for the *Intermediate Technology Development Group,* a charity supported by DFID. Now he runs Harmony Foods, building commercial markets for *moringa* and other oils.

He finds the tree pretty much sells itself. 'The best things in development promote themselves – because they're useful. In Malawi, you see people protecting these trees with woven matting and so on. If people go to that trouble, it must have a value.'

Everything should be as simple as possible – but not simpler.

Albert Einstein

live

stock

THE BRITISH FAMOUSLY LOVE THEIR ANIMALS. UNTIL RECENTLY, WE HAD MORE LEGISLATION TO PROTECT ANIMALS THAN CHILDREN. WE HAVE MORE VOLUNTARY (SOME HAVE NO CHOICE) VEGETARIANS PER HEAD THAN ANY OTHER COUNTRY. BUT OUR BIGGEST WILDLIFE ARE DEER. OUR WILDEST, THE BADGER.

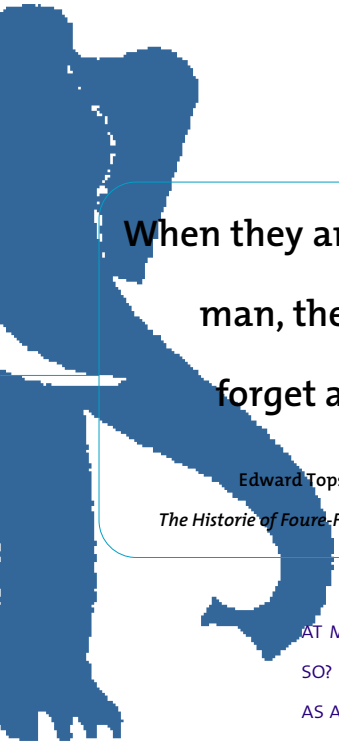
HOW WOULD BRITISH FARMERS (OR GARDENERS) FEEL IF THEY HAD HERDS OF AFRICAN ELEPHANTS – WEIGHING UP TO EIGHT TONNES EACH – TRAMPLING THEIR PLANTS?

IN POORER COUNTRIES, HOW TO MANAGE ANIMALS, BIG AND SMALL, CAN BE A VERY REAL ISSUE. LIFE, THERE, IS NOT A ZOO.

Africa can't afford the luxury of preserving animals for the sake of it. Or preserving them simply for rich people's enjoyment. The local population has to benefit.

George Hulme

Chiredzi River Conservancy



When they are hurt by man, they seldom forget a revenge.

Edward Topsell on elephants in *The Historie of Foure-Footed Beasts* (1607)

wild life

PEOPLE EXPECT AFRICANS TO LIVE WITH LARGE ANIMALS AND PREDATORS IN A WAY THAT'S SIMPLY IMPOSSIBLE. IN KENYA, IN THREE YEARS, 120 PEOPLE WERE KILLED BY ELEPHANTS. IF THAT WERE TO HAPPEN IN THE US OR UK YOU'D HAVE UPROAR. LOOK AT MAD COW DISEASE. IT'S KILLED HOW MANY, FIVE OR SO? AND HOW MANY CATTLE HAVE BEEN SLAUGHTERED AS A RESULT?

Tom Milliken, Director, *Traffic East/Southern Africa*, African Elephant Specialist Group.

Today, the influence of the green movement, the importance of wild animals to tourism (one of the biggest industries in the world) and pressure for land, make wildlife management a critical issue.

Extremely serious mistakes have been made. From 1963 to 1989, poachers shot 86% of the elephants in Africa for their ivory, skin, tails, feet – even their penes. In one decade, numbers plunged by half from 1.3 million. Meanwhile, rhino numbers are still desperately low.

Can these and other tragedies be avoided? It's difficult. Balancing the needs of people and wildlife is another problem without a simple answer. Particularly if you go out of an evening to water your yams and find a large and dangerous animal behaving more like Rambo than Dumbo.

Most experts agree that if people in richer countries want wildlife preserved, then the much poorer people whose lives are directly affected should benefit. There are many possibilities, including sponsoring relocations, using 'working elephants' as in India and Sri Lanka, or safaris – which can be photographic, involve 'trophy' hunting or even 'non-fatal' hunting.

lie down – and *don't move*

Non-fatal hunting? Yes. This is what Dr Euan Anderson occasionally finds himself up to.

A Kenyan vet and virologist, he works as a DFID-funded 'technical co-operation officer' for the Zimbabwean Government. Now and then, as part of anti-poaching efforts, Euan tracks rhinos – on foot. The alternative, using helicopters, is 'likely to upset the animals'. And an upset black rhino is not to be taken lightly. They are one of the most dangerous beasts on earth. Or as Euan laconically puts it: 'I suppose they can be somewhat cantankerous.'

The people thought wildlife was for white people. Now they realise it's also for us, because they see the benefits come back. It used to come back as a cost. Now it comes back as a benefit.

Lyson Masango, senior teacher,
Mahenye School, Save Valley, Zimbabwe

A few years ago, George and Madelon Hulme's life changed when they took eight black rhinos into the Chiredzi Valley Game Conservancy they run. Walking the dogs is now a slightly less casual affair than before – rhinos move fast. Nevertheless, the black rhinos have settled well and are breeding – there are 14 now, about 5% of Zimbabwe's total population.

George takes up the story: 'Down the road a Canadian hunter had completed an elephant hunt early, and had a few days in hand. He heard what Euan was doing and asked if he could come along. Euan darted the rhino – and you have to get much closer for this than you do for shooting, because the dart is light and you need a clear view. So Euan saws off the rhino's horn and then revives the rhino with the antidote. We all climbed trees – including the Canadian, who was quite elderly – to watch the rhino get up. He ran around and snorted and was quite happy. But the hunter was even happier. He was absolutely thrilled. I think he would have paid thousands of dollars to do it again. And the rhino lives on at the end of it.'

Dr Euan Anderson and Tom Milliken of Traffic, a charity dedicated to monitoring wildlife trade, would both like to see trade in rhino horns revived. The horns grow back, you see.

As Euan Anderson says: 'Horn is like your fingernail. It's the same material and it's rather like grass: the more you cut it, the more you have to cut it. It's like painting the Forth Bridge, as soon as you get to the end you have to start again. It grows back in 5 or 6 years. So why not get someone to pay through the nose to dart him, sell the horn – which is worth a fortune – and use the proceeds to support the local community, and spend on anti-poaching efforts?'

And just in case you find yourself being charged by a rhino, Euan's advice is a) get a tree between you, and preferably climb it or b) (if no tree is available) lie down and *do not move*. 'He might maul you a bit and you'd get a few bruises – but he won't be able to hook you.'

campfire

WE PREFER A SITUATION WHERE WILD LIFE IS USED FOR PHOTOGRAPHIC SAFARIS BECAUSE THEN THE WILD LIFE WILL BE THERE FOREVER. PEOPLE WILL COME, AND SEE, AND GO BACK.

Mrs Elizabeth Gapara, CAMPFIRE committee member, *Maparadze village, Save Valley*

Wildlife can be valuable. One successful homegrown wildlife management project is CAMPFIRE (Communal Areas Management Programme For Indigenous Resources).

This idea started in Zimbabwe, and DFID has supported it in various ways. Basically, District Councils get funds from tourism and hunting – and pass them on to local communities.

In Maparadze, a village near Gonarezhou National Park on the South African border, the community's first money came from an elephant hunt. Yet since then, they've decided money is likely to keep flowing from more gentle safaris.

The village is now building chalets and a camp for tourists. As well as running its own safari operation, Maparadze will offer traditional stories, music, dancing and dishes. Income will go straight to the community.

'We are starting a business. The money will be used to build the schools and repair the clinics.'

Admire Sakuinje, CAMPFIRE committee member, Maparadze village

And in the schools, children are now taught both about the local wild animals – and why they are important to the community.

'I teach the children about the different kinds of wild life we have in the area, and the benefits for their parents. They like these lessons.'

Nhamo Meteteni, teacher, Maparadze school

Maparadze is not yet in the guide books, so if you're visiting, you might like to drop in.

running elephants and hyenas

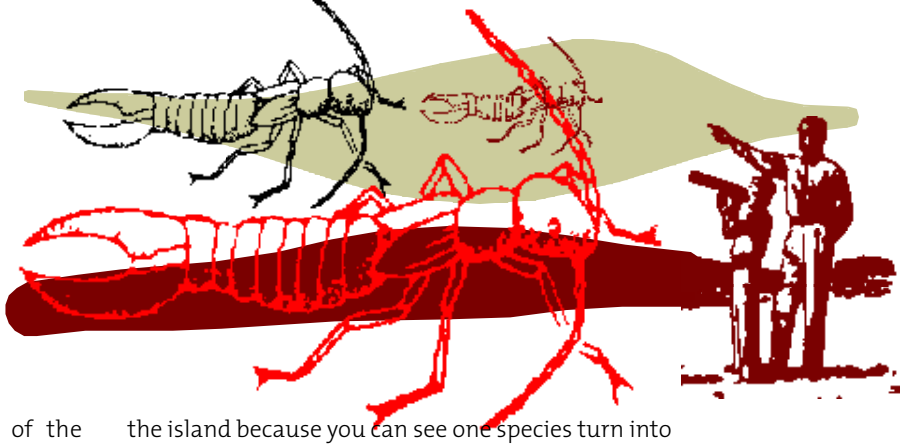
CAMPFIRE has reduced poaching and increased revenues, year on year, from small beginnings.

A nearby community recently negotiated a deal with Zimbabwe Sun Hotels. Two luxury safari lodges have been built on land leased from the Mahenye villagers.

Materials and labour came from Mahenye wherever possible, and on top of employment, the community has shares in the operation, too.

WE LOOK AT THE CLINIC, THE GRINDING MILLS, THE SCHOOLS – AND THESE ARE ALL THROUGH CAMPFIRE.

Chief Mahenye, *Mahenye village*



Chief Mahenye, the elder statesman of the village, sees CAMPFIRE meeting modern needs. According to Lyson Masango, in the past it was different:

'It was a place of running elephants and hyena. We lived on hunting and catching fish. We used to have a very primitive way of life. It has now opened because of CAMPFIRE. The road is maintained and so we now have buses operated. Electricity has been extended to the school and clinic. If we did not have CAMPFIRE, you would see nothing here.'

CAMPFIRE shows an old truth in new clothing. Progress comes through a concept the Xhosa, of South Africa, call *ubuntu* – roughly meaning 'people help people through people'.

giant earwig

The island of St Helena once had a distinguished visitor – Napoleon, exiled there in 1815. His mistress, the famous 'not tonight, Josephine' was an early – and influential – importer of 'new' plants into Europe. But Napoleon was no naturalist, and the island's importance as a haven for unique species has remained a better-kept secret.

Dr Paul Pearce-Kelly is Keeper of Invertebrates (insects, basically) at London Zoo. He is excited by the island because you can see one species turn into another in the time it takes to walk down a hill:

'St Helena could have as many as 400 endemic invertebrates, including the Blushing Snail, which is incredibly valuable from the point of view of studying speciation. You get one type at the top of the peaks with thin shells, very big and always active. On the arid plains, they have thicker shells and are smaller – with variations in between. A rare example of evolution in action. While the St Helena Spiky Yellow Woodlouse, confined to one small forested peak, is a living fossil – millions of years old.'

One of Paul's grails is the St Helena Giant Earwig. It only ever lived on one part of the island and suffered badly from the loss of the rocks where it used to live. They were used for building. Alien predators (like mice) didn't help either.

The Giant Earwig was last observed by Belgian scientists in the 1960s. They pickled forty. It's almost certainly extinct, but Paul keeps looking.

This was, after all, the largest earwig in the world, growing up to 9 cm long. 'So big,' says Paul, 'it'd nibble your head off.'

industrial

revolution

'We must use time
as a tool.'

John F. Kennedy

HUMANS ONCE WERE NOMADS. DOMESTICITY CAME WITH AGRICULTURE, AT LEAST 10,000 YEARS BACK.

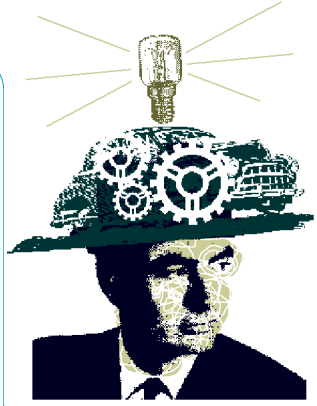
FAST FORWARD TO THE NINETEENTH CENTURY. THE 'INDUSTRIAL REVOLUTION' STARTS CHANGING THE RULES. NEW TOOLS AND MACHINERY MAKING IT TECHNO-TIME.

TODAY, THE RIGHT TECHNOLOGY CAN MAKE A REAL DIFFERENCE. BUT, LIKE ALL DEVELOPMENT, GETTING IT RIGHT TAKES TIME. TECHNOLOGY IS NO EASY 'QUICK FIX'. THAT'S BEEN TRIED IN THE PAST. IT DIDN'T WORK.

SO WHAT DOES?

In this century as in others, our highest accomplishments still have the single aim of bringing humans together.

Antoine de Saint-Exupery, *Wind, Sand and Stars*



come together

Communication is vital. Better communications, from radio and roads to aeroplanes and the internet, mean that coming together has never been more possible

Women are among those seeing results:

'Nowadays the radio is the major source of information. This keeps women up to date with all the news from the area, the town, neighbouring countries and overseas.

'We now have women who preside over meetings in the villages, in the local area and even in the towns. They have all been democratically elected by village groups and other development structures.

'Development projects have helped women greatly in their work, through meetings and by helping them to visit different areas and exchange ideas about different social structures.'

Fatimata Sawadogo, elder, *Ouahigouya,* Burkino Faso. From: *At the Desert's Edge*

Lenin put some of his success down to radio. Another revolutionary approach owes its origins to inventor Trevor Baylis – the Baygen Freeplay clockwork radio. It never needs batteries, just thirty seconds winding up for 30 minutes play.

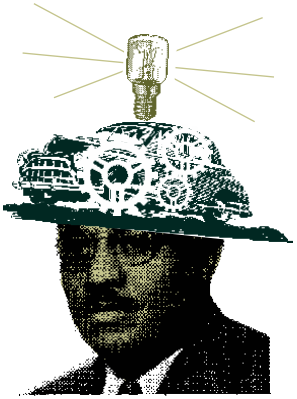
DFID played a role at an early stage. They gambled on what was then still an unknown quantity – but one with enormous potential – and stumped up £200,000 development money. As Andy Bearpark, Head of DFID's Emergency Aid Department, says:

'It could have been either the best idea since sliced bread or a total failure. I'm delighted the gamble paid off. It's a commercial success and there's lots of spin-off for the development market.'

The radios can play a vital role in spreading emergency relief information, distance learning, refugee assistance and health advice. (And people can listen to Oasis at the oasis.)

Trevor Baylis: 'You put the seed in, but it takes someone to fertilise and water it – otherwise the seedling dies. But the 'eureka' part – my part – is only the start. Without the significant part played by DFID in putting that start-up money together, it wouldn't have happened.'

Around 1500 Baygen radios are now made each day by disabled workers in a plant outside Cape Town, South Africa. You can buy one yourself –



cleverly, they cost more here so they'll cost less there. Alternatively, you can pledge a set through a charity. (see **the granary** for details).

wind water

Helping Nature help humans help Nature is a central idea of 'green' technology. A good workman doesn't blame his tools – if necessary, he gets new ones.

Intermediate Technology Power work with people worldwide on getting the right tool for the job. DFID funds them to run an exciting project using wind-power to pump water. The result is cleaner water – because the boreholes are deeper.

The project helps factories in India, Pakistan, Kenya, Botswana, Zimbabwe – even Mongolia – adapt British technology to local conditions. So far, the pumps have been enormous things, suitable for big organisations. But the latest prototype is small enough to be bought by rural communities.

The demand for smaller wind-pumps is likely to be strong – leading to export possibilities.

'You go to most places and people are having difficulties getting water. People are going into river beds and digging. And the water is not clean. The womenfolk really dread the idea of walking long distances to fetch water.'

Mark Chinyimba, Area Manager, *Stewarts & Lloyds, Bulawayo*

Some people in poorer countries (and some in richer ones, too) think 'first world' technology is better than home-grown.

IT'S QUITE A GRACEFUL-LOOKING MACHINE. BUT BECAUSE OF LOCAL DISTRUST OF ZIMBABWEAN-MADE EQUIPMENT, WE SPICE UP OUR CAMPAIGN BY SAYING THIS IS AN ENGLISH-DESIGNED MACHINE.

Roy Ndebele, Engineering Sales Manager, *Stewarts & Lloyds*

the businessman, the buddhist & the morris minor

A partnership between Dhanapal Samarasekara, a Sri Lankan Buddhist tea-planter, and Charles Ware's Morris Minor Centre in Bath, tells a similar story. Charles Ware:

'The Morris Minor is a durable car which shows that old resources can be re-used. Why waste things? I'm not that interested in preserving things *per se*, I'm only interested in finding new uses for things that have proved themselves, and a Morris Minor has this incredible reliability.

'A lot of modern cars, if you look under the bonnet, they're like spaghetti junction. If you dare

aid. Over a billion pounds in all. That kind of money buys a lot of 'kit' (very understated, engineers).

It's gone on planning, tunnels, culverts, sewers, mains, property connections, pump stations, treatment plants, training, management and a lot of concrete. Oh yes, and 36 *million* blue Aswan clay acid-resistant bricks (*don't* ask).

The main collector pipe is up to 5 metres in diameter – big enough to drive a bus through – and laid as deep as 26 metres below ground.

Some engineers claim to have *always* been environmentalists. There's some truth in this. Whether putting in boreholes, laying big pipes or building bridges, they *have* to consider if the land or other natural resources is up to the task. The original Cairene system, for instance, took wastewater to a sewage farm: where 40,000 trees had been planted.

The modern project is immensely more complex, and will require international co-operation for years to come. Its two main objectives are to remove wastewater from the city 'in a sanitary manner', making maximum use of existing facilities ('re-use') and then to treat it to a standard fit for agricultural use ('re-cycling').

All in sight of perhaps mankind's greatest engineering achievement: the pyramids.

polyp power

Some solutions can be very simple.

Coral has been a worry for a while. At the time of the Rio conference a UK Government publication, *Action for the Environment*, looked at development and the environment. It discussed degraded coral reefs around the Maldives Islands. Five years on, there's good news.

Coral is the oldest ecosystem in the world. A self-maintaining marine garden, it feeds and shelters more plants and animals than the rainforest – i.e. a lot. The architects of these reefs are small animals called polyps, who live in tubes built from limestone extracted from the sea-water.

Polyps like to build big – from Australia's Great Barrier Reef to the Dolomite mountains of North Italy. Coral reefs protect coastal areas against the

The idea is there, the know-how is there, the manpower is there.
We want things we make and use.
Because we understand them better.

Stephen Dube, Foreman,
Stewarts & Lloyd's Factory, Bulawayo

erosive power of the ocean – but they're under threat, from fishing and tourism. In the Maldives, a further problem is people using coral to build with.

DFID supported a team from the University of Newcastle-upon-Tyne who set out to see what could be done. Biologists and engineers got together to look at the situation. Dredging and coral-mining had stopped the polyps. They figured out ingenious ways to encourage the polyps back into action.

They 'mimicked' coral foundations with specially constructed blocks (lumps of concrete, basically). The results were rapid, with large numbers of polyps 'recruited' by the blocks.

The researchers thought their work would take ten years – it took five. In five years time, DFID hope to report more good news for polyps.

'can't believe it!'

'Buildings reflect what we are. Classrooms tend to be designed around a series of dull repetitious lines...They should be designed to be interesting to children, interesting to look at, to sit and work in.'

Romi Khosla, Lead Consultant Architect, *GrupIndia & ISM, New Delhi*

Vidyalayam – a.k.a. the Andhra Pradesh Primary Education Project– started 6 years ago. It gets Village Education Committees involved in both designing and constructing their new schools.

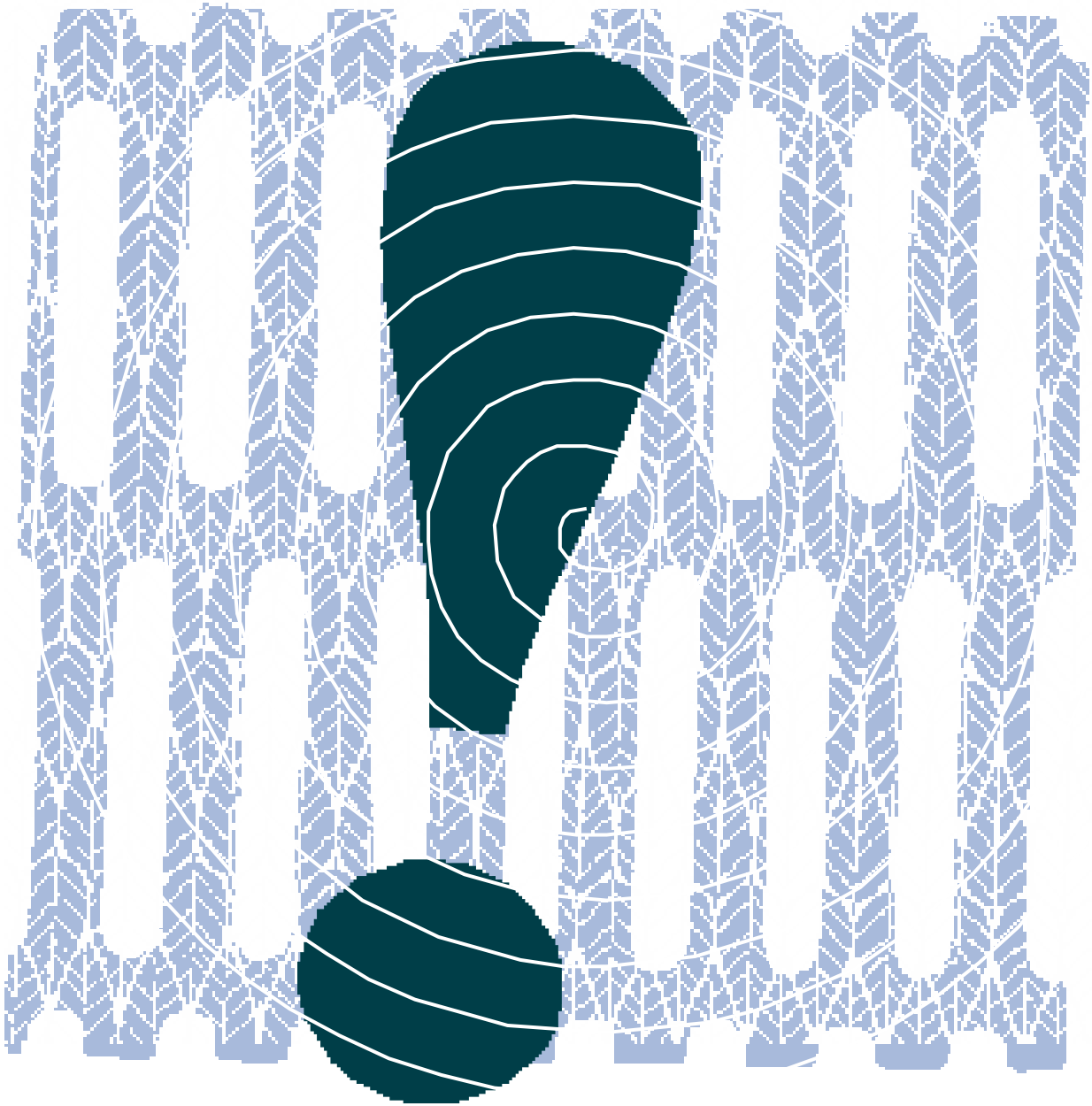
By using *local* materials, there are serious financial and environmental savings. The scheme also trains local villagers in new techniques with less environmental impact. Techniques that will endure long after the school is built – and be handed down from generation to generation. The Indian government, with DFID support, is extending this approach to other states.

The schools – many influenced by local styles of temples – are beautiful and functional. The locals think so, too. In Gandipet, the project manager overheard this exchange between two children:

'BROTHER, WHAT IS THIS BUILDING? IS THIS A HOUSE?'

'THEY SAY IT IS A SCHOOL FOR US.'

'CAN'T BELIEVE IT! IT LOOKS TOO GOOD! MUST BE SOMETHING ELSE!'



paper trails

It isn't necessary to imagine the world ending in fire or ice – there are two other possibilities: one is paperwork, and the other is nostalgia.

Frank Zappa

Reading isn't an occupation we encourage among police officers. We try to keep the paper work down to a minimum.

Joe Orton, *Loot*

THE INDUSTRIAL REVOLUTION'S NOW GONE GLOBAL. CERTAIN FACTORS APPEAR TO HELP POORER COUNTRIES ENTER THE GAME. THESE INCLUDE EXPANDING MARKETS, A FAIRLY STABLE POLITICAL SYSTEM AND SOUND MONEY. INEVITABLY, THEN, GOVERNMENTS GET INVOLVED.

HOW DO THEY DO THAT? IT'S COMPLEX. MILLIONS OF CAREFULLY CHOSEN WORDS ON PAPER IS PART OF THE PROCESS. PEOPLE TALKING, NEGOTIATING AND REACHING AGREEMENT (OR NOT) IS IMPORTANT, TOO.

IT AIN'T GLAMOROUS, BUT IT'S HOW IT'S DONE. (THERE ARE TOO MANY OF US TO AGREE OVER DINNER.)

‘money, money, money’

Abba’s pop song, about how funny a rich man’s world is, helped make the group rich. But what of the poor man’s world?

‘People have a greater spirit of free enterprise, individualism and materialism. This has eroded the past strong community spirit. I remember when the welfare of the individual was everyone’s concern. This changed with the colonial’s introduction of money.

‘People now like to buy animals because they are a good investment. We raise them, sell many at a profit, then use the money to pay for our basic needs, such as food, clothes and marriage or baptism ceremonies.

‘Once, nobody claimed the land as their own. Land was a natural phenomenon, a gift God gave to all living beings. Land used to be considered an almost sacred family asset; today, fields can be sold as if they were just another item of merchandise.

‘Land is only sold by men. I don’t know why women are not allowed to sell land, as they need money just as much.’

Koure, a (male) village elder from *Takieta,* Niger

From: *At The Desert’s Edge*

The world has changed since villagers like Koure exchanged and bartered the surplus from their harvest.

In a global economy, the pressure is to compete and increase income. Giving money to the poor (or goods, or services) is only ever a short-term solution. In the long-term, people’s pride, dignity and self-respect requires that they develop through their own efforts. Wherever they are.

A lot of development aid is now aimed at increasing people’s income. DFID helps by supporting good government, encouraging fairer trade and helping reschedule or write-off debt. (Many poor countries have large debts. They often date back to when organisations like the World Bank lent money for large projects – at rates more appropriate to private companies in the first world.)

on your agenda

In the end it’s quite simple – and profound. As we reap today’s harvest, we need to ensure tomorrow’s crop. Or, to use long words, ‘sustainable development’.

In the West, progress *has* been made. Pollution has been cut and people are more aware of their delicate relationship with Nature. But there’s more to be done. Elsewhere, in the poorer countries, the

How to be green? Here's the answer.

Consume less. Share more. Enjoy life.

Penny Kemp & Derek Wall, *A Green Manifesto for the 1990s*

scale of the problems is enormous. And richer countries must provide help.

It's up to *us*, though. Governments support overseas development and the environment on our behalf. Many already take part in local affairs through Local Agenda 21 projects – a direct link with the Earth Summit, where Agenda 21 was drawn up. All part of living in an ever more talkative world.

'someone has to do it'

A 'talkative world' is one way of putting it. Take the Earth Summit, and just one of the conventions signed there: the biological diversity convention.

How was the convention put together? With difficulty. Here's a (very) simple version of what it's like to work on international negotiations for DFID.

It's certain that you've got a meeting in the pipeline to prepare for. Perhaps it's a Governing Council of the United Nations Environment Programme, meeting in Nairobi. Or a Preparatory Committee, or a Meeting of the *ad hoc* Group of Technical and Legal Experts. Or an Intergovernmental Negotiating Committee. Or all of them. A total of 17 international meetings in the run up to the Earth Summit.

So you go home to pack your bags. Your family and friends think this sounds like a jolly – Nairobi for a week. Here's what the jolly boils down to.

Fly out. Early breakfast meeting to plan the day. A three-hour negotiating session, then another, then another. Back for a working dinner (or a reception you really don't have time for, but have to attend). Then a late night review session. Same again the next day. Six or seven days a week.

With the United Nations, there's the language thing, too. Six official languages: Arabic, Chinese, English, French, Spanish and Russian.

Then there's the other language thing – groups can be informal (no official record kept), informal informal (one language only) and even informal informal informal (small groups).

And there's the infamous square brackets. As hundreds of delegates gather from around the globe, not everything is easily agreed. So [some] [a majority of] [all] ideas are [tabled] [considered] [negotiated] [to be agreed] in the [draft] [working] [proposed] [agreed] documents.

IT'S QUITE STIMULATING WHEN YOU'RE NEGOTIATING TO GET RID OF THESE SQUARE BRACKETS.

Dr Ian Haines, *Chief Natural Resources Research Adviser,* DFID

One meeting even saw an informal attempt to define different sorts of square brackets:

> **The most important thing about Spaceship Earth – an instruction book didn't come with it.**
>
> Buckminster Fuller, *American scientist and inventor*

strategic, contentious, alternative, uncertain (no one's quite sure why they exist any more), waiting (feedback from home governments), suspicious, and weary [it's late, everyone's tired and so out come the square brackets].

THERE'S QUITE AN ART TO IT, AND A TECHNIQUE.

Ian Haines

All of which assumes you can find somewhere to meet for all the small huddles necessary to thrash out an agreed wording.

In the run-up conferences held in Nairobi, the UK delegation stayed at the old-fashioned Muthaiga Club – where business is not allowed in public rooms. So you meet in someone's bedroom, and smuggle in briefcases.

IT'S NICE WHEN IT STOPS.

Ian Haines

At the time, it may not always seem worth it. But then the Earth Summit happened.

this is a journey into time

Crossing the threshold of a new millennium (by the Christian calendar) offers a chance both to take stock *and* to look forward. We know development which works in harmony with Nature takes time. There *is* no 'quick fix'. (It's almost 2500 years since King Artaxerxes introduced the first known environmental legislation – to prevent Lebanese Cedars being cut down.)

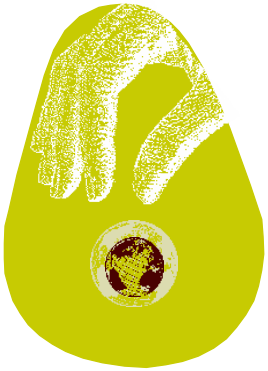
So what does the future hold? Almost certainly, solutions that will take time and effort.

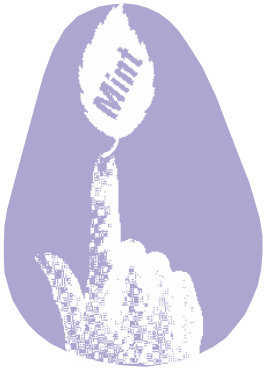
Part of the future is sustainable agriculture. A hugely complex field. With animals in it. Pest management and general farming practice need considering. Then there are really thorny issues like land rights. Plus a bunch of problems (and solutions) around soil quality. DFID sees helping farmers get all these factors in place as part of its ongoing task. Success means good food – and less impact on Nature.

What else?

We can – and should – expect the private sector to take a greater part. Already, many organisations are working with corporations big and small. David Bryer, Director of Oxfam, sees an important role for the private sector: 'Some of the most forward-looking thinking about developing countries is now coming from multi-national companies.'

There's also a commitment to stronger partnerships. Plus a renewed emphasis on co-ordination. This can be a powerful combination.





LET'S NOT MINCE WORDS: WE NEED TO DEAL WITH THE CANCER OF CORRUPTION.

James Wolfensohn, *President*, World Bank

Corruption, finally, is a word spoken in public. It has long been a problem, and combined efforts to crack down on it are likely to be seen.

The future is in our hands. And the next millennium will be defined by what we bring to it. Or it will be defined for us.

whatever next?

"HAVE YOU EVER SEEN SPODE EAT ASPARAGUS?"

"NO."

"REVOLTING. IT ALTERS ONE'S WHOLE VIEW OF MAN AS NATURE'S LAST WORD."

P. G. Wodehouse

If man is Nature's last word, it needs to be a good one.

The new White Paper from DFID – the first in over twenty years – gives a higher priority to the environment than ever before. And the White Paper is *the* reference document.

There are other new elements, too. An emphasis on partnerships, on working together with a whole range of people. And on being consistent.

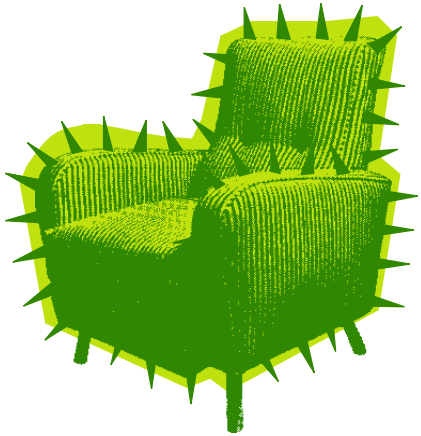
There's a recognition, too, that lessons from the experience of poor people in developing countries can be applied here in the UK. And vice versa.

As we rush into the 21st century, there's a new sense of energy and vision around. It's almost as if the squabbles, big and small, which characterised the 20th century are being put aside. People are perhaps recognising that, to make a difference, right actions – not wrong arguments – are needed. *At all levels*. From the personal to the professional. And back again.

Below is a list of a few of the plans the DFID is pledged to.

So far, **uk@earth.people** has had no lists and precious few statistics. But this list is important. It's derived from DFID's White Paper. A White Paper is a statement of intent, along with an invitation to comment. It's white, usually – and it's also the bottom line. (There's more where this comes from. For details of how to obtain the DFID White Paper or the Popular Version see **the granary**.)

now for the hard bit:
the list



DFID is committed to fighting poverty and protecting the environment by:

- supporting countries preparing plans and policies to look after natural resources (e.g. Ghana, p30).
- promoting agriculture which tackles poverty *and* protects the environment (e.g. Tsetse, p23).
- promoting systems, and small farmers (of fish, too), that improve the yield from land and water (e.g. CAMPFIRE, p42).
- supporting trade reforms that help international development (e.g. Fair Trade, p5).
- helping improve forest management for – and by – poor communities (e.g. Nepal, p29).
- pressing for international arrangements for sustainable forest management [e.g. Square Brackets, p55].
- promoting cities and towns that improve employment, shelter, education, health, water, sanitation and energy supplies (e.g. Cairo, p48) .
- pushing for action to look after freshwater sources (e.g. Planet Water, p33).
- supporting land improvement and combating deserts (e.g. Mohamed Ali, p29).
- helping countries promote ozone-friendly chemicals (e.g. Radio News, p46).
- helping poor people protect their variety of life or 'biodiversity' (e.g. Kew, p22).
- getting closely involved with the UN Commission on Sustainable Development [e.g. Square Brackets, p55].
- working to help rich and poor countries exchange experience, lessons and ideas (e.g. Pumps, p47).
- supporting international outfits like the Global Environment Facility (e.g. International Potato, p22)
- increasing trade in sustainable products and services by developing countries (e.g. Morris Minor, p47).
- helping poorer countries reach the 1997 UN target: national sustainable development strategies in place by 2005 (e.g. Wet & Dry, p30).

The list doesn't pretend to be simple. But whoever said it was easy?

from crowded house to you, too

Finally,

of course,

there's you.

In a world of around 6 billion people, what can we do to help? Quite a lot. Some estimate the average amount spent on goods and services in the lifetime of someone in the 'first world' (which is really neither) is little short of a million dollars. That money can make a difference. Some of it's already spent, of course – on everything from taxes to taxis.

Yet *everything*, from the furniture we sit on to the food we eat, has an impact on the world. We can keep an eye on packaging, on where wood in furniture comes from. Make informed decisions about where our money goes as a tourist. If we can, buy organic food. And seek out fairly traded goods.

Fair trade is a direct link between rich and poor. It's a chance for the poorest and least powerful to gain real benefits from their work. It usually costs a few pence more, but the increased income goes direct to local communities – and is often translated into environmental improvements. There's no argument, really. (The coffee's damn fine, too.)

The unexamined life is not worth living.

Socrates

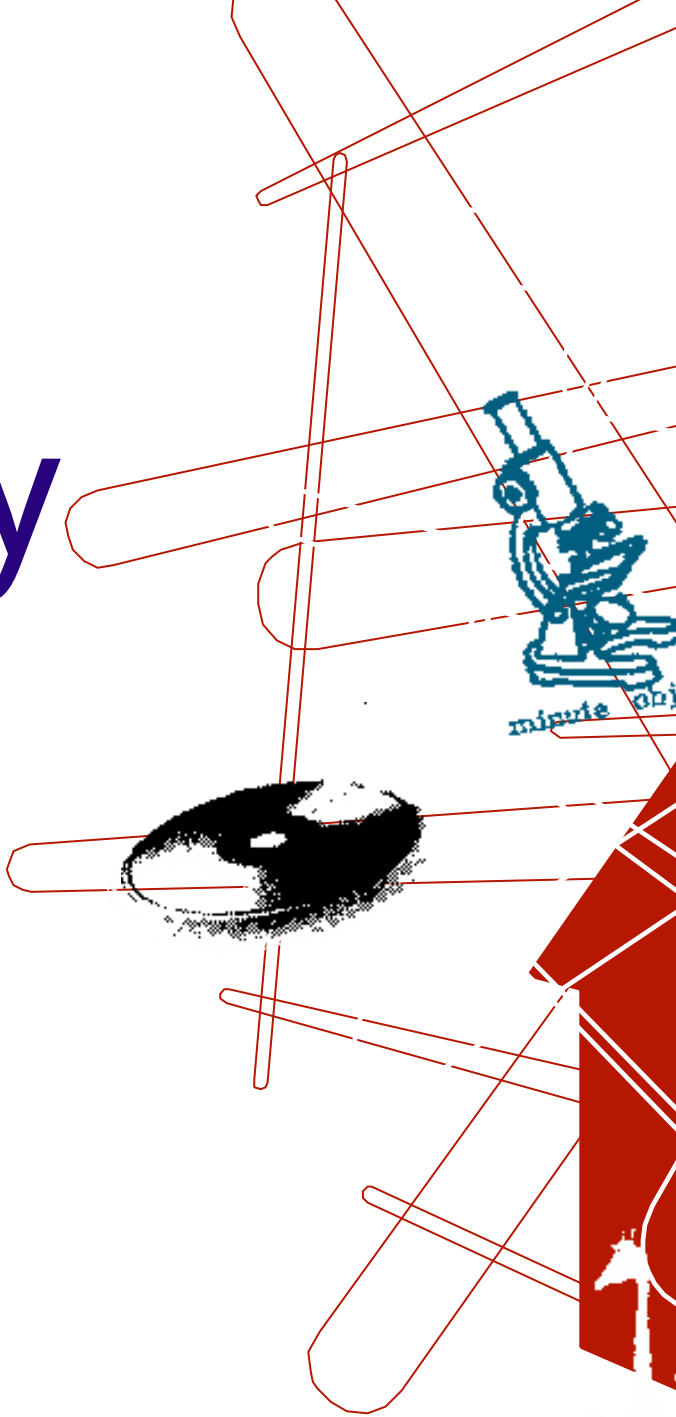
As the numbers on this globe rise, so will the tension between people and their earth. Misunderstanding won't help anyone. To look after our planet, and look to a healthier future, we need to be wise – and wised up.

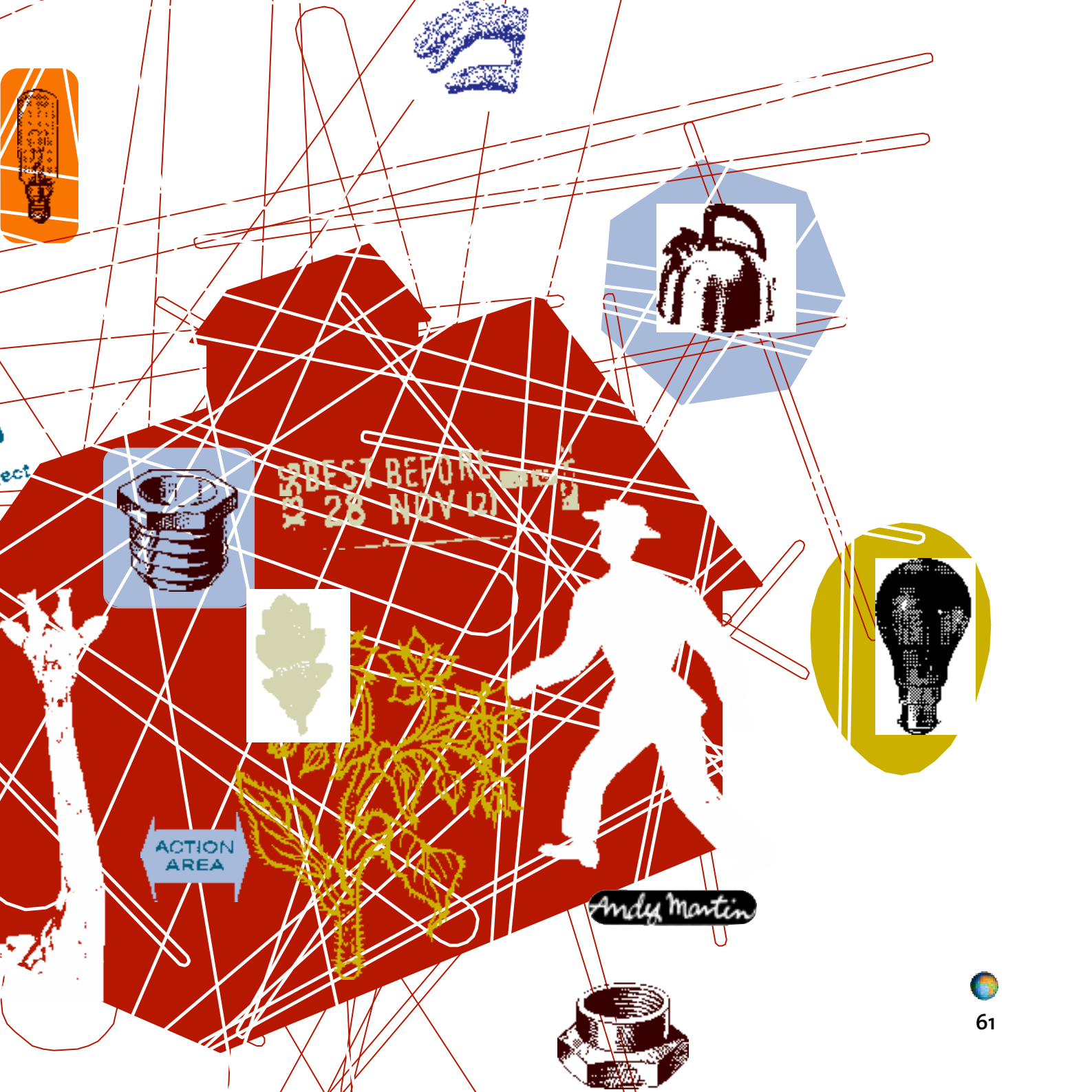
We're fortunate – we have choices about how to live in the world. Choices informed by experience and opportunities. And by what we read (like this).

But where next is,

ultimately, up to us all.

the granary




BEST BEFORE
28 NOV 12
ACTION
AREA
Andy Martin

For more on what people are up to **eco-net** (www.igc.org/igc/issues/develop/or.html) has lots of links to development and environment sites. The **oneworldon-line magazine** www.oneworld.org is good, too. Or contact people mentioned in **uk@earth.people**:

- **african rights** +44 (0)171 717 1224
- **amnesty** www.oneworld.org/amnesty +44 (0)171 814 6200
- **baygen freeplay radios** www.baygen.com +44 (0)1285 659 559
- **care international** www.care.org +44 (0)171 379 5247
- **charles ware's morris minors** +44 (0)1225 315449
- **christian aid** www.oneworld.org/christian_aid +44 (0)171 620 4444
- **friends of the earth** www.foe.co.uk +44 (0)171 490 1555
- **intermediate technology** www.carryon.oneworld.org/itdg +44 (0)1788 560 631
- **international agriculture research** www.cgiar.org +1 202 473 8951
- **kew gardens** www.rbgkew.org.uk +44 (0)181 332 5000
- **london zoo** www.kidsnet.co.uk/natural/lonzoo.html +44 (0)171 722 3333
- **oxfam** www.oneworld.org/oxfam +44 (0)1865 311311
- **red cross** www.icrc.org +44 (0)171 235 5454
- **save the children** www.oneworld.org/scf +44 (0)171 703 5400
- **survival international** www.survival.org.uk +44 (0)171 242 1441
- **transport research laboratory** www.trl.co.uk
- **u.n. information** www.unhcr.ch/welcome.htm +44 (0)171 630 1981
- **wateraid** oneworld.org/wateraid +44 (0)171 739 4500
- **world health organisation** www.who.ch +41 22 791 2111
- **world bank** www.worldbank.org +44 (0)171 930 8511
- **world conservation union** www.iucn.org +44 (0)1223 277 802
- **wwf** www.wwf-uk.org +44 (0)1483 426 444

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- **atlantic monthly** www.theatlantic.com/atlantic/covers.htm 1-800-234-241 for Norman quotations
- **melissa leach** for **forest islands** video. www.ids.ac.uk/courses/cou_ids.html +44 (0)1273 606261
- **benjamin zephaniah** and **bloodaxe** for **healthcare** www.netlink.co.uk/users/abracad/benjzidx.html

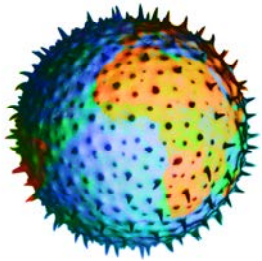
DFID has **speeches** and **publications** available. ***The White Paper*** is the set text. Buy it from the Stationery Office – or order it from a bookshop. You can get a popular version direct from us.

We can also send you **forests MATTER** – our forestry approach – as well as our sustainable biodiversity and sustainable agriculture **strategies.** Children who want to know more about trees should ask for our poster, **action plant!** – it's free. There are other booklets and brochures about specific environment subjects – look on our web site or write to us.

uk@earth.people is also on our web site: **www.oneworld.org/dfid.** Have a look because we'll be updating it regularly. We want to know what **you** think about what we're **doing**.

Environment Policy Department
Department for International Development
94 Victoria Street
London SW1E 5JL
T: + **44 (0)171 917 7000**
F: + **44 (0)171 917 0679**
E-mail: **epd@dfid.gtnet.gov.uk**
Web site: **www.oneworld.org/dfid**

-get in touch and let us know.



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cover photos from **science photo library: 'POLLEN'** (Dr Jeremy Burgess) a ćoloured scanning electron micrograph of a pollen grain of the garden hollyhock, *Althaea rosa*. Its outer wall (exine) has a spiky structure. When the pollen grain, containing the male gametes, lands on the stigma of a flower of the same species, it germinates. A pollen tube grows from the pollen grain & down into the flower's ovaries. The ovules are then fertilised & a seed is formed. Magnification x200 at 6x6cm size' **combined with 'WHOLE EARTH '** (European Space Agency) a 'coloured satellite image of the Earth centred on Africa. Tones approximate to true colours [prior to manipulation]. The yellow expanse of the Sahara Desert in North Africa is visible, with the green rainforest belt of equatorial Africa covered by cloud systems. Europe is at top of frame; South America at far left. Swirling frontal cloud systems occur both in the north and south Atlantic Ocean. Image taken by a Meteostat weather satellite on 6 July 1991. Meteostat is operated on behalf of its owners Eumestat by the European Space Agency.'