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WASTING PEOPLE, WASTING THE EARTH

When I visit this little valley of my childhood dreams, I feel the tragedy under my feet. Gullies stare at me, telling the story of soil erosion which was unknown before: the land appears exhausted. Firewood is scarce because every tree has been cut. Hunger is on people's faces.

Wangari Maathai, *Coordinator of Kenya's Green Belt Movement* ¹

THE POOR GET POORER

One fifth of the world's population – more than a billion people – live in poverty. They earn, on average, less than one US dollar a day. Even on this limited definition, and although poverty levels have fallen in some countries since the 1970s, worldwide, the number living in poverty looks set to rise to 1.5 billion by 2025.²

But being poor is about more than material deprivation. It is about powerlessness. Not only are poor people unable to meet their basic needs for food, shelter, health and education; they have few or no rights or freedoms to improve their position. They have little or no control over productive resources (especially land) and often little opportunity to use their own energies and capabilities to generate a better life for themselves and their families. They have limited access to the kind of public services which are taken for granted in the rich world, and their needs are frequently ignored by powerful, often corrupt, local elites.

Some 500 million of the world's poor live in Asia, whilst 360 million poor people live in sub-Saharan Africa and 340 million in Latin America. But Africa's development crisis means that by 2000, half of all Africans could be living below the poverty line.³

The inequalities between North and South are huge and widening: the average GDP per capita in the North is 18 times that in the South. The poor live shorter, harsher lives. While developing countries overall have increased their food output per person, a fifth of their people still go hungry every day. Two-thirds have no access to safe drinking water.

Illiteracy and unemployment lock the poor into their impoverished position: a quarter of adult men and half the women of the South have never been taught to read or write.⁴

The health of children is the real indicator of poverty. One child in six is born underweight and, every year, one in ten of all children born will die from waterborne diseases or malnutrition – most of them in the South. In the 1991 Bangladesh cyclone, more than 130,000 people lost their lives, but the same number of Bangladeshi children die every three months from diarrhoea or pneumonia.⁵

All these figures mask gross inequalities within the Third World – between rich and poor, between urban and rural areas, and between women and men. Poor Mexicans die some 20 years before their rich compatriots. Babies born to poor families in Colombia are twice as likely to die in the first few years as the children of richer families.⁶

Most of the Third World's poor live in rural areas: their incomes are, on average, 25 per cent – sometimes 50 per cent – less than those who live in cities. Even allowing for the importance of subsistence food production for rural families, this is still a major difference between urban and rural areas. Public and social services – water, sanitation, health and education – are generally inadequate or non-existent for those who live in rural areas.

Women make up 70 per cent of the world's poor and, over much of the South, they work harder but earn less than men. Poor Third World women not only work in the home, but contribute substantially to the family budget and grow most of the family's food: in parts of Africa, they are responsible for up to 90 per cent of subsistence food production. Yet, as a result of gender discrimination in the allocation of food, women are far more likely than men to be undernourished.

Women have limited access to income, credit, land, education or training, even where they are the head of the household. Most women do not own the land they work, the crops they produce or even the tools they use. In many Third World communities, women face restrictions on their freedom of movement and association outside the home. They may be forbidden to join women's groups or take up training and development opportunities. They are, even more than poor men, often excluded from development decisions which profoundly affect their lives.

Globally, one woman in three is illiterate, compared with one man in five – in South Asia, female literacy rates are only half those of males.⁷ Because of their daily tasks – growing food and gathering water, fuel and fodder – poor women are especially dependent upon the natural resources of the environment and the first to suffer when the environment becomes degraded.⁸ Girls are more likely than boys to be taken out of school to help their mothers with these tasks.

All these factors, which conspire to keep women poor and powerless, are rooted in the unequal distributions of power and status between the genders. This situation arises largely from cultural patterns but is reinforced by the legacy of colonial attitudes and practices.⁹ Women, especially poor women, have become 'invisible', regardless of their contributions to the local economy and family welfare – and this has influenced the way development planners and policies have perceived them, as the next chapter shows.

The poverty trap

After walking for three days with her daughter Tombi, Christina Nguluba arrived at Malembo, the nearest food centre to her village in Chama District of north-eastern Zambia. They managed the trip by doing 'ganju' – or food for work – in the villages on the way. Christina's five sons are at home, also looking for 'ganju', and her husband is away in the *Zambian Copperbelt*, trying to find a job. But he has been gone for several years and has only once sent her any money.

Christina looks tired and her eyes are sunken behind high cheekbones. 'We sometimes go without a meal for days', she says. 'We have to live on mangoes, pumpkin leaves and wild okra. The wild pigs destroy the crops on our vegetable plot. We grow millet which will survive the drought but this is not our traditional crop. We grow it for brewing to raise money for food. And the maize has been failing because of the poor rains. Each year the land produces less and less. But I cannot leave my home: my parents and their ancestors were all buried there. How could I leave? Where would I go?'

It has not always been like this in Chama. A few years ago, the area offered a variety of food, especially wild game – elephant, buffalo and gazelle were all plentiful.

But the land around Chama has now become so degraded and eroded by drought and floods that it is no longer productive. What used to be the annual lean period has developed into a year-round shortage of food and chronic hunger. Government support is non-existent now: agricultural marketing and extension services have broken down and the emergency food supply system is totally inadequate. The government tries to sell maize rations to 50,000 people using three trucks. There is just one untarred route connecting Chama with other parts of Zambia and access to the villages is only possible between May and October – and then only by four-wheel drive vehicles. The price of fuel has increased dramatically and the food centre is often empty. People keep overnight vigil at the depot gate, huddled round a fire, and there is a dusty stampede for rations the day a truck arrives.

Meanwhile the lives of villagers like Christina hang in the balance.

Most families are in the same situation, especially women-headed households.¹⁰ Many poor people are caught in this kind of poverty trap. They have little or no access to fertile land or to any other resource from which to earn a living. Industrial and service jobs are scarce, especially in the countryside. Corrupt local elites can ensure that people are powerless to exercise their rights to land even when these exist. Without productive land, they have no access to credit to buy other assets. Even with land, poor people's earnings are at the mercy of local markets, controlled by more powerful groups.

Along with falling prices for the goods they produce, poor people often face debts and high interest rates, so they can no longer afford food, shelter, health care or education. Added to these are other deprivations, including physical weakness and isolation, which lock the poor into their poverty trap.¹¹

Of course, the causes of poverty are not just to be found at the local level. People remain poor because of the unjust distribution of wealth and power within their own societies, and economic development policies which bypass their needs. Moreover, they are at the receiving end of international pressures which damage their interests: massive indebtedness, high interest rates and falling commodity prices all restrict the incomes of poor producers. Inappropriate aid projects ignore or may even harm them.

Environmental degradation compounds all of these factors to force those who are already poor and vulnerable into a downward spiral of increasing poverty.

POVERTY AND THE ENVIRONMENT

Oxfam's experience is that livelihoods – indeed survival – for the world's poorest people depend fundamentally on the wealth of the natural environment and on resources such as soils, trees and water. Trees, for example, provide not only food crops, but also timber for building, fuel for cooking, fodder for animals and fibres for weaving. Trees perform a valuable role as savings and security for many in the South; they not only provide a future income, but are an insurance against contingencies – the need to spend on social occasions such as weddings and funerals, or to pay for medical care. Well-managed, accessible forests can be as valuable as productive cropland and pastures for rural living standards, especially for women.

Many poor people in the South have the knowledge – and the incentive – to manage renewable resources in sustainable ways. They apply traditional methods of soil and water conservation, they know which varieties of crops are resistant to drought and to pests, which trees provide wood to burn efficiently with little smoke, and which plants

have medicinal properties. For centuries, Third World farmers have built and maintained terraces and other structures to retain soil and water. They practise complex systems of intercropping and crop rotation to increase productivity and reduce the risks of pest damage. Even where environmental degradation has already taken hold, local people are working to reverse the decline.

Looking after the trees

In the Puri District of the Indian state of Orissa, a remarkable environmental movement has emerged, showing how the timely actions of a group of villagers can eventually influence a whole region. Friends of the Trees and Living Beings is an Oxfam partner organisation which started formally in 1982. But it had its origins in the mid-1970s when a number of people from Kesharpur village decided that immediate action was needed to protect the nearby hill of Binjgiri.

With moderate, but highly seasonal, rainfall and poor soils, the natural cover of Binjgiri is dry, mixed deciduous forest. Its legal status is Protected Forest, which allows local people to collect wood and fodder only for domestic and farming needs. Despite this limitation, by the late 1960s, Binjgiri's 360 hectares were completely stripped of trees – with devastating consequences. Water was short because the springs had dried up. Gully erosion was so severe that fields at the foot of the hill could not be cultivated because they were covered with stones washed from the hillside. There was an acute shortage of fuelwood. Poor farming communities slid rapidly into greater poverty.

Starting in their own village (but in time working with seven others that shared rights to the hill) a group of campaigners began to persuade villagers to act. Using songs, slogans and rallies, they created – perhaps revived – an environmental movement which now covers 1,800 villages in Puri District.

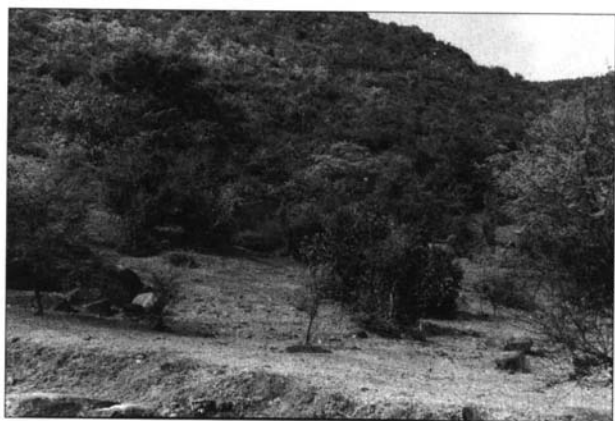
Ten years later, the effects are highly visible. Binjgiri, and other hills in the district, have been re-greened and are now densely wooded. Wildlife has returned in abundance – monkeys, bears, rabbits, snakes and many birds. Recharged springs irrigate fields and gardens. Farmland is once more productive now the gullies have been plugged and the rocks cleared from the fields. Bhikan Hajary, a Buddhagran villager, writes:

Everyone planted trees here: civil servants, college students, passers-by, school children – and 100 people from the village. Seeing the trees grow we were all happy. For the last five years, the spring has come back; before that, for 10-15 years it had completely dried up. Clouds came but went away and rained on other hills. But we woke up in time.'



LIZ CLAYTON/OXFAM

Less than two years separates these photographs. Above, most of the trees have been cut down and the soil is being washed away. Since the Friends of the Trees and Living Beings started a forest protection programme, the hillside is becoming green again as bushes and trees are re-established (below).



HILARY COULBY/OXFAM

‘We don’t have more cash’, says another villager, ‘but we have much more security.’

Many factors lie behind the success of this movement. With perceptive and innovative leadership, Friends of the Trees and Living Beings is trusted by the village communities and has built upon the work of democratic village councils who already manage other village assets such as grain banks and common land. All the villagers face similar problems, as small marginal farmers and landless labourers, with few differences of caste or class and a strong sense of local equity. They recognise equal rights and responsibilities towards the forest and its products. Villagers have been directly involved in creating and implementing the rules to protect the forest, patrolling the regenerating woodland to keep out animals and illicit woodcutters.

Environmental education has played an important part, with children actively involved in creating tree nurseries and planting up hillsides. The movement has revived the traditional 'green culture' of the villages, including songs, poems and greetings, with frequent celebrations and tree-planting ceremonies. Although the movement has now reached 1,800 villages, there is still only one small office and two part-time workers; volunteers and associated local organisations do most of the work. This approach to 'thinking globally but acting locally', and the movement's Gandhian principles of non-violent persuasion and organisation, have gained support at all levels, from the village, the district and the state to international recognition among the 'Global 500 Awards' of the United Nations Environment Programme (UNEP).¹²

THE DOWNWARD SPIRAL

This is one example of how threatened communities can regain their livelihoods. But for most of the world's poor people, environmental devastation has already taken over. The rapid deterioration of their surroundings is undermining the daily struggle to maintain (let alone improve) living standards. In two decades of drought and deforestation, many villages in the Sahel – the arid land along the southern fringe of the Sahara desert – have lost as much as half their cultivable land. The fine balance between the earth and its farmers, sustained for centuries, has broken down because of the development model pursued by powerful elites. The people of Amazonia – the Yanomami and Kayapo Indians, for example – have survived for generations by managing the rainforest in a sustainable way. Now, millions of hectares of forest are burned and bulldozed each year to make way for land speculation, cattle ranching, mining operations, and oil drilling. Deforestation is also the outcome of poor families migrating from other parts of Brazil in search of land.

The Third World's poor are not a homogeneous mass: vulnerability to environmental stress varies in different places and among different groups, and between individuals, households and village communities. Children living in slums, and those without land – especially women – are particularly vulnerable. Estimates suggest that some 13 per cent of rural households in the South are landless and almost 60 per cent of all households, including those who live in city slums and depend on vegetable gardens, have too little land for subsistence.

Like the landless of Brazil who migrate to Amazonia, poor people are often pushed from marginal environments to ones that are even less productive and more ecologically fragile – arid lands, tropical forest at the edge of farmland, savannas, steep mountain slopes, mangrove swamps and the land around sprawling cities. Some 60 per cent of the

world's poorest people live in ecologically vulnerable areas.¹³

The pressures of settlement and cultivation in these areas lead to further, often rapid, environmental deterioration. Poor migrants, who may have managed natural resources well in the past, are forced to degrade them. The gradual decline of the environment becomes both an extra cause as well as a consequence of their poverty: poor people then appear to be, at the same time, both the victims and the unwilling agents of environmental degradation – they are caught in a downward spiral.¹⁴



In Mwabuzo village, Daodi Paulo and his brother (*pictured above*) prepare the land for another year's cotton – the only cash crop that will grow successfully in the Meatu District of Tanzania's Shinyanga Region. Daodi and his brother will continue to grow cotton even though, with devaluation and falling producer prices, the profit margins are small. But this is not the only cause of their increasing poverty.

Land clearance to grow cotton for export is encouraged by the Government. When cotton is sold, extra cash is used to buy cattle and grow more cotton. This expansion, and the largely unmanaged cattle grazing, have left bare soils exposed to wind and water erosion. Gentle slopes are gullied and guttered, and tiny acacia saplings perch on earth mounds as the soil beyond the hold of their roots is washed away. The land has been stripped of trees: accessible supplies of fuelwood have already been consumed and wood is now too far away to collect except by oxcart. Crop residues and dung are burnt instead. These were previously returned to the soil as fertiliser; now soil fertility is not replenished and the soil is light and easily blown away. The downward spiral of environmental degradation leading to greater poverty continues.

Oxfam has recently become involved in helping the cotton-growers of Meatu to regenerate their land. Working cooperatively with the local agricultural extension officer, the farmers are now growing cotton more intensively but on smaller areas, clearing less land, planting trees around houses and among crops, and allowing surrounding woodland to regenerate naturally.¹⁵

A DECADE OF DISASTERS

In spite of their knowledge, and their 'coping strategies' developed over generations of adaptation to marginal conditions, poor people are ill-equipped to resist sudden environmental stress when this follows upon years of insidious damage.

For many of the world's poorest people, the 1980s were a decade of disasters. Oxfam has been called upon to respond to emergencies in many parts of the world – often several at a time: a cyclone in Bangladesh; conflict and famine in Ethiopia, Somalia, Liberia, Sudan, Angola and Mozambique; cholera in Peru; and typhoons and floods in the Philippines. Indeed, in Bangladesh, Oxfam has appointed a permanent Emergencies Officer, so frequent is the need for assistance. In some parts of the Third World, poverty, environmental degradation and armed conflict are creating an almost permanent state of emergency.

Disasters – natural and man-made – often strike at the most fragile environments: degraded arid lands, deltas and other low-lying coastal areas. It is here that the slow advance of poverty and environmental degradation can be suddenly tipped into a full-scale emergency by drought, cyclones or conflict.

Crisis in Africa

In 1991, famine was once again threatening 30 million people in Africa – many more than in the devastating drought of 1984-5. In ten years, some African countries had moved from food surplus to food deficit. Over much of Africa, the ravages of war have added to those of famine.¹⁶ But a deteriorating environment has played a crucial part in the crises – as both a cause and a result of conflict, as Chapter 8 explains. For more than a decade, there has been massive deforestation, subsequent soil erosion and degradation, all of which has left the land difficult to farm and more vulnerable to drought. Combined with the loss of grain and seed stocks, these conditions bring a high risk of famine. Vulnerability and injustice ensure that the poorest suffer first and most severely. Even when they manage to survive, they are destined to become environmental refugees, uprooted from land and village. Worldwide, some 14 million people have had to abandon their homes because of environmental degradation.¹⁷

Ameth Kiros Germay is 54 and lives in Tseharte village in Tigray in the Horn of Africa. Erratic rainfall, periodic drought and serious deforestation of the marginal, overgrazed land has brought poor harvests and recurrent famine. In 1984-5 she and her husband did not migrate to Sudan with the younger farmers, but stayed behind in the village, getting small sums of money from REST, the Relief Society of Tigray, part-funded by Oxfam. With this she would walk to Makelle to buy food from other aid agencies. Her sick husband died, and she lost all five children in the 1984-5 and later famines. Her two oxen died and, after her husband's death, in line with local policies to redistribute land to accommodate population increase, her half-hectare of land was allocated to other farmers. She retained a small plot but this has produced little over the years of continuing drought – and nothing in 1990, when again she had to rely on REST. Now her sight is failing and she can no longer farm; she has lost everything.¹⁸

Floods in Asia

Cyclones are a fact of life in Bangladesh. But the one that hit the country on 29 April 1991 – with its accompanying tidal wave – was the worst for a decade. Within hours, more than 130,000 people were dead and four million were homeless. The cyclone killed thousands of animals, destroyed millions of pounds worth of assets, including all the crops. In a few hours, the livelihoods of millions of people were shattered. One week after the cyclone, an Oxfam fieldworker reported 'we are stunned at the scale of the devastation. Compared to those who are still alive, many people think that the dead are the fortunate ones.'

Hatiya Island, not much more than a large sand bar, is home to 300,000 people, three-quarters of them landless. It was just one of the areas devastated by the cyclone: 90 per cent of the island's inhabitants lost their homes and their crops, and fields were submerged under several feet of salt water. Overnight, years of hard work by local people were wasted. Dwip Unnayan Sangstha (DUS), a small local NGO supported by Oxfam, was one of the few organisations still able to help the stricken people, by distributing food and other essential supplies: 3,000 families were each given 5kg of rice, 1kg of lentils, some salt and matches. Since the cyclone, DUS has continued its longer-term development work, which is described in the next chapter.¹⁹

In the future, the effects of climate change and sea-level rise may exacerbate the scale and frequency of coastal flooding associated with cyclones. Some researchers consider that global warming may already be



SHAHIDUL ALAM/OXFAM

Damage after the cyclone that hit Hatiya Island, Bangladesh, in 1991. Poor people are often forced to live in vulnerable areas, and when disaster strikes, they have few resources for recovery. The outline of fields can be seen under the water.

a factor in extreme weather patterns of the kind which brought the 1991 cyclone.²⁰ Low-lying Bangladesh, with almost every inch of land already under cultivation, is one of the most vulnerable places on earth to sea-level rise: an increase of a metre could flood 16 per cent of the country and displace at least 11 million people.²¹

THE SCALE OF ENVIRONMENTAL DESTRUCTION

The daily fortunes of poor families – whether they eat or starve – are bound up with the state of the local environment, and that environment is changing rapidly. For those who must face drought or cyclones, their survival depends on adaptability and preparedness, but the pace of environmental change is now so fast that the capacity of poor people to respond is strained to breaking point.

Later chapters of this book will show how the environment is changing and how the poorest people are the hardest hit. Every year, more than 6 million hectares of land (an area approaching the size of Ireland) are degraded into desert-like conditions – more than double the rate over the last three centuries. If present levels of destruction continue, it is predicted that almost a fifth of the earth's cropland will have disappeared by the end of this decade. Throughout the world, health is seriously threatened by water polluted with human and industrial wastes. More than 20 million hectares of tropical forest (an

area similar to that of England and Scotland) are cleared annually, mainly for subsistence farming, commercial agriculture and destructive logging. Up to 30 per cent of all known existing species may become extinct over the next 40 years; this rapid loss of biological diversity severely reduces the earth's potential to supply species of medicinal and economic value, and genetic material that could, for example, help countries adapt to global warming.²²

Latest reports of ozone depletion in the northern hemisphere confirm scientists' warnings; the resulting exposure to increased ultra-violet radiation may lead to a widespread increase in skin cancers, damage human immune systems and have potentially devastating consequences for agriculture and fisheries.²³

Global warming

Overall looms the threat of climate change. There is now substantial international scientific agreement that human activities are warming the surface of the earth. The clearing and burning of forests and – much more important – the burning of fossil fuels, accelerate the build-up of greenhouse gases which cause global warming. The industrialised nations, with a fifth of the world's population, contribute (from their past and present activities) two-thirds of the production of these gases.²⁴

On present emission rates of the main greenhouse gases (principally carbon dioxide), global temperatures are widely predicted to rise by at least 1°C by 2025 – a rate greater than at any other time in the last 10,000 years.²⁵ Past changes of this kind took many thousands of years – species had time to adapt. Global warming could take place over just a few decades and there will be no time for adaptations, or places to migrate to. The effects will be felt first in the more ecologically fragile and unstable areas of the world – often where the poorest live. It is thought that global warming will raise ocean temperatures causing sea levels to rise, perhaps by a metre over the next century. This could devastate much of low-lying Bangladesh and northern Egypt, turning at least 50 million people in these countries into refugees.²⁶ Many more will suffer unless they can be helped to prepare and adapt quickly.

The gravest effects of climate change may be those on human migration as millions are uprooted by shoreline erosion, coastal flooding and agricultural disruption.

Intergovernmental Panel on Climate Change, 1990²⁷

WAYS FORWARD

It is clear that the environments of the poor South are being damaged, indirectly and often irreversibly, by activities in other countries. The

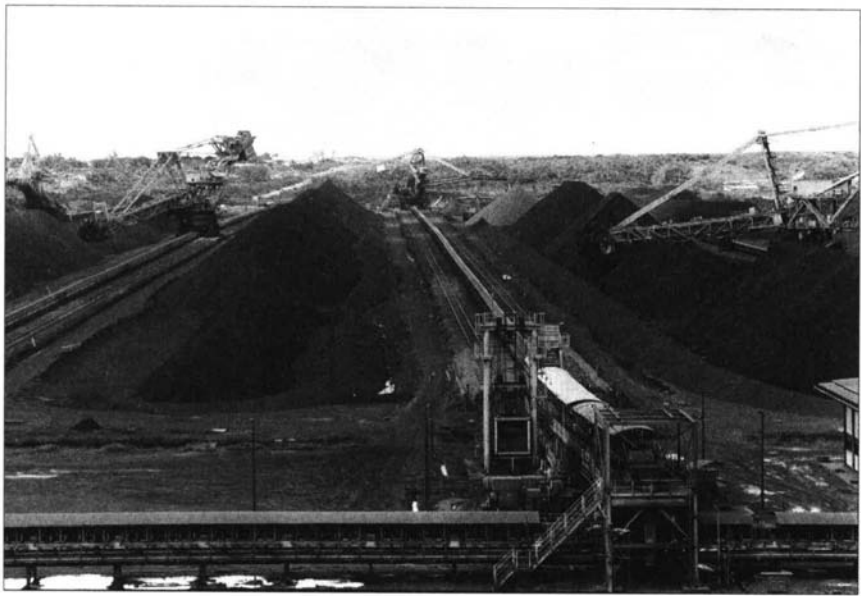
severity of cyclones and African droughts are thought by some to be, in part, linked to global climate change engendered mainly from the North.

The roots of local environmental degradation are often at the global level, in the economic pressures caused by an unjust trading system, indebtedness, and inappropriate aid policies. Misguided development policies at national level which ignore longer-term needs, favour the better-off and deprive people of any power over their own development are also to blame. Damage is also caused by poor people responding to their poverty: often they have no choice but to forgo tomorrow to survive today.

The environmental balance is one that has been increasingly disturbed. But the environment should not be considered in isolation. Ultimately, it is people, not trees, whose future options have to be protected. Indeed, if people are not protected, the trees will stand very little chance... Environmental destruction... reinforces poverty. So, any plans for environmental action must be plans to reduce poverty. This approach is not merely better – it is the only approach that stands a chance of working.

UNDP: Human Development Report, 1991²⁸

There are many ways forward to break into the cycle and reverse the downward spiral of increasing poverty and environmental degradation, including a poverty-focused approach to national development, local action which blends environmental management with securing human rights and meeting needs, and international measures which not only tackle environmental damage directly, but also deal with questions of structural inequities between the North and the South. The following chapters look at all of these, concentrating on the ways in which local people are applying their own solutions to the problems of the downward spiral.



JENNY MATTHEWS/ONFAM

Iron ore from Carajás, waiting for shipment at the port of São Luis, Brazil.

2

WHAT KIND OF DEVELOPMENT?

Development is about individual people and their communities; it is about these people taking control of their own lives and building their own futures. Our task is to respond to their hopes, aspirations and priorities.¹

Serra dos Carajás, in north-east Brazil, is an opencast mine on a grand scale. From here, iron and other ores go by rail to the coast to be shipped to the United States, Europe and Asia. But this is no ordinary development – the Projecto Grande Carajás will occupy some 10 per cent of Brazil's land area. A new railway slices through 900km of the Amazon rainforest and, along its length, the first of the iron and steelworks are growing up. A series of dams is under construction to provide energy for aluminium smelters and the national grid.

The scheme has already produced massive deforestation, with iron smelters projected to consume charcoal at a million tonnes – or 50,000 hectares of forest – a year. Soil eroded from the cleared land has choked waterways, bringing floods in the wet season. Huge dams are causing the inundation of great tracts of land, including settlements and territories of indigenous people. Because the land is not cleared before it is flooded, rotting vegetation pollutes the reservoirs, which become breeding grounds for disease-carrying insects. Air pollution from the sawmills, the smelters and the charcoal burning causes respiratory problems for people in the area.

Towns have sprung up, consisting of squalid, makeshift shanties, spread out along the railway line to house the workers' families, and those evicted from the countryside in violent disputes over land. But the towns have neither the services nor the jobs to sustain such a rapid influx of people. Some try to make a living extracting gold from local minerals with mercury – further polluting the rivers of Amazonia.

This Brazilian experiment in industrial development is not only unsustainable – it devastates the environment on which lives and

livelihoods ultimately depend. 'It is' says one commentator, 'an island of seeming modernity amid a sea of misery'.²

MODELS OF DEVELOPMENT

'Development' means different things to different people. Carajás illustrates the kind of large-scale, export-led economic development favoured by rich Southern elites, foreign investors, and intergovernmental agencies such as the World Bank. It damages poor people – threatening their rights, their livelihoods and their environments, offering few short-term benefits and no long-term employment.

In contrast, Oxfam supports 'people-centred development'. This necessitates social, economic and environmental policies that give priority to reducing poverty and to popular empowerment, so that people can participate fully in decisions which affect their lives and livelihoods.

Development models that rely on the idea of wealth 'trickling down' to the poor have been widely discredited, yet they are still pervasive. In many countries, economic development policies that have favoured powerful interests as engines of wealth creation have not yielded benefits for the poor majority. Instead, they have resulted in rapid short-run economic gain for a few, at the expense of wider social justice and long-term environmental security. Over much of Africa, development strategies have concentrated upon export-led growth to the exclusion of food security and incomes for the poorest people. Disparities in wealth have increased as the poor have become poorer. In Sudan, the average per capita income in 1991 was 25 per cent lower than in 1984. Economic development policies have not fostered local self-reliance, nor strengthened the coping mechanisms on which poor people rely during times of drought and famine.

Southern governments as well as Northern bilateral and multilateral aid agencies must share the responsibility for the failure to tackle poverty. Expensive infrastructure projects have proved unnecessary or damaging. Increased production of primary commodities for overloaded world markets has carried high social and environmental costs without increasing incomes. A neglect of the long-term health of the economy has been matched by a disregard for people's needs and for the natural resource base – depleted for short-term gains in a dangerous form of 'environmental borrowing'.³

SUSTAINABLE DEVELOPMENT: THE THEORY

The 1980s concern for the environment produced a new concept in development thinking – 'sustainable development'. *Our Common Future*, the report of the World Commission on Environment and Development (the Brundtland Report) defined it as

development that meets the needs of the present without compromising the ability of future generations to meet their own needs.⁴

Sustainable development is an alliance of three essential elements – people, their environment and the future. Implicit is the idea of people-centred development which brings social and economic advances but also safeguards the environment and its resources so that options are not closed for the future.

The idea of sustainable development has bridged the traditional gulf between environment and development thinking. The old perception that environmental protection was a luxury impeding economic development was particularly damaging for the South, where so much social and economic progress is directly dependent upon the natural resource base – at national and at local levels. Sustainable development at last acknowledged the interdependence of environment and development. Moreover, worldwide sustainable development implied that Northern countries would have to commit themselves to reducing wasteful and polluting consumption, as well as transferring resources for poverty reduction in the South.

Economic growth

The World Commission on Environment and Development demolished the notion that economic and environmental gains were inevitably opposed. Economic growth, said Brundtland, is essential for sustainable development – what matters is the quality of that growth. Decades of change in the South have shown that economic growth does not necessarily bring equitable development – a rise in GNP is, in itself, no indicator of the welfare of the poorest nor of the health of the natural environment. Opting for growth at any price serves neither. But low growth or stagnation is not the answer.

The approach of many environmentalists to this dilemma is to advocate a world of slower economic growth. While this may be superficially appealing to those already materially comfortable, it is both selfish and unwise. Given the extent and growth of mass poverty and the link between poverty and environmental stress, rapid economic growth in developing countries is essential...But growth must be qualitatively different from that experienced in the past: growth that contributes to sustainable development.

Sir Shridath Ramphal⁵

Without growth, living standards for the poorest cannot rise. The resources needed by governments for public investment and the regular

provision of services such as health and education will not be available except through an expanding national income. Creating jobs for a rapidly growing labour force cannot be achieved in a stagnant economy. What is needed are new patterns of economic development which serve the poorest and do not destroy the natural resources on which they depend. So the growth must be based, for example, on technologies that conserve rather than exploit resources, and the benefits of development must be spread much more equitably.⁶ Some economists are already questioning the traditional concepts of economic growth which rely on increasing throughput of energy and raw materials, and underlining the importance of pursuing economic objectives which are less resource-intensive and which take account of the value of natural resource capital.

An international team convened by the Commonwealth Secretariat concluded that sustainable development, in practice, depends on a number of principles, including:

- the precautionary principle, which means that, in the absence of conclusive scientific evidence, policies which have environmental implications are formulated and implemented with care and restraint;
- environmental accounting, which means that where environmental assets are not used sustainably, then the full costs of depletion, regeneration and maintenance should be included in any costings; true 'economic values' will take account of environmental and social costs and benefits when projects or programmes are assessed; these do not appear in conventional financial balance sheets (this is further explored in Chapter 10);
- greater equity; sustainable development requires more equitable distribution of resources and decision-making powers between North and South and within developing countries, for – as Chapter 1 showed – environmental degradation is caused by both affluence and poverty.⁷

To these must be added:

- the polluter pays principle, whereby industrialised countries accept full responsibility for their part in causing environmental problems.

There will be conflicts of interest; growth, even when it is carefully managed, will increase demand for some natural resources, and for energy. But the evidence of Northern economies is that growth can be 'unhooked' from increasing energy demand, by improving energy efficiency and producing more from renewable sources. Much faster

progress can be made on this if existing energy-saving technologies are applied more widely, and consumers can be persuaded to waste less energy and pay more for it, to reflect the true environmental costs of production. The optimistic growth rates envisaged by Brundtland – up to 4 per cent in industrialised countries and 5 or 6 per cent in developing countries – could only be sustained with a significant and rapid reduction in the energy and raw material content of every unit of production. 'Achieving significant changes in consumption patterns is one of the most challenging issues for environment and development', says a report from the UNCED Secretariat.⁸

New economic indicators are urgently needed; GNP figures may show impressive progress but this can be utterly illusory, for as it is presently defined, GNP takes no account of, for example, the distribution of resources, disparities in real incomes, the global and local depletion of forests, croplands and other environmental assets, or the effects of climate change.

Putting the poor first

From Oxfam's perspective, dealing with poverty is the overriding objective; the major goal of sustainable development must be to enable the poorest people to meet their basic rights and needs and sustain their livelihoods, while essential environmental resources are fairly distributed and well-managed.

Securing livelihoods is a key issue because so many other development benefits depend on this security. In resource-poor environments, vulnerable people need new forms of development that enable them to gain a secure and decent living for themselves and their children, where they are, and with the resources they can command.

It is by starting with the poorer, and enabling them to gain the livelihoods they want and need, that both they and sustainable development can best be served... For the protection of the environment, poor people are not the problem, they are the solution.⁹

There is mounting evidence to show that where people have the rights and assets that ensure secure livelihoods, then they take the long-term view, safeguarding land and protecting natural resources to provide for their children. Putting the poorest first also means prioritising the rights and needs of women and giving them an effective say in development.

Women make up some of the poorest and most disadvantaged groups in many societies and they are the first to feel the effects of environmental degradation. In relation to sustainable development in the South, their needs and opportunities are especially important.

Women often play the major role in natural resource management, using their traditional knowledge and skills. It is normally the women of a community who gather water and fuelwood, and grow basic foods. Yet their work – most often unpaid – is largely invisible. As Chapter 1 described, women's unequal position in Third World societies, in communities and households, maintains their situation of powerlessness. This, combined with their excessive work burdens, ill-health, repeated and often unwanted pregnancies, limits their capacity to play a full part in the decisions and activities which affect their lives.¹⁰



Committee meeting of Samata, an organisation of landless people in Bangladesh whose work is described in Chapter 4. Samata has fought for women's rights to land, and women members participate fully in running the organisation.

Popular participation

In Oxfam's experience, popular participation is a fundamental requirement for sustainable development. Rights to participate in, and influence, decisions on the management of resources are necessary not only for reasons of social justice. Only when there is full participation – indeed, only when people have the power to improve their own lives and to challenge and influence decisions about resource allocation – will development activities have any chance of long-term success.

The latest policy documents of a number of official donors feature a new emphasis on addressing poverty and increasing participation as essential elements of sustainable development. At least on paper, if not yet in practice, some donors are acknowledging the crucial importance of poor people's empowerment. This has long been the approach adopted by development NGOs, which promote small-scale initiatives, designed to tackle poverty and powerlessness in partnership with the poorest people.

Many government and other donor agencies have now issued policy statements and adopted project guidelines on women in development. Some donors are more active than others in their consideration of women's needs and opportunities, but most are still better on paper than in practice. Few donors make a direct link between women and environment in the practical implementation of their policies. Where development assistance is directed at women, it often presupposes their role as victims and passive recipients of aid, rather than regarding them as active agents – and beneficiaries – of change.

It is certainly possible to see women as the principal victims of environmental devastation, and indeed – as Vandana Shiva argues – as victims of the man-made style of development that has become so destructive.¹¹ Women are still ignored in most large-scale development projects. They can even be ignored in smaller-scale projects, designed especially to restore degraded landscapes: some social forestry schemes, for example, have excluded the more beneficial fuel, fodder and fruit-producing trees which local women would have chosen.

Among some development agencies, women are beginning to be perceived as skilful environmental managers, with the knowledge and way of working cooperatively that can be valuable assets at the project level. But this view of women can, in practice, reinforce the perception that only men's work is economically valuable and increase still further women's unpaid work burdens, consigning to them a continuing role of invisible environmental carers. Instead, development should be empowering women in all their diversity to improve their incomes, skills, independence and status, and their ability to secure basic needs and livelihoods through greater access to land, credit, technology and training. At the local level, women need to be enabled to apply and communicate more of their own hard-won solutions to environmental problems and capitalise on their environmental roles – being recognised and remunerated for their part in sustaining the resource base for development.

A number of agencies, including Oxfam, are arguing for women to be seen as central figures in good environmental management, setting the agenda for action. Their experience is needed, at the earliest stage of

development assistance, to shape effective policies and projects, and women deserve to benefit directly from this involvement. But this will require positive action by many institutions to recognise and enhance women's role in sustainable development – not just a commitment to reduce the damaging effects of conventional development on them.

SUSTAINABLE DEVELOPMENT: THE REALITY

In spite of the good intentions of governments and aid agencies, poverty-focused, participative and sustainable development is not happening in most areas of the world – North or South.

In the North, development continues (whatever the nature of national economic policies) along paths that are inherently unsustainable in terms of the global, if not the local, environment. Unchecked, the rate of fossil fuel consumption, with its accompanying emission of greenhouse gases, ensures accelerated global warming, threatening most of the world's croplands and forests. Some countries, the Netherlands for example, are trying to devise sustainable national strategies, but these remain paper plans so far.

In the South, as the example from Brazil illustrates, millions of people are either damaged or bypassed by existing forms of development. The land and water which poor communities rely on are taken away, eroded or polluted by powerful interest groups. Poor people are often forced out of their homes or away from the source of their livelihoods to make way for large-scale projects such as dams or commercial farms. They are denied access to (or must pay for) what had been 'free goods' from the environment – fuelwood, fodder and water. Or, as Chapters 4 and 5 show, they are forced to experiment with inappropriate forms of land holding and agriculture that stifle farmer initiative and traditional concerns for resource conservation.

Many factors conspire to prevent the transition to more sustainable forms of development, not least the lack of political will among those with vested interests (in the South and the North), and the severe economic pressures on poor countries, especially unjust terms of trade and massive indebtedness. Five years on from the Brundtland Commission Report, accepted by the UN and endorsed by many governments, not a single country has made any major change towards sustainability, though some are claiming limited progress.¹²

There is a reluctance to look beneath the symptoms of environmental damage to the root causes of unsustainability, particularly in the North. Indeed the preparatory work for the 1992 UN Conference on Environment and Development (UNCED) revealed, disturbingly, that the North had set the agenda along similar lines to the last UN Conference on the Human Environment in 1972. The concerns have been

those perceived as important for the North – the protection of biodiversity, forests and the atmosphere – rather than the economic and political structures which underpin poverty and environmental degradation, and limit sustainable development.

This is one part of a growing difference of perception between North and South over what the real problems are and how they can be tackled. Whereas governments in the North are considering the details of technology transfer and additional resources for sustainable development, Southern governments and NGOs are much more concerned about finding solutions to the debt crisis and trade-related problems, including low commodity prices and Northern protectionism – issues which are further explored in Chapter 10. Without major changes in North-South economic relations, and in wealth creation and distribution at national level, positive action for sustainable development at the local level will always be undermined.

PRIMARY ENVIRONMENTAL CARE

For development to be sustainable, it has to be about change: change shaped by people to meet their perceived needs. This change must be firmly rooted at local level, but must be carried through to regional, national and international levels. From an Oxfam perspective, the most effective approach to sustainable development, especially at the local level, is to support individuals, groups and communities in the process of self-empowerment, to enable everyone, including the poorest, to secure their basic rights and needs while caring for the environment. This approach has come to be known as Primary Environmental Care.¹³ It has three essential elements:

- popular empowerment
- securing basic rights and needs
- caring for the environment.

For effective Primary Environmental Care, all three elements must be tackled together. While environmental care is a key component, it is never the only one, but is integrated with other community-based activities to improve access to health care, shelter, education or income generation – a whole array of social and economic improvements.

For Oxfam, PEC is not entirely new – a number of Southern partners already approach local problems in this way. What PEC tries to do is to find integrated solutions to local problems and avoid a single-issue approach. Primary Environmental Care is appropriate in the North as well as the South – and there are examples of PEC in action in some of the poorer city districts of Europe and North America.

PEC is more than an approach to local action: it is a strategy which should guide policies at regional, national and international levels. Indeed, unless people can influence power structures at national level and have a say in decisions about the allocation of resources, PEC at local level lacks its vital enabling context.

Popular empowerment

Oxfam's experience suggests that sustainable development is about the process of change as well as the product. It is a process which enables people to become empowered so that their rights are recognised and their needs met. Empowerment is about supporting people in securing and defending their basic rights – the right to associate, to organise, to express their views and to participate in decisions. This means full and active participation of all parts of a community – individual women and men, children, households, and local organisations in all their different forms – so that their voices are heard and their knowledge and experience shared.

Securing basic rights and needs

The evidence from Oxfam's work is that meeting basic needs is about much more than improving the prospects for survival: it usually includes support for greater self-empowerment. It means ensuring that people are enabled to get access to the resources (especially financial, managerial and educational) they need to improve their incomes, food security, shelter, health care, education and training, sanitation and water supplies.

Caring for the environment

This takes many forms at the local level, including the rehabilitation of degraded environments, the protection of natural resources, for example by soil and water conservation, and the creation of 'new' ones – perhaps through the planting of trees or digging of wells. Oxfam supports various projects of this kind which combine, for example, tree-planting with water conservation, terracing and agricultural development. Building on local environmental experience is essential, for many poor people – especially women – have the knowledge to manage renewable resources in sustainable ways.

In both the North and the South, Primary Environmental Care is essentially empowering, enabling people to devise and implement their own strategies for self-reliant and sustainable improvements. This is especially valid at the local level, where the experience and skills locked up in a community are vital ingredients for success. Evidence shows that well-organised communities in resource-poor areas have been successful

in meeting their needs while improving the environment – often with only limited outside support. Moreover, community-based projects of all kinds show high levels of effectiveness and efficiency in the use of human and material resources.

Some women's groups have become particularly effective in defending local natural resources and creating sustainable environments which provide food, fuel, fodder and building materials, as well as opportunities for income-earning enterprise. The Chipko movement in India, and the Kenyan Green Belt Movement are internationally known examples, but there are many other smaller groups of women who are successful at Primary Environmental Care. It is crucial that women – so often seen as unpaid agents for improving project success at the local level – become real beneficiaries of PEC programmes and projects.

PEC IN PRACTICE

PEC in Bangladesh – Dwip Unnayan Sangstha

The last chapter described how Hatiya Island, in Bangladesh, was devastated by the cyclone in April 1991. Dwip Unnayan Sangstha (DUS), a small, local NGO supported by Oxfam, not only provided emergency relief for the victims, but continues to help the islanders to campaign for their land rights. While land is constantly being eroded from the north of Hatiya Island, 'new' fertile land is added in the south as the sea deposits silt from the Bangladesh rivers draining into the Bay of Bengal. Like other islands in the Bay, Hatiya is being reshaped all the time. By law, the new land is set aside for the landless but it is often appropriated by rich and powerful landlords. With help from DUS, people displaced from the north of the island have successfully claimed land that is rightfully theirs, and they have been encouraged to protect it with embankments and tree-planting. DUS has helped some 700 landless families to get almost a hectare each, and has provided them with paddy and winter crop rice seeds. Some communities have excavated ponds for fish farming. DUS also works with women's groups to raise awareness about their rights and tackle some of the traditional forms of oppression – early marriage, polygamy and rape.

Mokajjal Khatoun is a grandmother who has lived on Hatiya Island all her life – although river erosion has forced her to move house seven times. But now, for the first time, she is confident that she will not have to move again, because she has been able to buy land of her own, some way from the river. Through a women's savings group, set up with the support of DUS, she and some other women have been able to save enough money to add to a DUS loan to buy the land between them – and that land is in their own names, not their husbands'. They are raising the land before their homes are

built to make it less vulnerable to flooding and, with a loan from DUS, they are sinking a pond for fish farming.

But for some, the crisis remains. Momena Khatoun did not join the women's group, and she was not able to save any money. Her house still perches precariously next to the river and she will soon need to move. A widow, who lost both her sons in the 1970 cyclone, Momena lives with her widowed daughter: she does not know how they will move the house or where they can move it to.

After disasters like the 1991 cyclone, poor people are easy prey for unscrupulous moneylenders. Alone, they are very vulnerable. Now, with help from DUS, they have organised themselves in groups to pool labour and resources. DUS advises on land claims, creates jobs through reforestation programmes, and acts as a credit facility for small traders.¹⁴

PEC in India – the work of Seva Mandir

Starting out in 1969 with a literacy project in the villages of the Aravali Hills around Udaipur, Seva Mandir has grown from an NGO concerned with a single issue to one which promotes integrated local development. Its work shows how the concept of Primary Environmental Care can permeate an agency's philosophy, grassroots action and regional strategies.

Seva Mandir works mainly with the tribal people who live in 400 forest villages in the south-east of Rajasthan. Forests are the source of their livelihood, but the soils are impoverished and productivity is meagre. Systematic deforestation has been the cause and the consequence of increasing poverty. Yet the guiding philosophy of Seva Mandir is that only local people can protect and regenerate the forest in a sustainable way. Since 1985, the Wasteland Development Programme has not only promoted soil conservation, tree-planting and fodder production, but it has become a 'people's' movement' to restore self-esteem and confidence in the long-term value of the natural resource base. Under the programme, Seva Mandir has been working with villagers to plant and manage a network of decentralised nurseries, which have survived in spite of three years of punishing drought. Local success has brought increasing recognition from government and forest administrators that a partnership with people and NGOs is the only effective way of restoring degraded forest.

The Wasteland Development Programme is just one element in a whole portfolio of social, economic and environmental activities which Seva Mandir generates or supports. These include adult literacy, informal education for children, health education, women's development, agricultural extension work, technical training and the formation of

credit unions. In addition, there are physical developments – community centres, small-scale irrigation schemes and water projects, such as check dams and wells, for which Oxfam provided funding until 1985. Since then, Seva Mandir has been well supported from other state, national and international sources.

All the programmes enable poor tribal people, especially women, to participate fully in the process of rural development, while learning and applying leadership skills. ‘Citizens’ groups’ are encouraged to analyse their problems in detail, determine priorities, negotiate with government and other agencies, then take action. Seva Mandir’s goal is to help them to build their own organising and managerial capacity for sustainable development.¹⁵

PEC in Mauritania – Affolé

Many lessons can be learnt from Oxfam’s experience in the Affolé district of Mauritania. Here, at the edge of the Sahara desert, agriculture is precarious. This region of scattered villages is hot and dry and droughts are frequent. Dams, built by the French in colonial times to trap the rains, have all been swept away by floods. People have had to rely on small dykes (or *diguettes*) but these are an uncertain source of soil moisture in drought years.

In 1983, Oxfam began to work with poor people in Affolé to manage the watersheds around some of their villages. First the *diguettes* were improved and then small dams were planned for the neighbouring watercourses. But the farmers were not enthusiastic about these improvements – they had other priorities.

Since 1988, the project has become more flexible, with wider local participation. Now, a larger range of activities has developed, responding more closely to the farmers’ needs – for more wells, health care, the building of grain stores and the opening up of local markets. The village cereal banks and local trading are crucially important in helping farmers to tackle indebtedness – their overriding concern. Women’s groups are especially active; they are in charge of the trading and, in some villages, they have taken to rearing small livestock which increases village food security.

The role of the project team has changed – from implementer to enabler, encouraging, advising and supporting the villagers. Now the villages are beginning to cooperate to build the larger dams necessary to catch flood waters and improve their sorghum production. But technical solutions like this, at first perceived by Oxfam to be the answer to Affolé’s problems, are only a part of what is needed. The project has undergone a major change of emphasis over almost a decade, adapting to local needs as it has progressed. The priorities of its beneficiaries now

PEC in Brazil – extractive reserves

Since the 1960s the Government of Brazil has pursued a policy of 'opening up' the Amazon rainforest, encouraging ranchers and other developers to clear the forest. This threatened the livelihoods of Indians and rubber tappers who traditionally managed the forest in sustainable ways, collecting latex and brazil nuts.

Following years of bitter dispute – which included the assassination of their leader, Chico Mendes – the rubber tappers have pioneered the concept of 'extractive reserves' whereby their livelihoods could be protected in certain areas of the forest. In these reserves, they would continue to collect rubber and brazil nuts, as well as hunt and fish, without fear of harassment.

After persistent and effective lobbying of the Brazilian government by the rubber tappers' unions (supported by international agencies including Oxfam), the first extractive reserve was designated by the State Government of Acre, in 1988. Since then, more than a million hectares of extractive reserve have been mapped out (or are in progress) in the states of Acre, Amapá, Amazonas, Pará and Rondônia. The reserves are used to harvest natural resources – latex, brazil nuts and other forest products – in a sustainable way.¹⁷

The rubber tappers have built up an impressive alliance of support both within Brazil and around the world. The National Council of Rubber Tappers coordinates the views and activities of the local unions and, together with Indian groups, they created the Alliance of Forest Peoples in 1989. But the future for the extractive reserves is uncertain. The world price of rubber has fallen and competition from rubber and brazil nut plantations in Malaysia threatens to undercut the rubber tappers' production. Rubber tappers in Rondônia are earning 30 per cent less than the standard minimum wage in Brazil. Hunger will drive them off the reserves unless they can be helped to improve the transport of rubber and brazil nuts to market and to diversify their collection of forest products.

PEC in Chile – FEDEPA

Chile's Eighth Region, the third most important in the country's economy, contributes half of its timber supplies (the main export after copper) and a third of its fish production. The rate of clearance of the native forest has increased fourfold between 1970 and 1990. It has been replaced with pine and eucalyptus monocultures which acidify soils and destroy wildlife habitats. Likewise, fish catches have also quadrupled since 1970 to 2.5 million tonnes a year – twice the maximum catch to allow replacement of the fish stocks. The fish is used for fishmeal in animal feed; meanwhile fish stocks upon which people rely for food are

come first. Affolé shows that self-help can lead to sustainability: when people help themselves they begin to innovate and adapt, finding the right solutions.

But arguably the most important part of the programme lies in the setting up of project committees, which will discuss community needs and organisation. The project will 'support a traditionally disempowered social group to take more control over the factors which have made them poor and insecure'.¹⁶



MIKE GOLDWATER/OXFAM

Rubber tapper at work, Brazil. The rubber tappers manage the forest sustainably, and the rubber trees will yield for many years.



Fishmeal factory, Chile. Over-fishing by commercial fleets has drastically reduced fish stocks in recent years, threatening the livelihoods of fishing communities. Waste from the factories pollutes the waters of the bay.

being depleted. Most of the fisherfolk are now working in the industrial fishing fleets and the fishmeal factories of Concepción and Talcahuano which pollute the Bay of Concepción.

The Caleta El Moro community has been fishing for shellfish, mackerel, sardines and salmon for more than a century. Now the shellfish have gone and the viability of the community is threatened by pollution and dwindling catches. Like other fishing communities in this part of Chile, people are sinking further into poverty: already, half of the Region's population is classified as poor, earning less than US\$200 a month.

FEDEPA (the Federation Regional de Pescadores Artesanales) represents the local fisherfolk and helped to draft a new fishing law in 1991. This recognises the needs of small-scale fishers, and sets aside specific areas of sea for their exclusive use. It remains to be seen whether or not the industrial fleets respect these zones, and if pollution can be controlled. Meanwhile, FEDEPA and other local groups are exploring low-tech ways of smoking fish to add value and provide jobs without the need to increase catches. Related leadership training programmes are increasing the self-confidence of local fisherfolk as they fight for further protection of their livelihoods.¹⁸

PEC in the North

In the UK, Primary Environmental Care may be used to describe the approach of several NGOs working alongside local people in inner city districts. For example, the network of 29 Groundwork Trusts, begun in the early 1980s, emphasises empowerment and support for communities who want to repair their local environment and bring about associated social and economic improvements.

Sholver is a run-down housing estate outside Oldham – 1,000 feet up in the Lancashire Pennines. On this patch of the ‘inner city’ in the countryside, drug abuse, violence and truancy were common. In a place which offered little else to do, vandalism was costing the local council 10,000 a month in 1985. Led by an unemployed ambulance driver, some of the residents seized the opportunity to act together when their homes were threatened by demolition. With advice and support from Groundwork, they began by tackling dereliction and vandalism – decorating homes and communal areas and clearing rubbish. This demonstration of positive environmental action persuaded the local council to reverse their plans for demolition, and repair the houses. But the younger residents wanted more to do. A countryside ranger from the Oldham and Rochdale Groundwork Trust took them on trips to the countryside to respond to their interest in wildlife, and their



Children building the Skolga Serpent (from a Viking legend) in the wildlife sanctuary they have created on the Sholver Housing Estate, Oldham, UK.

enthusiasm for learning – and action. With support from various agencies, the young people set up the Sholver Rangers, building their own playspace and wildlife sanctuary on derelict land, and regularly patrolling the estate to check the safety of old people, protect homes from vandals and marauding dogs, and clear litter.

Attitudes have since changed on the estate: residents meet more often, get on better, and vandalism is much reduced. A number of Groundwork Trusts now work with other communities to transform run-down housing estates, enabling tenants to take more control. With support from the Trusts, they are working in partnership with housing authorities, not just on roof repairs and rent arrears, but to create neighbourhoods where people have some sense of belonging.¹⁹

Elsewhere in the UK, Europe and North America, there are other examples of local people taking action to meet their needs and build more resourceful communities. They are greening derelict land, recycling wastes and conserving energy, often creating new jobs and businesses at the same time.²⁰

CREATING THE CONDITIONS FOR PEC

In all these ventures, it is clear that there are a number of preconditions for PEC to work. Communities must have some capacity to organise and to take decisions, with the assurance that they can influence development decisions. People have to be willing to work together – and foster a sense of community. PEC needs a supportive local context, with access to land and security of tenure for those who participate. In the South, the evidence from a variety of projects shows that when poor farmers are secure in their ownership of land and their rights to use the environment as they wish, then they will manage it well, conserving soil and water, planting and caring for trees.

Most importantly, PEC programmes and projects also need a national and an international framework which will allow such an approach to start and to flourish. Indeed, as with the rubber-tappers in Amazonia, the impetus for practical action may come from the regional level, rather than from local pressure alone. Likewise, it has to be possible for local innovations to influence national and international development practice. In a few countries, grassroots activities are already recognised and valued influences on higher-level policymaking but this is not common. In fact, governments often restrict any popular participation to the local level, so that the poor have no impact on the key economic decisions taken at national level.

Before Primary Environmental Care has any long-term chance of

success, the obstacles to sustainable development at all levels – both within the South and between North and South – have to be tackled.

Lessons from Primary Health Care

The idea of PEC has grown out of various approaches to local resource management, including Primary Health Care. In part, PHC was a reaction against the domination of 'high tech' hospital medicine in favour of local – and locally managed – accessible health care, based on prevention as well as cure. Likewise, PEC is a response to locally expressed needs for environmental and social improvements – preventative as well as curative – which go beyond technical solutions alone. So PEC puts the emphasis on community forestry rather than reforestation, community-based conservation rather than nature reserves. As well as rehabilitating environments, real PEC programmes try to address the causes of degradation and enable local people to prevent further damage.

As PHC has done, PEC should recognise the key role of women, their experience, skills and needs. Best practice in PHC has enabled women to build on their existing roles and benefit directly from local improvements, taking up new responsibilities, realising opportunities and acquiring enhanced status. PEC should do the same.

Many lessons have still to be learnt from more than a decade of PHC. Political will and adequate resources are vital. Supportive structures are required for PEC which can provide personnel and technical training, help for local institutions, and access to resources such as land, credit, appropriate technologies, transport and marketing. Building on local knowledge and ensuring full participation will mean that PEC programmes must be – as in Affolé – flexible in their timescales and in their funding, with a style of management which enables people to take control. Durable PEC approaches typically begin small and do not seek to innovate continually, but to learn from experience, consolidate successes and explore the opportunities for replication. Most PEC schemes will be multi-sectoral including, for example, forestry, agroforestry, soil and water conservation, livestock and crop husbandry, and the creation of new enterprises. External inputs are usually modest and act in a catalytic way. PEC is based on planning from below, not centrally imposed 'blueprint' solutions.

WAYS FORWARD

Primary Environmental Care offers one route towards sustainable development, providing new opportunities for governments, aid agencies, NGOs and the private sector to support local communities in meeting both environmental and developmental objectives. Here is a

practical way towards greater community self-reliance, which is already working. What is needed is massive replication of the approach (which acknowledges the likelihood that local solutions will be unique), with more support for new PEC projects and programmes to start up. These must be seen not just as a series of isolated, temporary, local schemes, but as a widening practical strategy for sustainable development.

The concept of Primary Environmental Care is gaining ground among NGOs, multilateral agencies and governments, including the British Government:

The UK is keen to promote the Primary Environmental Care approach through cooperation programmes with developing countries and support to the NGO community. It is an approach which is affordable, replicable and applicable to multilateral agencies, national and local governments and NGOs, and it should be a key component of Agenda 21.

UK Delegation Statement on Environment and Poverty: Third Preparatory Committee for UNCED, 29 August 1991

There are other advantages. PEC is a way of contributing to the solution of global environmental problems at the local level. The success of international measures to reduce land degradation, stem forest clearance and protect biodiversity depends in large part on what happens locally.

Primary Environmental Care is appropriate in the North as well as the South – and this provides new opportunities for North-South collaboration and the exchange of information and personnel, within and between countries.

Even so, Primary Environmental Care is only one essential element in a whole array of actions that are necessary to move towards sustainable development. PEC needs to be set in a context of large-scale programmes of conservation and environmental rehabilitation, environmental impact assessment and monitoring, and – of key importance – policy change on the issues which stand in the way of sustainable development, both within the South and between North and South. However successful the local action is, it will be undermined by a continuing deterioration in the economic and political structures which keep people and countries in poverty. These are the subjects of later chapters in this book.

3

WATER FOR LIFE

The number of water taps per 1000 persons is a better indication of health than the number of hospital beds.

Dr. Halfdan Mahler, ex-Director of the World Health Organisation

Gulabi's village, Khaspatti, nestles in the Garwal Hills of north-west India. In the distance are the snow-capped peaks of the western Himalayas, and the perennial tributaries of the Ganges criss-cross the land. But in summer the small springs on the hillsides dry up. The rivers run in deep gorges and are not easily reached by people who live in the hill settlements like Khaspatti. The more accessible rivers, such as the Bhagirathi, are a half-day's trek from the village, so Gulabi must make do with very little to drink. Her nearest source of water is a small stone tank in the next village, four kilometres uphill, beside an oak forest. The 'high-caste' women have first use of the tank in the early morning, then other families may use it according to their social standing. 'Low caste' outsiders, like Gulabi, come last. The pot of muddy water that she scoops from the bottom of the tank has to quench the thirst of her mother-in-law, brother-in-law and her children.

Life in Khaspatti is hard: wise parents avoid marrying their daughters to Khaspatti husbands. But Gulabi is from a local family so there was no question of her marrying outside the village. The daily drudgery of life in the hill settlements pushes many women to attempt suicide. They tie their limbs together and plunge into the whirlpool of the Bhagirathi River. Some escape to their watery graves. Others, like Gulabi, fail.

A failed suicide reflects badly on the family. Gulabi had to leave hers. She sought refuge in Swami Manmathan's centre for destitute women, an Oxfam-funded project. In 1986, Swami Manmathan encouraged the women of Khaspatti to stage a demonstration on the Tehri-Deoprayag road. They brought traffic to a standstill and their plight to the attention of the government. Today 250 villages around Khaspatti receive fresh water, piped from the Bhagirathi River.

NOT ENOUGH TO DRINK

Water makes up 60 per cent of the human body weight, is essential for all plant and animal life and sustains the world's industries. Yet water of high quality is scarce. While oceans cover most of the earth's surface, only about 3 per cent of the world's water is fresh and three-quarters of that is frozen at the poles. This means that less than one per cent is available in groundwater rivers and lakes, and those are unevenly distributed.¹ Whereas America uses the equivalent of 2,300 cubic metres of fresh water per person each year, in Ghana this figure is just over 30 cubic metres. Worldwide, over two billion people suffer from chronic water shortages.²

Consumption patterns vary widely. While in the South most water is used for agriculture, in the North the largest proportion is used for industry. The demands of both are growing rapidly – trebling since 1950. Industry and power generation now account for almost 50 per cent of all the water consumed in the United States.

More than half the people in poor countries have no access to safe drinking water and must rely on inadequate or polluted sources such as urban stand-pipes (shared by hundreds of families), or rivers, lakes and wells, which are becoming increasingly polluted, or drying up.³ Water-borne diseases kill at least 25,000 people every day. More than 4 million children die from diarrhoea every year. Overall, UNICEF estimates that dirty water and insanitary living conditions account for 12.4 million deaths each year.⁴

As the industries and cities of Asia grow, its rivers become conduits for human and industrial wastes: they are now amongst the most polluted in the world. Even where laws to keep waterways clean exist, they are often not enforced. Industrial and agricultural wastes are believed to have polluted more than 40 of Malaysia's major rivers; and 54 of the 78 rivers monitored in the People's Republic of China are clogged with untreated sewage and industrial wastes. About 70 per cent of India's surface waters are polluted and barely 7 per cent of its towns and cities have any facilities to treat sewage.⁵ The story is much the same over the rest of the developing world and is the main reason why Oxfam is so often involved in supplying safe drinking water.

A person needs a minimum of 15-20 litres of water a day (this is the amount which UNHCR reckons is necessary for people in emergency situations); but in the South few households have a water supply in the home and all the water needed by the family for drinking, cooking, and keeping clean must be collected and carried back home.⁶ Collecting water is a gruelling daily task mostly done by women. They are forced to neglect their own health, their families, and their fields to spend hours each day carrying containers of water that can weigh as much as 20 kg.



Collecting water is traditionally women's responsibility. This can be a very demanding part of their workloads in terms of both time and physical effort. Women from Dhobghat village, Bihar.

As water shortages increase, women have to spend greater parts of the day collecting water. In rural areas this is likely to mean walking a greater distance and in urban areas it can mean queueing for longer at the source of supply. Women are usually the managers of water resources for their community, making decisions about collection, amounts and uses of water. A study has shown that when the role of women has been ignored in designing and implementing water projects, these have tended to fail.⁷ In a water project in Wollo Region of Ethiopia, the male community leaders were consulted about the design of the project, but they had no knowledge or understanding of water sources. Initially, the project was not successful. For one thing, the water jar used by the women of the Afar community to carry water is round-bottomed and cannot stand upright on a concrete surface, and since the pump which was installed needed two hands to operate, the women could not hold the jar steady at the same time. One person could not collect water unaided. These problems were solved after consultation with the people involved in managing the resource – the women of the community.⁸

Coping with drought

Using water to irrigate crops in drylands may seem a good strategy. But most methods of irrigation are grossly inefficient: only a small amount of the water that reaches the fields benefits the crops, the rest runs away.

The larger schemes often waste more water than smaller ones. Big dams, with extensive networks of canals, often distribute water unevenly between the beneficiaries, are uneconomical and environmentally unsound.

Over centuries, farmers have developed many systems of harvesting water, including small dams, contour ditches and reservoirs. Traditional systems have much to offer. And the more farmers are involved in the design, construction and maintenance of irrigation schemes, the more efficient and productive such schemes become. Both large and small-scale schemes have a role to play in tackling drought, depending on the local situation.

Rajasthan's Thar desert, in north-west India, receives less than 250 mm of rainfall annually and, in summer, strong winds blow away the dried-out top soil. Several years of drought prompted one Indian group called Gramin Vikas Vigyan Samiti (GVVS) to return to traditional methods of conserving water.

In 1985, GVVS began to build embankments, locally called *khadins*, on hillsides to conserve rainwater, increase moisture in the soil, and check soil erosion. The *khadins* are almost 2m high, and 4m wide at the base and are built on three sides of the lower slope of a field. Rainwater is trapped behind the embankments and infiltrates into the soil. The work brings immediate results: improved soil conditions now give better crops of millet, pulses, sesame oil seed and mustard. Farmers have planted acacia and *ber* trees on the embankments to provide fuel and fodder. 'The families who made embankments have saved themselves from the severity of famine', says GVVS's leader.⁹

When is a drought not a drought?

Drought does not have to lead to famine. Indeed, occasional droughts are a fact of life for the Turkana and Samburu pastoralists of the semi-arid lands of eastern and northern Kenya. Centuries of living in this harsh environment have made them experts at surviving drought. As the dry season approaches they pack up and move on in search of fresh grazing, making the wisest use of available land.¹⁰

In 1984, the drought came after an epidemic of livestock diseases that had already weakened the animals. In some areas, 80 per cent of the goats and many cattle died. The price of meat, skins and hides fell until they were almost worthless. People were unable to buy cereals or other food even when they were available. Oxfam provided emergency food supplies linked to a destocking programme which gave pastoralists who wanted to sell their stock a fair deal. After the drought, consultation

with local groups led to a restocking programme. Families were lent 'starter' herds of sheep and goats, and a pack animal. It was enough to liberate them from food distribution camps and get them back on the rangelands. The programme also helped to improve the marketing of hides, and trained herders to administer veterinary drugs.¹¹

Water for the village

The droughts of the early 1980s dried up streams, the traditional sources of water in many parts of Ethiopia. In the south of the country, Wolaiyta was particularly hard hit, for it had few water resources and a high density of population, with people trying to scrape a living from small plots, competing for land, wood, pasture and water. The water table was so low, wells had to be up to 40 metres deep.

The people of Wolaiyta grow a combination of roots and cereals: *enset*, sweet potatoes, *taro*, yam, barley, maize, wheat and *teff*. Farmers cultivate the land intensively, all the year round, replenishing the fertility of the soil with animal manure. But a household has, at most, two animals, so manure is in short supply.

The women of Agoza Affar village have to walk for more than an hour to fetch water from a stream. In 1984, Oxfam started a programme to dig wells and cap springs in Wolaiyta. Oxfam funds pay for materials, technical support and, most importantly, the wages of people who dig the wells. Now Agoza Affar's 1000 villagers have two wells in the village. Each is lined with concrete rings and the well-head is fenced off to protect it from animals. Wolaiyta suffered again in the drought of 1991 but was better able to deal with the problems.¹²

Water for the capital

Cambodia's infrastructure had been destroyed by 1979, when Vietnamese troops drove Pol Pot and the Khmer Rouge from power. When people began to return to the capital, Phnom Penh, they found a ghost town, wrecked through years of conflict and neglect. Oxfam helped with machinery, spare parts and chlorination to provide safe water, a major priority.

In 1987, an assessment of the capital's drinking water supply concluded that the water pumping station could be made to work again. But the damage was so extensive, the water supply to Phnom Penh demanded total renovation. The problem was made worse by the lack of spare parts and equipment caused by the economic isolation of Cambodia, and by the scarcity of skilled technicians - most had fled the country or died in the Khmer Rouge purges. Oxfam drew up a three-year plan to renovate the water pumping station and train local technicians and engineers in repair and maintainance. Hydraulic



PETE BRABAN/OXFAM

Inside Phnom Penh waterworks. Oxfam has helped to fund repair and renovation to the pumping station and water supply system in the city.

engineers eventually managed to repair and replace water filters and overhaul the electrical systems. Three new pumps now extract water from the river Tonle Sap and the plant that treats this 'raw' water has been repaired and improved.

The scale of devastation following the Pol Pot years and the Western aid embargo (imposed when the Vietnamese invaded) put Oxfam's work in Cambodia in a special category. Since 1979, Oxfam has spent more than £25 million in the country on relief and development work. Although the sum is large for an NGO, it is small in relation to Cambodia's needs. Oxfam allocated more than £1.1 million to rehabilitate the Phnom Penh waterworks, but could not fund such a scheme indefinitely. Now that the embargo on aid has been lifted, the hope is that bilateral and multilateral aid agencies will provide the capital investment needed to complete the restoration programme. UNDP has already identified the Phnom Penh water supply as a priority for action.¹³

COPING WITH FLOODS

Flood plains and the areas surrounding river deltas are fertile agricultural land. The plains of the Nile, the Yellow River, the Ganges, and the Mekong delta, are all densely populated. But the floods that bring the fertile silt and fish, can also cause destruction.

Heavy rains and melting ice can bring flooding when the run-off exceeds the local drainage capacity of streams and other shallow waterways. Deforestation in the catchment areas of major rivers can increase the likelihood of flash floods and overbank flooding. As vegetation is lost and topsoil erodes, the absorption capacity of the catchment area decreases and so the water reaches the river all at once.

Storm surges generated by tropical cyclones in coastal areas can also cause serious damage. Global warming – with sea-level rise and disrupted weather patterns – is likely to increase the risks of cyclone flooding. The destruction of coral reefs and mangrove swamps, which had formed a protective barrier along low-lying coasts, adds to the problems. On an increasing scale, mangroves are cut for timber and fuel, while coral reefs are lost when fishermen dynamite them to increase catches, and the coral is made into jewellery for sale to tourists, or used in cement or expensive floor tiles.

Bangladesh, Guyana, the Maldives, Vietnam, and the Netherlands, for example, have large parts of their land below mean sea level and are especially vulnerable to a rise in sea level. Whereas the Netherlands can afford to build expensive protective structures, poorer countries must rely on labour-intensive and low-cost solutions.

Vietnam, for example, is continually battered by the high winds and torrential rains that cyclones bring. Oxfam helped the people of Ky Anh to build a network of earth dykes to protect their homes and land from typhoons that blow in from the Pacific Ocean. These dykes, made entirely from earth and rocks moved by hand and compacted by machinery, stretch along 17 kilometres of river estuary, shielding 4,500 families. When an unusually severe typhoon in August 1990 destroyed much of the work, people immediately began a reconstruction programme. To fortify the dykes against future onslaughts from the sea, a team of 3,000 local people and nine bulldozers worked every day for six months.¹⁴

Floods in Bangladesh

Much of Bangladesh is made up of the deltas of two of the world's mightiest rivers – the Ganges, Brahmaputra – and a third, the Meghna. Flooding is a familiar part of life, and vital for Bangladeshi agriculture. The annual monsoon flood brings water needed to irrigate jute and rice crops, and silt that renews soil fertility. Floods also bring fish – an important source of protein and income for poor people who can fish in the flood waters. During floods, small boats ferry people about. Although floods are inconvenient, people expect them, need them and know how to cope with them.

But the floods of 1988 were on a different scale. They were the worst

in living memory, submerging two-thirds of the country and affecting 45 million people. Many people died and millions lost their homes. Two million tonnes of food were lost, nearly an eighth of the country's annual production.¹⁵

It is tempting to conclude from two consecutive bad years, 1987 and 1988, that Bangladesh has become more prone to flooding, perhaps because of environmental degradation in Nepal and India. But the records that are available do not entirely bear this out. The delta has always been a dangerous place and, as the rivers change course, there have been major floods throughout history.¹⁶ Although there is no conclusive evidence to suggest that the incidence of serious floods is increasing, it seems clear that their impact is now more severe, mainly because of deepening poverty.

The poorest people often live in exposed positions and their houses are made from fragile materials. They have few resources for recovery when disaster strikes. Many are landless and in debt to landowners and moneylenders. Poor people do not have reserves of food or money to call on in times of need. They sell their livestock – cows, goats, chickens – but get a low price and have lost their source of food and income. When the floods are over, livestock prices rise out of reach for poor families. An alternative to selling possessions may be to borrow money



BADAL/OXFAM

Floods are a familiar part of life in Bangladesh, which people are prepared for and can cope with. But the floods in August 1988 were much worse than usual. This photograph was taken near Dhaka.

during the crisis, from moneylenders who demand even higher rates of interest during times of great need. Once again, the borrower may be forced to sell possessions to repay the loan; or will have to work on the moneylender's land next season at a low rate of pay, and so the family will be even poorer when disaster strikes again.

The last resort is migration. After the 1988 flood thousands of people moved to the capital. Many could be found sleeping on the streets of Dhaka, forced to beg for a living. Moved off land that they once worked, poor people may also migrate to marginal land that is more likely to flood. On the coast, landless people perch on *chars* – mudflats newly formed from silt washed into the Bay of Bengal – in danger of being hit by cyclones and tidal waves.

The Flood Action Plan

The Bangladesh floods of 1988 prompted the international community to look for long-term 'solutions'. France, Japan, the US and the UNDP all sent experts to investigate and make recommendations.

The World Bank pooled elements from four reports to produce a five-year Flood Action Plan, which the Bangladeshi Government accepted. The Plan could cost US\$5 billion to implement. It calls for immediate strengthening of the existing embankment on the right bank of the Brahmaputra, with flood protection for greater Dhaka and some other vulnerable towns. It recommends further feasibility studies for more embankments, drainage canals to divert water, and 'compartments' to store the floodwaters. These are enclosed by embankments, and can be flooded or drained as required, with gates in the embankments to allow water in and out of surrounding fields.

The Plan is founded on detailed studies of the problems of flooding, but from a technical point of view. It seems that less attention has been paid to the hundreds of thousands of people living in the affected areas and the potential impact that major embankments and flood compartments might have on them. To contain floods like those of 1988, the embankments will have to be set well back from the rivers. Up to five million people could then find themselves living in an area which would become more, not less, liable to flood. In crowded Bangladesh, there is nowhere else to live.

Moreover, landowning elites are likely to control the gates, perhaps charging for their use. Embankments would also reduce the amount of fish that arrive with floods. The record of maintaining public works in Bangladesh is poor; if people living in threatened areas fear that the embankments might be breached, they are likely to breach them deliberately at a place where they can predict the consequences and control the flood waters.

Living with floods

Whatever the outcome of the Flood Action Plan, the poorest people will need help. The approach favoured by Oxfam relies less on elaborate engineering and more upon enabling local people to live with floods. This 'soft engineering' approach has the advantages of being comparatively cheap and more easily designed and implemented by local people according to their own priorities.

The elements of this approach are simple. Refuges are created on higher ground and villages are supplied with boats for use in emergencies; stocks of food and medicines are maintained at strategic locations. Seed banks, run by local groups, will help farmers after the floodwaters fall, and revolving loan funds and credit facilities will support income-generation projects. Communities, at hamlet level, are linked with local authorities who issue flood forecasts and warnings.

After the 1988 floods, many people built another floor in their houses, just under the roof, where they could store their possessions above flood level and even shelter themselves. Banana tree trunks make excellent rafts when lashed together. Water hyacinth plants, normally seen as a pest, stifling crops and blocking drainage channels, can be made into platforms for use during floods.

Most of these solutions come from the villagers. Working at the local level, Oxfam has helped partners in Bangladesh, and also in Vietnam, to implement village-based flood preparedness programmes which encourage people to think through how they can be better equipped. Some groups plan to save money and food, or build up land to serve as flood refuges. Floating coops can protect chickens, and certain varieties of trees are more resistant to floods. People are exploring alternative sources of income so they are not so dependent on agriculture. Groups can buy boats to rescue people when needed, which double as ferries during the rest of the year.

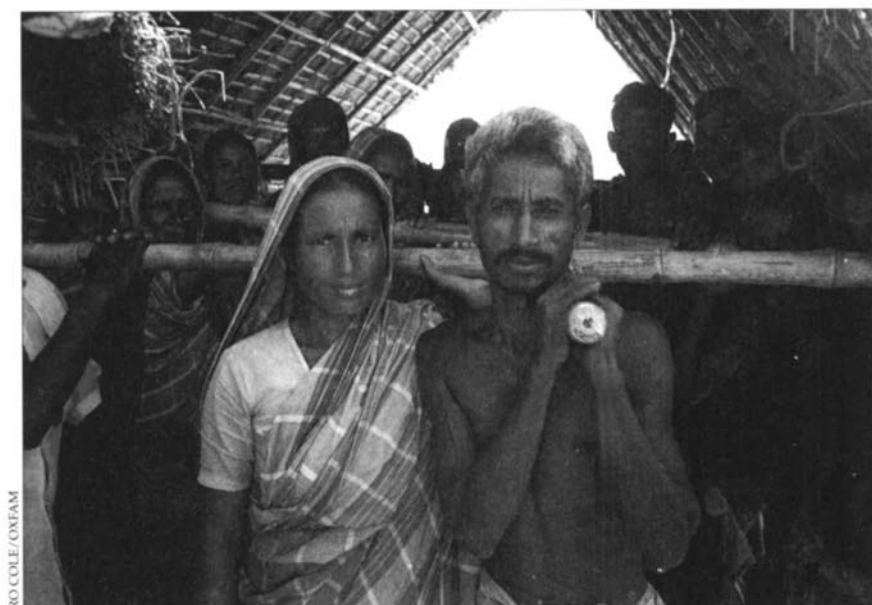
Self-help in Lalmonirhat

In 1989, the river made Zamrun homeless when it eroded the embankment on which her tiny house was perched. The surrounding land was flooded, which meant no work for her husband, Zekander Ali. Zamrun had no idea how she might feed her six children. The family once had nearly two hectares of land. But the River Teesta changed its course and washed their land away. They fled to the precarious spot on the embankment with such meagre possessions as they could salvage.

When the 1989 floods came after floods in the two preceding years, Oxfam began to wonder whether giving emergency support to people was the best way of helping. Was there a way in which the community could become less vulnerable to the effects of a disaster? Oxfam

discussed the problem with a small local organisation, Own Village Advancement. OVA and Oxfam agreed that they had to give immediate relief but also that the community should explore ways of becoming more independent.

Zamrun worked for two weeks on a project to raise the earthen foundations of a school above flood level. The income she earned enabled her to feed her family until the crisis was over and until her husband could again find a job. It was the first time she had earned an income of her own.



Zamrun and her husband Zekander Ali, with the help of friends and neighbours, are moving house - literally. The embankment they lived on was unsafe after the severe floods of 1990. Houses in Bangladesh are made of light materials, so it is possible to move them to a different site.

With the encouragement of an OVA worker, Ahadullah, they and the other families on the embankment formed small groups to try to work out longer-term solutions. The group that Zamrun joined elected her President. First, they set up a savings fund. Zamrun has little spare cash, but saves 2 Taka (about 4p) a week by holding back a little rice from the cooking each day. She saves it until she has enough to sell. The fund is to see them through crisis periods and to invest in small money-making ventures such as bamboo weaving, fruit-tree cultivation and goat-rearing.

The groups resolved never to ask for emergency relief again. Zamrun and Zekander Ali set up their own small business, weaving bamboo for

housing: they do not earn much, but it gives them more security than searching daily for agricultural work. From Ahadullah they learnt about a programme to distribute government-owned land to landless people: they applied for a plot nearby, safer than the embankment.

The groups formed a federation and chose representatives for a committee to coordinate all their activities. This federation has two Presidents, a man and a woman, a brave step towards equality in a society in which women traditionally take no part in public life. The federation aims to represent landless people, helping them to gain access to public resources such as government-owned land, a water supply, and health care.

August 1990 brought more floods. The people of Lalmonirhat took loans from their savings funds to buy food. The embankment was breaking up so people resolved to take immediate possession of the government land. Oxfam only contributed wages for an earthworks project during the floods of 1990, plus the salaries of the OVA staff who had encouraged the groups to plan for the future with confidence.¹⁷

THE PROBLEMS OF LARGE DAMS

It seems to make sense to store water, particularly in drought-prone areas that have large rivers with reliable flows. Dams create reservoirs of fresh water to be released when needed. Networks of canals can take water to homes, fields and factories. Controlling the flow of water can reduce the risk of floods, supply water for irrigation, and also generate hydroelectricity.

But large dams are expensive to build and they often cause massive displacement of people and wildlife. Deforestation, or neglect of the river catchment area, can increase the rate at which silt builds up in the reservoir, reducing its useful lifespan. Aims may conflict: full reservoirs drive turbines efficiently whereas empty reservoirs give the flexibility needed for flood control; but full reservoirs can cause flooding when unexpectedly late rains are released through the spillways to prevent dambursts or overtopping. Large areas of stagnant water can provide breeding grounds for malaria-carrying mosquitoes and canal networks can spread the snails that carry the bilharzia parasite. Local power structures usually ensure that those adversely affected by large dams – poor people, displaced from their homes – do not get their fair share of the benefits.

The needs of poor people are often ignored in the rush to recover investments in large dam projects. Generating power may take precedence over irrigation; and irrigation is more likely to go to large-scale cash crops than subsistence food production. Power, irrigation and water for industry are usually seen as more important than the provision

of drinking water, because all three can contribute to making the dam, power houses and canal networks pay for themselves.

For all these reasons, and many more besides, the success of large dams has been mixed. The earliest dams were built on well-chosen sites, usually in temperate countries with ample rainfall. Many provided cheap electricity and were seen as attractive options by developing countries. But the list of suitable sites is finite and dams are now being built in places that some engineers view as wholly inappropriate. A host of interrelated factors – deforestation, intensive land use, centralised planning, inequitable land distribution – can undermine the effective working of these large schemes.

The high Aswan dam on Egypt's Blue Nile may have effectively controlled flooding but it has starved the downstream areas of the flood water that used to cover the land with fertile silt. Irrigated areas, meanwhile, have been degraded by a build-up of salts.



Part of the huge Narmada dam project under construction in India, which has displaced many thousands of people from their homes and land.

Narmada

India's Narmada Valley Development Programme (NVDP) is one of the most ambitious schemes ever contemplated. Over the next half century, 31 large dams, 135 medium dams and 3,000 minor structures will be built to exploit the waters of the Narmada river and its 41 tributaries. Work on one of the large dams, the Sardar Sarovar Project (SSP) in Gujarat, is now well under way.

Indian law demands that compensatory reforestation be carried out by projects that cause deforestation. The Government of Gujarat has begun tree-planting in the catchment area, to decrease siltation of the reservoir and increase groundwater flows – important for those farmers whose land will not be irrigated. There are plans for much more of this catchment area protection in neighbouring Madhya Pradesh, but doubts about whether the plans will be carried out.

The Sardar Sarovar dam and its canal projects have been much criticised. Rural people who will be displaced by the reservoir are concerned about being moved with no compensation. Environmental groups stress the ecological impact of the scheme on forests, wildlife, soils and hydrology. Indian development groups, and some international NGOs, fear that the interests of industrialists and large landowners who want to grow cash crops (such as sugar cane and bananas) will take precedence over subsistence food producers, and rich farmers will benefit at the expense of the poor.

Moving out need not mean losing ground

The people of the tribal village, Mankhakhada, were unaware of the Narmada project until a farmer, Lalubhai, saw a group of workmen driving white marker stones into the ground. Lalubhai wondered whether they were signposts for a road connecting his village with the rest of Gujarat. In fact, the workmen were marking the level to which the water would rise once the reservoir of the Sardar Sarovar dam had filled. The thatched houses of Mankhakhada lay below the white markers. That is how Lalubhai and his village learnt about the Narmada project.¹⁸

Dam officials later told villagers that the dam would bring prosperity to all by providing Gujarat with the electricity and irrigation water that was so badly needed. The drought-prone areas of Kutch would get drinking water. But 70,000 people in Gujarat, Madhya Pradesh and Maharashtra would have to move because they lived within the area destined to be flooded by the reservoir. Among them would be thousands of Bhil tribals like Lalubhai.

The officials said that those who owned farms would get replacement land. But because Lalubhai and the people of Mankhakhada were living on forest land without legal title, they would get no land. The forest officially belongs to the Government, and farming within it is illegal. This ruling dates back to colonial times, when land ownership laws were introduced into India, and vast tracts of communal land were declared to be government property. The fact that people had cultivated land there for generations was not taken into account.

The efforts of local people, national and international NGOs, and the World Bank, in pressing for a fairer resettlement policy eventually

succeeded. Today, Gujarat has an excellent resettlement policy, not least because of the unremitting work of an organisation called Action and Research in Community Health (ARCH), one of Oxfam's partners.

ARCH was started in 1978 by Anil and Daksha Patel. They decided to use the medical knowledge they gained in India and the epidemiology and health care they had studied in Britain, in setting up a community health programme in Mangrol – a small village in rural Gujarat. People came to realise that low-cost health care was sound and effective. Village health workers were soon treating more than 3,000 patients as confidence in ARCH grew.

In 1980, ARCH found out that several of the tribal villages in the project area were being acquired for the construction of the Sardar Sarovar dam. There was no programme for resettlement; the people of Gujarat were to be excluded from the awards for compensation set years earlier by the Narmada Water Disputes Tribunal. Working with the tribal people, ARCH enabled them to challenge state government policies in the Supreme Court. ARCH argued that the Gujarati 'oustees' should get the same treatment as promised to those of Maharashtra and Madhya Pradesh. The Gujarat Government improved its rehabilitation policy in 1987, in line with the Tribunal's award. ARCH pushed for yet better terms. The outcome is that Gujarat has significantly improved its policy.¹⁹

Under the new policy, those displaced by the dam will have access to essential amenities such as drinking water, schools, health services, housing and road networks. It guarantees all heads of households, including women, at least the same areas of land as they lose and a minimum of two hectares for people who had no land before. Moreover, the land will be irrigated once the system is in operation. People from Madhya Pradesh and Maharashtra whose land is to be submerged by the Sardar Sarovar reservoir and who wish to move to Gujarat will get the same benefits. So far, 3,000 people from 19 villages in Gujarat have received their land. Compensation for people in Gujarat affected by the building of Sardar Sarovar Project's irrigation canals has not been adequately addressed by the State Government. Little progress has been made in Maharashtra and almost none in Madhya Pradesh, the two states most affected by the dam but which will derive far fewer benefits than Gujarat. ARCH, with Oxfam, is monitoring conditions at the village level to ensure the agreed rehabilitation policies are carried out fully.

The Sardar Sarovar dam has polarised Indian NGOs. Some, like ARCH, believe that completion of the dam is inevitable and so try pushing for more progressive resettlement terms for all those displaced.

But many NGOs reject the Narmada project unconditionally as a symbol of inappropriate development and view any agreements on resettlement as a sell-out to the developers. Anti-dam organisations argue that it will be impossible to rehabilitate all the estimated 90,000 people affected by the dam. Critics allege that the project is completely uneconomic; costs have escalated and financing is inadequate. They question whether the dam waters will reach drought-prone areas of Gujarat and are sceptical about the project's ability to produce many of the benefits claimed for it, such as increased crop yields.

THE RIGHT TO WATER

Elsewhere, water can be a source of international conflict. Because water is so precious, secure rights to it are vital for sustainable development, and access gives power. Landowners with wells on their land can dominate the local economy. Nations which control the headwaters of major international rivers can use the water as they wish, affecting water supplies and agricultural productivity in neighbouring countries.²⁰

In the Middle East, water has been a source of conflict for centuries. The River Jordan, with Syria, Jordan, Lebanon and Israel within its watershed, is already insufficient to meet the needs of the countries it serves. In the 1960s, Syria, Jordan and Lebanon tried to divert the flow after Israeli attempts to do the same in the demilitarised zone of the Israeli-Syrian border. The threat of diversion, which would have reduced supplies to Israel, was serious enough to bring the countries close to military conflict.²¹

Israel's 1967 occupation of the West Bank and Golan Heights (where the Jordan rises) helped to safeguard its access to the river on which it relies for 50 per cent of its water, and to give it control over the aquifers of the West Bank. The Jordan water is used to irrigate wheat and citrus fruits from Galilee to Jaffa and in the Negev Desert. The old River Jordan is now nothing more than a trickle. Some observers believe that the groundwater reserves of the West Bank are the reason for Israel's determination to retain control over the territory. The Israeli Ministry of Agriculture has stressed the importance of controlling water resources:

It is hard to conceive of any political solution consistent with Israel's survival that does not include complete and continued Israeli control of the water systems. Water is, in many ways, the limiting factor on the country's future development.²²

Israel controls most of the estimated usable water resources of the West Bank and Gaza. Both Israel and the West Bank are described by experts as facing 'serious water stress',²³ with populations expected to double within the next 20-30 years.



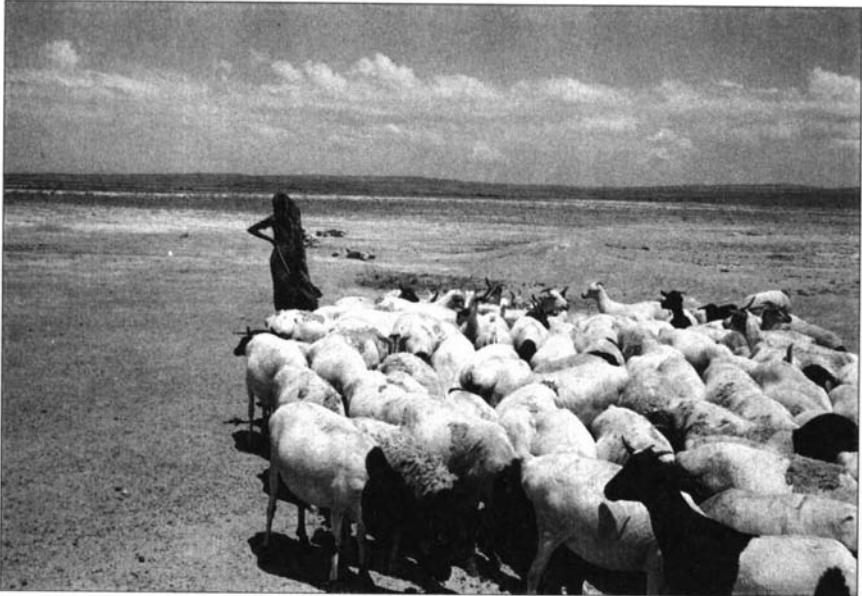
Palestinian farmer, cultivating his land. On the nearby hillside is a new Israeli settlement.

Palestinians in the Occupied Territories argue that 80 per cent of the water in their aquifers is being diverted to irrigate Israeli fields.²⁴ Since 1967 there have been prohibitions on Palestinians drilling new wells for irrigation and only three wells have been drilled; at the same time, Palestinians have had no say in determining water policy.²⁵

To increase the flow of information and expertise to the people of the West Bank, Oxfam supports the Palestinian Hydrology Group (PHG) which carries out research and practical development projects. Before the PHG, there were no easily accessible sources of information for planning purposes in the Occupied Territories. The Group's first project was a survey of more than 300 natural springs in the highlands of the West Bank; now it is building a comprehensive data base on local hydrology. The Group is also involved in water development projects, promoting more effective use of existing resources by giving advice on irrigation, water management and efficient technologies. Oxfam has subsidised the cost of cement and iron needed to build rainfed cisterns, which are a cheap way of providing water for both domestic and agricultural use. Abdul Rahman Tamimi, a hydrologist and Director of the Palestine Hydrology Group, is critical of the current distribution of water supplies in the region:

You won't find any Israeli settlement without water – they have lush lawns, even swimming pools – while there are scores of Arab villages with wholly inadequate supplies.²⁶

For poor people, like these Palestinian farmers, rights to water which are secure, publicly recognised and protected are essential for their livelihoods and yet customary rights to water are generally even less secure than customary rights to land – the subject of the next chapter.



OLIVIA GRAHAM/OXFAM

The high plains where pastoralists graze their flocks in Erigavo, Northern Somalia (Somaliland). When communal lands were taken into private ownership, grazing pressure intensified, leading to land degradation. Run-off increased after heavy rain, causing erosion in the valleys. Below, an eroded valley where the force of the flood water has created deep gullies and uprooted trees.



OLIVIA GRAHAM/OXFAM