The Ecologist

Journal of the Post Industrial Age Vol.15 No. 5/6 1985 £4.00

TO EAT OR TO DEVELOP ?

THAT IS THE QUESTION.

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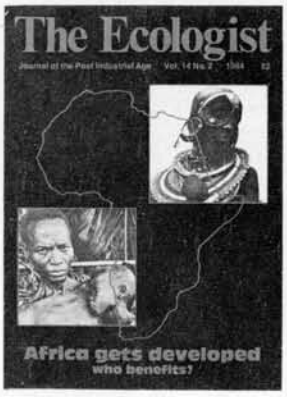

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Vol. 15 No. 5/6 1985

Further Documents in Support of The Ecologist's Thesis

Continued overleaf

Cover Picture: Water colour depicting traditional Balinese agriculture.
Cover design and lay-out: Nick McBreen

OBITUARY

Edouard Kressmann — Founder of ECOROPA

Edouard Kressmann died of a heart attack on the 22nd August at the age of 78. He was not only well known in European ecological circles but also in Bordeaux where he lived and where, until the day of his death, he could often be seen bicycling furiously to meetings where he would systematically oppose any local development project which he regarded as destructive, dangerous or wasteful.

His career was in the wine business. He was not only chairman and managing director of Kressmann & Co, a prestigious firm of wine merchants set up in Bordeaux more than a century ago, but he was also President of the Wine Growers of the Bordeaux area. Indeed, he was generally considered to be one of France's foremost authorities on Bordeaux wines.

He retired at the age of 65, and it was then that he first considered Barry Commoner's famous question: "What sort of world are we going to leave to our children?" From that moment onwards he devoted all his time and his extraordinary energy and talents to the ecological cause. Among his achievements was the creation, with Armand Petitjean and Denis de Rougemont, of ECOROPA (Ecological Action for Europe).

Today ECOROPA is an association, perhaps more realistically a club with active members in the UK, The Netherlands, West Germany, France, Spain, Norway and other European countries. More recently Edouard Kressmann founded a second association closely related to the first, which runs a centre (Centre La Cure) situated in a large and magnificent 17th century rectory at St Hippolyte du Fort in the Cevennes. Here the director, Janine Delaunay, organises courses on environmental issues for schools, associations of various sorts and for groups of executives of business enterprises in the area.

In addition to these activities Edouard Kressmann wrote regularly on environmental issues in *La Reforme*—the main French Protestant newspaper of which he was one of the founders, *'La Croix'* and *'Sud-Ouest'*. Indeed, during the last twelve years, Edouard Kressmann has worked indefatigably and has inspired many others to do likewise so as to assure that there is still something left of our world to leave to our children. He will be very difficult to replace.

Edward Goldsmith

Is the World Bank financing Impoverishment and Famine? The Controversy Continues.

Dear Mr Clausen,

As you will remember, a special double issue of *The Ecologist* (Volume 15 No. 1/2) contained an open letter to you, in which I accused your organisation, the World Bank, of funding environmentally and socially destructive projects that were seriously contributing to the escalation of poverty, malnutrition and famine throughout the Third World.

That issue also contained a number of articles by different students of development, showing precisely how and why your policies were so destructive. It was widely distributed among decision-makers and attracted much attention. In the USA, it helped trigger off a Congressional Inquiry. In the UK, both our Prime Minister, Mrs Margaret Thatcher (see a letter from her office below) and one of the leaders of the Liberal/SDP Alliance, Mrs Shirley Williams, have proposed meetings to discuss the issues it raises.

The former, however, stated that she would first like to see both your answer and that of Mr Timothy Raison, our Minister for Overseas Development to whom I had also addressed a letter on the same subject.

Both answers have now been received (yours written by Mr Jose Botafogo) and are published on pages 204 and 207 respectively of this issue. This is followed by an article by me on page 210 which seeks to answer the main arguments put forward by Mr Botafogo in defence of your policies, together with a number of relevant articles, written by students of development in Canada, the USA, the UK, India, Bangladesh, Sri Lanka, Malaysia and Thailand. These further expose the flaws in his arguments and clearly illustrate that it is not just in Africa that your policies are leading to environmental devastation and human impoverishment and famine. Indeed unless these are drastically modified, the tragic conditions we are at present witnessing in Ethiopia and elsewhere in Africa, must soon prevail throughout South and Southeast Asia. The survival of hundreds of millions of people is at stake, and I hope you will agree with me, that these should not simply be sacrificed in the interests of short-term political and economic expediency.

Yours sincerely,
Edward Goldsmith

Reply from the office of the Prime Minister

Dear Sir,

World Bank—"Global Financing of Impoverishment and Famine"

Thank you for your letter of 17 May to the Prime Minister about this special issue of The Ecologist. I have been asked to reply.

I am sorry that you have not had a reply before now. You will know, however, from the interim response already sent to you that the Overseas Development Administration will be sending you a carefully considered response as soon as possible.

Meanwhile, the Prime Minister agrees that your thesis raises some important, and indeed controversial, issues which require an answer. It may be, as you suggest, that there would be value in the interested parties getting together to have a discussion. No doubt this can be considered further once the World Bank President and the Minister for Overseas Development have given you their considered responses.

Nicholas Towers

Nicholas Towers
14 August 1985

Mr Timothy Raison, Minister for Overseas Development, replies to The Ecologist

Dear Sir,

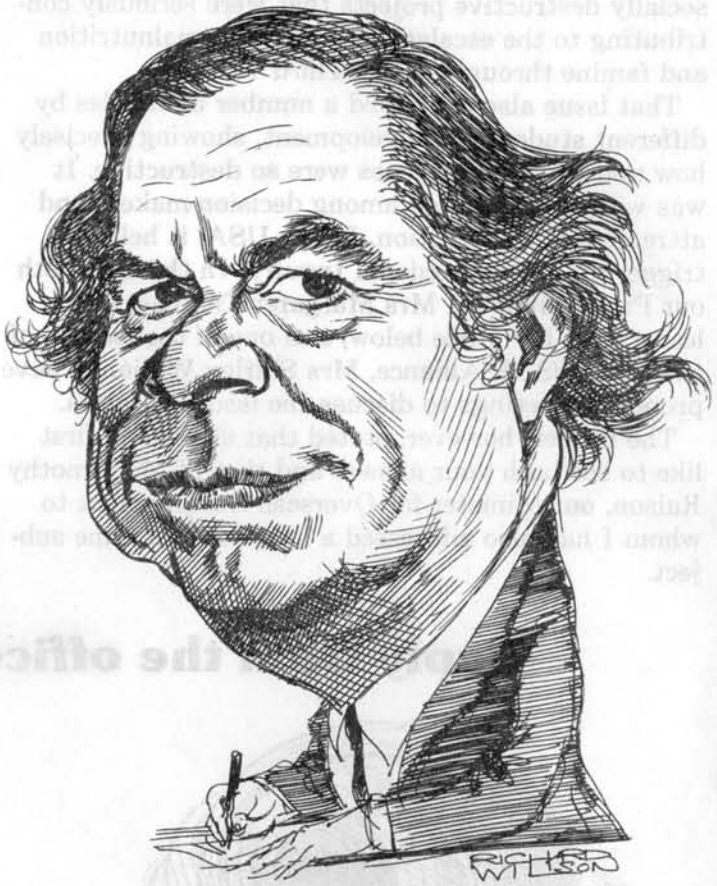
I am sorry for the delay in replying to your letter of 10 June but I wanted to see what the World Bank had to say in response to your criticisms of them in The Ecologist magazine which you sent me.

I have now seen a copy of the letter you were sent by the World Bank's Vice President for External Relations on 7 August. We agree with the points made by Mr Botafogo and I believe they need no further elaboration from me.

I must say, however, that I disagree most strongly with the remarks in your letter about the Mahaweli programme in Sri Lanka. As you know, the Government of Sri Lanka are responsible for the full Mahaweli programme whose declared objectives are threefold: to open up new land for agricultural settlement; to increase food production; and to provide employment opportunities. The British Government's direct involvement in the programme is the construction and operation of the Victoria hydroelectric project, the main purpose of which is to increase Sri Lanka's hydroelectric capacity for the general benefit of its economy and people. In deciding to support this project we took account of likely environmental and ecological effects. We concluded that the beneficial effects far outweighed any that were adverse.

I do not know your evidence for asserting that the Mahaweli scheme will lead "to the displacement of over a million people who will be settled in the dry infertile zone of the Island where they will eke out a miserable existence until such time as they drift into the slums of the larger cities". The important point is that those displaced by impounding etc should be properly re-settled. We understand that the number of people displaced by the construction of the Victoria project was between 30,000 and 40,000, of those about half were re-settled in downstream areas while the rest opted to remain on state lands near the reservoir. All are being paid full compensation for their lost lands and buildings and provided with a plot for building; in addition farmers are allocated irrigated land for cultivation.

Your reference to the "dry infertile zone" needs some qualification. Sri Lanka's dry zone receives upwards of 1,000 mm of rain annually, and it is termed "dry" only because the rainfall is less copious and predictable than in the country's south west quadrant. To describe this area as "infertile" is erroneous; its fertility is demonstrated by the fact that it contains most of the several hundred irrigation tanks constructed by the people of Sri Lanka over many centuries for the purpose of supporting agricultural settlement.



Your prediction of what will happen to the people to be re-settled under the Mahaweli programme pays no regard to the recent history of such schemes in Sri Lanka. Organised colonisation of the dry zone has been under way since the 1930s, and the Sri Lankans have plenty of experience on which to build. In the 15 years from 1953-1968 a total of about 45,000 families—perhaps a quarter of a million people—were re-settled. Our information indicates that the Sri Lankan authorities show proper concern with the human aspects of re-settlement; temporary hardships are inevitable in any movement of this kind, but there appears to have been no lack of volunteers for successive re-settlement schemes.

Timothy Raison

The Ecologist replies to Mr Raison

Dear Mr Raison,

Many thanks for your letter in which you state your acceptance of the World Bank's position as expressed in Mr Botafogo's letter (see p. 207 of this issue of *The Ecologist*). On this subject I refer you to my article and to the other articles contained in this issue which I feel, must show that this position is not reconcilable with all the evidence provided by the development experience over the last thirty years in different Third World countries.

I have sent your remarks on the Victoria Dam to a number of my contacts in Sri Lanka. I am not acquainted with any ODA Environmental Assessment Report, and, if one was done, I would very much appreciate receiving a copy. To my knowledge only two detailed environmental assessment reports were commissioned by the Sri Lankan Government; the TAMS and NEDECO reports, both of which I have in my possession. Both of them advise the government and the funders of the Mahaweli scheme of the very serious environmental problems it would create. Dr Mediwake, one of my informants, whose letter follows, maintains that few of the recommendations contained in these reports, regarding measures to minimise environmental problems, have actually been implemented. I shall elaborate on this statement when I return from a proposed visit to Sri Lanka next year.

It is the TAMS Report (Volume I, Main Report, page 27) that states that the Mahaweli project would lead to the displacement of a million people. Since then, the project has been simplified and you are quite right in stating that far less people will be affected. Dr L. W. Mediwake considers that the figure is likely to be no more than 100,000. Nevertheless this is still a lot of people and contrary to what you say, they are unlikely to be paid full compensation for their loss of land and buildings. Some, as you rightly note, have elected to stay in the area, but those who will be moved are to be settled, as I stated, on land that is considerably less fertile than that of the area in which they previously lived. Dr Mediwake elaborates on this point in his letter.

As you rightly point out, the dry zone of Sri Lanka was thickly populated for many centuries and the civilisation developed in that area was a highly sophisticated one. What you do not mention, however, is that it only survived because of the highly elaborate traditional irrigation system that was developed in that country and which eventually fell into decay, possibly as a result of social upheavals. This my colleague Nicholas Hildyard and I, have described in our book *The Social and Environmental Effects of Large Dams,* a copy of which has been sent to your Department.

Unfortunately, however, since this remarkable system of irrigation is no longer in operation, life in the dry zone is considerably more difficult for those who have been moved there than in the wet zone where they previously lived. Indeed, it seems inevitable that a considerable number of them, judging from experience with other resettlement schemes of this sort, will end up in the shanty-towns. Mr Mediwake, as you will see, also makes this point.

Yours sincerely,

Edward Goldsmith

Doctor L. Mediwake, Geographer and resident of the Dumbara Valley, until his land was flooded by the Victoria Dam project, comments on Mr Raison's letter

Dear Teddy,

Many thanks for your short note and for the photostat copy of the letter written to you by Timothy Raison your Minister for Overseas Development.

As you may know, when the Mahaweli development programme was conceived in the sixties and seventies both the Sri Lankan Government and the donor countries worked out a Master Plan. The chief sponsors were the United Nations Development Programme (UNDP) and the World Bank. The team that worked out the master plan was composed of experts from a number of countries and was headed by a Russian professor with an international reputation in hydraulics. I understand that this team advised that the Randenigala should be a high dam and the Victoria a low dam. The reason was that the Dumbara Valley was such a rich, highly developed agricultural area that it was advisable to flood as little as possible of it.

The then scientific adviser and the environmental adviser to your Ministry of Overseas Development wrote to me at the time, and asked me to assess for them the likely adverse effects of this project. I was the obvious person to choose for this purpose since I am not only a qualified geographer but I was also a resident of the Dumbara Valley. The document I drew up was praised in our Parliament, but was bitterly criticised by the minister in charge of the Mahaweli Ministry who even threatened to jail me. I

understand that it was only due to the timely intervention of his excellency the President that this was avoided.

In any case, my advice was ignored. The project has now gone ahead and has led to the flooding of vast tracts of jungle, valuable agricultural land, many villages and a number of ancient Buddhist temples.

In addition, so as to permit the new colonisation schemes, thousands and thousands of acres of virgin jungle have also been cleared to create new paddy lands which will obtain their water by diversion schemes further down the Mahaweli river. The damage to wildlife has been enormous, the Randenigala project has blocked the elephants' only migratory route. Very recently elephants have destroyed the camp site of the German contractors which was blocking their route to their feeding grounds upstream. Once the Randenigala Project has been built those feeding grounds will have been totally destroyed.

Of the five thousand families affected by Victoria a third or so belong to the category of low income people. However while living in this fertile valley they had built up a relatively comfortable and self sustaining way of life (unique to the Kandyan Country of Sri Lanka). Today, however, they are living in conditions with half of what they had before because of the high cost of building and the nature of the land from which they must now earn their living.

The trouble is that the fertile soil and water is found at the bottom of the valleys and not on hill tops and high ground. The soil of the Dumbara Valley, which has now been flooded by the Victoria Lake, is rich sandy loam, moisture-retaining and fertile while the soils of the newly cleared jungle areas harden during the dry season and cannot be used for crop production without irrigation water. Furthermore the Dumbara Valley, situated approximately a thousand three hundred feet above sea level, has a moderate climate which makes it suitable for a variety of food crops, spices and tree crops, whereas the climate of the newly cleared jungle areas is extremely hot during the day and night with heavy seasonal rainfall. For these reasons the income earned on a quarter acre of land in the Dumbara Valley cannot be earned even with enormous effort and suffering from two acres in the new settlements.

Regarding those who have opted to migrate to the new colony of Ulhitiyawa in the dry zone, each family was lured there by the offer of three acres of land and one thousand five hundred rupees (approximately £360) in cash to build a hut, supplemented with a few dry rations from the World Food Programme.

The question is whether they will have access to the necessary irrigation facilities.

Indeed the Kotmale, Polgolla, Victoria and Randenigala projects do not irrigate any land directly. Polgolla water is diverted through a tunnel to two power stations and fifty miles away it feeds or augments the existing old canal and tank network in the North Central Province. Therefore the greater part of the Mahaweli Programme does not provide any irrigation facilities to the peasants directly except through a diversion canal way down the river at Ulhitiyawa. The Mahaweli Scheme is therefore nothing but a mighty hydro-electric programme.

What is more, much of the irrigation water is likely to be made available for export crops to earn foreign exchange, rather than for food crops for the local people. The original plan was to lease out thousands of acres from the Maduruoya Project to Multinationals. This however has been temporarily abandoned due to various protests. However, the long established Ceylon Tobacco Company, a subsidiary of British American Tobacco is everywhere encouraging the cultivation of tobacco and cash crops for export and city consumption.

If the settlers are not provided with sufficient funds to acquire a suitable property and basic facilities such as good access roads and irrigation water, they will clearly not be capable of earning their livelihood, let alone of paying the new taxes that they have been asked to pay from the meagre compensation they have received. What makes matters even more difficult is that many communities have been broken up which will make traditional paddy cultivation—based as it is on community participation—very much more difficult.

Under such conditions, many people will undoubtedly abandon the new settlements and many will be condemned to drift to the city slums.

We must also ask ourselves how we are going to run and maintain so massive an engineering works? The aid package includes ten years minimum management and maintenance, but what happens after that? It is unlikely that we will have either the facilities or the number of trained engineers to run and maintain it ourselves.

In my opinion, the Victoria dam can only be a financial disaster, and it seems unjust to create so much suffering and inconvenience to more than 30,000 people for the sake of producing electricity so that people in our cities can adopt the Western electricity-based way of life. I for one still prefer to go to bed with the sunset and rise with the sunrise, as I have always done in the past.

Yours sincerely

Lackman

Development and Environment: A Reply to the Ecologist

by Jose Botafogo G. of The World Bank

The latest issue of *The Ecologist* (Volume 15, No. 1/2) contains a large number of unfounded charges and allegations about The World Bank and its work in developing countries. The editor of *The Ecologist* requested a response and we welcome this opportunity to set the record straight.

Perhaps the most unfounded allegation is that development *per se* is antithetical to the aspirations and interests of poorer nations, is automatically destructive of the environment in those countries and that the Bank, as a development institution, therefore contributes to these alleged maladies.

This deduction is frankly preposterous. It ignores some fundamental facts about current conditions in developing countries. The most fundamental fact of all is the widespread poverty, the very worst form of environmental degradation. Only about a quarter of the people who live in developing countries, for example, have access to clean water. Disease typically takes up a tenth of a person's productive time. Poverty also puts severe and often irreversible strains on the natural environment. At survival level, people are sometimes compelled to exploit their environment too intensively.

Then there is the fundamental fact of excessive population growth. Poverty and rapid population growth reinforce each other. In Africa, for example, population is growing at a rate faster than in any continent in history—three per cent a year or twentyfold a century. This enormous growth in human numbers, now underway for a third of a century, is taxing natural support systems throughout the continent. In country after country, forests and grasslands are being decimated. Soil erosion and the loss of soil organic matter are diminishing land productivity over much of Africa.

No serious analysis of these problems could possibly conclude that they are the *result* of economic development, as *The Ecologist* implies. Africa's phenomenal population growth is largely the result of public health measures and vaccinations, which have reduced death rates, but without parallel efforts to reduce birth rates. The World Bank's 1984 World Development Report dealt with the problems of global population growth. One central message was that economic and social progress helps slow population growth but, at the same time, rapid population growth hampers economic development.

Sustainable economic development, carefully conceived and managed, offers realistic opportunities for resolving or alleviating these problems. The World Bank's mandate is to help promote such development in its member developing nations. And an integral part of this development effort is proper resource management.

We certainly do not have all the answers in this difficult area and we have much to learn. But we are trying. Through our lending operations and our continuing dialogue with developing countries we attempt to heighten awareness of the need for improved resource management as a critical ingredient in sustainable growth strategies. We are working on many other fronts as well. In agricultural research, we are collaborating with other agencies in the Cooperative Group for International Agricultural Research (CGIAR) to seek solutions to a host of basic problems, among them how to improve soil and water management in Africa and to increase yields from rainfed crops. Through our development project work we are attempting to increase supplies of fuelwood without creating erosion problems. We are prepared to help find better ways of saving or regenerating scarce forest resources. The only limitation here is the willingness and ability of countries to implement sustainable development and conservation programmes.

These efforts are being pursued in many ways and not only, as *The Ecologist* alleges, through large development projects. Most of the Bank's lending each year—twenty-five to thirty per cent—goes for agriculture and rural development activities, mainly for food production and to help thousands of small farmers become more productive. Our lending for health, family planning, water supply, mainly benefits lower income groups in cities and villages. In energy, our aim is not only to help develop new energy resources, including renewable energy, but also to promote greater conservation through appropriate pricing policies and other actions. In industry, the main beneficiaries of our efforts are seldom large plants but many medium and small enterprises throughout the developing world.

But size is not the real issue. The issue really is how we can most effectively help most of the world's peoples strengthen their economies and improve their living standards. Developing countries today face perhaps unprecedented difficulties and challenges. They have been hit especially hard by the recent shocks to the global economy—the energy crisis, persistent recession, the international debt problem and the natural catastrophe of prolonged drought. All societies face difficult choices. In developing countries, the choices must be made in the face of deplorably widespread poverty, unemployment, rapidly growing population, other deprivations.

The World Bank has been assisting developing countries with these choices for some thirty-five years. We have learned that economic

development, while a slow, long and often painful process, can yield enormous dividends if done carefully and well.

For example, some twenty years ago, India was unable to feed itself. It was importing about ten million tons of food grains each year. Today, food production has increased to the point where India can feed itself. This achievement is a tribute to sensible government policies—development policies—as well as assistance from development agencies such as The World Bank, and its affiliate, the International Development Association (IDA).

Sound economic development policy, aided by external financial and technical assistance, also helps explain the Korean success story. Twenty-five years ago, Korea was an extremely poor country with a *per capita* income of about $80 a year and a future that many regarded as uncertain, if not bleak. Today the average Korean can expect to live more than 67 years, up from 53 years in 1960. Infant mortality has dropped from 78 per thousand to 32 per thousand over the same period while the number of city dwellers with access to safe drinking water has soared to 85 per cent from 18 per cent. *Per capita* income is now up to about $2,000. There are many other examples of development success and the World Bank has played a constructive role in many of these achievements.

As we see it, an overriding issue is how to avoid environmental damage or reduce it to an acceptable minimum without slowing the pace of development. When poorly planned, development may contribute to the depreciation of a country's natural capital. Even when carefully planned, the process of economic development may cause some modification of natural ecological systems.

But this is no reason to abandon the search for better ways to help most of the world's peoples strengthen their economies and improve their living standards. With due attention to resource management, economic development can improve people's environment, in the broad sense of the word. That is, after all, the fundamental purpose of development. And that is the fundamental mandate of The World Bank.

In the final analysis, sustainable development and wise conservation are mutually reinforcing and absolutely inseparable goals.

The Ecologist makes many other unfounded allegations. Because of the diversity of the subjects, it is more appropriate to group responses under a few sub-headings, which deal with most of the major issues.

A. Cash Crop Versus Food Crop Production in Sub-Saharan Africa:

The allegation is made that the Bank, and other development agencies, have stressed cash, or export, crop production in Sub-Saharan Africa, instead of food crops, and thereby have encouraged impoverishment and famine.

The facts are quite different. In the last ten years, (1974-84), The World Bank and its affiliate, the International Development Association (IDA), provided almost five billion dollars for agricultural development in Sub-Saharan Africa. Only about fifteen per cent of this assistance went for pure cash, or export, crop production. The rest was for food crop production or a combination of food and export crop production as well as for livestock and fisheries development to help increase domestic consumption. The so-called dichotomy between food and cash crops is actually quite misleading. Throughout Sub-Saharan Africa, both are grown, often in rotation and experience has demonstrated that countries with dynamic export production generally do better, not worse, in food production as well.

Increased exports are needed to finance the import of critical items needed for food, as well as cash crop production. Foreign exchange scarcity, which is largely the result of declining crop exports, can impede food production as well and this phenomenon is common in Sub-Saharan Africa.

The task really is to look carefully at the total agricultural sector in each country and try to improve it by helping to increase production in areas where the need is great and the advantage large. Sometimes, the appropriate approach may involve a fairly comprehensive development programme or project involving a range of services. In other instances, a more modest intervention is warranted. The ultimate decision, of course, rests with each country and The World Bank tries to help with the best possible technical advice and financial assistance.

B. Forestry Projects in India:

The charge is made that Bank-supported forestry projects in India are promoting deforestation of remaining forested areas and that social forestry projects designed to help the poor are, in fact, mainly aiding wealthier individuals. The Bank-financed Madhya Pradesh Forestry Technical Assistance Project in Bastar is singled out for criticism.

Of India's total land area, twenty-three per cent or about 75 million hectares, is designated in land revenue records as 'forests', mostly government owned. Increasing population and cattle pressures have resulted in an ever-increasing depletion and degradation of much of the natural forests so that only about forty million hectares of this land is actually tree covered. Deforestation has resulted because of outright clearing for agriculture or through the slow and continuous decimation that comes from meeting the fodder, fuel and timber needs of the community and industry. The government has accorded high priority to forestry development. It is one of the ten areas of development which Prime Minister Ghandi has singled out for special attention.

The World Bank's first intervention in the forestry sector came in 1975, with the Madhya Pradesh Forestry Technical Assistance Project. It was designed to investigate the possibilities of developing a pulp and paper industry in the Bastar region. However, the project was actually terminated a few years later. The government and the Bank agreed that the industrial development proposal would not be justified because of social and environmental considerations of tribal peoples in the area.

Since then, the main thrust of the Bank's operations has been in support of India's social forestry programme. We have approved seven projects involving assistance in eleven states. Each of these has had the objective of increasing the

supply of fuelwood and providing poles, small timber, fodder and other minor forest products to those living in rural areas, with additional concern for increasing employment and fuelwood supplies for marginal farmers and the landless. The Bank's experience with social forestry in India is relatively brief, with the first projects just completing five years of implementation. Nevertheless, many useful lessons have been learned and are constantly being used to improve social forestry programmes.

The main purpose of early projects was to produce fuelwood, particularly for the rural poor. Quantitative goals have been met or exceeded in all states; tree farming by individual farmers has proved to be more popular and cost effective than was originally expected. While only a small part of the earlier projects was aimed at farm forestry, this has become a major focus in later projects.

While it is true that so-called large farmers have participated in social forestry and expect to make money selling the trees they plant once the trees mature, it is wrong to conclude that large farmers are the main beneficiaries. For example, a recent survey in Gujarat showed that about 67 per cent of the farmers planting seedlings owned two hectares or less of land.

The World Bank is concerned about ensuring an adequate supply of wood products to the poor and recent projects have been designed to help meet this need.

C. Brazil's Polonoroeste Programme

The Ecologist alleges that Bank-financed projects in northwestern Brazil (Polonoroeste) have aggravated environmental problems and jeopardised the position of several indigenous Amazon tribes.

In 1980, the Bank, at the request of the Government of Brazil, undertook a general economic survey of the Northwest region. The request arose from concern that an uncontrolled and spontaneous settlement process, accelerated in the late 1960s when a dirt highway was built into the area, could harm the regional ecology. The Bank produced a report that concluded that the region has high potential for economic development based on agriculture, provided a balanced, long-term programme could be undertaken in which environmental risks were minimised. After careful deliberation, the government adopted such a programme. One important aim was to steer continuing migration away from fragile and/or ecologically exceptional areas (including Amerindian areas) and to encourage sound agricultural practices that would preserve the region's long-term potential.

The Bank has assisted this programme through projects approved between 1981 and 1984 involving a total of about $435 million. Throughout this period, Bank staff, working with government and regional officials, have undertaken periodic comprehensive reviews of the programme's progress. It is true that there have been problems and this is understandable given the dynamic nature of the growth and change taking place. For example, the programme has been comparatively more successful with infrastructure development than with institution building or services to farmers. The special project for protection of Amerindians, involving, among other things, full establishment of five reserve areas, has not moved as well as planned.

As a result of these and other implementation difficulties, the Government of Brazil earlier this year took the initiative to have disbursements from outstanding Bank loans supporting the programme held in abeyance until a remedial action plan could be discussed and agreed with the Bank. This was done and progress is now being made.

In retrospect, the easiest course for the Bank might have been not to get involved at all in the Polonoroeste programme, to 'play it safe' and thereby possibly avoid public criticism. This would not, however, have prevented environmental problems and jeopardy to tribal people from occurring as a result of continued uncontrolled settlement.

We should add that the entire history of the Bank's involvement in this programme, as well as the current situation, was explained and discussed in great detail last May to a group of individuals interested in environmental matters, including one of the authors of the article in *The Ecologist.*

D. Indonesia Transmigration:

The Ecologist characterises Indonesia's transmigration programme, which the Bank has helped to support, as an ecological 'debacle'.

In fact, one major purpose of Indonesia's transmigration programme is to reduce ecological damage and stabilise fragile ecosystems in Java where large population densities in critical watershed areas create deforestation, siltation of reservoirs and other problems.

The resettlement of Indonesians from densely populated Java and Bali to other islands of the archipelago actually began 80 years ago. Since independence in 1949, the government has assigned high priority to the programme, in view of the potential benefits to be realised in reducing land and population pressures in one part of the country, transferring skilled farmers to underused land elsewhere, raising the incomes of transmigrants themselves and stimulating regional development in remote parts of Indonesia.

While transmigration is strongly encouraged, the programme is voluntary and applicants are placed on waiting lists.

The Bank has financed several projects since the mid-1970s to support the transmigration programme. The main thrust of our assistance, which involves about ten per cent of total financing for the programme, is to undertake planning studies to ensure the selection of suitable sites and appropriate designs for eventual settlements. These studies are not confined to technical judgments about the climate, topography, fertility, hydrology and accessibility of prospective sites. They also involve an assessment of environmental features; existing and alternative land uses; prior claims on the land from other government programmes, such as forestry, or from local populations; the likely costs of settling large numbers of people in specific areas; and a range of options for ensuring the most economic and socially acceptable development of proposed

sites. The government has made good use of these studies and almost half of the sites rejected in the past have been ruled out primarily on environmental and social grounds rather than on the basis of their poor agricultural potential.

There is considerable concern about the impact of transmigration to Irian Jaya, where the indigenous people do not share the same cultural features or history as the migrants. The government, with assistance from the Bank, has taken various steps to anticipate and prevent possible problems for the local people. These include, among others, requirements that (a) settlement sites have soils capable of sustaining crops; (b) economic development be promoted at a pace that will not unduly jeopardise the cultural milieu of local peoples; (c) settlement be prohibited in wildlife reserves or areas of particular ecological importance.

While transmigration has been controversial and has encountered problems, on balance it has benefited the national economy in several ways. It has demonstrated that there are sound, sustainable measures that can be taken to reduce or eliminate ecological damage, taking into account the lives and cultures of people, presence of primary forests, soils for agricultural use and other environmental factors. It has increased food production by expanding cropped areas and allowed previously landless farmers to become self-sufficient in food. It has created hundreds of thousands of new agricultural jobs. It has provided improved education and health services to transmigrant families. And it has helped at the margin to contain soil exhaustion and erosion in the most densely populated areas of Java.

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Is Development the Solution or the Problem?

Edward Goldsmith answers Jose Botafogo

It is only since the end of the last war that development has been made out to be a veritable panacea for all the world's ills. The policies that characterise the development process were previously pursued by colonial governments for the avowed purpose of providing them with a source of cheap raw materials and a captive outlet for their manufactured goods. It was rarely suggested that such policies also served the interests of the colonies themselves.

Today, to suppose that they might not serve those of our now independent ex-colonies is regarded by Mr Botafogo of the World Bank as "preposterous". Unfortunately, most representatives of large institutions involved in development, and most of the experts who work for them, would probably concur.

Yet what evidence do they have to support such a view? Empirically, none at all. In the last thirty years, every consideration, whether ecological, social, aesthetic or spiritual, has been subordinated to the overall goal of development. Hundreds of billions of dollars have been spent on means of achieving it and there has been a massive transfer of technological knowhow from North to South. Indeed, Ayensu[1] tells us that in Africa alone, 80,000 experts from the industrial world are busily at work at a cost of an annual eight billion dollars. Nor have such efforts been in vain. Massive changes, there have been, and in purely economic terms, they have given rise to considerable economic growth—the accepted measure of the development achieved.

In spite of this, the last thirty years have been the most disastrous in the history of most, if not all, Third World countries. There has been massive deforestation, soil erosion and desertification. The incidence of floods and droughts has increased dramatically as has their destructiveness, population growth has surged, as has urbanisation, in particular the development of vast shanty-towns, in which human life has attained a degree of squalor probably unprecedented outside Hitler's concentration camps.

With such developments, have come increased malnutrition and hunger; so much so, that today we are witnessing, for the first time in human history, famine on a *continental scale,* with two-thirds of African countries to some degree affected.

What is more, this terrible catastrophe is not just the result of a temporary Act of God, as we are often led to believe, but of a constellation of closely associated largely man-made ecological and climatic changes, which may prove difficult, both politically, economically and ecologically too, to reverse.

It is often argued by proponents of development, that Africa is a special case and that development has been very much more successful elsewhere. Mr Botafogo cites India as an obvious success story. Thus he states "that some 20 years ago India was unable to feed itself. It was importing about 10 million tonnes of food grain each year. Today, food production has increased to the point where India can feed itself." This achievement he regards as "a tribute to sensible government policies, as well as to assistance from development agencies such as the World Bank and its affiliate the International Development Association (IDA)."

India has indeed become "self-sufficient", but that term is used in the narrowest economic sense to mean that the food available in the shops is sufficient to satisfy the requirements of all those *who can afford* to buy it, but it tells us nothing of the largely unsatisfied food requirements of the vast bulk of the people *who cannot afford to*

buy it. Sumanta Banerjee and Smitu Kothari make this point abundantly clear. (See p. 257 of this issue of *The Ecologist.*) Development, rather than increased food availability, they show, has actually increased malnutrition and hunger in their country.

The experience in other South Asian countries has been very similar. Thus Mohiuddin Ahmed (see p. 261 of this issue) shows how the same is true in Bangladesh. Narinder Kaur, (see p. 263 in this issue) shows how development has led to increased poverty and malnutrition in Malaysia, Sulak Sivaraksa (see p. 266 of this issue) shows how it is having precisely the same effects in Thailand, Indonesia and the Philippines. At the same time, in his article Kumar Rupesinghe shows in great detail (p. 246 of this issue) what has been the terrible effect on the welfare of the people of Sri Lanka of adopting the export oriented policy that the World Bank and the IMF, in effect, impose on Third World countries which is considered to be the true road to development.

There are of course many ways of interpreting the failure of a policy. Thus, a tribal rainmaker, when confronted with the failure of the magical rites which his ancestors have performed from time immemorial in order to induce rain, is unlikely to incriminate *the rites themselves.* They are above suspicion. There must be some other way to explain his failure, such as to attribute it to some technical flaw in their implementation or to his failure to perform the rites with sufficient vigour or to repeat them the requisite number of times.

The latter interpretation is, of course, particularly convenient, since it would automatically follow that what is above all required is more vigorous and more numerous magical rites, which, as it happens, it is his prerogative to perform.

In the same way, Mr Botafogo must regard as "preposterous" the very suggestion that development, which it is the very raison d'être of the World Bank to finance, might be the real cause of so much human misery. This, he will rather be tempted to attribute to poor management, local corruption, or better still to insufficient development, or "underdevelopment" as poverty is also referred to in the development jargon.

If it is the poor who create all the problems, then it clearly makes sense, also to incriminate, as Mr Botafogo does, their demographic proliferation, for which, as it happens, further development is also held out to provide the cure.

Blaming Poverty and Population Growth

Even environmental disruption, Mr Botafogo attributes entirely to poverty and population growth. Poverty, he tells us "puts severe and often irreversible strains on the natural environment." What is more, these strains get worse as the poor proliferate. Indeed "poverty and rapid population growth reinforce each other."

Unfortunately it is easy to verify empirically that wherever, in the Third World, peasants overtax their soil or over-exploit their forests, it is that much of their land and of their forests have been taken away from them to accommodate large development schemes, and the area left at their disposal is too small and of too low a quality to satisfy their needs. Thus Paul Ngei, Kenya's Minister for the Environment also recently declared that deprived people are a threat to the environment. But as Martin Redfern, the Nairobi correspondent of the *New Scientist* notes, this "fitted badly with his own announcement, two days before, of a plan to uproot 17,000 hectares of Kenya's natural forests to make way for government tea plantations." Often, Redfern notes "it is the grandiose schemes of governments that do the real environmental damage."[2]

Indeed, "peasants left to themselves" according to Shelton Davis, and "given enough physical space, are environmental improvers."[3] He quotes Professor Michel Cepede, who insists that when such conditions are satisfied, "fertility is progressively built up on naturally poor land." "Even today, in poorer countries", Davis writes, "small plots worked by peasants have proved up to thirteen times as productive as large mechanised holdings, although this is no longer possible when the resources available to them are drastically reduced. Then they are accused of 'overcultivating' and 'overgrazing' the little that has been left them—as indeed they must if they hope to ensure immediate survival."

One of the forms of environmental destruction that is invariably attributed to overpopulation and poverty is deforestation. But, as Val Plumwood and Richard Routley point out[4]: "The bulk of the West African rainforest is found in the Cameroons, the Congo, Zaire and Gabon, which according to the World Bank "are all timber-rich countries with comparatively low population densities."

Papua New Guinea is now also being systematically deforested and all its accessible forests are likely to have disappeared by the end of this century, yet that country is very sparsely populated. Deforestation has also been massive both in New Zealand and Australia and today continues unabated, though these countries have among the lowest population density of any countries in the world, and their citizens enjoy a very high standard of material consumption.

In Brazil, according to official figures issued in the years 1966-75, 60 per cent of the forest destruction was to accommodate large-scale cattle raising schemes (3,865,271 hectares) and the highway construction programmes (3,075,000 hectares) both of which were financed by the World Bank and other similar organisations, while less than 17.6 per cent were lost to state colonisation schemes whose object was ostensibly to settle landless peasants.[5]

Even these figures overstate the real contribution made by overpopulation and poverty to the forest destruction, for, as Jose Lutzenberger[6] points out, the peasants who have invaded the Rondonian part of Amazonia, have done so because their lands in the State of Rio Grande Do Sul have been taken over by large scale export-oriented agricultural enterprises. It is to the latter that the destruction should, in reality, be imputed.

What does Development involve?

The real cause of all the environ-

mental destruction becomes clear if one considers what sort of policies Third World countries must adopt in order to develop and how such policies must affect their environment.

One must first realise that in order to develop, a Third World country must be able to earn a great deal of foreign exchange so as to finance the import of all the inputs required for modern agriculture, modern industry, modern warfare and modern living. Now how can they earn this foreign exchange?

For various fairly obvious reasons, few are equipped to produce manufactured goods nor high technology devices that can hope to be competitive on the world market, so they are forced to 'develop' their natural resources, which basically means transforming them into commodities which can be exploited commercially. This sounds eminently reasonable, but it has two unfortunate consequences. The first is that once a resource is developed and put up for sale in "the global supermarket", the rural poor of the Third World, many of whom do not earn more than twenty dollars a year, must compete for it with the citizens of western cities like Los Angeles, many of whom may earn as much as twenty dollars an hour.

This means that the resource is no longer available to them. As Banerjee and Kothari show (see p. 257 of this issue) it suffices in India, to transform any resource that was previously freely available to all, into a commodity to be bought and sold on the market for it to be inaccessible to the bulk of the rural poor.

The most obvious resource for a newly developing country to develop is its forests. It was by developing its forests, for instance, that the Indonesian "economic miracle" was achieved. Another obvious resource to develop is the land that has been cleared of its forest cover, and that which is "uneconomically" farmed by traditional subsistence farmers, and which can be transformed into plantations growing cash-crops or into rangelands producing beef for the export market.

The development of such resources is regularly funded by the big multilateral development banks (see Teresa Hayter and Catharine Watson, page 222 of this issue). Mr Botafogo of course will not face this. He insists that "eighty-five per cent of loans provided by the World Bank for agriculture to Sub-Saharan Africa have been for food crop production or a combination of food and export crop production as well as for livestock and fisheries development to help increase domestic consumption." What is more, he tells us, "the so-called dichotomy between food and cash crops is actually quite misleading. Throughout Sub-Saharan Africa, both are grown, often in rotation, and experience has demonstrated that countries with dynamic export production generally do better, not worse, in food production as well."

Unfortunately, the development of fisheries in the Third World cannot be regarded as a means of feeding local people as they are almost entirely geared to the export trade (see George Kent pages 232-239 of this issue). Indeed, very few of the rural poor in Africa or South Asia can afford to buy beef produced by World Bank-financed cattle rearing schemes.

What is more, the dichotomy between food crops and cash crops is, contrary to what Mr Botafogo says, *absolutely fundamental.*

The amount of good arable land available in any country is very limited. For instance, in Egypt, only three per cent of the country is suitable for agriculture, the rest being mainly desert. What is more, the land used for export crops is invariably the best land, the peasants growing food for local consumption being pushed onto the marginal lands which are rapidly eroded and desertified inevitably causing malnutrition and eventually famine.

Consider the result of the World Bank's policy in Tanzania. In the 1960s it agreed to back a government programme to intensify land-use. By the end of 1975, the Bank had invested 2,015—16 million Tanzanian shillings for this purpose, of which 40 per cent was for agricultural purposes. *Not a single project*, however, according to Dinham and Hines[7] is designed to produce basic foodstuffs for *local consumption*. Loans from other agencies were also mainly for cash crops. In 1978-79, for example, 61 per cent of loans went towards increasing tobacco production. Somewhat depressingly, Dinham and Hines comment: "The bias in investment toward export crops did little to increase food production and, indeed, tended *to push food crops into the more arid parts of the country while good land was turned over to export crops.*"

In Sahelia one of the areas which has suffered most from famine in the last ten years, the expansion in the cultivation of peanuts for export, mainly to France, "*has*" according to Trainer "*forced nomadic peoples on to marginal lands which have inevitably been overgrazed and desertified.*"[8]

Not only has the land been taken away from the nomads but, as Trainer notes: "The scarce water resources have been 'assigned' by agricultural business corporations to the production, *not of food*, but of products for marketing to the industrial world."

As Franke and Chasin write[9] "agricultural exports from the Sahelian countries to Europe actually increased during the late sixties and early seventies, in the face of worsening drought and widespread hunger." In fact, "during the drought in Mali, the area planted with the two most important export crops, peanuts and cotton, was expanded by almost 50 per cent and over 100 per cent respectively between 1965 and 1972." This can hardly have helped the starving people to feed themselves.

Horrifying as it may sound much of this area has been earmarked as a future 'greenhouse' for Euorpe. Indeed, as far back as the early 1970s a confidential World Bank report noted: "Senegal is the closest country to the European market where vegetables can be cultivated in the open without glass or plastic protection during the winter."[10] Since then, the Bank has been even more specific in its recommendations for developing the area. Thus, according to Francis Moore Lappé and Joseph Collins,[11] "recent World Bank reports on Senegal and Mauritania see the region's future in mango, aubergine and avocado exports."

Perelman[12] goes so far as to say that Africa "is being converted into a farm for exporting luxury crops such as flowers, protein rich legumes and even meat." Much the same could be said of the Asian countries (see George Kent pp. 232-239 in this issue).

Developments in Central America also illustrate how World Bank policies create malnutrition and famine. Thus Lappé and Collins cite the experience of San Salvador, where plantations now take up half of the total farming area of the country—including all the prime land. "The land left over, *mainly barren hills, is all that some 350,000 'campesinos' have on which to scratch out a subsistence living for their families.* Much of the land they are forced to cultivate is so steep it has to be planted with a stick. The erosion can be so devastating—one study concluded, that 77 per cent of the nation's land is suffering from accelerated erosion—that the 'campesinos must abandon a slope after a single year's meagre yield."[13]

It is in Central America too that the World Bank policy of funding totally destructive livestock rearing ventures may have had the most devastating effects. To quote Lappé and Collins: "Since 1963, the World Bank has provided funds for cattle ranching activities to every Central American country except El Salvador. In the last twenty years, the area of man-made pastures and the number of beef cattle in Central America have increased by about two-thirds. Apparently this has the effect of reducing the price of hamburger in the US by about five cents a pound, and helps to fight domestic inflation. But during the 1960s and 1970s, when beef production in Costa Rica more than tripled, local consumption of beef actually declined to the point where the *average Costa Rican ate less beef per year than the average North American house cat.*"[14]

As Patricia Adams notes: "In Central America, more than one quarter of all forests have been destroyed since 1960 to produce beef—90 per cent of which went to US hamburger chains and petfood companies, which pay more than the Latin American peasant can afford. For this reason, despite the enormous increase in the amount of beef for export, *less is affordable for the local people.* In Guatamala, beef exports increased from zero to 15,000 tons per year in the last decade, but *Guatemalans today eat 50 per cent less beef.* Not only are the rainforests destroyed but food production suffers."[15]

In the Dominican Republic, more and more of the best land has been turned to cash crops, in particular to sugar. As a result food availability has steadily fallen. To quote Robert Ledogar, "to the under-nourised small farmers, subsistence farmers and landless labourers—who together comprise about 75 per cent of the rural population—the endless vista of cane fields looks like a great green plague slowly *destroying their land.*"[16] It is the spread of that plague that the World Bank irresponsibly continues to finance, inspite of all Mr Botafogo's assurances to the contrary.

Cashing in Resources

The second unfortunate consequence of developing a resource is that it has a considerable chance of being rapidly exhausted. The reason is that no effective mechanism exists for assuring its sustained exploitation. This means that it is exploited as rapidly as possible so as to maximise short-term economic returns. That is how we in Britain, for instance, are exploiting our North Sea oil, and it does not occur to us to exploit it any other way.

Indeed, to develop a resource is above all *to cash it in.* Thus the first thing Europeans did when they arrived in New Zealand was to develop i.e. cash in the whales that abounded off the coast. When there were none left they cashed in the seals. When these had been annihilated, they cashed in the Kauri trees. There were originally three million acres of those massive trees many of which were thousands of years old, but within a few decades, only a few thousand acres of them were left.[17] They then found that the Kauris produced a valuable gum which could be found in the soil in which they previously grew. The soil was everywhere dug up and the gum cashed in. Most of the remaining forests of the two islands were then burnt down, to accommodate an eventual seventy million sheep. The process of cashing in the soil had now begun, and much fertile land in hilly areas became seriously eroded.

It was then found that the seas around the islands of New Zealand teemed with fish. This resource too had to be 'developed'. In 1963 the Marlborough scallop beds began to be 'cashed in'. Catches went up to 9,000 tonnes a year around 1976. By 1982 they were down to zero. Then it was the turn of the crayfish in the nearby Chatham Islands. Catches went up from zero in 1964 to 6,000 tonnes in 1969. They are now down to practically zero again, and so it has been for most other commercial fish species in New Zealand.[18]

Today, the last relics of New Zealand's unique forests are still being cashed in, even though the bulk of the population is in favour of preserving them. What is more, we are witnessing the same pattern of resource development throughout the developing world.

Thus, everywhere we see the setting up of plantation crops for export which eventually involves cashing in the soil on which they are grown. Robert Goodland from the World Bank's own Environmental Affairs Department, points out that "tobacco depletes soil nutrients at a much higher rate than most other crops thus rapidly decreasing the life of the soil."[19]

Georg Borgstrom in his book *The Hungry Planet* shows how the coffee planters have destroyed the soils of Brazil. "The almost predatory exploitations by the coffee planters" he writes, "have ruined a considerable portion of Brazil's soils. In many areas, these abandoned coffee lands are so ruined that they can hardly ever be restored to crop production. In others, a varying portion of the topsoil has been removed, or the humus content of the soil has been seriously reduced. In most regions, a mere one-tenth now remains of the amount of humus present when coffee cultivation was started. Therefore, the coffee plantations have always been on the march, grabbing new lands and leaving behind eroded or impoverished soils."[20]

Franke and Chasin describe too how destructive has been peanut

cultivation in the Senegal. "It has been estimated" they write, "that after only two successive years of peanut growing, there is a loss of thirty per cent of the soil's organic matter and sixty per cent of the colloidal humus. In two successive years of peanut planting, the second year's yield will be from twenty to *forty per cent lower than the first.*"[21]

Cashing-in their Children

Once all a developing country's physical resources have been cashed in, there remain the human ones.

In Thailand, the Philippines and South Korea, sex holidays have provided one of the most imaginative means of earning foreign exchange. Today we are told, "between 70 and 80 per cent of male tourists who travel from Japan, the US, Australia and Western Europe to Asia do so solely for the purpose of sexual entertainment."[22]

An International Labour Organisation (ILO) study reports that in Thailand, the police estimated that in 1982 there were 700,000 prostitutes in the country, about 10 per cent of all the women between the ages of 15 and 30 years—yet another 'resource' that is systematically cashed in to permit development.

In South Korea, the government sponsors an "orientation programme" where prostitutes are issued identification cards that serve as hotel passes.

"You girls must take pride in your devotion to your country", the women are told. "Your carnal conversations with foreign tourists do not prostitute either yourself or the nation, but express your heroic patriotism."[23]

Mr Botafogo insists that South Korea provides a stunning example of how development with World Bank aid, can increase a people's standard of living, but I find it difficult to accept that parents who are forced by their government to sell their children into prostitution can be seen as enjoying a very high standard of living.

What too happens, we might ask, once developing countries have cashed-in every available resource:—their forests, their soil, the fish in the oceans around them, and finally their children? This of course we are not told, since World Bank-funded development is supposed to be "sustainable".

The Need for Imports

In any case, what, one might ask, will the foreign exchange, earned at such an intolerable cost, be spent on? According to Mr Botafogo, on "critical items needed for food as well as cash crop production." In reality, much of the foreign exchange earned in this way is actually spent on things that are in no way connected with the production of food, such as luxury items which only the elite can afford (see George Kent p. 232 of this issue). The point is well made by Lappé and Collins[24] with respect to those countries worst hit by the catastrophic Sahelian drought at the end of the seventies. Thus they write:

> "Much of the foreign exchange is used to enable government bureaucrats and other better-off urban workers to live an imported lifestyle—refrigerators, air-conditioners, refined sugar, alcoholic beverages, tobacco and so on. In 1974, about 30 per cent of the foreign exchange earned by Senegal went for just such items. The peanut exports annually account for one third of the national budget of Senegal—but 47.2 per cent of the budget goes on the salaries of the government bureaucrats. Between 1961 and the worst drought year, 1971, Niger, a country with marked malnutrition and a life expectancy of only thirty-eight years, quadrupled its cotton productions and tripled that of peanuts. But US$20 million in foreign exchange was then used up importing clothing, over nine times the amount earned by exporting raw cotton. Over $1 million went for private cars and over $4 million for gasoline and tyres. In only three years, 1967-1970, the number of private cars increased by over 50 per cent, most of them driven by the miniscule elite in the capital. Over $1 million was spent to import alcoholic beverages and tobacco products."

Much of it too is simply wasted on armaments. From 1972 to 1982 according to Jacobsen[25]: "Military spending by developing countries rose to more than 165 billion dollars, doubling in real terms. At the same time, the external debt of these countries soared from less than 300 billion dollars to over 750 billion dollars." Egypt is apparently incurring debts of 800 million dollars a year just to pay interest on this "military debt". The Argentine spends 61 per cent of its export earnings for the same purpose. Military expenditure in Africa has now reached 16 billion dollars a year, much of which must be paid for out of foreign exchange made from the sale of cash crops that use up land and resources which are essential for feeding already starving populations.

Some "critical items" are indeed required for agricultural purposes—but they are almost entirely used for *the production of cash crops*, which, with the Green Revolution, has been made totally dependent on the massive use of fertilisers, pesticides, agricultural machinery and irrigation water.

For two reasons such inputs can rarely be used for producing food for local people. To begin with they are too expensive. Secondly even if the Third World peasants could afford them, many of these inputs—the water for instance—would still not be made available to them. The reason is simple. A modern perennial irrigation system can cost tens if not hundreds of millions of dollars to build and the foreign exchange required to pay the interest on the loans contracted to finance it can only be earned by exporting the produce grown on the land it serves to irrigate.

Capital intensive agriculture, by its very nature can thus only grow food for export, and for this reason alone it is, for the rural poor of the Third World *but a recipe for starvation.*

Fortunately to feed them there is no need for capital intensive agriculture nor for what Mr Botafogo regards as the "critical inputs" for food production.

Organic farmers in America and Europe achieve yields which are fully comparable to those achieved by farmers using vast amounts of fertiliser. Even the US Department of Agriculture recently produced a report which established that organic agriculture was a perfectly viable option for the US—a report which needless to say has now been duly shelved. This is even truer for tropical countries, where soils require organic matter to maintain

their structure and prevent erosion by wind and water. Without organic matter, Dr Dhua[26], at one time science director of the Fertiliser Corporation of India, considers, artificial fertilisers, to be largely useless in the tropics since their use gives rise almost immediately to rapidly diminishing returns.

Uppali Senanayake[27], an authority on traditional agriculture in Sri Lanka once said that the most sophisticated technology required to feed his people was the wheelbarrow. Like anyone at all acquainted with the problems of food production in the Third World, he fully realised that a return to something approaching traditional agriculture was the only real option.

The increase in yields achieved by the use of fertilisers has also been grossly exaggerated. It is actually quite small when compared to the massive chemical inputs required to achieve it. The miracle strains developed in the Green Revolution have permitted increases in India of no more than 50 per cent in wheat yields and 25 per cent in rice yields[28], while the consumption of fertilisers according to Banerjee and Kothari[29] has since their introduction increased from 212,000 tonnes in 1960-61 to 4,263,000 tonnes in 1982-83, a more than twenty times increase in two decades.

Banerjee and Kothari do not consider that the Green Revolution has done anything to improve the lot of the rural poor. Practically all independent authorities on world agriculture would agree with them. Thus Caldwell writes: "I think it is safe to conclude that . . . in important respects (the Green Revolution) has intensified rather than helped alleviate the problems associated with feeding the world's rising numbers.[30]

Lappé and Collins agree[31]. "The process of creating more food has actually *reduced peoples' ability to grow or produce food*" they write. Susan George also states that "the Green Revolution has been a flagrant example of a 'development' solution that has brought nothing but misery to the poor."

In any case, though yields have increased in certain areas as a result of modern agricultural technology, in many of these areas they are now beginning to fall. Thus agricultural yields per hectare in Algeria, Nigeria, Zaire, Mozambique, Zambia, the Sudan and Tanzania were actually lower in 1980-82 than they were in 1950-52, in the last named country by as much as 27 per cent.[32]

Lester Brown explains why this has happened: "Yield raising technologies such as chemical fertiliser and improved varieties have been adopted to at least some extent in all countries. But in some, these inputs have been more than offput by soil erosion. The addition of low fertility land of the cropland base, shorter fallow periods, declining rainfall inappropriate farm policies."[33] In the long run, this must inevitably happen wherever such technologies are introduced. Because of their inherent environmental destructiveness, they can only lead, in the long run to *reduced* rather than *increased* yields.

This is already beginning to occur in the USA. Perennial irrigation is causing soil salinisation problems in many parts of Southern California and is threatening the very survival of commercial agriculture in this area. Modern irrigation schemes based on the use of waters from the once seemingly inexhaustible Ogallala Aquifer[34] have led to so serious a fall in the water-table that, throughout many areas of the Southwest such as the high plains of Texas and Arizona, farms are going out of business everyday. At the same time, the intensive cultivation of maize and soya beans in the midwest is leading to such serious soil erosion that what was once the most fertile agricultural area in the world will, at current trends, be almost entirely deprived of its top soil within the next 40 or 50 years.[35]

What effect, one must ask, can similar agricultural methods be expected to have on the incomparably more vulnerable soils of the dry tropics?

What makes matters worse is that the adoption of modern capital-intensive agricultural methods invariably leads to growing indebtedness and bankruptcy, again as it is doing in the USA where, what was once the richest farming community in the world, is now largely bankrupt with debt of over $300 billion, nearly half the total of the external debt of all Third World countries put together and a sum that is equally unlikely ever to be paid back. Again what chance has the incomparably poorer and more vulnerable farming community of the Third World of avoiding similar fate?

The truth is that there are no hardware solutions to the problems of feeding the world or, as we shall see to any of the associated problems of the Third World, which, being largely caused by the breakdown of social and ecological systems, can only be solved by social and ecological strategies, which, unfortunately, happen to be neither 'economic' nor politically expedient.

Let us see why this must be so with regards three of the problems that Mr Botafogo claims the World Bank is now so successfully dealing with.

Can Development provide clean Water?

One of the reasons why Mr Botafogo insists that development is so necessary is that "only about a quarter of the people who live in developing countries . . . have access to clean water."

This is why, at the United Nations Water Conference held in Mar Del Plata, Argentina in 1977, it was agreed to set up the International Drinking Water Supply and Sanitation Decade, whose goal it was to assure that everybody had "clean drinking water" by 1990. Unfortunately though what it actually set out to provide was *piped water* which is, of course, a very different thing.

At Mar Del Plata, the price tag on the Decade was $140,000 million, more recently and more realistically the price has been estimated at $600,000 million, though, because of the failure to raise this sum of money, the more modest figure of $300,000 million now tends to be quoted,[36] which nevertheless involves quadrupling the present expenditure on piped water. Needless to say the provision of piped water to most areas of the Third World does not solve any real problems. People are not used to it, most of the inhabitants do not want it, neither do they have the capacity

nor the desire to maintain all the piping, which often simply disintegrates.

Widstrand describes a common situation in an East African village:

> "It is a new and hot, shimmering day. Nothing much happens in the village; there is a smell of stale beer and dust. Suddenly on the road large dust clouds: a procession of landrovers approaches the village. Out of the vehicles spill a crowd of county councillors, district officers, local politicians, and sweaty, but competent, experts. Someone gives a speech, telling the villagers that now development has at last caught up with them and they shall have water, the toil of women shall finish and health, economy and what-not shall sprout. Competent technicians unpack the machines and a day of infernal noise begins. The surprised laity invite their guests to a meal of beer and goat meat, more speeches, departure of the caravan, but for some experts, who in a few days' time produce water out of a pump.
> They depart: "Here is your water, look after the installation and phone us if something goes wrong.' Phone! After some time the diesel runs out, the pump disintegrates, and everything is as before. After all, no one really liked that clear cold water which hurt their teeth. Water should be brown, muddy, tasty and more filling. And, by the way, during the rainy season it is much closer to go to the river than to the pump."[37]

It is probably a good thing that all this piping should disintegrate because, among other things, once people have access to piped water their consumption invariably increases. Thus in the USA, average water consumption before the introduction of piped water was something like 10 gallons a day per person, very much what it is today, in large cities such as Madras. Since then, however, it had gone up by the middle seventies to 160 gallons per day and in some cities to as much as 560 gallons, such as in San Diego, California.

The main limitation to food production in the Third World, we must remember, is water availability, and every drop that is wasted by people having access to piped water, means that there is that much less available for agriculture and drinking purposes in rural areas with no piped water.

In any case piped water, as already intimated, is not necessarily clean. Indeed in the USA it is now known that much of the available drinking water is contaminated with industrial and agricultural chemicals.[38] This is now becoming a major issue and, in the meantime, more and more people are buying expensive bottled water in the supermarkets.

Sources of drinking water in the Third World are also being increasingly contaminated. Consider the following quotation from Anil Agarwal's *State of the Indian Environment*. "Shockingly high levels of pollution exist along vast stretches of the Yamuna river. Everyday, its 48km portion through Delhi, picks up nearly 200 million litres of untreated sewage. Twenty million litres of industrial effluents including about half-a-million litres of DDT wastes enter the Yamuna in this stretch.

"From Delhi to Agra, the Yamuna is unfit for drinking and bathing. A survey by the Central Board for Prevention and Control of Water Pollution predicts that if the sewage from Delhi's 17 drains are not treated properly and soon, it will be highly polluted from Delhi to Allahabad."[39] Such is the cost of development, and what good, one might ask, can it do to abstract water from such rivers in order to make it available throughout the country as piped water? Surely very little, yet the provision of piped water is the only solution to the problem of water shortages which the World Bank can provide, for it is the only one that involves the massive sale of hardware:- hundreds of thousands of millions of dollars of it.

How should one then solve the water problem? The answer must surely be to refrain from abstracting water that is badly needed for the survival of rural people in order to provide water for irrigating export crops, for satisfying industrial demands and for its wasteful use in big cities.

Even more important, the answer is to undertake massive reafforestation programmes, as it is the terrible deforestation of the last decades, that has, more than anything else, created the water shortages of today.

N D Jayal[40] makes the point clear. "During the current International Drinking Water Supply Decade fewer people in East Asia have access to clean and adequate water than they did in the 1970s. This has happened in spite of heavy financial outlays for drinking water schemes. Technological solutions for supplying scarce drinking water have failed to be adequate since the water crisis is the result of a failure to sustain water availability.

This has resulted primarily from a rapid destruction in recent years of the vegetation cover which earlier ensured the recharge of ground water.

For example, in India, in the state of Maharashtra alone 17, 112 villages were identified as facing drinking water problems at the beginning of the Sixth Plan. There are 15,302 villages likely to be covered in the ensuing Seventh Five-Year Plan. The rapid depletion of ground water resources has, however, increased the problem villages with no source of drinking water to a staggering 23,000 villages. This situation prevails in smaller or larger measure in almost all the states of the country, and is especially critical in the fragile Himalayan region."

Unfortunately, reafforestation, which alone can reverse this fatal trend is, as we shall see, something that the World Bank cannot fund.

Are the World Bank's Social Forestry Programmes of any use to the Poor?

Mr Botafogo insists that the World Bank "is concerned about ensuring an adequate supply of wood products to the poor and recent projects have been designed to help meet this need." He refers of course to the Bank's much vaunted social-forestry projects, which are supposed to be a major departure from normal commercial schemes.

It is undoubtedly true that the World Bank has funded many social forestry projects, but unfortunately they have been of little help to the poor. On the contrary, they have, in general, made their life that much more difficult and have even contributed to their further impover-

ishment. Let me explain why. To begin with the term 'social forests' is most misleading. They are *not forests*, they are plantations, monocultures, in fact, of fast growing exotics. What is more they are not *social* because the benefits derived from them are not at the disposal of local societies or communities. They are grown for commercial purposes, on land belonging usually to rich farmers, and their produce is sold on the market at a price the poor can rarely afford. The tree normally planted in 'social forests' is a species of eucalyptus. It is chosen because it grows so quickly, because it is safe from the depradations caused by cattle who will not eat its leaves and, because its stem is straight with no side branches that can be broken off and taken away by villagers for use as firewood. It is thus useless both for providing free fodder and also for providing free firewood, benefits which are both previously derived by villagers from natural forests.

Nor does it provide villagers with any of the other benefits that natural forests previously provided, such as humus with which to fertilise their fields, as the eucalyptus has a poor and acidic litter which forms little humus, nor wild fruits and berries, nor herbs for medicine and for natural dyes, nor wood for making bullock carts or building materials. The eucalyptus normally used has still further disadvantages. It uses up a lot of water, indeed R K Gupta[41] notes that it is actually used both in the Punjab and Haryana for the reclamation of waterlogged areas. Not surprisingly, when grown in arid areas, it can only cause the further drying up of the land—seriously affecting crops and further reducing available water supplies.

Unfortunately, its cultivation has proved only too profitable, and as a result, it is often grown on fertile agricultural land to replace less profitable food crops, which means a further reduction in local food supplies. Unfortunately too, its cultivation requires very little labour which has meant an increase in local unemployment.

Not surprisingly[42] in many areas, poor peasants have got together to raid eucalyptus plantations and uproot the seedlings which they would be unlikely to do, if, as Mr Botafogo insists, such projects were designed to serve their interests.

Vandana Shiva, H C Sharatchandra and J Bandyopadhyay[43] carried out a study to see the exact effect of social forestry programmes in a specific area, the Kolar region of Karnataka. They found that because the sales price of eucalyptus was high—as compared to that of firewood—it was supplied exclusively to a few paper mills and one rayon factory in the region. In fact, they note "about 80 per cent of the eucalyptus from Kolar is earmarked for the polyfibre industry in Harihar. What remains after dressing the eucalyptus for use by the rayon industry is sold in the urban markets of Bangalore as fuel. *This leaves hardly any eucalyptus for the consumption of the rural population.* In sum, the growth of eucalyptus plantations in Kolar has made no positive contribution to the satisfaction of the fuel needs of the rural people. On the other hand, because of the decline in traditional species like Honge, the supplies that were once available are becoming increasingly restricted. *If that trend continues, the firewood crisis will worsen during the years to come, despite the impressive growth of eucalyptus plantations in the villages.*"

The main problem with World Bank funded social forestry programmes is that they are commercial. Their produce must be bought and unfortunately the vast bulk of the people in a country such as India cannot afford to buy it. For firewood to be really available to local people, it must be provided *free* as it previously was from the real *social forests* with which they were once surrounded. This point is noted by Dr Vithal Rajan[44] in his report "Social Forestry in South India in the 1980s", and the principle is further elaborated on in S Banerjee's and S Kothari's article (on page 257 of this issue).

The trouble of course is that *real social forests* i.e. natural forests, whose produce (including water) is freely available to the rural people make no contribution to the formal economy. In particular they do not provide the financial return that do plantations of fast growing exotics —which are misleadingly termed: *social forests*—and that is why the World Bank cannot fund them.

Can Development halt Population Growth?

Mr Botafogo insists that development is necessary to control population. He tells us that the central message of the World Bank's 1984 World Development Report was that "economic and social progress (a term used synonomously with development) helps slow population growth."

Population growth must indeed be halted. That is essential, since it is at present completely out of control. Consider that, according to the World Bank, the population of Ethiopia—the country where famine has taken the greatest hold—is expected to increase to 231 million i.e. to six times its present level, until it begins to taper off around the year 2045, while that of Sub-Saharan Africa, is expected to double, from 385 million in 1980 to 770 million by the year 2005.[45]

That all this will actually happen is of course sheer fantasy. The impact of human activities on the world environment is already far greater than it can support and it simply cannot increase by very much more.

Indeed, at least ten years ago, Paul Ehrlich made it clear that he regarded the notion that the world population would double between then and the year 2001 as "the most frequently repeated imbecility of today."[46]

Of course the thesis that development reduces population growth is yet another convenient myth for the development industry. It is justified on the grounds that, because the poor are insecure, they must have as many children as possible to look after them in their old age. Development, of course, makes them rich and secure, hence it will reduce their need for so many children. This argument is strengthened by the fact that population, though it escalated during the industrial revolution in Europe, subsequently slowed down and is not far from replacement level in most western industrial countries. The same "demographic transition", it is

confidently asserted, will also now occur in the Third World.

This argument of course cannot stand up to serious examination. To begin with, it is conveniently forgotten that a growing population is not intolerable *per se* but because of the increasing impact it must have on its natural environment. This impact however, is not simply function of its size but also of its level of material consumption. (See G Hekstra's article on p. 240 of this issue and in particular the cartoon.)

To reduce the former by increasing the latter is thereby self-defeating—it has no effect on the total impact.

In any case though population growth in the West has indeed fallen with rising affluence, this does not mean that it will do likewise in the Third World?

A meeting on the subject organised by the American Association for the Advancement of Science[47] concluded that it would not. In general, the transition period from a peasant to an industrial economy, the participants insisted, is marked by *rising* not *falling* birth rates. The reason is that the changes that occur during such a period must inevitably increase insecurity by destroying the extended family and the community, by eroding traditional cultural patterns, and, they should also have added, by degrading the physical environment on which people depend for their livelihood. In such conditions people will tend to have *more* children not *less*. Previously so long as these resources were intact, people felt very secure and their population remained stable over long periods of time. What is certain is that this 'demographic transition' is not occurring in the Third World today. As Lester Brown notes[48] "the 'demographic transition' that has marked the advance of all developed countries may be reversed for the first time in modern history.

"African countries have now moved beyond the first stage of this transition with its equilibrium between high birth and death rates. But virtually all remain stuck in the second stage, with high birth rates and low death rates. In this stage, population growth typically peaks at three per cent or so per year."

If development is seen as a means of controlling population, it is also because it permits the manufacture and distribution of birth control devices. Needless to say the adoption of a *hardware solution* to the population problem is very convenient to the development industry. It involves the expenditure of vast sums of money, with a corresponding increase in economic activity. Indeed the World Bank estimates that to achieve "a rapid fertility decline" goal in Sub-Saharan Africa would mean increasing the amount of money spent on 'family-planning' by *twenty times*—by the end of the century.[49] Think of the massive increase in the exports of pills, condoms, IUCs and other forms of anti-birth gadgetry! But there is no reason to suppose that this would have any effect. Indeed if the first argument—that people *want* more children because they are insecure—is true then the second *cannot be*. Either people have more children *because they want them* so as to provide them with the requisite security or else the *extra births are unwanted ones*, which Third World people simply do not know how to avoid having. It is clearly *only in the latter case* that the massive distribution of birth control devices could conceivably serve any purpose for what would be the point of providing them to vast numbers of women who *actually want the children whose birth these devices are designed to prevent*? The World Bank cannot have it both ways.

The truth is that birth control is not a technological problem but a *social one*. Thus even in the absence of sophisticated birth-control technology, our tribal ancestors succeeded in maintaining the stability of their populations for hundreds of thousands of years.

To do so, they exploited all sorts of strategies that were built into their cultural patterns,—such as taboos against sexual activity during lactation, and during the first years of widowhood, the prohibition on widow remarriage among certain casts in India, and many more.

The trouble is that once a society's cultural pattern is disrupted by development, such built-in cultural controls—the only ones we know to work—cease to be operative, and population growth, among many other things, is out of control.

Is economic Development actually possible?

But even if development were really the universal panacea it is made out to be, is it a real option for the Third World? Are its inhabitants ever likely to enjoy, for better or for worse, today's level of material consumption in the west? The answer is almost certainly no. We must remember, that when Britain industrialised for instance, conditions could not have been more favourable. Its empire provided it with a limitless source of cheap raw materials as well as a captive market for its manufactured goods. In any case it had few competitors, Britain was indeed the workshop of the world. Today conditions are totally different. The cheaply available sources of the principal raw materials have already been used up. More expensive sources must now be tapped. At the same time, since so many countries are now involved in producing manufactured goods, competition for the remaining raw materials is becoming increasingly intense.

Competition for markets is also increasing so much so that many already industrialised countries such as Britain are being slowly edged out by Japan and other more efficient manufacturers. We know that a developed country can exist in a non-developed world but no economist, seems seriously to have considered whether it is possible for a developed country to survive when all the other countries with which it trades are *equally developed*.

The historical experience also shows that practically all of the industrial countries of today have financed their industry with funds obtained from agriculture. It is no coincidence that Britain's Industrial Revolution was preceded, in the 18th century, by an agricultural revolution which vastly increased food production. Unfortunately however, such a surplus cannot be achieved in the tropics today. One reason, of course, is that these countries have become too highly populated and their produce is

required to feed their own population.

Another important reason is that ecological and climatic conditions in the tropics would never permit the achievement of the required surplus.

To begin with, rainfall patterns do not favour it, nor do the soils which are usually thin and low in organic content and thus very vulnerable to erosion by wind and water[50]. Climatic conditions also favour thriving pest populations which are often almost impossible to control[51], livestock too is afflicted by a wide variety of internal parasites which seriously reduce yields which are typically as much as four times lower than in temperate areas[52].

Partly because of the long hot nights, net photosynthesis (photosynthesis minus respiration) is much lower than in temperate areas[53, 54]. This is a critical consideration. It means, as Chang constantly points out that "environmental constraints make it impossible for the tropics to compete economically with the temperate zone, and this goes a long way towards explaining why all the developed nations lie outside the tropics[55]."

What makes matters worse, is that conditions in the tropics, are becoming still less favourable for sustained agricultural production. Rain patterns today are changing, and for the worse, partly at least, because of global deforestation and the chemical contamination of the atmosphere, while massive deforestation leading to the drying up of streams and springs, together with erosion, desertification, waterlogging and the salinisation of once fertile land are further reducing the ability of Third World countries to feed themselves, let alone achieve the agricultural surplus required to finance their economic development.

That development in the tropics and indeed worldwide must eventually be halted by ecological considerations is the thesis of Dr Hekstra's article (see p. 240 of this issue). If this is so, then is it not possible that the World Bank and the other associated organisations that spearhead development might not simply be leading Third World countries up the garden path? The latter are being encouraged systematically to exchange the *indispensable*—their forests, their soil, their water, their culture and, in the long term, their physical survival for the gadgetry, the tawdry mass-produced goods, the junk foods and the rest of the paraphernalia of the modern way of life. But even this only a few can have access to and for a few decades at most.

If this is so, then never in the history of mankind, has a more cynical confidence trick been perpetrated on so many people and with such devastating consequences.

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The World Bank: A Law unto Itself

by Patricia Adams

This is an extract from the statement made by Patricia Adams to a Parliamentary Committee of the Canadian Government considering the unaccountability of the Multi-Development Banks (MDBs) and the environmental damage caused by their projects on the world environment. It is a plea to make the MDB's accountable to those who must ultimately fund them: the taxpayers of the countries from which they derive their funds.

The World Bank has spent billions of Canadian tax dollars over the last thirty years in ways that have abused property rights, violated human rights and created environmental havoc in the Third World.

These enormous abuses are not caused by ill-will on the part of the Bank's staff but are a by-product of the fact that the World Bank operates in isolation. The Bank is a law unto itself. It vigorously resists public scrutiny of its activities and locks out attempts by its members to set guidelines for its operations. The effect of the World Bank's isolation from the taxpayers that keep it in business and from the people in the Third World who are its presumed beneficiaries is an unchecked relationship with its clients—the governments in the Third World that do the borrowing.

It happens like this. A Third World government makes a proposal to the World Bank. The Bank then decides, on economic grounds, whether to go ahead with the project or not. But at no time does anyone go to the people of that country to ask them what they think of the scheme. We have found with frightening regularity that the people in the Third World whom we think we are helping do not like the project one bit and, that despite our humanitarian intentions the effect of our aid is to finance Third World governments against their people.

Let me give you just one example of the many tragedies created by the World Bank, this time in Ethiopia.

In the early 1960s the World Bank built a series of hydro dams on the Awash River in central Ethiopia to provide power for the capital city and irrigation for large-scale plantations. The damming of the river eliminated the annual floods and thus much of the forests and the grazing lands on which some 150,000 pastoral people depended. The World Bank's subsequent conversion of most of the irrigable land in this valley to cotton and sugar cane plantations led to the displacement of 20,000 people who became dependent on food relief.

We helped finance this development scheme and now we are helping to finance food relief to ameliorate the damage it did. These people view this development project as punishment from God.

Over the last few years Energy Probe has received requests for help from citizens' groups in the Third World who want information on World Bank sponsored projects in their communities, or who want compensation for lost land, or who want to stop World Bank projects because of the enormous damage they will do to their local economies. In investigating their claims, our communication with officials from the World Bank and the Canadian Government led us to the very disturbing realisation that neither the public nor Parliament has the legal means to scrutinise these expenditures of public funds, the way we have for public funds that are spent here at home.

According to Finance Minister Michael Wilson, our Governor to the World Bank, he does not have access to a report prepared by the staff of the World Bank which details the extent to which the Brazilian Government is meeting its four hundred million dollar loan agreement for a major project in the Amazon. This report, because it is considered an internal staff document, is "not available to governments or to the general public".

According to Margaret Catley-Carlson, the President of CIDA (Canadian Aid Organisation), even documents prepared for the World Bank's Board of Directors that enable them to approve loans are "confidential to governments and not officially available beyond restricted distribution".

Also, documents prepared by the borrowing country with World Bank funds, such as a study which investigates the feasibility of a hydro dam, are the property of the borrowing country, which can keep them from whomever it wishes.

What this means for the Canadian taxpayer is that our representatives in Parliament—and this Committee—cannot discuss the advisability of World Bank activities because we are not entitled to know even the most fundamental details of projects, such as the life-expectancy of a hydro dam; the number of hectares to be flooded; or the amount of compensation people will receive for their losses.

Furthermore, our duly-elected government has no right to review any of the information and documents which are used to prepare the final project proposal documents, nor has it the right to review reports prepared by the Bank's staff that monitor the extent to which a borrowing country is meeting the

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Patricia Adams *is co-author with Lawrence Solomon of the Book* In the Name of Progress, *see Book Reviews, this issue, p.302.*

conditions of a loan agreement.

You will be interested to know that when the US Government ran up against this restriction several years ago, it decided to include a clause in its annual appropriations act which states that no funds will be given to "any international financial institution whose US representative cannot upon request obtain any document developed by the management of the international financial institution." I would like to recommend that Canada assert the same right, because the present situation amounts to taxation without representation.

The fact that the World Bank and the other regional development banks are accountable to no one was brought home to me one year ago by Allan MacEachen, then Canadian Governor to the Inter-American Development Bank. In response to criticism of a hydro dam in Haiti that was to be built by the IDB, he denied Canadian responsibility for this project. Well if our Governor denies responsibility, and all other governors deny responsibility, then no one is responsible for these banks.

In fact, we, the taxpayers, are the ones who are responsible for these banks. We have to pay off the loans made by these banks should the borrowing countries default on their payments. And we are responsible for the human rights abuses that result when Third World citizens have their property confiscated without due process and without fair compensation because the World Bank has given a Third World government the wherewithal to proceed.

It is time we took responsibility for the damage caused by our past negligence, and it is time we took responsibility for the future activities of the World Bank by more closely scrutinising it and by telling the other member countries that if the World Bank conducts its affairs in ways that are abhorrent to the Canadian public we will have to withdraw our membership.

THE AT READER

Theory and practice in Appropriate Technology

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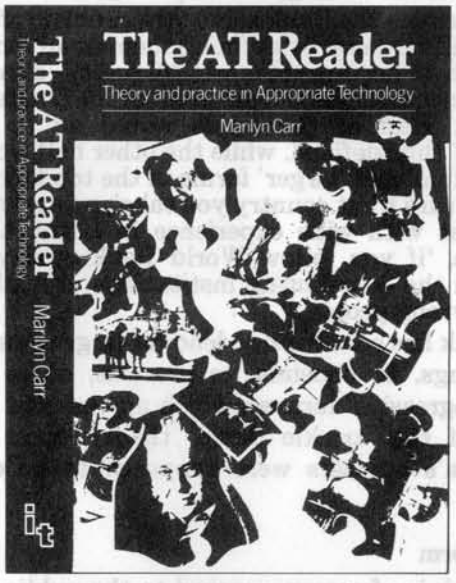
Introduction by Frances Stewart, Fellow of Somerville College, Oxford.



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The World Bank's Agricultural Policies: Rhetoric and Reality*

by Teresa Hayter and Catharine Watson

The World Bank pretends it is interested in the welfare of the rural poor of the third World. "Most of the Bank's lending each year, twenty-five to thirty per cent" Mr Botefago tells us, "goes for agricultural and rural development activities mainly for food production and to help thousands of small farmers become more productive." So much for the rhetoric.

Teresa Hayter and Catharine Watson (the latter worked for some time in the Office of Environmental Affairs at the World Bank) describe in considerable detail what the Bank's agricultural policy really is and how it sets about assuring that this policy is implemented according to its requirements.

Until the 1970s, the World Bank lent very little for agriculture and such loans as it did make were mainly for large commercial undertakings, particularly in livestock. The Bank was criticised for its neglect of agriculture, partly on the grounds that poverty is concentrated in rural areas.

In the 1970s, under the presidency of McNamara, Bank lending for agriculture increased at a much faster rate than other sectors of Bank lending. By 1980, it amounted to nearly a third of total Bank commitments. The Bank's claims that it had a new 'poverty orientation' were based largely on its lending for projects in rural areas, where, according to the new rhetoric, the 'poorest of the poor' were to be found. It is nevertheless probably a near-universal phenomenon of Bank rural development projects that their benefits are appropriated by the better-off peasants and landowners. Thus, according to Cheryl Payer,

> In Guatemala the Bank solved the problem of reaching 'small farmers' by defining them as anyone with less than 45 hectares of land (108 acres)—a category which encompasses 97 per cent of all Guatemalan farmers. Half of the funds would go to 'small farmers' thus defined, while the other half would go to 'medium' and 'larger' farms in the top 3 per cent. 'I don't care what country you take', an agricultural specialist with wide experience in Latin America told me, 'if you follow World Bank money down through the distributing institutions, it's all going to the wrong people'.[1]

The Bank has continued to lend for large commercial undertakings. It depends, in practice, on a theory about 'progressive' farmers which amounts to a rural version of the 'trickle down' theory upon which McNamara's advisers were supposed to be casting doubts.[2]

Land Reform

The Bank is of course opposed to the public ownership of land. Its reports welcome the termination of land reform programmes, when this occurs. For example, its laudatory presentation to the consultative group for Peru says with evident approval that "the Agricultural Promotion Law . . . ends the agrarian reform expropriation process—an important measure to instil investor confidence".[3] Another report on Peru describes the failures and 'negative effects' of land reform under previous reformist military governments[4] and a report on the Peruvian agricultural sector states that: "This entire period (1970-80) from its start has been characterised by ill-conceived and maladministered sweeping land reform and economic control measures".[5]

One of the major successes in 'land reform' claimed by the Bank is the Lilongwe project in Malawi. But this is land reform in a peculiar sense: it amounts to the conversion of communally allocated land into private property. The Bank argued that this would give the farmers greater security, but contradicted this assertion by saying that it would create a market in land that would ensure that the land reached its commercial potential or was sold.[6]

The Bank puts more emphasis on production than it does on income distribution. In some 'Green Revolution' areas, and perhaps particularly in India, the Bank has been able to claim some success in increasing production, even though the effects on income distribution are probably the reverse of what is sometimes claimed. The Bank's report, *IDA in Retrospect*, published in 1982 as part of its bid for IDA replenishment, makes much of the fact that IDA was 'closely involved' in the introduction of Green Revolution technology in India, Pakistan and Bangladesh. It says that: "India, which was the world's second largest cereal importer in 1966 and 1967, reached basic self-sufficiency toward the end of the 1970s".[7] There is some dispute whether this 'self-sufficiency' did not imply lower levels of consumption within India. But it is widely accepted that the Green Revolution in India, whatever its effects on income distribution, landlessness and actual deterioration in the ability of those displaced to feed themselves, did result in increases in production above those that would have taken place without it, and that the World Bank made a contribution to those increases. Elsewhere, it is doubtful whether Bank projects in agriculture contributed very much even to production. For example, one of the Bank's own (unpublished) evaluations of its project results, the 1979 'Grey Cover' *Annual Review of Project Performance Results*, records that out of 21 projects, 14 had not reached the expected higher yields, and out of 25 projects, 20 did not achieve the expected higher production.[8]

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Dicouraging Self-sufficiency, Encouraging Exports

The Bank is also at times accused of bias against production for local consumption of food. Clearly the Bank favours greater commercialisation of agriculture. It advocates the integration of rural producers into national and international markets, in ways which parallel its advocacy of the greater integration of Third World countries into the world market, and which carry similar or greater dangers of increased dependency and precariousness in their livelihood. Thus one of the reasons presented by the Bank for devaluation is that it improves the incentives for agricultural exports, and the Bank is frequently accused of putting pressures on countries to increase their exports of agricultural commodities, curiously at a time of plummeting world prices for such products, at the expense of their ability to use their land and resources to produce their own food. This is an accusation which is made also by officials within the Bank, and especially in regard to the so-called Berg report.[9] One junior Bank official, describing the 'general bias' in favour of the cash economy and production for the market rather than for local consumption, said that 'old colonial hands' working for the Bank in India 'cooked the figures' to show that irrigation projects would produce more for the market and thus made them acceptable to senior management in the Bank.[10]

Cheryl Payer's book on the World Bank describes what she calls 'the attack on self-provisioning peasantries'. She gives the following quotation from a World Bank country report on Papua New Guinea (PNG):

> A characteristic of PNG's subsistence agriculture is its relative richness: over much of the country nature's bounty produces enough to eat with relatively little expenditure of effort. The root crops that dominate subsistence farming are 'plant and wait' crops, requiring little disciplined cultivation . . . Until enough subsistence farmers have their traditional life styles changed by the growth of new consumption wants, this labour constraint may make it difficult to introduce new crops.[11]

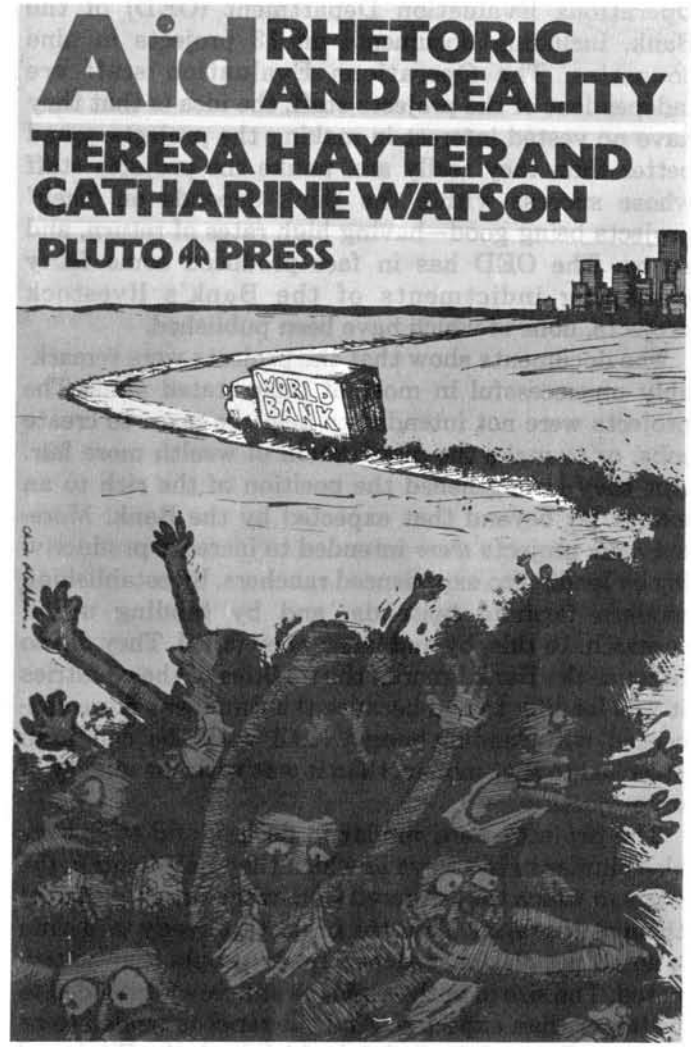
Not all 'subsistence farmers' live in such an idyllic situation, but many are better off than other rural producers who are totally, or largely, dependent on the market. The Bank is not only averse to subsistence farming; it also exaggerates its extent.[12] Thus the Berg report, ignoring the past century or so of African history, says,

> as the postcolonial period began, most Africans were outside the modern economy . . . African labour was overwhelmingly concentrated in subsistence-oriented farming . . . The dominance of subsistence production presented special obstacles to agricultural development. Farmers had to be induced to produce for the market, adopt new crops, and undertake new risks.[13]

Elsewhere in the report, the Bank acknowledges that:

> All the evidence points to the fact that smallholders are outstanding managers of their own resources—their land and capital, fertiliser, and water. They can be counted on to respond to changes in the profitability of different crops and of other farming activities . . .[14]

The introduction of commercialised inputs into agriculture may raise yields and rural incomes. But it



sometimes merely adds to the precariousness of rural producers by making them more deeply indebted, increasing the costs of failure, and adding to the inducements for landlords to throw them off their land.

And yet, in all its major publications on agriculture, and particularly in its 1975 sector paper on *Rural Development,* the Bank has regularly argued the need to bring the rural population 'from traditional isolation to integration with the national economy', and therefore the international economy. This was of course a problem that exercised colonialists, especially in Africa. It has also been faced by many industrialising societies, including Britain in the nineteenth century and the Soviet Union in the 1920s: How to extract a surplus from rural areas to feed the towns and, in the case of most Third World countries, to keep urban elites, locally and abroad, in the import-dependent luxury to which they have become accustomed.

Livestock Loans in Latin America

. . . the cattle fatten on the plains while the people often have to struggle for a bare existence in the hills.[15]

The World Bank's first loans to Third World agriculture went to Latin America to develop livestock. They began in 1963-4 with loans to Chile and Paraguay and grew in number and size throughout the 1960s and into the 1970s. This section is largely based on internal Bank evaluations of these projects, so-called Project Performance Audit Reports (PPARS), produced by the

Operations Evaluation Department (OED) of the Bank, including documents on 13 projects in nine countries. The Operations Evaluation staff are independent of the projects staff; the idea is that they have no vested interest in making the projects sound better than they really are, unlike the projects staff whose success within the Bank depends on 'their' projects being good—having high rates of return, and so on. The OED has in fact produced some fairly damaging indictments of the Bank's livestock projects, none of which have been published.

The documents show that the projects were remarkably unsuccessful in most of their stated aims. The projects were not intended to help the poor, to create jobs, or to make the distribution of wealth more fair. But they strengthened the position of the rich to an extent far beyond that expected by the Bank. Moreover the projects *were* intended to increase productivity by lending to experienced ranchers, by establishing modern farming methods, and by funding useful research. In this, by and large, they failed. They did so because the Bank ignored the realities of the countries it was lending to and because the Bank was more concerned with lending money, and with the condition attached to that money, than it was with the quality of its projects.

The projects were similar in design, and they were also similar in the ways in which they failed and in the ways in which they differed from what was expected of them at appraisal. Thus the projects, already targeting a small population, reached fewer people than anticipated. The size of both sub-loans and ranches tended to be larger than expected. And the ranches tended to be sited on flat and fertile land which both the Bank and governments maintained should only be used for intensive crop production. Moreover, the ranchers tended to use sub-loans to expand their land holdings through purchase or renting and to create new pasture rather than improve existing pasture. They expanded their herds through purchase rather than improving the health of their herds, and they tended to reject the technical innovations and management practices advocated by the Bank. The projects rarely achieved the hoped-for rises in beef production, drops in calf mortality, rises in weaning rates and other improvements which should have resulted from better husbandry. And rises in production tended to stem from expansion of extensive-style ranches rather than from intensified production.

Bank staff tended to be concerned primarily with the rate of loan disbursement with the result that the ranch impact of projects was poorly supervised. Furthermore, Bank staff tended to over-emphasise the need for the project and then to over-emphasise its achievements at its close, thus inflating the rate of return and making the project appear more successful than it actually was.

From the evidence of another internal Bank evaluation, a 1976 OED study, on 20 agricultural credit projects in Mexico, Uruguay, Pakistan, Morocco and the Philippines showed identical trends. This gives additional confirmation that these are real tendencies in Bank projects and not one-off variations.

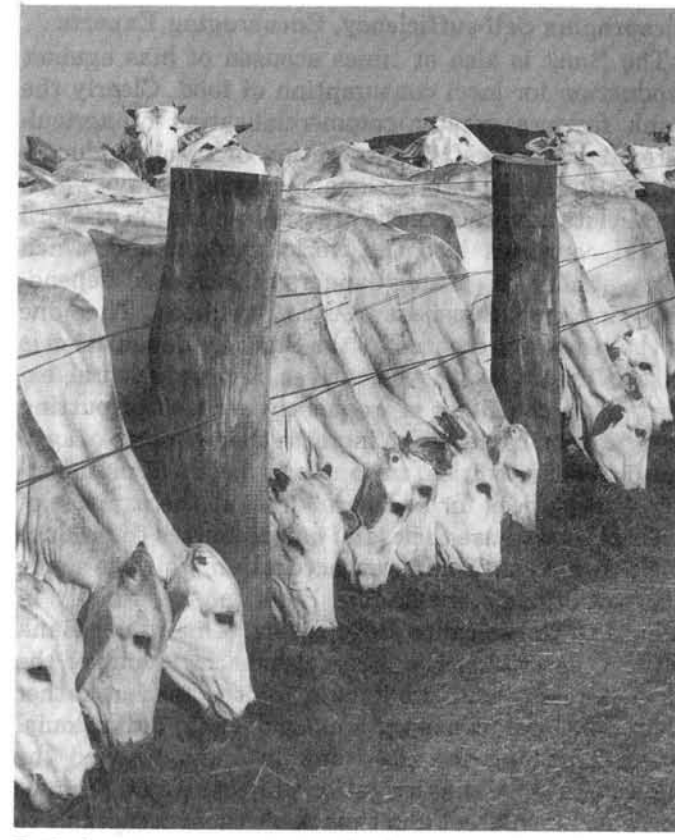


PHOTO: GEO

Cattle fatten on the plains while the people struggle for existence in the hills.

Two further patterns emerged from these documents. The first is the way in which projects affected land reform: in several countries ranchers used sub-loans to convince authorities that they were fully exploiting their land and thereby evaded expropriation under agrarian reform laws. The second is the impact of the projects on domestic beef consumption: although most of the projects claimed to aim to raise domestic beef consumption, the Bank pressured countries to liberalise their trade policies in order to boost beef exports, with the result that beef became more scarce and more expensive in the domestic markets—and domestic consumption dropped.

The projects were aimed at medium to large ranchers —a wealthy group in the top 1-2 per cent of the population. But even among this elite a pecking order prevailed and the richest of the ranchers monopolised the sub-loans—as in the case of Ecuador where the largest 39 ranchers accounted for 48.5 per cent of the sub-loans, the 16 largest loans accounted for 26.6 per cent of all loan funds, and the projects ended up addressing the top 0.1 per cent of cattleholders.[16] In the Dominican Republic, 153 ranchers were financed instead of the 260 planned and the average sub-loan was $38,321 instead of $22,800.

The audit on this last project explains the bias towards the large farmers:

> First, larger farmers tend to be the most knowledgeable about availability of credit funds and more willing and able to accept and cope with the risks involved . . . Second, participating banks tend to concentrate on larger clients because the cost of credit analysis and supervision are lower relative to the potential profit and there are fewer problems

with land titles and/or real estate and chattel mortgages. Finally, even the LPD staff tended to look at sub-loan applications of larger farmers more enthusiastically in view of the possibility to commit larger credit amounts with the same effort and the better prospects for successful operations.[17]

But the larger operations were not successful. In fact they were the worst in terms of improving technology and in using land efficiently, a pattern that has been reported elsewhere in Latin America. As the Honduras audit observes:

> The divergence from the appraisal design was also caused by the focus of the project on the largest ranchers. Though appraisal and other documents justified this choice on the grounds that the largest were the most efficient, the evaluation suggests that the largest were actually the most extensive and least technically oriented of the project ranches. In addition, the proportion of total property on project ranches in improved pasture decreases consistently as ranch size increases. The same phenomenon was found for value of investment per hectare of land in pasture on project ranches, i.e. a consistent decrease as ranch size increases.[18]

Second, because ranchers were not using the sub-loans as intended by the Bank, they had money with which to expand their landholdings and herds and become even bigger land and cattle owners. And third, as a combined result of the above two points, there was a major project deviation—a Bank term to say that the projects did not turn out as planned.

The Paraguay loans give a particularly vivid picture of the ranchers' lack of interest in anything except the money. The project staff were located in the capital, Asunción, with no vehicles and no travel budget and therefore unable to reach most of the project ranches. The ranchers were willing to fly out staff in order to be appraised and to qualify for a sub-loan. But once they had the credit, unconvinced of the Bank's technical package, they would not fly out the staff to give technical assistance.

What is the World Bank really interested in?

But if the ranchers took advantage of the Bank—used its money and ignored its directives—the Bank let them. For example, in the case of Paraguay, the local staff went without transportation for eight years and through three projects with the Bank's knowledge. How can this be explained? A study of these documents seems to suggest that the Bank was not interested in the technical improvements it advocated. In the cases of Brazil and Guatemala, Bank and government officials never actually agreed on *what* the technical package should be. But still the loans went ahead, one to Guatemala and two to Brazil.

But if the Bank was not interested in the technical improvements its projects were to foster, what was it interested in? From these documents it appears to have been primarily concerned with the smooth disbursement of its loans—which would explain why the technical wrinkles in the Brazil projects were never ironed out. The evidence for this is twofold. First, at all levels, there was much more pressure to lend money than there was to see that it was being correctly used. From the loan officers in the World Bank who wanted to make their full annual quota of loans, to the Latin American bureaucrats in the Central Banks who wanted to lend to the richest applicants so that the sub-loans could be large and the loan disbursed quickly, the emphasis was on getting the money out.

Most of the audits contain descriptions of how local project staff were so busy appraising ranch plans and approving sub-loans that they had little time to give technical assistance or check up on the use of funds.

Research, which was also not central to the main thrust of project work (disbursement), often fell by the wayside, as in Guatemala,

> . . . when too much of its staff's attention was diverted from its major task (lending), the Bank requested that research activities be contracted out. No contract was ever formalised and the research programme lapsed.[19]

As this happened in almost every project, the Bank's claim that it is searching for new technologies for Third World agriculture should be treated with scepticism.

Pressure on Bank staff to find new projects meant that often staff embroidered reality to create a project. This gives rise to the second curious pattern that runs through all the projects. In the appraisal reports, the need for the project is exaggerated by describing the situation as worse than it actually is. In the completion report, on the other hand, the achievements of the project are over-estimated. Often this is done by miscalculations of variables such as calving rates but with the mistakes always in the direction that flatters the project and raises its rate of return. The audits usually point this out as in the case of the Dominican Republic where the pre-project scenario is set too low: 'pre-project yields of milk and beef were well above appraisal estimates'.[20] And the post-project scenario is too buoyant:

> (The completion report) assumes that production increases will continue at a fast pace but it seems that its provisions are too optimistic . . . Only under very optimistic assumptions, which the text of the completion report itself would seem to rule out, do the audit's calculations reach the (completion report's) estimate of 21 per cent.[21]

The audit concludes that the rate of return is possibly as low as 5-15 per cent. One of the Colombia projects shows a similar pattern:

> Technical parameters have improved on the ranches . . . However, the appraisal estimates of their pre-development level were too pessimistic, and of their post-development level somewhat optimistic. Both misestimates (lead) to an over-estimation of the rates of return of the project at appraisal.[22]

For lack of a better term, the driving force behind the pressure to lend could be called 'institutional momentum': the more you lend, the more important you are. This applies to the Bank as an institution: it wants to remain the largest and most influential development agency.

And in fact the appraisal reports, the OED staff conclude, consistently over-estimated the projected rate of return (see Tables 1 and 2). In Honduras the Bank staff also exaggerated the ranchers' need for credit to make

Table 1 Comparison of Economic Rates of Return from Nine Livestock Projects

	Appraisal Forecasts %	Audit Estimate %
Dominican Republic (1 project)	21	5-15
Guatemala (1 project)	13	12
Brazil (1st and 2nd projects)	18-23	8
Paraguay (3rd project)	29	8-10
Honduras (1st project)	18	13
Colombia (2nd project)	22	10
Ecuador (1st and 2nd projects)	27	11-12

Source: PPARs of respective projects

Table 2 Financial Rates of Return: Comparison of Appraisal Forecasts with OED Estimates

	Financial Rates of Return (overall investment)	
	Appraisal Forecasts%	OED Survey Estimates%
Livestock		
Mexico (2nd, 3rd and 4th projects)	21-35	13
Uruguay (3rd and 4th projects)	22-30	6
Crops		
Mexico (3rd and 4th projects)	26-37	n.a.
Morocco (2nd project—rainfed cereal farm)	32	5
Pakistan (3rd project—tractor farm)	55	50
Philippines (2nd project—tractor rice farm)	100	50
Philippines (2nd project—tiller rice farm)	65	5

Source: World Bank. 1976. Operations Evaluation Report: Agricultural Credit Programs. Vol. II. p.97.

n.a. The Mexican crop returns were not calculated.

the project more compelling. The ranchers were starved of credit, said the appraisal report, when in fact they got more than their fair share of it. This pressure to lend has received some Bank scrutiny: the 1976 OED study described pressures 'felt by the persons responsible for the original appraisal draft to describe some projects in the most favourable light—particularly credit projects where . . . nothing definite can really be said at all in advance about how the borrower will actually use his physical resources.'[23]

OED also noted that, 'rather modest values and claims written into the original draft occasionally got embellished in the subsequent review process . . .'[24] But no motivations were given for it.

For lack of a better term, the driving force behind the pressure to lend could be called 'institutional momentum': the more you lend, the more important you are. This applies to the Bank as an institution: it wants to remain the largest and most influential development agency. It applies to the Director of the Latin America and Caribbean Division: he wants his region to account for the largest share of loans because it adds to his prestige and clout, and therefore gives him better access to senior Bank management. He will be able to demand more staff and a larger budget. And it applies down to the most junior loan officer who knows that if he shows himself to be productive, swiftly appraising new projects and handling old ones, he will get a promotion. Pressure to lend was particularly acute during the McNamara years, when these projects were taking place, as McNamara wanted and got massive yearly increases in Bank lending. But it has always been a major force behind Bank operations.

The same phenomenon is reported in the OED study of agricultural credit projects in Mexico, Uruguay, Morocco, Pakistan and the Philippines:

> The increase in farm size, clearing of bush, levelling of land and extension of fences and physical infrastructure to further reaches of the borrower's property are in some cases almost certainly in response to the threat which the gathering social reform legislation poses for larger farmers . . . Unutilized property is most vulnerable to legislation written to redistribute land. A cynic could claim that all the Bank has been doing is to help large farmers take evasive action by putting in a minimum of infrastructure to pass legal tests of utilisation. Since we are dealing with intelligent producers, it would be astonishing if these considerations did not enter their investment decisions.[25]

Beef exports at the cost of domestic consumption

A second way that the Bank's activities conflicted with land reform movements was by condoning cattle production on prime agricultural land. Many Latin American agrarian reform laws legislated to confine cattle to pasture and to devote rich, flat and fertile land to crops. In theory, the Bank confirmed this position when in the early 1970s it released a statement that livestock projects should not be sited in areas suited to intensive cultivation or where rural population density was high. However, in practice, this stance made no difference.

In Honduras, in spite of a 1972 law restricting cattle to pasture, the majority of ranches from both projects were sited in populous areas and on land suited to intensive crop cultivation. Thus the projects competed with the thrust of land reform by blocking more rational land *use*.

Most of these projects aimed to boost both beef exports and domestic consumption. But the audits fail to trace what happened to the increased production. Analysis seems to stop at the farm gate; another example of how little the Bank knows—or cares to know—about the impact of its projects. However, from other sources it is clear that exports of beef did rise in the late 1960s and early 1970s in Latin America, sometimes spectacularly. On the other hand, per capita beef consumption declined by 13.5 per cent between 1960 and 1974. During that same period Bolivia's per capita consumption fell by 15.4 per cent, Colombia's by 19 per cent, Guatemala's by 12.5 per cent and Paraguay's by 44.7 per cent. It was known by the late 1960s that this drop was occurring and that it was caused by exports: in 1969 the Foreign Agricultural Service of the US Department of Agriculture stated that 'the considerable growth in meat exports in recent years has been at the expense of domestic beef consumption'.[26]

The appraisal report for the second livestock project, written in 1972, states that 'impressive expansion of beef exports from 30,000m ton to about 200,000m ton . . . between 1966 and 1971 has been achieved at the expense of domestic consumption. An important objective of the government is to continue the expansion of beef exports but without sacrificing domestic consumption.'[27] Yet elsewhere in the document the Bank

continues to press for the permanent lifting of all 'disincentives to investment caused by government policies that (favour) the urban consumer at the expense of producers and exporters, and is clearly willing to go against government policy and to see domestic consumption drop.

Similarly in Ecuador the Bank pressured the government to create greater production incentives by freeing the price of beef. But the Ecuadorians refused. It was politically too hazardous:

> The Bank attempted to obtain a guarantee from the Government of Ecuador that the free movement of cattle and beef to domestic and export markets would be permitted. This guarantee would have ensured that domestic prices for these commodities would fully adjust to export market levels. The Government . . . refused to bind itself by such a guarantee . . . By maintaining . . . controls, the Government of Ecuador places an effective ceiling on prices to producers and thereby reduces the incentives for higher production. This disincentive . . . works particularly strongly against the introduction of capital intensive production techniques such as those which the Bank's livestock projects were designed to promote.[28]

Interestingly, Ecuador is one of only three Latin American countries to experience a rise in beef consumption between 1960 and 1974.

The Ecuador project was audited in 1975 and the Brazil project in 1979, long after the Bank became publicly concerned about the diets of the poor, so these audits are remarkable for their lack of interest in the nutritional impact of the projects.

Land Reform in Colombia

> . . . can the Bank influence the course of events regarding the distribution of land, and income from the land, in the sovereign states that are members of the Bank?[29]

The World Bank and Colombia have had a long and intimate relationship dating back to 1949 when Colombia received its first loan from the Bank, one of the earliest the Bank made to the Third World. One of the special features of this relationship is that it is unusually well documented; Colombia was the country of choice when the Bank decided for the first and last time to study the total impact of the Bank on one country. This study came out in 1972 as *Bank Operations in Colombia—An Evaluation* and covers the period 1950-1970. It aroused considerable interest outside the Bank; for example Keith Griffin wrote about it in his book *Land Concentration and Rural Poverty:*

> Ex post evaluations of aid programmes are rare, and thus it is impossible to refute the claim that failures are exceptional and success the rule. The World Bank, however, is known to have assessed its operations in Colombia: rumour has it that the results were unflattering. In any case the report was not released . . .[30]

It has still not been released, but along with several other documents written on Colombia, it has, since then, been leaked. They provide details of the Bank's role in Colombian agriculture and of seven Bank agricultural projects in Colombia. From this information, it emerges that Bank projects worsened land tenure and, by funding land settlements in remote areas, reinforced the Colombian Government's policy of substituting land settlement for genuine land reform.

Land ownership in Colombia is concentrated in the hands of relatively few people. The best figures on land tenure in Colombia date from 1960 but they are generally thought to apply today. They show that 1.2 per cent of the farms occupy 45 per cent of the land and

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that 5.7 per cent of the farms occupy 70 per cent of the farmland.[31] More recent statistics show that, if there has been a change in land tenure since 1960, it has probably been for the worse: between 1960 and 1971 the number of small farms (under 10 hectares) decreased and the number of large farms (over 200 hectares) increased.[32]

Colonisation Schemes

Colonisation schemes have emerged as the way in which governments can allocate land to landless peasants while avoiding expropriating fertile land held in big estates. A joint report of the FAO and the ILO on the progress of land reform between 1968 and 1974 stated that:

> Efforts have been made to persuade governments not to divert from the real problem of the needed structural changes through settlement projects under the pretext of a need to extend the agricultural frontier.[33]

Feder has called land settlement schemes 'anti-land reform measures'; furthermore they are expensive and usually unsuccessful:

> Colonisation schemes are always extremely costly . . . But the high costs of these schemes, which benefit the construction firms or the cement industry much more than the peasants, have never been a deterrent to planning new ones. This demonstrates that costs do not matter when the preservation of the status quo is involved. Scarcity of resources is alleged only when it comes to effective programmes to assist the peasants. Nor is it a deterrent that most colonisation schemes have been dismal failures for the peasants . . .[34]

Even the Bank, in its *Land Reform Sector Policy Paper* in 1975, said that:

> There are severe limitations on settlement as a means of reaching large numbers of landless people or relieving pressures on the land . . . The capital requirement of more than $5,000 per family limits the prospects of this approach. Clearly, the whole approach to capital-intensive settlement requires re-examination considering the magnitude of the problem . . .[35]

However, in spite of this consensus that colonisation schemes are a costly, inappropriate and inadequate response to the needs of landless peasants, and in spite of the agricultural problems that tend to arise due to poor soils (if the soils were not poor, the rich would own the land already), the World Bank has made settlement

schemes a major component of its agricultural strategy in Colombia and Latin America in general. At present the World Bank is funding large colonisation projects in Brazil and Peru, and a scheme for the jungle area of Western Ecuador was under consideration in 1980.

The World Bank in Columbia?

Between 1949 and 1983 Colombia's agricultural sector changed in a way that has been repeated all over the Third World. On the one hand, small farmers lost their land and the per capita production of food for domestic consumption, carried out by small farmers, declined. On the other hand, large commercial farmers expanded their landholdings and the production of export crops grew. This pattern occurred because of population growth, because there was no land reform, and as the 1972 Bank document explains, 'because of the availability of credit, supporting services and new technology, all of which has tended to favour the larger farmers and inadvertently work to the disadvantage of the small farmers'.[36] Colombia has retained its traditional agricultural structure: cattle and other export crops (with the exception of coffee) occupy the flat land in the mountains and the wide river valleys, and domestic food production is restricted to the steep sides of the hills and mountains. Griffin estimates that in Colombia, 'nearly four times as much land is devoted to extensive grazing of cattle as is devoted to crops'.[37]

But if the Bank was not interested in the technical improvements its projects were to foster, what was it interested in? From these documents it appears to have been primarily concerned with the smooth disbursement of its loans.

Relatively new features in Colombian agriculture are exports of flowers, which the Bank calls 'a success story' (they are grown in areas adjacent to Bogota, taking advantage of the year round favourable climate, and shipped by air to world markets), and exports of marijuana.[38] However, the main impact of these new exports has been to create additional wealth for the already wealthy and, like the expansion of the more traditional exports, to exacerbate conditions in the rural areas.

By 1983 the Bank had made 14 loans to Colombia's agricultural sector amounting to $280.6 million. This is out of a total of 28 loans and $1585.7 million committed to Colombia since 1949. Four large Bank missions in 1949, 1955, 1956 and 1970 looked into the problems of Colombia's agricultural sector. The Bank's strategy, if it can be said to have had one, seems to have been to deplore the inequality in the countryside, to emphasise increased productivity through its projects, and to turn a blind eye when the wealthy received the majority of loan benefits but did not increase their productivity. With respect to land reform, the World Bank took a negative stance: asking the government not to allow expropriation of land from ranches receiving Bank sub-loans, promoting colonisation schemes, paying little attention to tenancy arrangements, and providing minimal supervision of projects so that the largest ranchers received the majority of project benefits.

But the Bank did not pursue these solutions with any vigour. One reason was that throughout the 1950s the Bank believed that the fundamental problem was not a maldistribution of land but rather a maldistribution of people. The 1950 report claimed that:

> In order for additional goods and services of all kinds to be produced in Colombia, it is necessary that a smaller percentage of the population be engaged in agriculture and that more people be engaged in the production of other things. This means, in turn, that the productivity of each agricultural worker must be very much greater than prevails today.[39]

Dr Lauchlin Currie, head of the 1949 mission, certainly promoted this position. Currie, an enthusiastic advocate of industrialisation, worked closely with the Bank for several decades and was advisor to many Colombian governments. His position on agriculture reached its apogee in 1961 when he published an economic formula for Colombia: *Operación Colombia.* The formula, which received wide publicity at a time of national debate over land reform, said that:

> Colombia's real rural problem was an excess rural population . . . This excess should be transferred, forcibly if need be, to the large cities and employed in public works in order to create increased consumer demand, which in turn would be met by increased industrialisation. Colombian agriculture would, meanwhile, be intensively mechanised, and the remaining rural population would be employed by these large, mechanised farming operations.[40]

The plan was never implemented, primarily because it would have been impractical and hugely expensive. However, the idea that people were in the wrong place and not land in the wrong hands, was inherent in the justifications for colonisation schemes. The next big Bank report on Colombian agriculture, in 1956, also suggested tax measures, this time a presumptive income tax, to increase land use in the big estates. This proposal was never effectively implemented.

The Bank has backed itself into a corner. By lending to an agricultural sector which desperately needs but undertakes no land reform, and being unable to lend to the larger farmers because of distributional concerns, the Bank is constrained to lend for integrated rural development projects or settlement schemes. The first, if they are in established agricultural areas, tend to be unsuccessful at increasing productivity and to worsen income distribution. The second tend to be environmentally and agriculturally unsound and also worsen land and income distribution. The Bank was concerned with two major settlement schemes in Colombia. One was the Caqueta land colonisation project. The first loan for Caqueta was signed in May 1971. Caqueta was one of the first integrated rural development projects —providing roads, farm development, research

centres, primary schools, health centres, tree nurseries and forest reserves. The aim was to support the spontaneous settlement of smallholders in the Colombian Amazon who, by and large, were already in the jungle trying to eke out a living by clearing trees and growing food. Most had been driven from the Andean highlands by civil conflict (La Violencia) and by the inequitable land ownership. Although the project had many components, the Bank's contribution was to go almost entirely for roads and cattle: $3.73 million for roads, $3.77 million for cattle, and only $0.41 million for health and education and $0.14 million for administration.

The project was over-ambitious at appraisal and had to be scaled down. Fewer roads were built than planned, although they cost 210 per cent more than expected due to inaccurate appraisal and technical problems, foremost among which was a nine-month rainy season during which work had to be suspended. Furthermore, the government failed to provide funds for road maintenance and many subsequently broke up. Only 60 instead of 90 schools were built. And only 1,700 farmers instead of the planned 4,500 received credit.

The crucial technical assistance programme, 'for which no explicit allowance has been made',[41] was completely inadequate: when the second Caqueta project was appraised, it was noted that an outstanding problem of Caqueta 1 was the 'lack of technical assistance to farmers'.[42] One of the difficulties was that the 'Loan supervisors devoted most of their time to loan control rather than technical assistance'.[43] The research programme took several years to become operational and in 1978 had not yet had an impact on regional technology.

Undoubtedly the two most important issues surrounding this project and its follow-up projects are, first, land distribution and, second, the project's ecological impact, an issue that critics of the Bank have tended to neglect, perhaps because of a misguided notion that concern about the environment is a luxury the Third World cannot afford. When the Bank appraised this project it claimed that Caqueta was virgin territory—although the area had been opened up by the rubber boom at the turn of the century, was later the site of military activity due to border conflicts with Peru, and was also the site of unsuccessful government colonisation schemes in the 1950s and early 1960s, some of which received USAID money.

Concern about the environment is a luxury the Third World cannot afford.

PHOTO: FAO

Tending the sorghum crop in Colombia.

This was a fundamental appraisal error on the Bank's part. For the land was not at all virgin: land tenure patterns were well established and were 'already highly concentrated, replicating the land distribution of the older interior regions of the country'.[44] Census data from 1961 and 1971 showed that the largest 10 per cent of landholdings accounted for 57 per cent of the area, while the smallest 50 per cent accounted for 10 per cent of the area, with 54 per cent of holdings smaller than 50 hectares. The audit says that the Bank did not know any of this until it began preparing for a second Caqueta loan. Then it became clear that under the first project credit had gone to medium-sized landowners and not smallholders: no credit had gone to farmers with less than 50 hectares, 63 per cent of loan funds had gone to farmers with between 50 and 160 hectares, and 37 per cent went to farmers with more than 160 hectares (average farm size in this category being 257 hectares). From the data in the audit, it also appears that the Bank was lending primarily to wealthier migrants who could buy out the earlier colonists who had cleared the land; 63 per cent of the loans under Caqueta 1 went to farmers who had obtained their land by purchase rather than the claim of public lands which is what the first colonists would have tried to do. The original settlers were usually driven deeper into the jungle:

> The increase of farm land was not only achieved by clearing more forest but also by purchasing farm land cleared by pioneering settlers who moved on as the frontier of development advanced. This process of enlarging farms by purchase was accelerated by the soaring cattle prices. Although this development is not yet critical for the social structure of the area, INCORA is watching this process carefully

and may have to intervene to avoid serious distortions in the equity of land ownership in the area.[45]

It is hard to imagine how INCORA, one of the weakest, poorest and least politically powerful government agencies, could closely monitor or intervene effectively in this situation. But how did it happen that the Bank, intending to lend to squatters, lent to medium-sized farmers instead? Firstly, a land title was a condition for receiving credit, but according to the audit, the 'land titling system favour(ed) those with greater personal resources, both financial and physical . . .'[46] And secondly, INCORA, powerless and under-funded, 'had difficulties in building up an adequate staff . . . for land titling.'[47] What staff it did have concentrated primarily on sub-loan disbursements, to the neglect of technical assistance.

The ecological impact of colonisation in tropical forests is at the heart of questions about this project. Can the fragile Amazon jungle support colonists? Experience from the Brazilian Amazon suggests that it cannot. There clearing forests for livestock exhausted soils and created hard-baked deserts. The Bank and the Colombian Government knew this but both argued that without the project environmental damage would be worse as the settlement would be less controlled and rational. This is a dubious argument since the project would have speeded up the influx of people into Caqueta and beyond through the construction of roads, and since the measures taken by the project to protect the environment failed. The project claimed its intention to demarcate forest reserves, 'To provide for sustained timber production and also to fulfil ecological functions.'[48] But forestry does not appear on the table of projected costs and no Bank funding was allocated for it.

The environmental impact of the project has been grave. The colonists have removed almost all trees along river banks, leading to erosion and changes in the rivers:

> Rivers which once provided deep channels throughout the year and which were capable of navigation by paddle have increased their width several times and, in the process, become more shallow and filled with shifting sandbars. Navigation of large boats is now impossible in many parts . . . Caqueta has lost important transportation arteries as the rivers have deteriorated—and erosion has also eliminated many hectares of the area's most valuable soils.[49]

In spite of the environmental damage caused by the first project, the Bank decided to leave protective measures in the second project up to Colombian agencies—even though the Bank knew that these agencies would not be able to protect the environment as they are weak, poorly funded and staffed, and by the nature of their work, up against powerful vested interests.

The Bank's evaluation of the first project stated that:

> Laws have existed for some time requiring that colonists maintain forests for 50 meters from the river bank . . . These laws simply are not respected, nor enforced and there appears to be no viable method to achieve enforcement without the use of a police power which does not exist in the zone. In appraising the second project the Bank considered developing a programme to encourage tree establishment along the river banks, but decided that this work could be left to the government's own initiative. Little has been done to date.[50]

Can the fragile Amazon jungle support colonists? Experience from the Brazilian Amazon suggests that it cannot. There clearing forests for livestock exhausted soils and created hard-baked deserts.

Basically, the ecological problem in Caqueta can be attributed to two things: political priorities and land tenure. For the Bank and the Colombian Government prefer to permit ecological damage, with its harmful impact on natural resources, productivity and the quality of life, rather than to redistribute the ample good agricultural land owned by the wealthy to the rural poor. The following quote from the Bank evaluation of the first project, which really is nothing less than tragic, shows this clearly. It also shows the strain that peasants are forced by land tenure patterns to place on marginal environments, and in turn, the terrible toll that environmental collapse takes on peasants:

> The Bank was also concerned about appropriate forest use and the general ecological effect of wide-scale deforestation in this area of the Amazon . . . Although existing laws require recipients of more than 50 hectares of public lands to keep 20 per cent under forest and allow Government to maintain 10 per cent of the area as a protective zone, it has been impossible to enforce farmers' obligation. The Bank and INCORA attempted to set aside a forest reserve of 16,000 hectares during the second project to retain a significant area of forest cover . . . The effort was a failure; although an area of marginal development potential removed from current settlement was selected, political activists decided there must be something special about the area if an effort was being made to exclude colonists. The activists forced the forest guards out of the area and brought colonists into the reserve. INCORA and the Bank decided to give up the idea of a forest reserve rather than initiate the social conflict which might have occurred had an effort been made to recover the area invaded. No other zone of appropriate size for a forest reserve is available.
>
> Another ecological problem exists in the Andean cordillera. Although not located within (the project area), the cordillera forms the catchment of most rivers flowing through the project area and accordingly developments there can strongly influence project activities. Many peasants accustomed to farming on the slopes in the highlands, migrated towards Caqueta in hopes of colonising land. Discouraged by conditions in the tropical forest, they chose to remain at higher altitudes and established small farms on steeply sloping mountainsides. After deforestation and the planting of crops, or pasture

In Honduras, in spite of a 1972 law restricting cattle to pasture, the majority of ranches from both projects were sited in populous areas and on land suited to intensive crop cultivation. Thus the projects competed with the thrust of land reform by blocking more rational land *ownership* and more rational land *use*.

formation, erosion has increased and threatens to devastate large areas. Rainfall now runs off the cordillera more rapidly, causing rivers in the project area to flood and erode during the rainy season and to run dry the rest of the year. Some claim that the weather itself is changing in the area, with less rainfall occurring . . . Efforts have been made to reduce erosion on the cordillera slopes, but the problem is extremely sensitive socially and politically. The only real solution is to move people out of the zone, prohibiting farming, and to reforest on a broad basis. There is no land, however, on which to place the inhabitants who would be displaced and pressures for land in other parts of Colombia would make new invasions by other peasants almost a certainty. The Government is considering a reforestation programme to pay peasants for planting trees . . . If some radical reduction in erosion . . . is not brought about . . . it appears that damage in the project area may be great.[51]

Despite all this, the project completion report, prepared by the Bank staff responsible for the project, claims that:

The Caqueta Land Colonisation Project is demonstrating, probably for the first time in South America, that a squatter can be assisted to settle permanently and establish a farm providing a reasonable living for himself and his family. The project has already shown the feasibility of the productive land use in the Amazon basin.[52]

This is an extraordinarily self-congratulatory claim, particularly as this project *did not* assist squatters and as Caqueta *is* being devastated like areas of the Brazilian Amazon. And in spite of the many serious unsolved problems with the first project, the second Caqueta project (for $19.5 million) became effective in 1976. It provides primarily for livestock purchase and road construction, but also for the construction of primary schools and health centres.

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FOOD TRADE: The Poor Feed The Rich

by George Kent

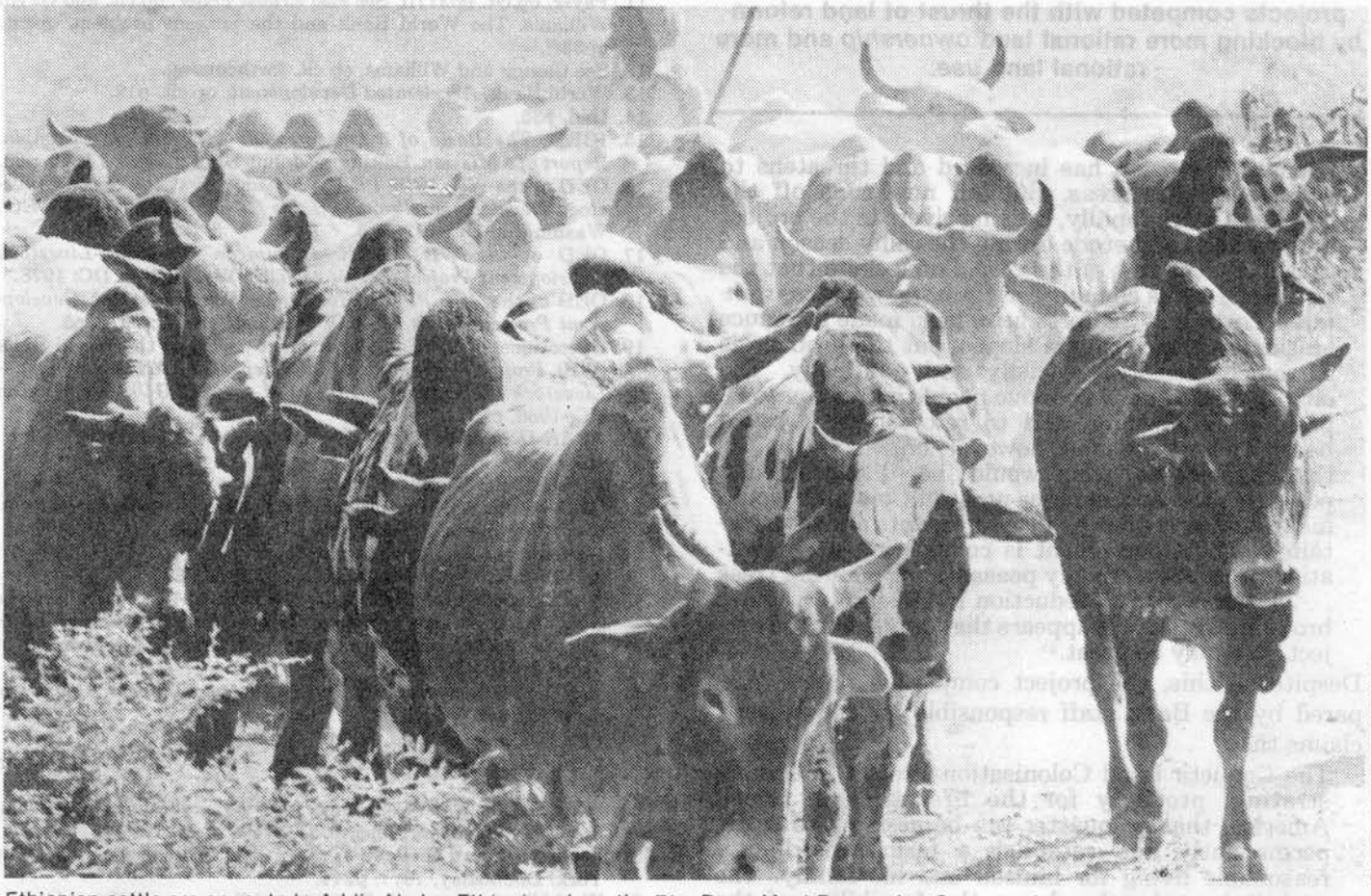

PHOTO: BIG FARM WEEKLY

Ethiopian cattle are en route to Addis Ababa, Ethiopia, where the Dire Dawa Meat Processing Company hopes to soon be packing tinned meat for the British market.

The Industrialised West is becoming increasingly dependent on Third World imports, and this inspite of food-aid programmes and increasing cereal imports by Third World countries. Contrary to what is generally believed, it is not the rich who feed the poor today. The opposite is very much the case and this wholesale and annual transfer of food from the starving to the overfed is something which cannot continue indefinitely. Unfortunately this may well be a necessary feature of the world market system. Indeed, the author considers that — 'one of the major effects of increasing the involvement of poor countries in international trade is to increase the extent to which the poor supply the rich.'

The United Nations' *Development Forum* recently spoke of "how dependent other countries are on US output, which furnishes three-quarters of their imports".[1] Similarly, the Brandt Commission was concerned with the fact that developing countries have rapidly increased their imports of cereals[2]. The United States Presidential Commission on World Hunger pointed out, "Third World imports of food from the United States rose from $2 billion to almost $10 billion during the past decade," adding that "the United States is still the 'breadbasket of the world,' providing over half of all the grain imported by other nations . . ."[3] The *Global 2000 Report to the President* describes the world food situation primarily in terms of grain production and trade.[4] Key data of the report are shown in table 1. The industrialised countries are shown to be enormous producers of grain, while the less-developed countries are importers.

The impression conveyed is that the developed countries—and particularly the United States—feed the world, especially the hungry of the world. There is little examination of the pattern of distribution of grain exports. More seriously, there is no notice of the substantial imports of food into *developed* nations.

Most of the grain sold by developed countries is sold to other developed countries:

> Over half of all US agricultural exports in 1978 went to the wealthy of the world's nations, those which, like the US, have an annual GNP per capita of over $7,000. If the line is drawn at the level of GNP per capita above $3,000, thus including such nations as Italy and the Soviet Union, over two thirds of all US agricultural exports went to such well-fed nations.[5]

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TABLE 1. Grain Production, Consumption, and Trade (kilograms per capita)

	Actual 1969-1971	Projected 2000
Industrialised countries		
Production	573.6	769.8
Consumption	534.4	692.4
Trade*	+45.8	+77.4
United States		
Production	1,018.6	1,640.3
Consumption	824.9	1,111.5
Trade*	+194.7	+528.8
Less-developed countrizs		
Production	176.7	197.1
Consumption	188.3	205.5
Trade*	−10.7	−8.4
World		
Production/consumption	311.5	343.2

Source: ref. 4, pp. 28-31.
* A plus sign indicates exports; a minus sign, imports.

Only about one-fifth of the grain in international trade goes to less-developed countries. That proportion is projected to be even smaller by the year 2000.

The table in the *Global 2000* study follows these data on grain with a column of data labelled "Food, per cent increase over the 1970-2000 period." This subtle shift, effectively equating grain with food in general, sustains the impression that the patterns of production and trade for grain correspond to those for food. *Global 2000* and many other studies focus on grain as if it were representative of the entire picture of food trade. Is grain typical?

Protein Flows

As Georg Borgstrom has argued, the trade pattern for grain is really exceptional:

> Outside the area of cereal grains most food and feed on the world market move between the well fed and, still more surprisingly, from the hungry to the rich countries. This is particularly conspicuous in regard to protein, with the well-fed countries on balance, making a net gain exceeding one million tons.[6]

There is some dispute about the relative importance of proteins versus calories in malnutrition.[7,8] There is a broad consensus, however, that where there are severe shortages, the most serious problem is in obtaining sufficient protein. While there may be a net flow of grains to the most needy countries, the flow of animal protein foods such as meat and fish is actually in the opposite direction. Frances Moore Lappé and Joseph Collins make this point:

> While we think of America as the world's beef capital, the United States is in reality the world's leading beef importer. In 1973 the United States imported almost two billion pounds of meat. Often it is stressed that this is but a small amount since it represents only about 7 per cent of our own production. The amount, however, is hardly small in relation to the needs of most other countries. In international trade more meat flows from underdeveloped to industrial countries than the other way around.[9]

The United States regularly imports far more meat than it exports. As table 2 shows, in 1977 the United States exported US$608 million worth of meat, but imported US$1,289 million worth. Whether measured in terms of value or quantity, the amount imported greatly exceeds the amount exported. Much of that imported meat comes from poor countries.

The fact that the United States has consistently been a major net importer of meat may be surprising to those who see it as a major producer of meat and assume that other nations either produce or import their meat supplies. The situation is similar for oil; the United States is both a major producer and a major importer. With the United States' extraordinarily high rates of consumption, it is not a matter of choosing between the two roles.

Vast quantities of Peruvian anchoveta have been shipped to developed countries for use as animal feed. Borgstrom assesses the phenomenon in this way:

> No doubt everyone realises how preposterous it is that the two most protein-needy continents, Africa and South America, are the main suppliers of the largest quantities of animal protein feed moving in the world trade—and they provide those who already have plenty . . . The Peruvian catches alone would suffice to raise the nutritional standard with respect to protein for the undernourished on the entire South American continent to southern European level. The amount of protein extracted (1966-68) exceeds by one half the meat protein produced in South America and is three times the milk protein raise. The corresponding fish meal coming from Africa would be enough to reduce by at least 50 per cent the present protein shortage of that continent.[6] (p. 237)

Similarly, a substantial part of the shrimp catch of India is not used to feed its own hungry, but is frozen by private enterprise for export to the United States and Western Europe.

It is sometimes suggested that, if anchoveta or shrimp or some other product were not exported, it would not be used at all and thus would be wasted. This argument fails to acknowledge that the raw resource is only one of many inputs. Export-oriented production often diverts labour, capital, and other resources away from production for local consumption. The point is certainly clear in the case of agricultural products. If, for example, coffee or banana exports were sharply reduced, the effort invested in their production would be reduced as well, and that effort could be reallocated to meeting local needs more directly.

TABLE 2. US Meat Trade (Excluding Poultry), 1977

	Quantity (weight in millions of pounds)	Value (millions of US dollars)
Imports	1,725.0	1,289.1
Exports	921.4	608.5
Net imports	803.6	680.6

Source: ref. 10, pp. 2, 5, 186, 267.

Sometimes it is argued that certain products must be exported because local people have no taste for them. For example, it is said that Pacific islanders prefer imported canned mackerel to the tuna that is caught and canned on their own shores. There is some truth to this, but the argument is commonly over-

stated. The tuna sold in local markets in the Pacific islands is generally of the lowest grade—tuna flakes that would be sold as pet food in the United States—and it appears in the local markets at perhaps twice the price of mackerel. The higher grades of tuna are exported, not because there is no taste for them locally but because rich countries are able to pay more for them.

Producers' concentration on exports can help to raise incomes and can help to meet basic human needs. Much too frequently, however, the export orientation is harmful. The point is illustrated by a group of Indian fishers:

> To add to our country's misery, the developed world is now making strident demands for our other varieties of fish, like sardines, tuna, mackerel and pomphrets which have also been promoted as delicacies in their countries. If this trend continues the Indian population will have to do without fish since the foreign buyers are ready to pay ten times the amount of money a poor Indian could hardly afford. Can we allow our fish which is our vital food resource to be exported at the cost of the protein-starved population of our country, even if the principle involved is the highly questionable foreign-exchange earnings?[11]

Let us examine the trade in fisheries products in detail. The dollar values of US fisheries imports and exports, including both edible and non-edible products, have increased greatly over the past 50 years. This is partly the result of inflation. These effects are eliminated if we examine trade in terms of quantities rather than values. The figures for imports and exports of fish by weight for edible fish alone, not non-edible fish products, show very clearly that imports have greatly exceeded exports, both by value and by weight, in every year since 1929.[12] The United States imports more fish than meat. Overall, "the United States alone imports about twice as much fish, primarily in the form of feed for livestock, as do all the poor countries combined."[13]

As Lappé and Collins point out, meat imports account for a relatively small share of US meat supplies. Fish imports, however, constitute a large and steadily increasing share of US fish supplies. The increasing dependency of the United States on imported fish is demonstrated in table 3. As these data show, imports as share of catch rose from less than 20 per cent of the US catch in the 1950s to more than 40 per cent in the 1970s.

The shares accounted for by imports are even larger if the imports of non-edible fishery products are included as well. The determination of what is edible is not a simple technical question. Products regarded as non-edible when they reach developed countries, and thus relegated to use as feed and fertiliser, frequently are regarded as edible at the point of origin. A case from Africa illustrates the point:

> In Senegal . . . there exists a factory for the production of fish meal . . . This factory, Sopesine, owned by two French companies . . . treats 2,800 tonnes of sardines each year (fish fit for human consumption) in order to produce 5,000 tonnes of fish meal and oil. Ninety-five per cent of the fish meal is destined for consumption by French livestock . . . One hundred kilometres from (the landing area), peasants don't eat fish because it is not available or it is too expensive.[16]

Products that may be regarded as substantial food resources from the point of view of the poor may be used as livestock feed for the rich, or to feed their pets:

> . . . a cheap Moroccan canned fish, developed for the Middle East markets, primarily Egypt, brought a higher price when sold to the United States as cat food. One-third of the canned fish of the United States is in effect pet food. An equally large portion of the British output of canned fish is devoted to the same purpose. In most instances this constitutes food which would be very much in demand if offered to the protein-needy and malnourished around the globe.[6] (pp. 229-230)

The argument that the product is not suitable for direct human consumption has been used to defend the export of anchoveta from Latin America to Western Europe and Japan to feed pigs and poultry. Actually, there are indications that, instead of being converted to fish meal for animal feed, the anchoveta technically could be converted to fish protein concentrate for human consumption. Even if livestock feed were the only possible use for these sardines or anchoveta, there would still remain the question of why the feed should be consumed by livestock used by Europeans rather than by Africans or Latin Americans.

Despite its oceanic position, Hawaii imports about two-thirds of the fish it uses, from the mainland and from other countries. The chairman of the state's Board of Agriculture believes that "while the United States has been a large exporter of food, the world need for protein is already straining American resources."[17] Just the opposite is true. Hawaii, the rest of the United

TABLE 3. United States Fish Supply (weight in billions of pounds)

	Catch	Imports	Imports as Share of Catch (%)
1950	4.85	0.64	13.2
1951	4.41	0.65	14.7
1952	4.41	0.71	16.1
1953	4.41	0.73	16.6
1954	4.85	0.80	16.5
1955	4.48	0.78	17.4
1956	5.29	0.80	15.1
1957	4.85	0.90	18.6
1958	4.85	1.02	21.0
1959	5.07	1.14	22.5
1960	4.85	1.10	22.7
1961	5.29	1.10	20.8
1962	5.29	1.26	23.8
1963	4.85	1.20	24.7
1964	4.63	1.32	28.5
1965	4.85	1.40	28.9
1966	4.19	1.60	38.2
1967	3.97	1.47	37.0
1968	4.19	1.74	41.5
1969	4.19	1.71	40.8
1970	4.85	1.87	38.6
1971	5.07	1.79	35.3
1972	4.85	2.34	48.2
1973	4.85	2.42	49.9
1974	5.07	2.27	44.8
1975	4.85	1.91	39.4
1976	5.29	2.23	42.2
1977	5.29	2.18	41.2
1978	5.95	2.40	40.3

Source: ref. 14, p. 24, and ref. 15, p. 8

PHOTO: FAO

Fishermen in Senegal.

States, and other developed parts of the world place very substantial demands on the world's food system. The dollar value of United States imports in 1978 exceeded the value of exports not only overall, but also for each separate region of the world.[18]

Fish in the international market tend to flow from less-developed to more highly developed countries because most countries purchase their fish imports from countries that are poorer (in terms of gross national product per capita) than those to which they export their fish.[19]

Another indication that the flow tends to be from the poor to the rich is that, among the market economies of the world, the developed countries export around 70 per cent of simply preserved fish (e.g. frozen) but import 90 per cent of the total value of fish traded. Thus, fish continue to migrate after they are caught. They tend to go from the more needy to the less needy. One very clear illustration is that 56 million pounds of fish were exported from the famine-stricken Sahel region of Africa in 1971 alone. For many of these countries, fish is the major source of animal protein.

There is a widespread and very commonsensical view that countries export food only when, and only because, their domestic needs are satisfied. Although this seems logical, it is not true. Many nations are, in fact, organised to meet the needs of others before they meet those of their own people. India's economy is heavily oriented toward meeting the needs of outsiders. Despite its suffering very extensive hunger and malnutrition, India is a major exporter of food. It is not simply a net exporter. For all practical purposes, India does not import food at all. Thus, India itself demonstrates that the poor feed the rich.

Many poor countries export food despite their suffering serious malnutrition at home. In Thailand, Malaysia, and the Philippines, seafood exports have expanded sharply while at the same time local consumption of this major protein source has declined. In Malaysia, the quantity of fish available per person in 1975 was 30 per cent lower than the 1967 level, despite the fact that the total catch increased substantially. Most of the increase in production has been exported. The situation in Thailand is similar:

> In 1972, the total fish catch in Thailand was 1.55 million tons. It fell slightly in the next few years and returned to 1.6 million tons by 1977. Yet seafood exports boomed, though the local catch had barely changed in five years and the population had grown.[20]

Thailand is certainly not exporting only the surplus that remains after domestic needs are fulfilled; local consumption is sacrificed for exports.

A related "sensible" perception is that a country that exports a food product does not import it, since exporting it is a sign of domestic sufficiency. Thus, one observer could say, "in Indonesia, the imports (of fish) play a minor role, since the country is a net exporter."[21] In fact, many countries both import and export substantial quantities of fish and other foods. This may seem paradoxical, but the practice is actually quite reasonable. The explanation is based on product differentiation. Certain types are imported while others are exported. The major single differentiating character-

istic is not taste or cultural preference but market value per unit of weight. Just as Indonesia exports high-value (low-sulphur) oil, while at the same time it imports lower-value oil for its own domestic consumption, so do many less-developed countries export fish of high market value and import varieties with low market value. The Pacific islands and the countries of South-East Asia demonstrate this pattern very clearly.

Often there is some compensation for increasing exports by increasing imports of food. Typically, however, the foreign exchange earned from food exports is not devoted to purchasing the low-cost, nutritious foods for the needy but is diverted to buying luxury foods and other products in demand by the local elite.

The export of food can lead to the deterioration of local nutrition in many ways. The most direct cause is that local productive resources are no longer used to meet local needs. Consider the case of Papua New Guinea:

> While exports of the agricultural and fisheries sectors were increasing at a phenomenal pace—rising in value from approximately $A19.6m (19.6 million Australian dollars) in 1954-55 to $A143.5m in 1974-75—the production of food for the rapidly increasing domestic market virtually stagnated. Food imports into the economy rose from $A9.4m to $A71.5m during the same period. (Exports of food products increased from about $A17m to $A90.2m during the twenty-year period.)[22]

The mechanisms leading to the rapid rise of food imports into Papua New Guinea is illustrated by the introduction of coffee production into the Chimbu region of the highlands:

> Increasing dependency in the Highlands as a whole is terribly clear. The windfall of high coffee prices today means that villagers are less willing and able to cultivate food and obliged to spend more on goods imported from abroad. In the words of Barry Holloway, then Speaker of the House of Assembly, in October 1976: "The people in most Highland areas have more than doubled their purchase of such items as beer, tinned fish, rice and frozen meats in the past three months." Consequently, some 30 per cent of Highlands' children are malnourished and, in national terms (again Holloway's words), ". . . the amount of money going out of PNG on luxury and replaceable food items is reaching a peak far more beyond the point of necessity than ever before." The country's expenditures on imported foodstuffs rose from $8m in 1954 to some $23m in 1966, in which year it represented about 50 per cent of total export income. In 1973, however, food to the value of some $48m was imported. All these weaknesses stem from the increasing concentration upon cash-crop production for export.[22]

The situation is similar in South-East Asia:

> The fact that ASEAN countries are exporting increasingly more of their high quality food products which are still badly needed locally is a clear indication that foreign exchange is more important than local nutritional development. The fertile valleys of Mindanao in the Southern Philippines, for example, are entirely devoted to banana and pineapple cultivation, which foreign multinationals process, pack and ship in refrigerated ships to Japan. None of it lands on the tables of the local population, which is among the poorest in South-East Asia. Rejected bananas become cattle feed.
>
> In Indonesia, the EEC is interested in schemes to grow soyabeans on a large scale, not for protein-deficient Indonesians but for fattening European pigs and poultry. High quality fish, prawns and lobsters have been priced out of local markets because they are frozen and airfreighted to Japan and Europe.
>
> What this has done is to create a vicious cycle of poverty. High food prices arising from agricultural resources being siphoned off into export agribusiness undermine the already weak purchasing power of rural Asia.[23]

All Food

Sceptics might argue that fish or meat or coffee, or any other selected commodity, is a special case. After all, the illustrations offered here were chosen to support a particular argument. Whether or not these cases are representative can be decided by examining the larger pattern, the pattern with respect to all food. Let us first examine the case of the United States. Table 4 shows the overall food trade for this country in 1977. Measured in terms of dollar value, the United States does export more than it imports. Much of this export is composed of grains and other cereals, and also of feed for livestock. At the same time, however, the United States imports very large quantities of meat and fish. Great quantities of coffee and other beverages are imported as well. Although the import and export flows are mixed, it appears that, on balance, the United States exports relatively low-quality food and imports relatively high-quality food, measured in terms of nutritive value.

TABLE 4. United States Food Trade, 1977 (in millions of US dollars)

	Imports	Exports	Net Imports
Total agricultural products	14,163	24,826	−10,663
Food and animals	10,389	14,087	−3,698
live animals	253	139	+114
meat, meat products	1,272	802	+470
dairy products, eggs	229	184	+45
cereals, grain products	147	8,755	−8,608
fruits, vegetables	1,594	1,673	−79
sugar, honey	1,221	77	+1,144
coffee, tea, spices	5,540	584	+4,956
feedstuffs	65	1,545	−1,480
miscellaneous	67	328	−261
Beverages and tobacco	1,660	1,872	−212
beverages	1,287	124	+1,163
tobacco	373	1,748	−1,375
Animal and vegetable oils	536	1,363	−827
Fishery products	2,086	508	+1,578

Source: ref. 24, p. 327

The overall network of world food trade for 1976 is described in table 5. Drawing on these data, the trade among and between developed and less-developed countries is highlighted in figure 1. Here it is clear that, of the food entering into international trade in 1976 (US$123.65 billion worth), 11.9 per cent went from richer to poorer countries, while 20.2 per cent went from poorer to richer ones. Developed countries exported 3.8 times as much food to other developed countries as they did to the less developed (US$55.83 billion/US$14.75 billion). Less developed countries exported 3.1 times as much to developed countries as they did to other less-

TABLE 5. Network of exports of all food items (including beverages, tobacco, and edible oils and seeds), 1976, in millions of US dollars, f.o.b., and in percentage of world total

Origin	Destination: World	Developed market-economy countries	United States	Developing countries and territories	Socialist countries
World	123,650 (100%)	83,760 (67.7%)	*11,620 (9.4%)*	25,230 (20.4%)	13,580 (11.0%)
Developed market-economy countries	76,720 (61.7%)	55,830 (45.2%)	*4,400 (3.6%)*	14,750 (11.9%)	5,195 (4.2%)
United States	*21,770 (17.6%)*	*12,830 (10.4%)*	—	*6,270 (5.07%)*	*2,300 (1.6%)*
Developing countries and territories	38,220 (30.9%)	25,020 (20.2%)	*7,010 (5.7%)*	8,020 (6.5%)	4,900 (4.0%)
Socialist countries	9,170 (7.4%)	2,910 (2.4%)	*211 (0.2%)*	2,470 (2.0%)	3,485 (2.8%)

Source: ref 25, pp.672-683

developed nations (US$25.02 billion/US$8.02 billion).

Figure 2, also derived from table 5, describes the global food pattern in terms of shares and exports and imports. The developed market economies export 61.7 per cent of the total food exports, but they take out a larger share 67.7 per cent. The developing market economies put in 30.9 per cent of the total value of food entering into world trade, but they take only 20.4 per cent out of that pot. Data from another source, reported in table 6, display the same basic pattern, but show the developed countries taking out an even larger excess over what they put in. Clearly, the developed countries extract a larger share of food than they put into the world trade pot. The less-developed countries remove a smaller share than they put in.

The supplier role of poor countries is very clear. In the Pacific, for example, the islands are described in magazine articles with titles like "Solomons Fish for Europe" and "The Pacific Becomes a Pantry for Japan".[27] Export agribusiness in South-east Asia "has grown by leaps and bounds to satisfy the affluent world's almost insatiable appetite for luxury foods," so that in effect "ASEAN is becoming a vegetable plot and fishpond for the developed world".[20]

The general pattern in the world food market is that (a) most of the trade is among developed countries, (b) there is little trade among the less-developed countries, and (c) in the trade between the two groups, on balance, food tends to flow from the less developed to the more highly developed countries. The net flow is upward, not downward. The poor do feed the rich.

Remedies

Remedies for this problem of the systematic flow of food from the poor to the rich in world trade will not be explored in detail here, but a few observations are warranted. It should be clear that promoting increased production of food in poor countries may not be as useful as is sometimes assumed. Much of the benefit from the production, and the products themselves, are likely to go to the already well off.

Many development programmes are designed not simply to increase food production in less-developed countries but specifically to increase exports. However, the promotion of exports from Third World countries—or indeed, the promotion of international trade generally—promotes the widening of the gap between the rich and the poor. As James McGinnis put it, increased trade "actually reinforces the priveleged position of the few on the top at the expense of the many on the bottom. Increasing the interaction between parties of unequal bargaining power only perpetuates the inequities of the current international economic system"[28]. The World Bank's own analysis shows the result in increasing trade: "About 75 per cent of the increase in total national income would flow to the wealthiest 40 per cent of society"[3]. This pattern holds within countries as well as in international society.

In early 1980 the Group of 77, the lobbying groups of Third World countries at the United Nations, set its targets for the Third Development Decade. The Group proposed that the less-developed countries of the world

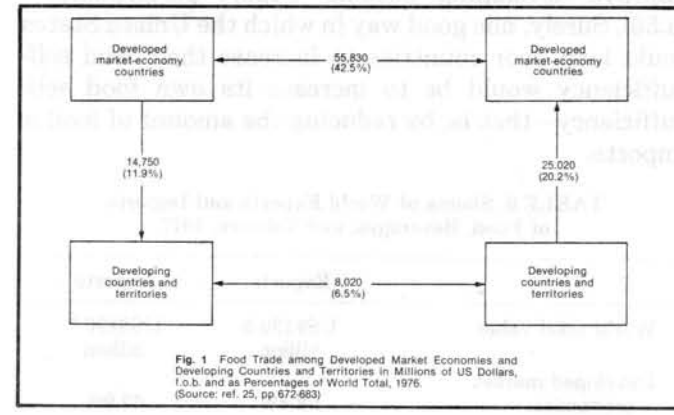

Fig. 1 Food Trade among Developed Market Economies and Developing Countries and Territories in Millions of US Dollars, f.o.b. and as Percentages of World Total, 1976. (Source: ref. 25, pp 672-683)

should increase their share of world food and agricultural exports to 50 per cent of the total. I think they made a serious error. As shown here, one of the major effects of increasing the involvement of poor countries in international trade is to increase the extent to which the poor supply the rich.

Many people and organisations concerned with world hunger and malnutrition devote much of their effort to promoting increased food aid or foreign aid

Fig. 2 Shares in World Food Trade as Percentages of World Total, 1976. (Source: ref. 25, pp 672-683)

generally. It is presumed that the less-developed countries have inadequate productive capacities and that they need help. As discussed above, however, in many cases poor countries prove themselves to be very effective producers. The problem is that they are producing for others rather than for themselves. The rich should give more attention to the substantial amounts of food they draw away from poor countries, rather than focus only on the supposedly charitable gifts they provide to them. The primary responsibility of the rich is not to give more, but to take less.

Many analysts of the problem of hunger and of development generally have concluded that one of the best answers is to move toward increasing self-sufficiency and self-reliance. (I take self-sufficiency to refer to the use of one's own available resources, while self-reliance refers more to independence in decision-making). I agree. What is particularly striking, however, is that these analysts consistently advocate increasing self-sufficiency *for others*. In their view, it is the poor, the Third World countries, that should increasingly rely on their own resources to meet their nutritional and other needs. The Presidential Commission on World Hunger, for example, did not consider the possiblity that the United States might usefully increase its self-sufficiency by cutting-down its imports of food. In effect, it did just the opposite in formulating a broad range of recommendations "to improve developing nations' export performance"[3] (p.56). Surely, one good way in which the United States could help poor countries to increase their food self-sufficiency would be to increase its own food self-sufficiency—that is, by reducing the amount of food it imports.

TABLE 6. Shares of World Exports and Imports of Food, Beverages, and Tobacco, 1977

	Exports	Imports
World total value	US$126.5 billion	US$126.5 billion
Developed market economies	58.4%	67.9%
Developing market economies	34.1%	20.2%
Centrally planned economies	7.5%	11.0%

Source: ref. 26, p.200.

The challenge is relevant to all major food-importing countries. Regarding the Soviet Union, for example, Ole Holsti argues:

> The inability of the Soviet Union to produce consistent agricultural surpluses—and more seriously, the Soviet policy of periodically importing large amounts of grains—constitutes a significant threat to the welfare of the international community. By organising the agricultural sector to satisfy its ideological preferences and political needs, the Soviet ruling class has prevented the USSR from being a consistent net contributor to the world's food supply. Worse yet, by periodically entering the international market to buy vast amounts of wheat and other cereals, the Soviet Union is contributing at least indirectly to malnutrition in many parts of the world, and it is creating a major barrier against the establishment of the food reserves necessary to cope with future emergency situations arising from regional crop failures.[29]

Indonesian women preparing shrimps for freezing.

In Japan, too, recent spectacular increases in meat consumption are based on increasing imports. "Japan depends on foreign farmers for almost all its feed grains, 94 per cent of its wheat and 95 per cent of its soybeans, mostly from the United States . . . Japan is only 34 per cent self-sufficient in grain . . ."[30]

The first responsibility of all countries, rich or poor, is their own behaviour, not that of others. The major food-importing countries should not be calling for reforms in the poor and hungry nations of the world while they themselves constitute major drains on the world's food system.

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Development Policies ignore Ecological Constraints

by G.P. Hekstra

The author states very concisely the reasons why development cannot provide a panacea for the world's problems. Those who promote it are simply unconcerned with ecological considerations. Conservationists have tried through the last decades "to draw to the attention of the UNDP, FAO and the World Bank the dangers of neglecting ecological factors in their planning and implementation of development projects", but to no avail.

If we are really interested in improving the welfare of Third World people what is required is to "a) reduce exploitation of the best agricultural land in the Third World for export products to the First World and b) make batter use of that land for sustainable domestic food production in harmony with the environment and c) strive for amelioration of the regional climate, ground water management and the conservation of genetic resources."

In retrospect, the nineteen-seventies display a remarkable shift from optimism to pessimism with regard to world food perspectives. During the sixties agriculture fell under the enchantment of the Green Revolution, and half way through the seventies undeniably several alarming facts on the depletion of genepools and ecosystems dominate. We find ourselves in a spell of great uncertainty, with widely varying views on which direction agricultural policies should take. All the elements of hope and fear about hunger in the world are ably put together in a well balanced article on food in the *Scientific American* of September 1980. On the one hand it fosters the belief that western capital and technology are needed to boost agriculture in the Third World. On the other hand it makes clear that most of the farmers in developing countries are "poor but efficient" (see Fig. 1) and that their types of agricultural development deserve more attention, as a strategy for survival. In its ambiguity, the article is representative of enlightened western circles with true sympathy for developing countries, but lacking a consistent socio-ecological perspective on sustainable development, and are afflicted with the bias of western value judgements and lifestyles.

On the other side are angry Third World spokesmen like G.A. Semlini, who sharply condemn western encroachment when saying: "Where agriculture is forced to adopt a policy of producing raw materials for export to other countries rather than food for feeding the indigenous people, that policy is both perversive and suicidal . . . In return for the exported raw materials, the poor nations import food and manufactured goods at ever higher prices."[2] The clash of views is clear. Though much of the last decade's aspiration for a Horn of Plenty—the World of Cornucopia—has withered, actual western encroachment in the Third World's agriculture is greater than ever before. The process is fuelled by such beliefs as expressed in the subheadings of the above mentioned article:

- The task of feeding everyone adequately calls for an investment in the agriculture of developing countries of more than one hundred billion dollars, and
- Without a fairer distribution of income, many will still go hungry.

The latter statement holds the suggestion that a bit more of western morality and organisation might indeed help relieve much of the misery in many of these 'backward' countries. The first statement seems to serve to reinforce the system of western encroachment, channelled through the World Bank, UNDP and multinational corporations, with the support of bilateral and multilateral aid agencies and peace-corps volunteers. Of course most or all of them are consciously or unwittingly operating with the entrenched belief in western values and supremacy. Thus, the social disruption and ecological ravages in the Third World, rather than being recognised as inherent with forceful western encroachment, is most often imputed to corruption or incompetence of the Third World leaders, that could be overcome with the adoption of more western morality and organisation.

Cornucopia and Ecological and Power Realities: Maximum Food Projections

Overriding in the world food debate is still the notion that the world can feed its present population many times over. The idea may have stemmed from a MOIRA-study (Model of International Relations and Agriculture), published in January 1975 and entitled: "Computation of the absolute maximum food production of the World."[3]

Taking into account the possibilities of irrigation and the limitations in crop production caused by local climate and substrate conditions (soil, water, nutrients), the absolute maximum production expressed in grain equivalents of a

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standard cereal was computed as 49.830 million tonnes per year, that is almost 40 times the present cereal crop production. The maximum production of the area cultivated with cereal crops (in 1965 already 65 per cent of all the land cultivated) could potentially be increased 30 times. South America and Africa, south of the Sahara, would be the most promising areas and Australia the least. The potential agricultural land of the world was suggested to be 3,419 million hectares, being 25 per cent of the land area of the world, of which 470 million hectares could be irrigated. Maximum use of surface runoff and ground water, and the transfer of water from the world's major rivers to fertile desert soils is presumed.

A subsequent MOIRA-study "Food for a Growing World Population"[4] comes with even more optimistic figures: 3,687 million hectares potentially suitable agricultural land with a maximum of 58.058 x 10^8kg consumable protein production (1965: 1,882 x 10^8kg). Yet, according to FAO figures of 1978, only about 11 per cent of the world's land area (excluding Antartica) offers no serious limitation to agriculture; the rest suffers from drought, mineral stress (nutritional deficiencies or toxicities), shallow depth, excess water, or permafrost.[5] But FAO, too, believes that the world's cropland could at least be double the present 1,400 million hectares. Such estimates being written down in an FAO report fosters false hopes for the starving, as the world of reality has shown that land loss over the last decades is greater than the number of hectares being brought under cultivation, and "high yielding varieties" are not so promising at all.

The World of Reality

In a 503-page report to the Swedish Government, entitled "Technical Assistance with Responsibility: Environment and Development in Developing Countries", 1978, Kai Curry-Lindahl concludes that during the last twenty years, through wrongly designed land use projects, development assistance has contributed considerably to the tremendous decline in productivity of ecosystems.[6] The objective of the projects was to increase the arable acreage and food production, as well as to ameliorate the standard of life for the people. But in fact over the last twenty years:

1. Every year more arable land is lost than gained;
2. Nearly fifty developing countries self-supporting in food have become food importers, and their number increases every year;
3. Desertification is continuously increasing at an accelerating rate (Fig. 2);
4. The severely detrimental consequences of erosion are increasing in both lowlands and highlands and through sedimentation in rivers, lakes and the sea (Fig. 3);
5. Water resources are decreasing, ground water tables are sinking, previously permanently-flowing rivers fall dry, marshes and lakes have been drained, with no long-term benefit;
6. Vegetations disappear; fertile grasslands are transformed into dry thornbush before turning into desert; gallery forests are being cut down, and lowland forests eliminated; mountain rain forests are being destroyed, causing flood catastrophies in the lowlands;
7. Wild animals, important protein resources and ecological stabilisers, have vanished from many areas where they were abundant; many species are in danger of extinction;
8. Toxic chemicals are dispersed in ecosystems in larger quantities every year, making pest species more resistant every year.

All these alterations are the effects of detrimental land-use methods and technical assistance programmes –

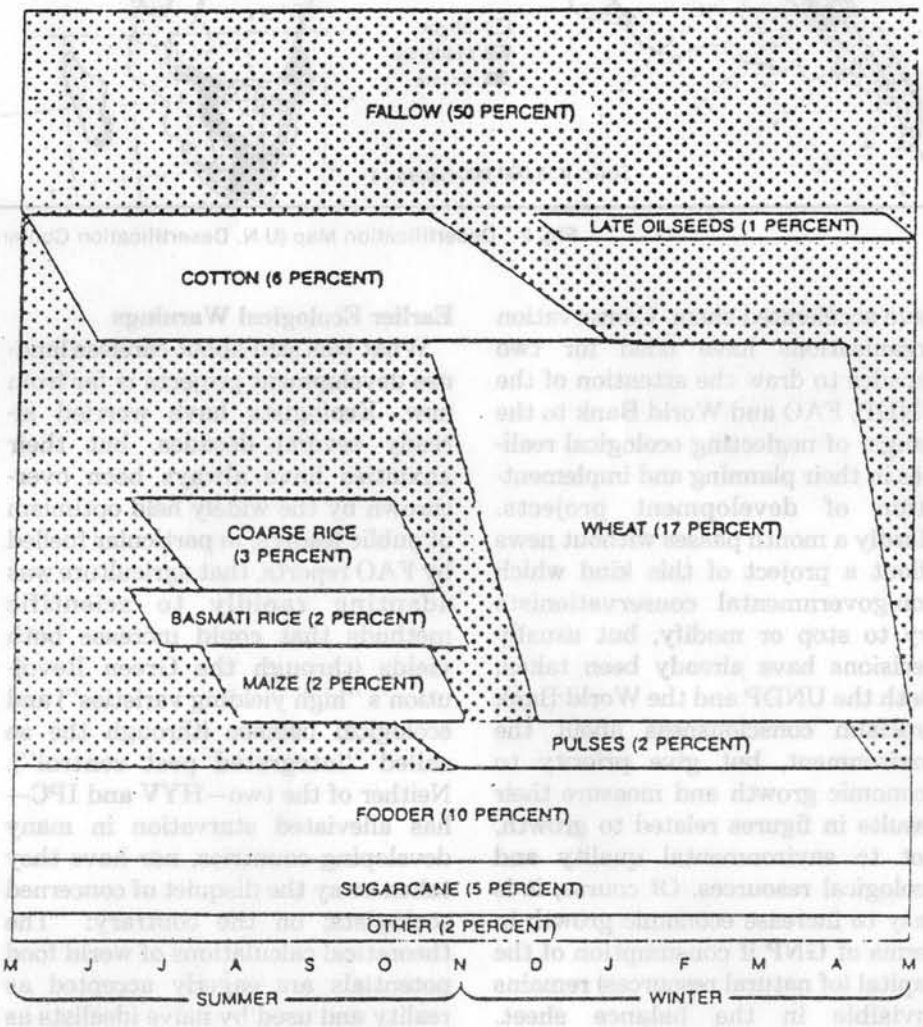


Figure 1

CROP CALENDAR OF A FARMER in the Punjab of Pakistan suggests the complexity of decisions he faces in choosing crops to maximise his return from a farm with a cultivable area of five hectares (12.5 acres). With irrigation he can obtain two crops per year, but at the same time he must allow for seasonal variations in supply and demand. Another major problem is having enough mechanical equipment and manpower available when he needs them. He must have enough of both on hand in November and December to plant wheat as he harvests cotton. Source: Crimshaw & Taylor 1980, *Sc.Am.* Sept. 1980[1]

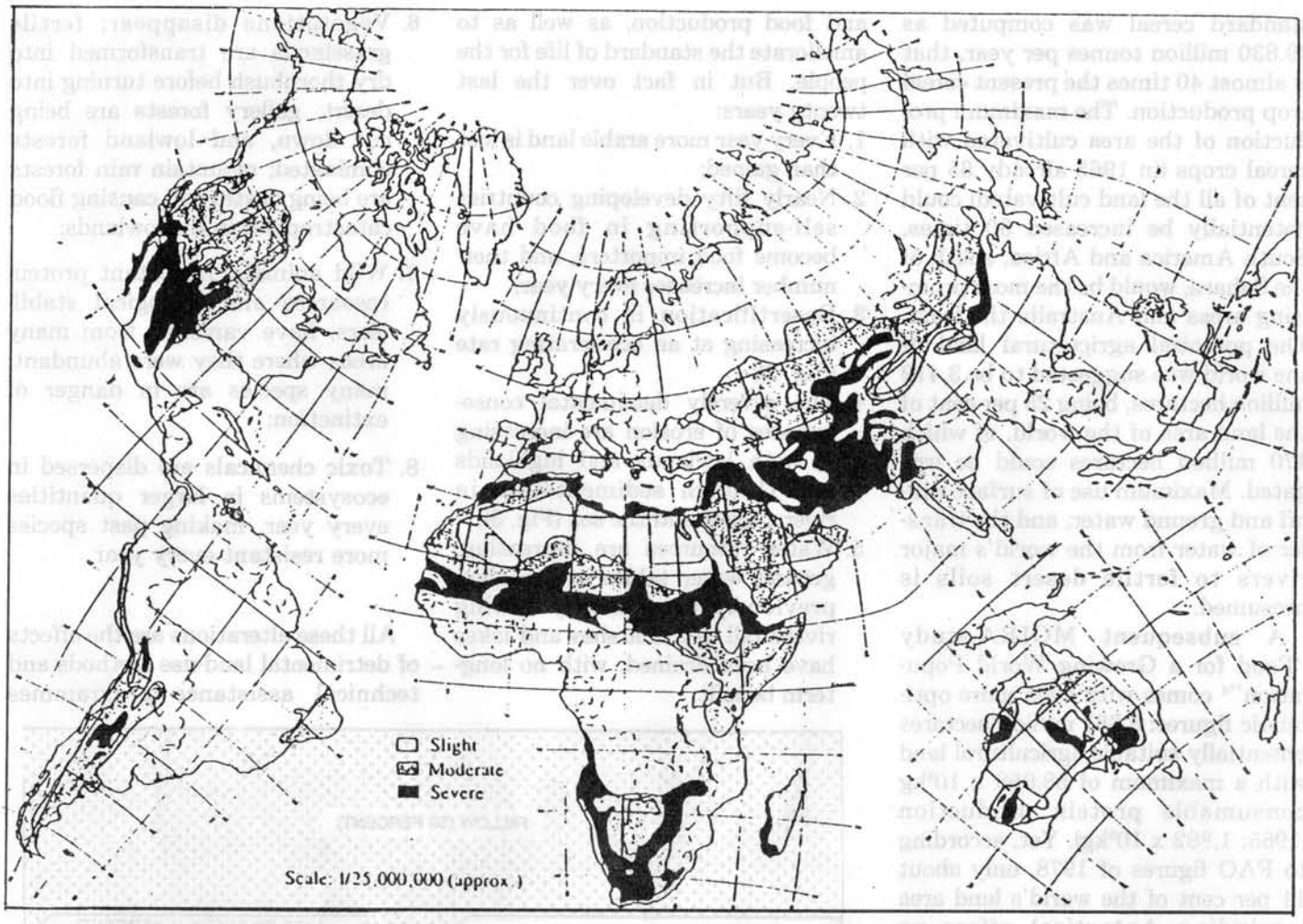


Fig. 2 Desertification Map (U.N. Desertification Conference, 1977)

have accelerated them. Conservation organisations have tried for two decades to draw the attention of the UNDP, FAO and World Bank to the danger of neglecting ecological realities in their planning and implementation of development projects. Hardly a month passes without news about a project of this kind which non-governmental conservationists try to stop or modify, but usually decisions have already been taken. Both the UNDP and the World Bank proclaim consciousness about the environment, but give priority to economic growth and measure their results in figures related to growth, not to environmental quality and ecological resources. Of course, it is easy to increase economic growth in terms of GNP if consumption of the capital (of natural resources) remains invisible in the balance sheet. "Through the projects they initiated, encouraged and financed, as well as their philosophy, the UNDP and the World Bank constitute the two most serious obstacles to conservation measures."[7]

Earlier Ecological Warnings

What was said about careless land-use development projects is far from new. Ecologists have worried already several decades, but their anxieties have always been overthrown by the widely held optimism of public leaders, in particular fuelled by FAO reports, that agriculture was adapting rapidly to scientific methods that could increase both yields (through the Green Revolution's "high yielding varieties") and ecological balance (through the so called "integrated pest control"). Neither of the two—HYV and IPC—has alleviated starvation in many developing countries, nor have they taken away the disquiet of concerned ecologists; on the contrary: "The theoretical calculations of world food potentials are eagerly accepted as reality and used by naïve idealists as well as less naïve but short-sighted politicians and smart commerciants full of gumption . . . The Wageningen School of Agriculture is to be blamed for their global calculations of potential food production that do not take into account ecological constraints and effects and that evoke an image of Cornucopia, detached from reality. They are utterly dangerous because they distract attention from ecological risks, foster fantasies with a political background, and thwart the battle of ecologists (both domestic and abroad) against commercial short-term profits and the shortsightedness of political leaders."[8]

Warnings of what can go ecologically wrong were already sounded by the economist John Stuart Mill in the middle of the last century. Shortly after, the monumental work of G.P. Marsh (1864) "Man and Nature" appeared.[9] Since then, warnings of ecologists were heard at regular intervals . . . and ignored. The last two decades have brought us an ever greater stream of literature about the degradation of ecosystems by wrongly conceived modern agriculture and mismanaged land, of which Rachel Carson[10], Jean Dorst[11], M.T. Farvar and J.P. Milton[12], and Erik Eckholm[13], are

just some well-known examples. The most broadly conceived warning, *and* recommendation for action is that of the World Conservation Strategy.[14]

It seems, however, that in spite of all the ecological evidence to the contrary, land use, development and agricultural innovation in the Third World are continually fuelled by the basic beliefs/myths:

- that the population explosion makes necessary draconian development strategies such as the Green Revolution, and
- that the First World has the technological answers to increased food security through high-energy-input types of production.

The Myth that Sharing of Power would Pave the Way to Survival

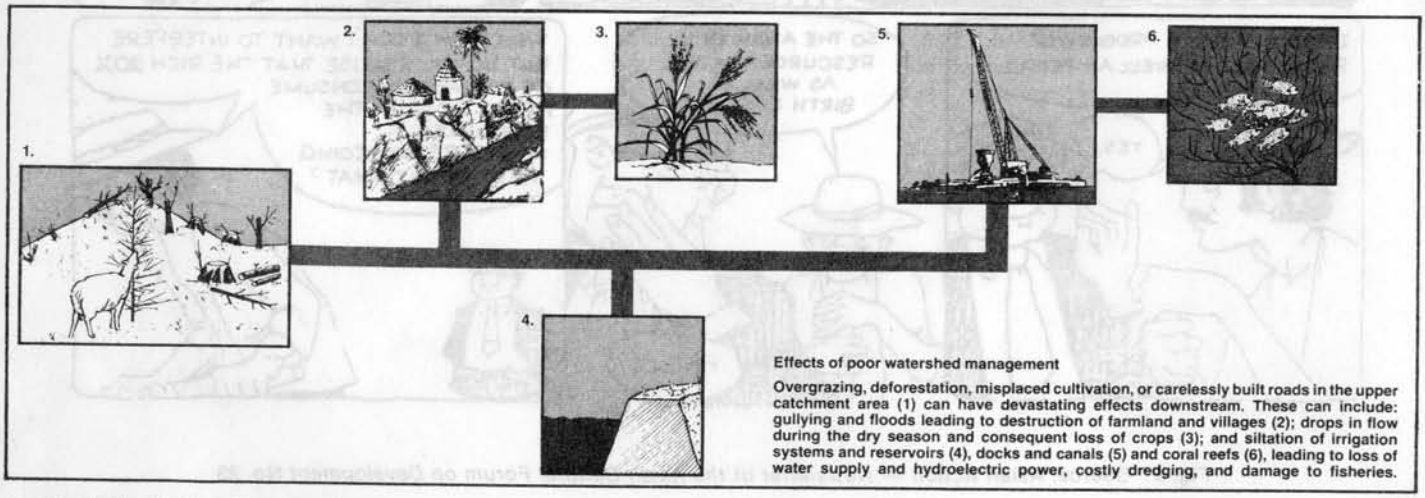
Almost concurrently with the World Conservation Strategy, appeared the so-called Brandt Report of the Independent Commission on International Development Issues, entitled: "North-South: A programme for survival".[15] The Commission is best known after its President, the former Chancellor Dr Willy Brandt, of the Federal Republic of Germany. Of its twenty-one members, ten are from Third World countries, ten from OECD-countries and one (Yugoslavia) declares itself a developing country with attachment to the OECD as an observer. The Brandt-Commission was an initiative of McNamara, former president of the World Bank. From its recommendations and the introductory plea for "Peace, Justice and Jobs" it appears quite clearly that remedying within the next two decades of what is considered today as the world's gravest problem, the imbalance of power and development between the North and the South, is the Commission's main concern. This report falls well within the United Nations' debate on a New International Order, NIO. Its concern includes the environment, but in such general phrases that these can hardly be put into effect: "The strain on the global environment derives mainly from the growth of industrial economies, but also from the world's population. It threatens the survival and development opportunities of future generations. All nations have to cooperate more urgently in international management of the atmosphere and other global commons, and in the prevention of irreversible ecological damage."

Yet, the Brandt Commission should be commended for the attention paid to the societal factor in the whole process of development. But proposed steps fall completely within Western interests and charity. Thus the Commission recommends to "increase food aid" (a disputable proposal) but it should be "linked to employment promotion". What the Commission forgets to recommend is to a) reduce exploitation of the best agricultural land in the Third World for export products to the First World and b) make better use of that land for sustainable domestic food production in harmony with the environment and c) strive for amelioration of the regional climate, ground water management and the conservation of genetic resources. Thus, it seems that the New International Order that is proposed, is far from being an ecological order.

The Other Side of Western Supremacy

As E. Dammann has clearly shown, present poverty in Africa, Asia and Latin America is far from being indigenous, but the result of Western expansion.[16] As far as in the later part of the Middle Ages (up to about 1500 AD) the Sudanese culture from Abyssinia to Senegal compared well with contemporary European civilisation. About 1325 the Kingdom of Mali—the same size as Europe—impressed the entire Islamic world by its magnificence and opulence and the Lord of Mali was included amongst the most important rulers of Islam. About 1500, Timbuctoo was a celebrated seat of learning, several hundred years old, as well as a centre of religion, commerce and literacy south of the Sahara.

In the course of the next 400 years, when most of the European growth in trade and economy was based on the buying and selling of human beings, the fall of Africa was gradual but definitive. Between fifty and hundred million of the most able-bodied men and women were exported as slaves or died under transportation. But even more detrimental than physical losses of the strongest and healthiest young adults was the completely demoralising effect: turning the value of neighbours and neighbourhood into merchandise and profit. Besides, for four hundred years all profit went in one direction. "The slave trade did not contribute, like other trade, to any new economic activity during the four hundred years it lasted, but rather acted as a means of suppressing all cultural growth and activity during this period. It established the



Effects of poor watershed management

Overgrazing, deforestation, misplaced cultivation, or carelessly built roads in the upper catchment area (1) can have devastating effects downstream. These can include: gullying and floods leading to destruction of farmland and villages (2); drops in flow during the dry season and consequent loss of crops (3); and siltation of irrigation systems and reservoirs (4), docks and canals (5) and coral reefs (6), leading to loss of water supply and hydroelectric power, costly dredging, and damage to fisheries.

racial arrogance of the Europeans as being an acceptable attitude and at the same time eroded African culture and self-confidence bit by bit."[16]

Nowadays many educated Africans strive to live like Europeans and behave that way. They are the best intermediaries to introduce Western interests and supremacy in Africa. There can be no doubt, according to Dammann, that the "slave trade, and what it entailed, laid the foundation of the unique economic growth which gave Europe, and subsequently the United States, the world record in material superfluity."

"Europe had still not completed her efforts aimed at rendering the African incapable of managing his own affairs, at depriving him of the rights over his natural resources, to own his land, and at crushing even the last vestiges of self-respect and independence. This finally happened in 1884 as a result of the last Colonisation Conference in Berlin, where the great powers divided Africa among themselves, and drew arbitrary lines across the lands of black people without consideration of language or ethnic groups. Each square would now be a 'state' in which a European nation could help itself freely to the labour and natural riches."

In two subsequent chapters Dammann demonstrates that the role of Europeans in Asia and America was not less abject, be it that, due to the longer distance, pressures were comparatively less severe and the effects less detrimental. He concludes that "Africa is perhaps the most sensitive part of European history."

Should Population be Controlled before giving Equal Access to Resources?

The correlation between poverty, level of education and population growth, witnessed today in many developing countries, has striking similarities with Europe between 1700 and 1900. The population increased over those two centuries by 295 per cent, despite the fact that more than 50 million emigrated to other parts of the world during that time. "Europe solved *its* problems by outmigration and exploitation of regions belonging to other races.[16] But Europe (and North America, Australia and New Zealand) does not allow them to do the same today, or to get equal access to resources (Fig. 4). The developing countries—however—as a whole are by no means densely populated. Only India with 170 inhabitants per km^2 comes to European numbers (200-400 per km^2). Even China is still below 100 per km^2. The reason why Europe survives with these high population densities and high standard of living lies in the use for its own purposes of over a hundred million hectares of arable land in the Third World. The poor countries are unable to use our natural resources in the same way.[16] It is too easy to accuse corruption or even the power-hungry and self-interested dictatorships in most of the developing countries of having too little social awareness of the misery of the poor in their countries. Despite almost universal endorsement of human rights and democratic rule, the majority of humankind is currently governed in a repressive militarised

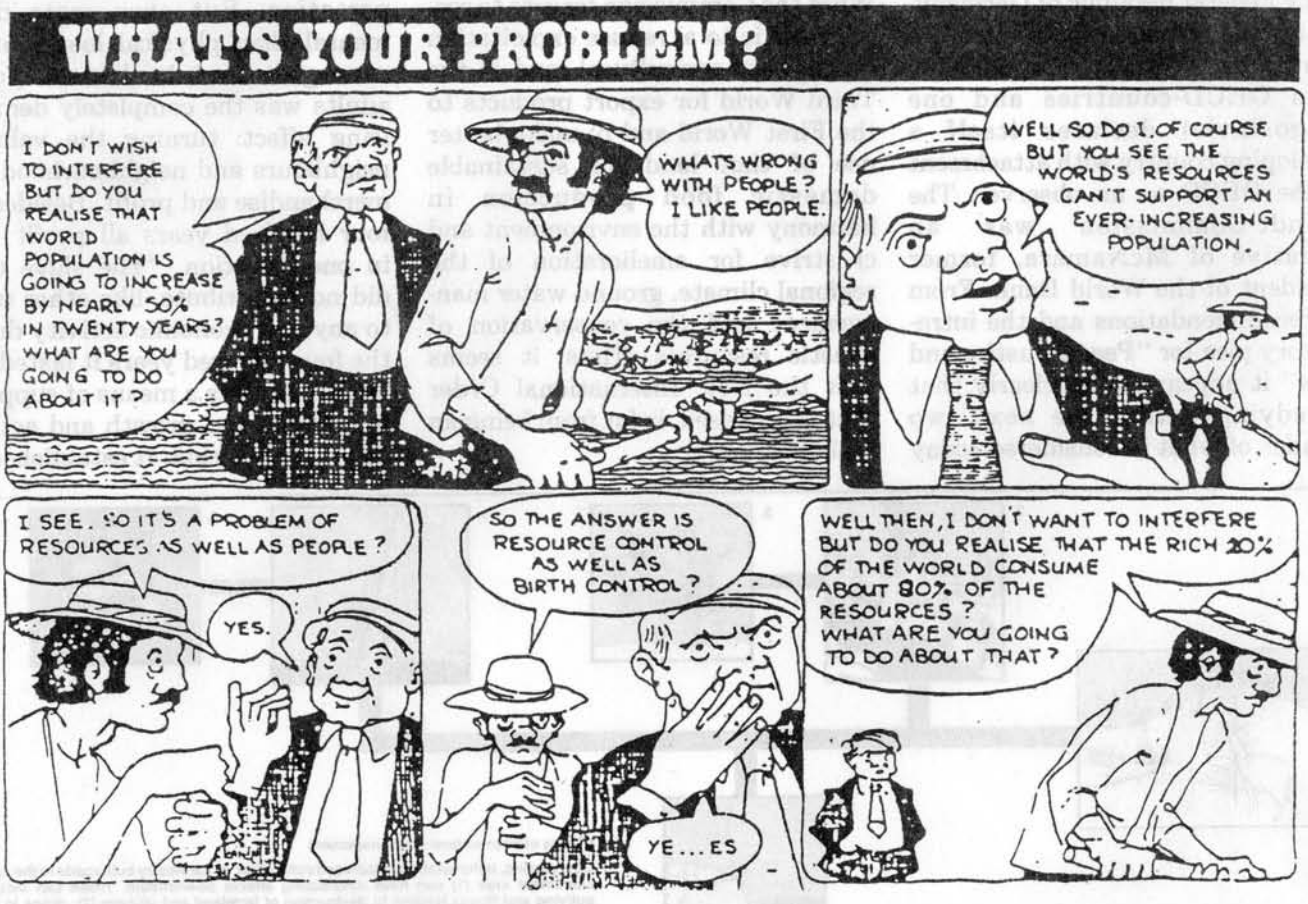


Fig. 4 Source: Asian Action — *Newsletter of the Asian Cultural Forum on Development* No. 23

manner.[17] Authoritarian rule, military suppression and neo-fascism tend to increase with greater resource constraints around the world.

The Brandt report makes it very clear that the world's dilemma—destruction or development—is very much the fruit of overdevelopment or rather maldevelopment in the North. The report, however, is realistic enough to see that the North will not give up voluntarily much of its privileged position, and therefore stresses the idea of the mutual interest of North and South, but is vague about how this has to be worked out. The reasoning goes as follows: "Whoever wants a bigger slice of the cake cannot seriously want the entire cake to become smaller. Therefore developing countries cannot ignore the need for economic growth in industrialised countries, as on that depends their willingness to participate in a more constructive transfer of resources". Thus economic growth of the industrial nations should go on anyway. But is it not a fallacy that this growth can only and exclusively be attained by greater exploitation of the Third World's resources? Mutual interest then becomes a euphemism for securing First World interests first.

What the Brandt report is not saying—for obvious political reasons—is that the entire cake cannot and will not grow very much more, as it is limited by ecological constraints.

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The Effects of Export-oriented Industrialisation in Sri Lanka

by Kumar Rupesinghe

In 1977 Sri Lanka took the momentous decision to embark, under IMF pressure, on an export-import oriented economic programme. It has been implemented very thoroughly and with massive financial assistance from multi-development banks, bilateral aid organisations and private corporations.

The author shows the horrifying effects of such a policy on the people of Sri Lanka, how their culture has been disrupted, their environment degraded and their welfare system largely abolished, while the country's external debts have soared. This study should be sufficient to discredit the policies which the World Bank and IMF still insist on imposing on Third World countries, inspite of all the evidence that they can only lead to social, ecological and economic bankruptcy.

In July 1977, Sri Lanka adopted a growth strategy based on export oriented industrialisation. The adoption of these policies would have fundamental consequences on the welfare system as it had existed in Sri Lanka.

In adopting these policies, the government accepted the so-called 'conditionalities' of the IMF, which gave its blessings and backed the government with considerable financial support. This paper will highlight some of the implications of this strategy for social welfare.

Theoretical Background and Policy Issues

The concept of self reliance both as a metaphor and a development strategy had placed a heavy emphasis on domestic food production and had placed 'self-sufficiency' in food as a high priority in its development programmes. Self-sufficiency in food and increases in productivity were to be achieved by a mix of policies, ranging from import substitution programmes, encouraging domestic food production, the selective application of inputs association with the Green Revolution to land reforms and agrarian reforms. The smallholders' capacity to increase productivity was to be strengthened by encouraging rural co-operatives, and strengthening rural institutions for credit, marketing, and extension services.

For a variety of reasons the strategy of self-reliance has come under considerable attack. Critics have pointed to the "failure of import substitution and the low rates of growth or stagnation associated with strategies of self-reliance". In agriculture, critics have drawn attention to low productivity in subsistence agriculture, falling prices for agricultural raw materials in the world market, and a lack of or a relative absence of a market for goods produced for the domestic market.

In contrast to 'self reliant' strategies of development the theoretical propositions of Export Oriented Industrialisation (EOI) emphasises production for the export market, where foreign investments in agriculture and industry would play a significant role in helping developing countries to achieve higher growth rates and help modernise their economies. The theoretical propositions of EOI have been largely derived from the experience of the so-called newly industrialising countries (NICs), who had recorded spectacular growth rates, particularly in manufacturing industry, and some have argued that significant growth has been achieved precisely by being dependent on metropolitan centres. A general assumption shared by those who propose EOI is that if developing countries are to achieve growth it is necessary that "they denote more resources to capital formation, countries must delay providing for the poor until future generations".[1]

The Mechanisms for Export Oriented Industrialisation

The central concern of EOI is that Third World countries remain in touch, absorb the latest technology, catch up and become competitive with the most advanced countries. Third World countries are told to skip over the period of protectionist trade and begin to operate on the world market competitively on the same footing as advanced capitalist countries. An expert from the World Bank, for instance argues for EOI in developing countries since

> EOI policies lead to better growth performance than policies favouring import substitution. This is because EOI policies provide similar incentives to sales in domestic and foreign markets, lead to resource allocation according to comparative advantage, allow for greater capacity utilisation,

Kumar Rupesinghe *is a Sri Lankan citizen. He is currently working in Norway, where he is Research Director at the International Peace Research Institute in Oslo.*

permit exploitation of economies of scale, generate technological improvements in response to competition abroad and labour surplus countries contribution to increased employment."[2]

The logic for Export Oriented Industrialisation is seen in the more labour-intensive parts of their globally fragmented production process in order to benefit from the availability of free and unorganised labour.

By the middle of the 1970s world market factories were in operation in more than thirty-nine countries and in many sites outside the zones, employing in all 725,000 workers. In terms of the developing countries, the conditions for 'export production' are seen in the availability of a large reserve army of labour, low wages, the willingness of LDCs to shift from raw material or primary commodity production to international subcontracting, and governments' willingness to provide a favourable climate for foreign investment by suppressing organised labour and other democratic rights.[3]

International Policy Recommendations

A study sponsored by the Asian Development Bank on South East Asia's economy, "Development Policies in the 70s" helps to summarise the general package of policy prescriptions recommended to LDC's. They could be generalised as follows:

> Countries must move away from inefficient import substitution policies and free the economy of import controls, foreign exchange controls and price controls. The Green Revolution must be promoted as a 'genuine dynamic force' of economic development. The agribusiness should be invited to cooperate in a country's drive towards self-sufficiency. Resource allocations must shift from domestic production to export crops for the world market. Local support, generous tax incentives, profit registrations should be provided for foreign investors, and legislations must be enacted to create a 'climate of stability' for foreign investment.[4]

Policies promoting export oriented industrialisation, have been recommended with considerable pressure by the International Monetary Fund, the World Bank, the Asian Development Bank, and UNIDO has been active in promoting Export Processing Zones in developing countries. The bias towards EOI can be seen for instance in World Bank's development indicators, ranked according to high income, middle income and low income categories. The NIC countries are held up as a model according to several indicators, particularly those demonstrating the growth of exports, particularly manufacturing exports. The thesis underlying the indicators is that there would be no obstacle to development if foreign trade and foreign capital were sufficient to support the industrialisation of the developing countries. This emphasis on exports and on foreign capital as the keys to development, has to be understood in two ways:

1. As a political logic according to which the entire industrial structure of a nation should be transformed in such a way as to concentrate all resources and energies, actual and potential in the export sector.
2. As a political proposition according to which one must prepare an atmosphere capable of attracting foreign capital.

Limitations of Export Oriented Industrialisation

Export oriented industrialisation was a strategy which was evolved during a period of boom and an expansion of trade in the world economy. The high growth rates of the newly industrialising countries of South East Asia (Singapore, Hong Kong, South Korea and Taiwan) and the significant expansion of the exports of manufacturing goods from these countries was achieved during the middle sixties and early seventies. The period begining with the decade of the '70s was characterised by a contraction in world trade and the recurrent crisis in advanced capitalist states which had led to protectionist policies and restrictions placed on goods manufactured in the periphery. The ready-made garments and textiles industry has been particularly affected by protectionist policies. Protectionist import quotas under the multifibre agreement (MFA) will seriously affect exports from developing countries. The highest increases in the export of ready made garments to the EEC in the past three years has been recorded by the USA, and cheap, low-cost exporters will increasingly face competition from China.[5]

Technological innovations being researched and developed in the advanced capitalist countries in the textile and garments industry will also pose a serious threat to those countries which seek to rely on a labour intensive strategy of industrialisation. According to a study by the UNCTAD Secretariat:

> The garments industry is experiencing far-reaching innovations in both machinery and plant reorganisation. In addition to the use of lazers in laying and cutting, developments are already visible in computer application to grading, marketing and cutting;

and further,

> in the content of oligopolistic structures and the international division of labour, such technical innovations will further reduce labour inputs, thereby eroding the major production advantage of developing countries.[6]

Critics have also pointed to the 'enclave' nature of Export Processing Zones, where the backward linkages with resources in the domestic economy have been limited, and the value added in terms of garments and textile manufacturing has been comparatively low. The arguments for technological diffusion, where the industries established in the Export Processing Zones would have the capacity to create industrial skills and diffuse technological know-how has again been fairly restricted. The overwhelming majority of workers in the Export Processing Zones has been female labour between the ages of 16 to 26 years of age, generally unmarried, where management has used the large turnover of this kind of labour to retain higher productivity.[7]

The conjuncture of the above interrelated elements, namely the contraction in world trade beginning with the early 70s, the protectionist policies and restrictions placed on goods manufactured in the periphery by the advanced capitalist countries, technological innovations in the garments and textile industries which reduce the comparative advantage of cheap labour industrialisation would lead us to question whether the

manufacture of textile garments would provide a sufficient base for the industrialisation of the periphery of the future. Although textiles and garments did provide a significant base for the early export of manufactures of the Newly Industrialising Countries of South East Asia and provided the theoretical basis for Export Oriented Industrialisation, it is unlikely that the aspiring second generation NICs would be able to repeat the same experience. The attempts by the first generation NICs to relocate their industries so as to capture the quota allocations from other low cost developing countries, and the attempts of these countries to move from a labour intensive strategy to a high technology and capital intensive industrial strategy points to the limits of Export Oriented Industrialisation.

Welfare and Growth in Sri Lanka

There is a general consensus that despite low economic growth Sri Lanka has achieved considerable success in the field of welfare policies. The FAO is commenting on Sri Lanka's welfare policies:

> We in FAO are not alone in having regarded Sri Lanka for many years as a remarkable model among the poorer developing countries. Long before it became fashionable, this country decided to concentrate its development efforts on the basic needs of the impoverished majority of its people.[8]

In comparing the performance of 59 countries, using four social indicators, namely life expectancy, infant mortality, fertility and literacy, Isenman found that Sri Lanka's social indicators, relative to its income were among the best among 59 countries. The relationship between social welfare expenditures and social indicators can be observed in Table 1.[9]

The findings of Isenman were corroborated by the Overseas Development Council in the so-called physical quality of life index. The OCD index ranked Sri Lanka amongst the most developed of developing countries in spite of its low ranking in terms of GNP.

Analysing income distribution policies in Sri Lanka, Garry S. Fields writes,

> Sri Lanka is a poor, slow-growing country. It is however, firmly committed to the alleviation of poverty and has been so committed since independence in 1948. It has made impressive progress. The poor are gaining absolutely and relatively: The reverse is true of the rich.[10]

In spite of the World Bank's consistent criticism of Sri Lanka's welfare policies, the World Development Report, 1982, records that:

> Throughout the post-war period, Sri Lanka was exceptionally successful in protecting the poor from the worst effects of falling consumption and in improving, albeit slowly, the high quality of life as measured by various social indicators.

Welfare and Growth

The role of the Sri Lankan state in pursuing economic policies was primarily determined by the Colonial economy and administration that it inherited after independence. Basically the country inherited a rigid export economy based on the export of tea, rubber and coconut, which provided a part of the revenue for the government. In the 1940s and 1950s foreign exchange earnings from war activities and the post-war commodity boom were more than sufficient to pay for extensive imports. The terms of trade fluctuated but remained more or less stable between 1948 and 1960.

Table 1. Selected social indicators

	1946	1953	1963	1973
Adult literacy (%)	58	65	72	78*
School enrolment (% ages 5-14)	41	58	65	86*
Life expectancy (yr)	43	56	63	66
Infant mortality (per 1000)	141	71	56	46
Death-rate (per 1000)	19.8	10.7	8.6	7.7
Birth-rate (per 1000)	37.4	38.7	34.3	27.9
Natural population growth rate	1.8	2.8	2.6	2.0
Population growth rate (including migration)	2.3	3.3	2.5	1.6

* *World Development*, Vol 8.

Following several crises, this strategy broke down completely around 1960, owing to the inability of the export sector to generate enough foreign exchange to pay for needed imports. The terms of trade have declined continuously since 1960. The impact of the deteriorating terms of trade was aggravated by stagnation of the production of export crops. The index for the volume of exports did not increase at all between 1960 and 1979: the quantities of tea and rubber (two of the three major export products) stagnated, and the quantity of coconut products available for export declined rapidly. The balance of payments crisis meant that the government had to manage the economy based on the restriction of imports and in the adoption of import substitution industrialisation and through the development of a public sector. The growth rate, however, continued to stagnate where the GNP at constant prices between 1960 and 1965, was 1.5 per cent and in 1965-1970, 3.4 per cent and in the period 1970-1977, 1.1 per cent.

The industrial performance during the period exhibited most of the malaise associated with import substitution industrialisation. Between 1966 and 1970 the growth rate of manufacturing output was 7.3 per cent per annum but it sharply deteriorated to 2.2 and 1.7 per cent respectively for the period 1970-73 and 1973-1976. The share of the manufacturing sector of gross domestic product was 11.6 per cent in 1966 and by 1977 this had increased marginally to 12.5 per cent. There was hardly any perceptible diversification away from the plantation dominated agrarian economy. Manufacturers' exports from Sri Lanka were only a minor part of total exports. In 1974, exports of manufactured goods (excluding petroleum products) amounted to 4 per cent of total exports. The stagnation in the manufacturing sector, however, must be seen against the spectacular increases in food production, both in the terms of increased yields and in the production of subsidiary food crops.

In sum, Sri Lanka's economic structure has been characterised by an unusual degree of rigidity; over the last few decades both the composition and the relations of production changed only to a limited extent. The particular nature of the political process

and, after 1960, the shortage of foreign exchange, were two factors that contributed to this rigidity.

The Adoption of Export Oriented Policies in Sri Lanka

During the election campaign the UNP levelled a sustained criticism of the economic performance of the United Front Government of 1970-1977. Criticisms ranged from accusations of corruption, to food shortages, and the sluggish growth of the economy. Further, the failure of the economy as we have seen was due to the adoption of "import substitution and self-reliant strategies of development where price controls, import controls and exchange controls compounded administrative inefficiency and the misallocation of resources". The manifesto of the UNP therefore sought to free the economy of all controls, regulations and growth in the economy was to be achieved by the adoption of policies associated with export oriented industrialisation. The model to be emulated was the "miracle" growth points of South East Asia and repeated references were made to the achievements of Singapore.

Sri Lanka's 8th general election resulted in a massive landslide victory for the United National Party. The SLFP and its former coalition partners were defeated by an enormous five-fifths majority by the UNP. The UNP won 139 seats which gave it 83 per cent of the seats in the National Assembly.

Soon after assuming office in July 1977, the new government initiated many basic and far-reaching political and economic policy changes. The Central Bank termed the new ensemble of policies "a sweeping departure from a tightly controlled, inward-looking, welfare-oriented economic strategy to a more liberalised outward-looking and growth-oriented one".[11] A fundamental shift in policy was the definite commitment towards a substantial degree of foreign capital participation in the country's development efforts, especially for export oriented industries. In order to create a favourable economic and political climate for foreign capital the government initiated and adopted almost all the so-called Conditionalities of the International Monetary Fund. As measures to achieve these objectives successfully, the government proposed a policy package which included the following.

The IMF Conditionalities

The International Monetary Fund and the World Bank at least in the early phase of the experiment were enthusiastic and provided considerable financial support for the experiment. Sri Lanka was one of the few remaining democracies in the Third World, and this was all the more reason why this experiment should be supported so as to demonstrate that export led industrialisation was compatible with democracy. Sri Lanka was the only country to mind which willingly adopted the IMF Conditionalities, and this was with the intention of obtaining maximum loan facilities for its economic programme.

What the IMF often calls its 'stabilisation programmes' requires devaluation of a country's currency, reduction of government spending, curtailment of welfare expenditure, encouragement of foreign private capital investment by providing incentives, removal of foreign exchange controls and import liberalisation. These are the preconditions for the grant of new stand-by loans, credit for the import of consumer goods and for rescheduling maturing debts. The extent to which the government willingly followed the so-called conditionalities of the IMF can be seen in the economic measures which it adopted after its first budget in November, 1977. These measures include the following:

1. Liberalisation of Sri Lanka's import trade implying dismantling of the controls and restrictions on external trade, and payments that had existed for nearly two decades.
2. Exchange control liberalisation.
3. High interest rates; unification of the exchange rate, devalution of the rupee by nearly 100 per cent.
4. Elimination of the food subsidy and its replacement by a food stamp rationing for those below the poverty line.
5. Gradual dismantling of the public sector corporations.
6. Increased participation of foreign capital in the economy.

The extent of IMF and World Bank support for the new policies was evident in the first budget which was presented in November 1977. In support of the policies the IMF made available to Sri Lanka a Stand By Credit of Rs. 5000 million (US $300 million). The IMF for the first time posted a resident officer in the country.

Alongside these general economic policies, which were intended to introduce a more liberal outward looking growth strategy, the government introduced four lead programmes which were to be the major development goals for the country.

Four Lead Programmes

1. The Accelerated Mahaweli Project. In the master plan this scheme was to have taken another 30 years to complete, but the government decided to 'accelerate' the programme by its intention to complete the programme within a period of six years. The project, when completed, is intended to irrigate one million acres of new land.
2. The establishment of an Export Processing Zone (EPZ) with extensive tax concessions and guarantees and infrastructure facilities.
3. An Urban Renewal and Housing scheme which includes the improvements of civic amenities, land reclamation and construction of 100,000 new housing units.
4. The Greater Colombo Development Plan, with a new administrative capital in a new Parliament called Jayawardenapura, named after the incumbent President, Mr J.R. Jayawardene.

Brief Review of Foreign Investment in the Free Trade Zone

The Free Trade Zone which was established in 1978 by the Greater Colombo Commission (GCEC) Law No 4 of 1978, was to be the major instrument in attracting foreign investment to Sri Lanka.

Although the government argued that foreign investment would be restricted to the Free Trade Zone,

it would be clear that the package of policies adopted by the government would have repercussions on the whole of Sri Lankan society.

The Performance of the Free Trade Zone

Out of a total of 137 projects that have been approved by the GCEC (up to the end of 1980), only 23, with a total investment of Rs. 137 million, have actually commenced production. Of these, the overwhelming majority are in the manufacture and export of ready-made garments. Most are subsidiaries of firms based in Hong Kong, whose indigenous industries have been affected by protectionism and the imposition of 'quotas' in the advanced capitalist countries. It is evident that these firms have come here as 'quota refugees', in order to capture the hitherto unutilised Sri Lanka export quota in the markets of Western Europe and the USA. In noting this trend, the Finance Minister himself observed, "in other words, to date the only attraction of Sri Lanka is to collar the quotas which are still available to Sri Lanka. Korea has exhausted her quota, Hong Kong has exhausted, Singapore is exhausting, so the only thing they find attractive in Sri Lanka is to collar Sri Lanka's quota".[12] The FTZ has not only failed to achieve any significant diversification of investment but the competition of these Hong Kong based firms threatens the survival of the already existing indigenous garment-manufacturing sector which has been the sole significantly expanding export sector in the country's industrial sphere. The World Bank report of 1980 on Sri Lanka has had to confess that "some of the exports by foreign garments firms may have been at the expense of potential exports by Sri Lankan garment firms. There is some evidence", the report says, "that GCEC firms undercut Sri Lanka firms for specific orders", and that unused textile quotas were 'rented' to foreign GCEC firms at less than their market value, causing 'social losses' to Sri Lanka. Ironically, the World Bank Report's conclusion must be that some of the growth in garment exports would have occurred anyway *without GCEC incentives*."[13] (my emphasis).

Although the government anticipated generating employment for approximately 50,000 persons through the FTZ, only about 20,000 jobs have been created up to 1983, of which more than 18,000 are in the garment manufacturing firms alone. Furthermore, the employment created in the Zone is not of a permanent character. The 'footloose' garment industries in the Zone are subject to fluctuations in the world market and quota restrictions and it is likely that, given unfavourable conditions, they would simply take steps to re-locate their factories elsewhere.

No significant transfer of skill or technology has taken place. The garment industries employ cheap labour, requiring little or no skills or training. The majority of young women workers engaged in the industry are those whose period of employment would terminate after marriage. Experience of labour requirements in other Free Trade Zones in other countries show that higher productivity is made possible through a high turnover rate of workers, since the average age of workers is between 16 and 26 years. The labour force is continuously worn down within a few years to be replaced by fresh workers.

No multinational corporation has yet commenced operations in the FTZ. Despite many expensive promotion drives overseas, Motorola Seminconductors, a subsidiary of the US TNC, only Motorola Corporation has signed an agreement to assemble and test semi-conductors here; the investment involved in this case is approximately US $22 million. In order to persuade Motorola to finalise the contract, the government has taken steps as far-reaching as the abrogation of the ILO convention banning night work for women.*

After two and a half years of existence, the FTZ's external trade figures still show an unfavourable balance, with the total value of imports by GCEC enterprises as at the end of 1980 standing at Rs. 677.8 million. The major share of export earnings is held by the garments sector. Since the industries in the FTZ are based on the import of raw materials, the value added in Sri Lanka is insignificant. Judging from the experience of other FTZs, it can easily be assumed that most of the export earnings do not remain in Sri Lanka. In a context where the country's external trade balance showed a massive deficit of Rs. 15,561 million in 1980 (a 100 per cent increase on the deficit for 1979), the export earnings of the FTZ will not make a major contribution towards improving Sri Lanka's balance of payments situation.[14]

Foreign Investment outside the FTZ

Given the fact that the government has offered a most generous package of incentives to prospective investors in the Zone, it is odd that more foreign investment has actually flowed outside the authority of the FTZ. While the FTZ, with all its attractions, has captured foreign investment amounting to Rs. 4,037 by the end of 1980, the Foreign Investment Advisory Committee (FIAC), with fewer incentives, has succeeded in attracting as much as Rs. 6,000 million in foreign investment in the years from 1977 to 1980.[15] The scale and diversity of investment outside the FTZ clearly shows that the attractive package of incentives, subsidies and provision of infrastructural facilities has not been the key factor in attracting foreign investment to Sri Lanka.

The investments approved by the FIAC shows that access to the local market, easy access to credit and banking facilities, and the possibility of controlling local industry are some of the major determinants for foreign investment outside the Zone. To quote Mr Esmond Wickremashinghe, a leading advisor to the government, "The FIAC, acting without any overview or guidelines, allowed many foreign firms to take control of domestic companies through their local agents, the domestic industrial sector has taken a severe beating . . . the need to remedy are the cases of foreign firms, mainly multinationals, which have dumped so heavily as to destroy domestic industry . . . Now they are moving in for the kill of buying up these

* Motorola has now withdrawn from the scheme.

domestic industries, who due to unrestricted dumping have been faced with the alternatives of bankruptcy or selling out to multinationals."[16]

Foreign Investment in the State sector

Significantly, some of the major multinational corporations to invest in Sri Lanka have sought collaboration with the state sector. This participation has been in several forms—direct capital investment, supply of management services, technical know-how and a combination of these forms. Important collaborative agreements are those of BG Goodrich with the Sri Lankan Tyre Corporation, Nestles with the National Milk Board and several textile manufacturing firms from India, such as Tootal International Ltd, Bombay Dyeing and Manufacturing Co. Ltd, Lakshmi Textiles, Star Textiles Engineering Co. etc, who manage the State textile industry.

Several other smaller foreign firms from India, Japan and South Korea have entered into joint venture agreements with the state sector.

The investment situation would indicate that, contrary to the government's declared intention of restricting foreign investment to the area of the FTZ, state policies have allowed foreign capital to penetrate all major sectors of the domestic economy, including manufacturing. Contrary to the belief that policies associated with 'export-led industrialisation' would lead to further industrialisation within the country, the experience so far goes to show that even existing domestic manufacturing capability has been destabilised.

The Proposed Agricultural Promotion Zones (APZ)

It is against this background that the government's intention to develop Agricultural Promotion Zones should be reviewed. The Minister of Agricultural Development and Research in a press statement disclosed the fact that the government had accepted the report submitted by an official committee on the setting up of Agricultural Promotion Zones (APZ).

The committee, in discussing the rationale for the creation of Agricultural Promotion Zones, noted that unlike the Free Trade Zones which were generally concentrated in specific geographical areas due to the need for heavy infrastructure and other facilities, APZ investments need not be confined to small geographical pockets of the country. Instead private investment would benefit more "if given flexibility in choosing their own project locations in view of the large micro variations in agro-economic conditions, i.e. land, soils, rainfall, irrigation potential, labour supply, infrastructure support."[17]

Although the government specifically stated that Agricultural Promotion Zones would be *restricted to non-irrigated land*, there is considerable evidence to show that the government intends to offer the vast areas of over one million acres of irrigated land which is being developed under the accelerated Mahaweli Development Programme in the Dry Zone of Sri Lanka.

The Accelerated Mahaweli Programme according to the President was intended to fulfil two major problems of the country:

> It will bring under cultivation about 650,000 acres of new land and provide assured water for another 250,000 acres of existing lands. It will provide employment to about a million people and enable achievement of self-sufficiency in agricultural production.[18]

The Mavaweli Programme is Sri Lanka's biggest development project. It is a part of a policy package that the government determined in conjunction with the Sri Lankan Aid Consortium, the IMF and the World Bank. The programme would be underwritten by a generous flow of funds from the USA, Britain, Sweden, Canada and Japan as grants, loans and investments. It is a high recipient of aid and will include large scale imports from donor countries. According to Mr David Hopper, Vice President, World Bank, the programme as a whole will cost $4 billion in current prices and the expenditure over the next five years will be around £800 million.[19]

Although the government states that land allotments of 2½ acres each will be made to peasants being settled in the Mahaweli area, the massive scale of investment in the Programme will raise the question as to whether small-scale land utilisation and subsistence farming could ensure sufficient returns. The fact that the government has decided to encourage foreign investment in the Mahaweli Development Programme can be observed by some of the following facts.

At a symposium on foreign investment opportunities in Sri Lanka in March 1981, Mr Garmini Disanaike, the Minister of Lands, Land Development and Mahaweli Development made the following statement:

> "A hundred years after the British investment in tea and rubber, and to a lesser extent in coconut, we are asking foreign investment to come into the field of agricultural investment." He called upon foreign companies to pay special attention to the 350,000 acres of land that will be developed by 1985: "The Kotmale Dam, Maduru Oya Dam, the Randenigala Dam together will irrigate a further 300,000 acres after the accelerated programme is over in 1985. So, the government has made a deliberate decision to ask for all forms of agricultural and agro-based industrial investment."[20]

In line with the present US government's intentions of promoting private foreign investment in developing countries, it was reported that "Capital from entrepreneurs from the United States will be available for Sri Lanka's private sector concerns interested in setting up agro-based industries". Mr Freeman, the Chairman of the Agricultural Consultative Corporation who visited Sri Lanka with a delegation from the USA, claimed that "there is a vast potential in Sri Lanka for the development of agriculture and agro-based industries. The resources, both land and people, were available as well as close proximity to ever expanding Asian markets."[21]

According to the All Island Peasant and Rural Workers, an organisation which consists of six National Rural Organisations, a total of 110,250 acres of Sri Lankan land is to be leased to foreign companies under existing arrangements.

The concern at the present policies of the government, particularly in the formation of APZ in irrigated land was aptly expressed by the All Ceylon Peasants Committee in the appeal addressed to the President and members of Parliament. The appeal ends as follows:

> The peasantry, who comprise a large proportion of the population, face ruin. They are being turned into a reservoir of cheap labour to be exploited by foreign companies . . . In the colonial days the British Government imported the labour for their plantations from India. Today the government is helping the foreign companies to get a new source of cheap labour by impoverishing the peasantry . . . We are being deprived of our land, of land which has been cleared, irrigated and settled from public funds for development by our farmers. We are enslaved once again to foreign capital.[22]

The brief review of Foreign Investment Policies in Sri Lanka point to the growing shift of emphasis from export oriented industrialisation to agricultural production for exports. Whilst the Sri Lankan government adopted most of the conditionalities of the IMF so as to attract foreign investment to the Free Trade Zone, for a variety of reasons this strategy was not successful. The establishment of Agricultural Promotion Zones reflects the adaptation of the State to the shifts in the international division of labour, where international agribusiness is playing an increasing role.

Consequences of Export Oriented Policies

The arguments for the adoption of Export Oriented Policies is that these policies would lead to higher growth rates, higher productivity and increases in manufactured exports. The open economy in contrast to self reliant strategies, would enable countries to save foreign exchange, increase employment and help raise the standard of living. Implicit in these arguments is the idea that welfare programmes and subsidies should be abandoned since they are presumed to lead to inefficiencies in the reallocation of resources for production. The concluding section will review some of the macro implications of the strategy adopted, particularly the effects on welfare policies and its social consequences.

The Effects of Import Liberalisation

Import liberalisation which is the hallmark of IMF conditionality was vigorously pursued by the government, and the import controls which had previously existed were abolished and opened the door for unrestricted private sector imports. A consequence of the import liberalisation measures was the abolition of all public sector monopolies for the import of yarn, textiles, oil, fertiliser, milk, medicine, tractors, cement etc. In support of these measures the IMF provided to Sri Lanka a Stand By Credit of Rs. 5000 million (US $300 million). The result of the import liberalisation measures came to be seen within a period of a few months. Expensive radios, tape recorders, refrigerators, air conditioners, liquor, tinned foods, carpets, toys, trinkets and cars were flooding the local market.

The effects of the import liberalisation measures can be seen in the comparison of the import figures for the two four-year periods, 1974-1977 and 1978-81, in the table below:

	1974-78	1978-81
Animal products	Rs. 466 mn	2,137
Vegetables, rice, flour etc.	7,410	13,582
Prepared food stuffs	897	7,681
Sugar	699	6,126
Meat and fish	14	253
Mineral oils	4,515	24,227
Chemicals, incl. fertiliser and pharmaceuticals	1,618	7,589
Paper products	383	2,145
Cotton yarn textiles	1,226	9,007
Base metal	999	7,236
Machinery and equipment	1,350	14,840
Vehicles and transport equipment	857	6,325
Total	20,451	105,468

Source: Centre for Society and Religion, Foreign Aid and Foreign Debt.

Although imports increased five-fold from Rs. 20 billion in 1974-1977 to Rs. 105 billion between 1978-81, the export income did not increase correspondingly. From 1978 to 1981 the volume of exports increased by 2 per cent, whilst imports increased by 45 per cent. The terms of trade deteriorated sharply. Between 1978 and 1981 export prices increased by 29 per cent whilst import prices rose by 182 per cent. The terms of trade deteriorated from 100 as the 1978 position to 46 in 1981 (Central Bank Report, 1981, p. 64).

Import liberalisation had a serious effect on local middle-sized and small industries nurtured under the import substitution period. Small cottage industries such as handloom textiles, wood and paper products, suffered heavily from import competition. Most of these industries were forced to move to other activities, such as the lucrative import/export trade, and the distribution of imported consumer goods. Also in the bigger factories production declined significantly. There has been a sharp decline in the production of metal goods, machinery, transport equipment, and textiles, and cement, due to marketing problems and import competition.

Impact on the Balance of Payments and Foreign Debts

The effects of the import liberalisation has had a serious and permanent effect on the balance of payments. The table (p. 253) provides a picture of the alarming increases in the composition of the domestic and foreign debt. The total public debt has been increasing at a galloping rate since 1977. The foreign debt has grown from Rs. 4.4 billion in June 1977 to a phenomenal Rs. 29.7 billion in June 1982, a seven-fold increase in five years. The financing of the deficit since 1977 has been through borrowings from banking sources, or printing money and IMF support and increases in aid and grants.

Although the proponents of export-led industrialisation argue that this strategy would lead to a savings in foreign exchange, the experience of Sri Lanka shows

precisely the opposite. Not only have the terms of trade been worsening, but the external debt has more than quadrupled in the last five years.

Public debt, Rs. M

		Foreign debt	Net domestic debt	Total net public debt
September	1970	1,551	5,686	7,237
June	1977	4,411	11,132	15,543
December	1977	10,593	11,840	22,434
December	1978	14,582	13,163	27,745
December	1979	15,841	15,671	31,511
December	1980	22,276	24,502	46,779
December	1981	29,172	29,487	58,659
June	1982	29,765	33,798	63,563

Source: Bulletin, Central Bank of Ceylon, June 1982.

World Bank Assessments

The World Bank itself has sounded the alarm at the massive debt burden of the Sri Lankan economy. In its report "Economic Adjustments in Sri Lanka, 1982", the World Bank warns, "The danger is that Sri Lanka will soon find itself undertaking a new commercial borrowing mainly to pay interest on the existing debt. This simply fuels a vicious circle of ever increasing borrowing which is usually compounded by tendencies for borrowing terms to harden in such circumstances . . . such an internally unstable scenario must inevitably collapse, forcing severe economic hardship upon the country . . . and the longer the required adjustments measures are postponed, the more severe they must eventually be."

Economic Growth

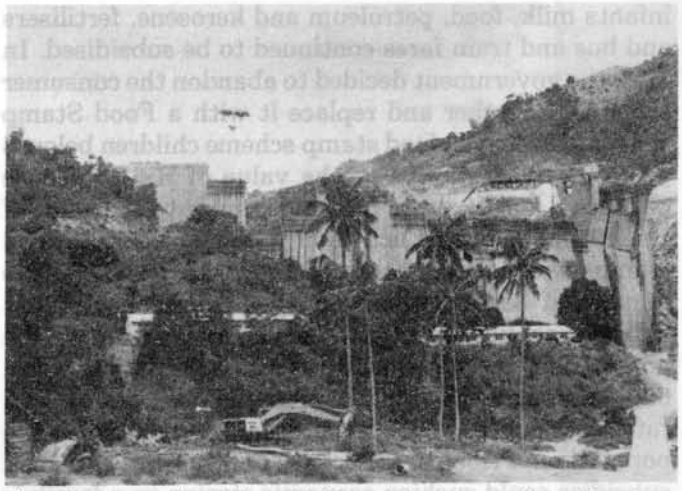
The argument for export oriented industrialisation was that previous policies, particularly the welfare package was a disincentive to growth. The table below provides a summary of the GNP annual growth rates, the consumer price index, and the growth rate of real wages.[23]

Consumer prices Index 1952=100
Averages for each period

	GNP per person. Average annual growth. Percentages. Constant prices.	Real wages. Index. 1952=100 Averages for each period			
		All items Food	Food	Central Govt	Teachers
1960 to 1965	1.5 3.4	108 122	103 119	118 117	109 104
1970 to 1977	2.9	173	174	115	92
1978 - 6.0					
1979 - 4.0		266	280	122	88
1980 - 3.6					
1981 - 2.3		378	400	111	76

Source. Based on: Central Bank of Ceylon—Review of the economy 1976, Annual Report, Bulletin May 1981; Bulletin June 1982. Department of census and statistics—Statistical abstract 1977. Kappagoda & Paine, 1981.

Sri Lanka's growth rate rose to 6.0 per cent in 1978. But in 1979 the growth rate was reduced to 4.0 per cent, in 1980 to 3.6, and in 1981 to 2.3 per cent. The high growth rate which was recorded in 1978 was due



Victoria Dam on the Mahaweli. Trees being cleared from Dumbara Valley, prior to inundation by Mahaweli Scheme.

to the massive increase in trade due to import liberalisation, but no significant growth in manufacturing was recorded in all the four years. The non-export agriculture, which has a weight of 17 per cent in the GNP, recorded only a growth rate of 0.7 per cent. With the exception of paddy (rice) there was no growth at all in 1979. However, the use of fertiliser in paddy declined by 37 per cent, the use of small agricultural credits dropped sharply, also the production of minor food crops declined as a consequence of the increased imports of cereals, potatoes, onions, chillie, etc. Sugar production fell by 26.5 per cent.[24]

The rate of inflation which was a modest 12 per cent in 1977, reached 35-40 per cent in 1979 and has been stable around 40 per cent until 1983. Real wages have dropped significantly and records a drop of 30 per cent over the past few years. According to the Central Bank review of 1982, apart from falling prices for exports, a significant drop in the growth of the Gross National Product (GNP) has been due to the massive outflow of factor income brought on by excessive foreign components of production: "The participation of foreign factors of production, particularly the expansion of capital, has led to the increased outflow of factor income by way of interest, profits and dividends, deflating the GNP considerably."

Dismantling the Welfare System

There has been a steady cutting down of the subsidies during the past five years, both as a proportion to the gross domestic product, and of the government's current expenditure. The expenditure of total social services and net food subsidies decreased from 41.8 per cent of current expenditure in 1977 to 16.7 per cent in 1982. In relation to GDP subsidies were reduced from 7.6 per cent in 1977 to 3.04 per cent in 1982. The government's "Public investment 1982-1986" gives a similar reduction of subsidies from 10.3 per cent of GDP in 1978 to 4.7 per cent in 1981. The most dramatic reduction has been the food subsidy. The free and subsidised food ration was substantially reduced with only those earning Rs. 300 per month, about seven million or half the population being entitled to one pound of rice free and to three pounds at Rs. 1 per pound per week. Flour, sugar,

infants milk, food, petroleum and kerosene, fertilisers and bus and train fares continued to be subsidised. In 1979 the government decided to abandon the consumer scheme altogether and replace it with a Food Stamp scheme. Under the food stamp scheme children below 8 years received stamps to the value of Rs. 25. Those between 8 and 12 years received stamps to the value of Rs. 15 per month. Each family unit entitled to food stamps was entitled to kerosene worth Rs. 9.50. The number of beneficiaries was Rs. 7.3 million of about half the population of Sri Lanka. The saving to the government by these measures was approximately Rs. 650 million. The changes in the food subsidy and rationing policy would have dramatic results on the population. Prior to 1979 free rice rations and food subsidies could cushion economic strains on a family's food budget. The food stamps are fixed in monetary terms leading to a reduction in food stamp purchasing power when food prices are rising. In reviewing the effects of the changes in food subsidy and rationing policy and its effects, Geoff Lamb observes, "It also makes increasingly vulnerable welfare gains such as the food subsidy and ration system which, despite often criticised economic inefficiency, has probably been the most important single factor in Sri Lanka's very favourable longevity and nutrition record."[25] The current situation is that due to the increasing deficit in the government's balance of payments and deficits in its current account, the IMF has requested the government to abandon the food stamps scheme altogether and it is likely that the government will be forced to follow this recommendation.

Social Consequences of Export Oriented Policies

In a strategy which diverts resources from present welfare to future growth, the inevitable lags between investment and output, between capital outlay and productive employment, are always certain to work against the poor, unless development strategies are consciously directed towards the poor. The regulated economy functioned as an instrument for equitable distribution in a period of scarcities. The present policies, however, would stimulate the demand of high income groups, with the phenomenon of conspicuous consumption which will exert pressures and divert resources, through market forces, for the satisfaction of demand for higher income groups. In such a process there would be an inherent tendency to widen the income disparities in society. It would also create an economic environment in which it would be difficult to raise the level of domestic savings particularly to support the capital accumulation needed for long-term growth.

Export oriented policies for the world market require that domestic purchasing power (wages) be continuously reduced or maintained if that country has to retain its comparatively low wage advantage in the international labour market. This strategy is different to import substitution industrialisation where domestic purchasing must be enhanced for the sale of goods within the domestic economy. The large reserve army of labour available in the periphery and the existence of subsistence agriculture perpetuates low wages in the urban sector. This would seem a welcome strategy to peripheral states who are unable to effect reforms in the domestic economy.

The combination of policies associated with import liberalisation, continuous devaluations of the currency and galloping inflation, has helped to reduce the purchasing power and real wages of the population. Price stability, which was an essential component of the regulated economy, has been abandoned, and Sri Lanka has been vulnerable to externally induced inflation as a result of rising oil prices, global inflation, foreign remittances and so on. These trends have been reinforced by inflationary pressures induced by domestic policies. Domestic inflation has been compounded by borrowings from banking sources, printing money and the capital investments through foreign aid of huge infrastructure capital investments. The growth in the domestic public debt would have undesirable social impact and contribute to the growth of income inequality in the country.

The rate of inflation had reached astronomical heights by 1980, representing a ten-fold increase to the 1960 period. The rate of inflation will be in the range of 35-40 per cent during the years 1983-84. The increase in the cost of living has been felt by all sections of the population, and particularly by those who earn fixed incomes in the state and private sector. Wages in the public or private sector have not kept up with the increases in the cost of living, so that all fixed income groups have experienced a real loss in purchasing power and an inability to live within given wage levels. In the agricultural sector, due to the increase in the costs of tractor hire, reductions in the fertiliser subsidy, and increasing costs, there has been a fall in the disposable incomes of the peasantry. The reduction of the subsidy and the reduction of the welfare programme would inevitably have the effect of eroding the income support which the welfare programme produced for the poor.

The extent to which inflation affects different income groups depends on their consumption preferences and needs as well as their income level and access to non-market food. According to Arne Ashugg's study, "Increases in the prices of basic food items like rice, flour, bread, dried fish, coconut, coconut oil and sugar were exceptionally high both in 1980 and 1981. Kerosene oil increased by 142 per cent in 1980 over 1979 and another 24 per cent in 1981". All these basic items are used in urban and rural areas. The 34 per cent increase in rice, 84 per cent in wheat flour, 78 per cent in bread, 31 per cent in dried fish, 55 per cent in coconut and 84 per cent, compared with only 26 per cent average increase recorded in the Colombo Consumer Price Index in 1980, invariably causes increasing difficulties to low income groups, who mainly depend on these basic items for their food needs.[26]

Female Employment

The fall in the value of Sri Lanka's currency and the reduction of purchasing power meant that generally wage levels became comparatively cheaper to those foreign investors both in the free trade zone and outside. Sri Lanka now boasts in its publicity brochures of having the "cheapest wage in Asia".[27] Policies associ-

ated with export industrialisation with its emphasis on modernisation and consumerism have undoubtedly created a "revolution in expectations". The large influx of consumer goods hitherto unknown in the villages, the transistor radio, the cassette tape recorder, colour television (a free gift from Japan), the phenomenal increase in the demand for 'consumer' culture has had a demonstration effect which is pervasive. A consequence of these is that young people are no longer willing to pursue traditional occupations. With the changes in government policy the pattern of occupational participation of females seems to have undergone a dramatic change. The loss of the value of the currency has meant that whatever was saved by parents, either for their daughter's wedding or for her dowry has become valueless. This also means that no single breadwinner is now able to support a full family. Therefore families adopt a strategy of multi-employment, to retain income levels. In this sense it would be natural for daughters to seek employment in whatever avenues are available to them. It is in this sense that we must analyse the employment opportunities newly created by tourism, free trade zones and the export of female labour.

It would appear, given the conditions of poverty and the 'revolutions' of expectations, created by the ideology of modernisation, that young women are the beneficiaries and the victims of export-led industrialisation. Apart from female employment in the Free Trade Zone, and in the tourist industry, the most phenomenal increase in female employment has been recorded in the export of female labour to the Middle East. Up to 1983, more than 100,000 females have secured employment as housemaids. In a study on "Employment of Sri Lankans in West Asia" by the Ministry of Plan Implementation, "of those Sri Lankans who obtained employment in the Middle East, the majority comprise unskilled manpower of those who found employment as housemaids".[27] Foreign exchange remittances from the export of labour to the Middle East is now the second largest foreign exchange earner for the government.

According to a study by People's Bank Survey as to the social factors which lead to the search for employment in the Middle East, "these forms of employment now possess a high social value. A trend which did not exist earlier." The study goes on to suggest that the age group 23-24 displayed the highest interest to secure foreign employment. "Reductions in the disparity in material conditions which has existed among the villagers earlier, appeared to be an important feature evident in the post-Middle East situation". According to the study, the interest in foreign employment had increased depending on the size of their families and problems of seeking an existence based in these incomes. Eighty-four per cent of those surveyed had sought a job abroad due to economic problems and indebtedness.[28]

Income Distribution

The consequences of export oriented policies on income distribution can be seen in some recent studies. The top ten per cent of Sri Lanka's income earners get 39 per cent of the total (of incomes in the country). In 1973 the figure was much lower, 30 per cent. Also in that year, the bottom 40 per cent of the income earners together received 15 per cent of the total; now the share has dropped to only 12 per cent. It is expected that this gap will continue to increase in the future.[29]

Effects on Social Indicators and Nutritional Status

According to one study: "Thus the open economy not only made us indebted, but also helped to run down our own production due to the dumping of imports. Yet due to the inflation and low incomes, the poorer half of the population cannot buy these goods. Hence there is malnutrition of about a third of our school-going children and infant mortality has risen by 25 per cent, from 37 to 47 per 1,000 during the past four years.[30] Infant mortality in 1979 (per thousand live births) was 38. In a restricted report by the World Bank on Economic Adjustments in Sri Lanka: Issues and Prospects, 1982, Infant Mortality (per thousand live births) was 49 in 1981. *Which gives for the two years an increase in infant mortality of 28.9 per cent.* (My emphasis.)

Twenty-four district nutritional and socio-economic surveys were conducted by the Food and Nutritional Policy Planning division of the Ministry of Plan Implementation from September 1979 to January 1982. The final report which has just been published reveals the effects of these policies on the nutritional status of the population. According to the report, three basic definitions were used to determine nutritional status—chronic undernutrition (stunting), acute undernutrition (wasting), and concurrent acute and chronic undernutrition (concurrent stunting and wasting). Some of the findings which were reported in the daily press are as follows.*

The survey shows that the percentage of chronically undernourished children in Sri Lanka increased steadily from 11.8 per cent at the age of six to eleven months to 46.2 per cent at five to six years. "The percentage range of pre-school children suffering from acute undernutrition has increased since 1975, when the range was between 3.7 per cent and 8.8 per cent. The recent survey has indicated a range from 4.6 per cent and 11.8 per cent for an age range of six months to five years, clearly pointing to a serious deterioration in the situation in many parts of the country.

The survey showed that compared to figures in the first ever island-wide nutrition survey conducted in 1975, there will be a progressive increase in the proportion of chronically undernourished children with increasing age. Under the category of chronic undernutrition the survey revealed that several districts were worst affected with 34.6 per cent of all pre-school children between the ages of six months and five years being affected, with Nuwars Eliya district being the worst affected with 34.6 per cent, followed by Kandy, 31.1 per cent, Mullaitivu (28.1 per cent). Fifteen districts had a level of over 20 per cent while only the district of Colombo was below 10 per cent. In a country

*There is some controversy with regard to this survey, and criticisms have been levelled at the methodology of the study. The Ministry is presently withholding its circulation.

A settler's house in the area affected by the Mahaweli Scheme.

where these adverse conditions persist, there will be a progressive increase in the proportion of chronically undernourished children with increasing age.[31]

The general trend in declining social indications has also been underlined by many observers. According to R.H. Green: Assessing Sri Lanka's performance:

> In the late 1970s and early 1980s, security for the very poor was eroded, malnutrition and infant mortality rose (breaking a trend of three to four decades). Inflation soared and real wages fell, the external imbalance position became increasingly precarious, and the dash for neo-capitalist, export-led growth looked increasingly unlikely to be maintainable.[32]

Export Oriented Industrialisation and Political Destabilisation

The Sri Lankan experiment was an attempt to demonstrate the viability of Export-Led Policies with the maintenance of democratic traditions. This was an important experiment, according to its international supporters, particularly since the so-called Newly Industrialising Countries had a known record for the violation of labour rights, and Human and Democratic Rights. Exponents of export-led growth had argued that the adoption of this strategy would not only lead to high growth rates but that it would have a 'trickle down effect' which would have the long term effect of raising wage levels and purchasing power. Rising purchasing power it was argued would inevitably result in pluralism and political democracy.[33]

As far as Sri Lanka is concerned the experiment has been an undoubted failure. The open economy and the political and economic preconditions for export-led growth has had far reaching effects on the democratic traditions known to Sri Lanka. The worsening economic conditions for the large majority of the people, the continuing repression against workers, peasants and the national minorities and the erosion of democratic freedoms seem to be the inevitable concomitants of the social costs associated with export-led industrialisation.

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Food and Hunger in India

by Sumanta Banerjee and Smitu Kothari

The World Bank tells us "the economic development . . . can have tremendous dividends if done carefully and well," and it cites the example of India. "Some 20 years ago" it tells us, "India was unable to feed itself. It was importing about 10 million tons of food grains each year. Today, food production has increased to the point where *India can feed itself*. This achievement is a tribute to sensible government policies—development policies—as well as assistance from development agencies such as The World Bank, and its affiliate, the International Development Association (IDA)." So much for the rhetoric, now for the realities!

PHOTO: MAZINGIRA

Traditional fishing people on the beach at Kerala, India

Compared with the performance of most Third World countries, India's agricultural development has been significant. While the former have become dependent on ever-increasing food aid and imports, India, according to government claims, has increased its food output from about 60 million tonnes in 1950-51 to 152 million tonnes in 1983-84.

However, a closer look reveals a reality of chronic undernourishment and, for a growing number of people, a declining access to essential sources of food. We will attempt to look at some critical indicators to illustrate how rising production has done little to alleviate the growing, or at best, static levels of poverty all over the country.

Nutrition Levels and Consumption Patterns

Despite growing production and sizeable food stocks, the proportion of the population consuming less than 2,250 calories per day has remained almost unchanged in the last decades—at around 40 per cent. In view of the present population growth, this also implies that the absolute number of malnourished in the country is expanding annually by some six million people.

Surveys conducted by the National Nutrition Monitoring Bureau (NNMB) show that diets of nearly half the people surveyed were deficient (even on the basis of the lowered yardsticks of adequacy adopted by NNMB since 1978). By the same yardsticks 85 per cent of children below the age of five could be considered to be underfed.

Professor D Bannerji of Jawaharlal Nehru University in New Delhi, who conducted a long-term study of poverty, class and health in 19 villages, located in eight states, concluded that taken as a whole almost half the population was short of food at some time during the year with more than a third remaining hungry for three months or more.

In this study, those who were unable to obtain two square meals a day (of any composition) all round the year were defined as 'poor'. Banerji concludes that "the proportion of the poor in the population will increase sharply if, instead of adopting merely the criterion of two square meals all round the year, the definition is changed to 'two square *wholesome* meals all round the year by including even a small quantity of *dal, pulse, ghee,* or oil and iron in the meal of the adult and a small quantity of milk for children in the definition. The extent of poverty goes up still further if minimum norms of housing in terms of space and hygiene are also included. If in addition a minimum standard of environmental sanitation and quality of drinking water are taken into account very few will be able to escape being labelled as 'poor' ".

The National Sample Survey, a comprehensive all India statistical survey observed that in the context of household expenditure, "nearly 50 per cent of our population has been living below the poverty line continuously over a long period." Besides, numerous estimates of rural poverty indicate that the proportion of the population living below the poverty line has stood at close to 60 per cent during the last 20 years.

Chronic malnutrition also increases the susceptibility of people

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to a wide range of diseases. Thus, according to the conservative estimates of the government, nearly 30,000 are becoming blind each year as a result of vitamin A deficiency. According to Dr C Gopalan, until recently the Director of the Nutritional Foundation of India, this is an underestimate as it is based primarily on hospital data. Studies conducted by the National Institute of Nutrition, reveal that 63 per cent of India's children up to 3 years old and 45 per cent of children in the age group 3-5 years suffer from iron-deficiency—anaemia.

During 'the lean season', when it is difficult to obtain agricultural work, hunger affects a still larger number of people. While some of the hungry resort to migration, others find irregular employment in their home area at highly exploitative wages. It is obvious that this 'normal hunger' which affects almost all Indian villages is, in years of drought, floods and other 'natural' disasters very much worse.

All this makes it clear that neither the national 'food surplus' nor industrial development have done anything to satisfy the food needs of the poor. Why has this been so? The obvious reason is that the present policy of modernisation with the environmental disruption it inevitably causes, and without adequate care for the needs of the local people, has often cut off a large number of poor people from their traditional sources of sustenance such as forest produce, traditional food crops, fish, milk, clean water and the fuelwood with which to cook their food.

Forest Produce

Sixty per cent of forests have been felled in the past forty years, displacing forest-dwelling communities and those marginal populations dependent on the resources of forests. Ecologically, the deforestation has created chronic soil erosion and water shortages. This has led to greater impoverishment as sources of sustenance and support have been disrupted or destroyed. The market has, in most cases, been unable to absorb those deprived of their sustenance in this way and they have either been forced to migrate or to be content with irregular employment in their home areas.

Traditional Food Crops

Thus the massive industrial growth has taken place at the expense of wide-spread environmental degradation. The increased use of artificial fertilisers also obscured the underlying decline in the productivity of the soil. Ministry of Agriculture estimates made in March 1980 indicate that the total land area adversely affected by environmental problems is a staggering 17,500 million hectares.

Of these, over 87 million hectares of land are agricultural. This means that over 60 per cent of the total cultivated area of 143 m.ha. is affected by varying levels of land degradation with prospects of a long-run decline in its productivity. These estimates do not take into account the substantial amount of land affected by floods every year. According to the National Commission on Floods some 40 million hectares are today prone to periodic floods (compared to 25 million hectares in 1950).

Also not accounted for is the land affected by waterlogging and salinity particularly in the more recently developed areas around irrigation canals and dam reservoirs. B B Vohra, ex-president of India's Environmental Planning Commission, estimates that 25 per cent of the total net irrigated area of 40 million hectares is thus threatened and needs immediate corrective measures. In all, Vohra estimates that 200 million hectares of land in India are affected by varying degrees of degradation. This represents 75 per cent of our potentially productive land resources. Inevitably, this terrible environmental degradation has adversely affected the nutritional status of the millions of people who previously lived off this land.

Much of the destruction has been caused by large development schemes—such as large dams, to accommodate which enormous numbers of tribals and other small farmers have been forcibly displaced. They and those whose land has been too degraded to farm have been condemned to earning a precarious living as casual labourers or by migrating to the cities.

Fish Resources

For the poor living along the country's 5,600 kilometre coastline, fish was the main source of animal protein. The total production of fish in India—including marine fish from the Arabian Sea in the west, the Bay of Bengal in the east, and from rivers and ponds is estimated at two million four hundred thousand tonnes a year. The fishing potential of India per annum is said to be eight million tonnes. To exploit those supposed resources, the government is promoting an ambitious programme of deep sea fishing which first involves putting up the appropriate infrastructure facilities and making the necessary marketing arrangements. But like many other developmental programmes, the government's fishing programme also favours the commerical interests of the traders and businessmen at the cost of reducing the amount of fish available to the poor.

Thus the introduction of mechanised trawlers is destroying the traditional fishing industry depriving local fishermen of their livelihood. Trawlers ignore the law which bans them from coastal waters. In their efforts for instance to maximise their prawn catches, they resort to effective but highly destructive techniques which involve, among other things, dragging heavy weights along the seabed. This totally destroys the habitat of the fish as well as their eggs. It also stirs up the sediment, causing water turbidity, creates a lot of noise and, in other ways too, drives off shoals of fish as they head for the coast for feeding and spawning.

Much of the fish taken is sold in the cities or exported abroad as a means of obtaining the foreign exchange required for development. According to a government spokesman, only 100,000 tonnes of marine fish are exported every year out of 1,400,000 tonnes taken. This may be true. However what is left for domestic consumption tends to be cornered by the middle men who, with the commercialisation of fishing, have suddenly appeared on the scene. They sell the food to commercial enterprises who process it

PHOTO: MAZINGIRA

An Indian fisherman's wife shows a meagre day's catch: freshwater pollution is a real problem, with few of the largest cities having primary facilities for water treatment, and only ten per cent of the rural population receiving treated safe drinking water.

and sell it to the urban rich. Among other things this has led to a vast increase in the price of fish along the coast. Thus Kerala mussels were once freely available to those who took the trouble to collect from the banks of ponds. When they appeared in village markets, they were sold in piles at throw-away prices. This is no longer true today, they are now being canned by commercial firms, and a can containing eight mussels costs around 10 rupees or even more.*

Unfortunately it is not only marine fish stocks that are being depleted. India's inland fisheries are also threatened as the rivers and irrigation canals are increasingly polluted with industrial effluents. Thus traditional fisheries that remain in a number of creeks around Bombay are now being adversely affected by industrial effluent and sewage.

Reports from Calcutta suggest that fishing even as a pastime has almost disappeared as the accumulated sewage in rivers flowing past built up areas is literally asphyxiating fish life. In a 158 km stretch of the Hooghly river the average yield of fish is about six times lower in the polluted area than in that for instance which has remained relatively clean.

Today, the average Indian consumes about fifteen grams of animal protein as against thirty grams which nutrition experts regard as desirable. In a country where people cannot afford to eat expensive meat, fish is the main source of that animal protein, so it is particularly tragic that so much of the fish that would normally be available is being diverted to the urban rich and to the already overfed in the rich countries of the west.

Drinking Water

The pollution of our waterways has not only affected fishing yields but also the availability of drinking water in the villages. Today one-fifth of our rural population lacks a suitable source of drinking water. Even in urban areas the water supply is far from satisfactory particularly in the slums of the urban areas. Big investments have been made on water supply facilities and on sanitation but much of this has been spent in the cities rather than in the villages. Thus during the period 1951-74, 8,550 million rupees were spent for this purpose but over 65 per cent of this went to urban areas. Because of the lack of clean water in rural areas the incidence of water-borne diseases continues to be extremely high.

The government has classified 190,000 out of a total of 567,000 villages in India as 'problem villages'. Some of these villages do not have a reliable source of drinking water within a distance of 1.6 kms. The water supply of other problem villages is contaminated with the vectors of water-borne diseases, while in some, the water supply is excessively saline or contaminated with iron, fluoride or toxic substances.

*10 rupees equals about 70 pence.

Unfortunately the efforts made by the government to provide water to thirsty villagers in no way compensates for the systematic drying up of existing water supplies caused by the massive deforestation that has been associated with economic development, nor by their pollution with agricultural and chemical wastes which are being generated on an ever greater scale.

To give an example, the Institute for Science of Bombay, has studied a ten km stretch of the river Kalu which flows through the industrial suburbs of North East Bombay, receiving effluent from over 150 factories. The effluents were found to contain metals including lead and mercury, the latter having been converted by bacterial action into soluble methyl mercury—a deadly poison which is easily taken up by living organisms. It appears that the cattle that graze on aquatic plants in the shallow waters of the river, have taken up this mercury and their milk has been found to contain this poison which must inevitably be taken up by those children to whom it is fed. Significantly the symptoms of mercury poisoning (cramps and convlusions, reduced energy, hearing impairment, damaged vision etc.) are already discernable among the local population.

Milk Products

The commercialisation of the dairy industry is also depriving the poor of this important source of nutrition. Although India has a large cattle population, milk production is low, the average yield of milk per cow being 413 pounds as opposed to 8,000 pounds in the Netherlands, 7,000 in Australia, and 5,000 in the USA. As a result little milk is available to the average Indian (an average of 100 grams a day against a minimum requirement as recommended by the Indian Council of Medical Research of 210 grams).

To increase milk production the Indian Government launched its ambitious 'Operation Flood' (See *The Ecologist*, Vol. 15 Nos. 1/2) but this has not improved milk availability to the average man. The goal of the first phase of the programme (Operation I) which lasted from 1970-79 was above all to make India's four metropolitan cities, Bombay, Delhi, Calcutta and Madras self-sufficient with regard to their milk requirements. Since enough milk could not be procured from the villages, the authorities had to import milk powder from abroad. The EEC countries were of course only too willing to dispose of their massive milk surplus in this way.

Nevertheless much of the milk came from the villages and the government's drive to procure the milk has had a disastrous effect on the nutritional status of the villagers. Milk, once it had become a cash crop that could easily be sold to the large dairies and transported to the cities ceased to be available for feeding the children in the villages who really needed it. According to India's Planning Committee, even after Operation Flood, rural consumption of milk will lag behind urban consumption. According to one estimate, it will increase in rural areas from 86 grams per capita per day in 1976-77 to 117 grams in 1984-85 (the final year of Operation Flood II); in small towns from 155 grams to 194 grams and in bigger towns from 185 grams to 212 grams while in the metropolitan cities the increase will be from 226 to 252 grams. Even if this increase actually takes place it is clear that the large scale commercialisation of dairying has led to a massive diversion of milk supplies from the rural areas where it is produced, to the large cities whose inhabitants are the real beneficiaries.

Firewood

Fuel is an important component of India's food economy. Relentless deforestation in the last thirty years has given rise to a serious shortage of cooking fuel. Let us not forget that 75 per cent of the fuel used in rural areas is in the form of firewood, mainly small branches and indeed twigs that the poor collect from the forests. Unfortunately the poor have ever less access to the remaining forest areas since these are increasingly being taken over by government departments and commercial agencies bent on commercialising the resources they provide. To quote Anil Agarwal, Director of the Centre for Science & Environment in Delhi: "The trend towards commercialisation of firewood has been so rapid in the last fifteen years that it is now rare to find poor households using much firewood, especially in the shape of logs. Firewood is no longer a fuel of the poor but of the relatively rich. The poor now subsist on qualitatively inferior sources of biomass fuels: crop wastes, weeds, twigs, cowdung are fuels used according to the family's economic status—crop wastes usually being at the lowest of the order."

Conclusion

Present policies aimed at commercialising food production though they may be increasing the amount of food available to the cities and the amount of foreign exchange earned by exporting food abroad is leading to a reduction in availability of food to India's rural population. The tendency is to blame the growing malnutrition that this must inevitably cause among the rural population to population growth. Though there is some truth in this thesis it is by no means a sufficient explanation. Population growth during the last decade has been at about 2.24 per cent per annum. The growth of food production during this period, however, has increased from 1.85 per cent in the 1960s to around 2.74 per cent in the 1970s. Indeed, from a stage of chronic dependency on food imports, India has now reached a stage of "self-sufficiency in food grain." To quote the late Mrs Gandhi "... the increase in our grain output is ahead of that of our population." Yet, malnutrition is increasing among the rural population of our country. The reason is that *food resources such as forest foods, food crops, fish, milk as well as fuel to cook food with, are being systematically diverted from the rural areas, where the bulk of our population lives, to the large urban centres or else exported* so as to earn foreign exchange with which to finance further development which must inevitably lead to the further diversion of food resources from where they are most required.

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Poverty, Food and Aid Politics in Bangladesh

by Mohiuddin Ahmed

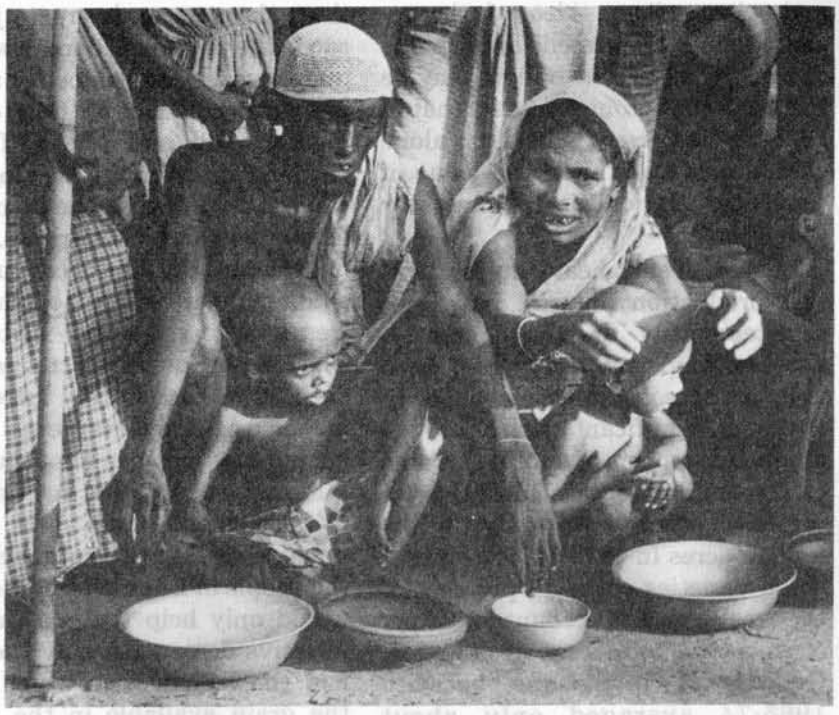

PHOTO: SIDA/H. NETOCNY

Malnourished children in Bangladesh await the arrival of emergency food relief.

Development is not serving to combat poverty or malnutrition in Bangladesh; 70 per cent of the population suffer from anaemia. This did not prevent the Government, in 1980, from ordering the export of one million tons of rice and organising an Export Promotion Zone in Chittagong. Nor is the Green Revolution helping to feed the poor, who are becoming increasingly dependent on food aid, though most of this is reserved for priority groups in the cities.

A country saddled with military regimes since Sheikh Mujibur Rehman's assassination in August 1975, Bangladesh continues to suffer from chronic food shortages. While there has been no outright famine since the summer of 1974 when thousands of hungry villagers surged towards Dhaka in search of food only to perish on its streets, the 'food gap' remains the country's most acute problem. Over 80 per cent of the population continue to be below the poverty line in terms of minimum calorie intake, while 70 per cent of the population is anaemic.

Additionally, while the country has suffered from acute shortage in food crops, the government has been committed to a policy of exporting food. In 1980, for example, the government ordered the export of a million tons of rice. An Export Promotion Zone has been set up in Chittagong city, and foreign collaboration is being sought to install a food processing plant to meet the consumption needs of the West. Moreover, under World Bank pressure, the government is increasing the rate of interest on agricultural credit and reducing the subsidy on fertilisers, irrigation and pesticides. The marketing of these inputs has been transferred to the private sector. Against this growing economic disincentive to grow food, is that substantial food aid has been pouring into Bangladesh, 28,000 tons in 1948-50 and in the last few years 1.6 million tons annually. The bulk of this aid is channelled through the Public Distribution System (PDS). The share of the rural population in the PDS has declined from 62 per cent in 1969 to 16 per cent in 1981. The share of priority groups, on the other hand, the army, the police, government employees and other organised groups has increased from 15 per cent in 68-69 to 54 per cent in 1980-81.

Successive governments have remained dependent on food aid as well as spot purchases in the US grain market. The extravagant quantum of aid that is poured into Bangladesh exerts its own pressures on the system. The political cost involved in such dependence was never more evident than in 1974 when, during Bangladesh's hour of greatest need, the US cancelled two crucial shipments of committed grain. The reason: US displeasure over Dhaka wanting to sell four million jute bags to Cuba.

The annual food gap in Bangladesh is of the order of two million tons. It's growth rate for food grains in the 1960s and 1970s was only around 1.5 per cent against a population growth rate of 2.5-3.0 per cent. In the Second Five Year Plan the government wants to achieve a rate of growth for foodgrains of 6.5 per cent. According to official calculations this will require a net investment of 3.4 billion dollars with an estimated aid component of 3.2 billion dollars. By all counts it is an expensive way for a poor country to end its state of chronic hunger and unemployment. The main emphasis, as in the previous two decades, continues to be placed on increasing production by spreading the use of fertiliser-responsive varieties of rice

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and wheat. Some idea of the resources these new seeds are capable of sucking out of the budget may be had from the astonishing fact that in 1978-79 fertiliser subsidies alone cost almost two-thirds the value of the entire agricultural budget for that year.

In spite of such heavy investment, the production figures have not registered any dramatic increase, nor has the new technology been able to spread rapidly enough to cover a significant share of the cropped area. Out of a total rice area of 25 million acres, modern rice varieties were sown only in 4.4 million acres in 1978-79. At present these varieties cover 18 per cent of the area sown and account for 31 per cent of the total crop production. Growth of foodgrains between 1965-74 averaged only about 200,000 tons per year whereas to achieve self-sufficiency on the basis of a daily intake of 15.5 ounces per person would require producing 500,000 tons more every year between 1977-85.

Even in view of the relatively unimpressive performance of the new seeds, Bangladesh appears to be determined to follow the 'Green Revolution' path to agricultural development. The rationale behind such a policy calls for serious questioning, especially as the average yields of HYVs have actually been declining rather dramatically. They plummetted from 38.7 maunds (a maund = about 40 Kgs.) per acre in the late sixties to 26 maunds in the mid-seventies. When the new seeds were first adopted, farmers grew them on their best soils and gave them their best attention. Now they are no longer willing to give them such exclusive treatment. As HYVs spread it becomes more difficult for farmers to afford the recommended dose of fertilisers and other expensive inputs. There is also the overall deterioration of soils caused by continuous cropping and inappropriate crop rotations, all of which should have led to a more sober assessment of the miracles such seeds are capable of producing.

A popular argument in favour of the new technology associated with HYVs is that it tends to use more labour and thus creates more employment. The argument runs thus: the new seeds create jobs because the plants need more weeding, more disease control, better seedbed preparation; all in all they demand greater care and effort. There is however a catch in the logic, for while it is true that the demand for labour per acre does go up, this is not the case per unit of output. After a stage, increases in output arise from more intensive production than an expansion in acreage and as such the percentage increase in labour requirements tends to lag behind any increase in output.

More food, and that too expensive food, without more jobs in the villages would not be of much use to the people of Bangladesh. More food would only help if there was more effective demand, if only the people had the money with which to buy the grain available in the market. There is something to be said for the maximum that demand tends to generate its own supply whereas the reverse is not equally true. More than a production-oriented strategy, it would have made more sense to opt for an approach that focused on creating employment and reducing inequalities.

There are certain peculiarities about agriculture in Bangladesh, which act as a natural barrier against the new technology. Two thirds of the cultivated area is flooded with about three feet of water from May to October. The new seed varieties do not appear to have the capacity to do well in these typical monsoon conditions. Not only are they short stemmed, they are also not resilient enough to resist the pests and diseases of a wet tropical environment. The greater part of the country's rice is grown as a rain-fed, non-irrigated crop in the Aman season and it is for these very monsoon conditions that the scientists have not been able to come up with a suitable high yielding variety. What is required is a research programme that would use native genetic resouces to upgrade the local varieties to give higher yields. A project in this direction is being undertaken at the Bangladesh Rice Research Institute, but has not achieved significant results so far.

Besides the problem of finding the right mix of technology there are other socio-political constraints that prevent an agricultural breakthrough from taking place. Poverty and landlessness are increasing at a faster rate than population growth. Sharecropping is on the upswing under increasingly inequitable terms in a labour surplus market.

So endemic is the suffering of the people that the authorities are forced to make periodic noises about the need to galvanise the rural economy by reforming its inbuilt injustices. Each time, the advent of military rule has been accompanied by populist pronouncements in favour of a land reform programme. When Zia-ur Rehman assumed power in 1976 his government announced that it would distribute 'khas' surplus land to landless labourers. Instead, influential landowners occupied these lands and Zia's decree was powerless to come to the rescue of the landless. When the poor peasants tried to organise themselves to take possession of the land, they were threatened and even murdered by the landowners and their henchmen.

Ershad's regime has put the clock even further back by freezing the granting of leases to the landless who need to legalise their hold on the 'khas' land they managed to retain for themselves. The official course for this step is that an overall land reform programme is being contemplated. The new military government did appoint a Land Reform Commission, but with two curiosities as sitting members: the director of military intelligence and the editor of *Ittefaque*, the most right wing of newspapers in the country. However, the Commission managed to come out with a set of recommendations only to find that its report had been put into cold storage. More to the liking of the present regime is an innocuous scheme to develop 'ideal villages' within an unchanged agrarian structure. Given the wrong technological kit, an unjust social system and a political elite hardly serious about reforms, for most Bangladeshis an early end to hunger and suffering does not appear to be within easy reach.

This article is a summary of a paper presented by the author at the World Food Assembly held in Rome, November 12-15 1984.

Food Production in a Developing Country: The Malaysian Experience

by Narinder Kaur

The author shows the effect of rapid population growth and economic development in Malaysia on food availability and nutrition. The results are predictable, food production has seriously deteriorated; especially the production of non-export crops. As a result the population has become increasingly dependent on imports. She also reviews what has happened to the main food products of the country: rice, fish, fruit and vegetables and meat. In each case, there has been a steady fall in the availability of these products for local consumption. She then shows how food quality has suffered as a result of the introduction of Western junk foods. The result has been a deterioration in the nutritional status and health of the people throughout the country.

The first task of any economy is to feed the population. Yet in Malaysia there are disturbing signs that food production has deteriorated despite rapid growth in other sectors of the economy. The output of key food items such as rice, fish, vegetables has fallen significantly in recent years. In the face of a constantly increasing population such a constant decline in food production and steady increase in prices will have serious consequences.

The population of Malaysia has been estimated to increase to 16.2 million in 1985 and to 20 million by the year 2000 at the present growth rate. The government even aims to achieve a 70 million population in another 100 years. Where will the food to feed the extra millions come from? Malaysia, like other developing countries lacks on explicit and comprehensive food policy and food self-sufficiency is not among its high priorities.

Firstly too little land is allocated for food production. During the colonial period, a large part of the land was used to cultivate export crops such as rubber, tea and groundnut. This trend continued even in the post colonial period. As a result we rely on imports for much of our food requirements. This is an unstable situation as the capacity to import depends on the state of the country's foreign exchange while the supply of food is determined by agricultural conditions in other countries.

Development projects have also had detrimental effects on the traditional food sector. Since modernisation and industrialisation are accorded greater priority over food cultivation, land which for generations had been cultivated with food crops is now being converted for industrial sites, modern housing estates and the construction of roads. The production of fruits, vegetables and livestock has stagnated as farmers and cattle rearers are displaced from their land.

Overfishing by trawlers is slowly depleting the seas of fish while riverine fish are being killed off by pollution from factories. In addition, fish grown traditionally in rice ponds are not able to survive the effects of newly introduced chemical fertilisers. The rise in prices of several essential foods creates more problems. This means that the lower income groups and fixed wage earners are able to afford less food.

Without food the people suffer physically and mentally. Growth is retarded and general weakness and malnutrition prevails. When the mental faculties of the people cannot be developed to the maximum a substandard society may develop.

Due to the stress on industrialisation more and more factory made food is becoming available to the people. Food which is high in cost, low in nutrition and alien to our culture. Moreover, developing countries do not have adequate laws and safety standards to safeguard the value of these foods. As a result dangerous preservatives and dyes are used which endanger the health of consumers.

Also expired food products are often sold to consumers. Due to the lack of adequate laws, unsafe and poor quality foods are exported to developing countries.

The above factors combine together to make food availability an intractable problem whose solution lies in structural changes in economic policy both nationally and internationally.

Rice: Although basically an agricultural country, Malaysia does not grow enough rice for its people. The country is only 85 per cent self-sufficient in rice in a good year and 55 per cent in a drought ridden year.

Rice is the staple food and the bulk of the poor man's diet. As such rice production should be increased to satisfy demands. Instead the local production of rice has declined continuously since 1979. In 1983, rice output was only 1.17 million tonnes or 14 per cent below the 1.36 million tonnes in 1979.

A major reason for this decline is that less land is being planted with paddy. Industrial and housing estates have replaced paddy land in many areas in the country. The land area planted with paddy fell from

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750,000 hectares in 1981 to 655,000 hectares in 1983 in Malaysia. Due to the decline of local production, the rate of rice self-sufficiency has fallen disturbingly.

In 1983, Malaysia produced enough rice to meet only 71 per cent of the country's requirements, as compared to 75 per cent in 1982 and 89 per cent in 1980.

Thus Malaysia has had to import more and more rice, causing us to lose precious foreign exchange. In 1983, we imported 373,750 tonnes of rice worth around $270 million. This money could have been saved if we had produced more rice for our own needs.

Fish: The production of fish, an important source of protein for the people is also on the decline. Fishing is one of the most important industries in the Malaysian economy. It provides a livelihood for over 90,000 fishermen.

Although Malaysia is surrounded by one of the richest fishing grounds in South-East Asia, fishermen in Malaysia are members of one of the poorest groups in the country. The majority of the fishermen in Malaysia are the small inshore or 'traditional' fishermen. They do not have capital outlay and spills for large scale fishing operations.

In the early 60s when modern and big scale fishing methods using trawlers were introduced, the livelihood of the small scale fishermen began to deteriorate. Between 1966 and 1972 the number of trawlers increased from 27 to 3,028 due to government encouragement and aid and laissez faire licensing policies. This resulted in severe damage to the fish stock.

The trawler nets have extremely small mesh sizes which enable them to catch young fish in great quantities. The large catch of young depletes the water of a large quantity of potentially big fish. The dragging of the trawling gear along the sea bed also destroys the breeding grounds of the fish.

When trawlers were first introduced, the catch initially was good. But catch per trawler soon fell as more and more trawlers entered the water from 422 tonnes in 1965 to only 23 tonnes in 1972. At the same time the catch of the inshore fishermen also declined dramatically as a result of the trawling activities.

The fish catch has remained stagnant over recent years: 565,000 tonnes in 1978 and 567,000 tonnes in 1982. The amount of trash fish has increased however. In 1980 about 80 per cent of fish caught off the west coast were trash of which 70 per cent were fish fries of commercially important species vitally needed for breeding. Trash fish, which forms the major part of trawler catch is useless for human consumption and is sold as fertiliser or animal feed.

It is estimated that we may require a further 500,000 tonnes of fish a year by 1995. It seems quite impossible to attain this figure when our present fish catch is still so much below our needs.

The upsurge of factories and industrial plants in the name of development, has done much harm to local fishermen. Fishing communities throughout the country have been complaining of threats to their livelihood caused by pollution. Pollution has also contributed to the depletion of the riverine and coastal fishery resources in Malaysia.

Fruit and Vegetables: The outlook for vegetable and fruit production in Malaysia is just as bleak. According to the statistical Handbook published by the Agricultural Ministry, vegetable production fell from 120,299 tonnes in 1978 to only 59,286 tonnes in 1980—a drop of more than 50 per cent in just over two years.

As with other crops fruit and vegetables have been affected by development projects. For instance in Penang, the Thean Teik estate which is one of the major suppliers of vegetables on the island will soon be turned into a housing estate.

The total area of land in the country cultivated with crops such as sago, sugar cane, sweet potato, maize and vegetables dropped from 73,000 hectares in 1978 to only 60,000 hectares in 1979. The area under fruit cultivation also decreased slightly from 87,000 hectares in 1978 to 85,000 in 1979.

It is no wonder that vegetables like spinach, long beans and sawi cost an average of 60-200 per cent more today than ten years ago. Prices of fruit such as bananas, pineapples and papayas have also risen by 100-130 per cent over the same period.

In the face of a constantly increasing population such a continuing decline in food production and steady increase in prices will have serious consequences.

Meat: Malaysia is mainly a beef consuming country with a per capita consumption of 6.7 pounds. This is expected to increase to 7.9 pounds in 1990. The production of beef in Malaysia had been at the small farmer level where traditionally no less than 90 per cent of the cattle and buffalo were reared and the bulk of the meat and milk produced.

This was successful and met with the local demand for beef. During the last decade, Malaysia was self-sufficient in beef. But now we import about half of our beef supplies. In 1970 local beef production was 11,000 tonnes which accounted for 88 per cent of the country's consumption. The production came entirely from the smallholding sector. Nine years later, production dropped to about 10,500 tonnes accounting for only 51 per cent of consumption. The consequent import of 12,000 tonnes of additional beef and cattle cost the country some M$80 million.

One reason for the decline in production was again the displacement of small farmers to make way for development projects. As no suitable alternate sites were given the farmers had no choice but to gradually give up their farming and find employment in other sectors.

One cattle rearer in Penang who had been in the business for the last 40 years and had a beautiful herd of 80 cows was asked to move to make way for a development project. The land was required for the Penang International Airport. He was given a temporary lot with hardly any grazing land in the vicinity without any water supply. The herd could not survive under such conditions. If the cattle graze on other public or private land, the farmers are heavily fined by the authorities.

Another reason for the decline in meat production was the failure of the National Livestock Authority, a government agency. In importing cattle factors such as type of cattle,

its natural habitat and environment were not considered. Cattle which were used to temperate climates were imported and they could not adjust to the high temperature and humidity in Malaysia. These conditions restricted the production of milk and increased susceptibility to disease. So when the National Livestock Authority failed to meet the projected demands of meat and milk, it had to close down in 1982.

Technology and Food Production

While agricultural production of food suffers a severe setback in most developing countries, commercially produced food is making a rapid upsurge. The result is the availability of food which is high in cost and low in quality.

The whole technical process of food production involves the removal of precious nutrients and the addition of various chemical additives such as flavouring agents, dyes, preservatives and so on.

Technological advances in rice milling have resulted in rice that is polished, with better keeping quality but which is devoid of its nutrients.

Young children are attracted to sweets, lollipops, crisps and other assorted types of no-value 'junk food' which contain harmful colouring agents and other additives. Bottled drinks such as Coca-cola and Seven-up can be seen in huge billboards, in lively television advertisements and in long colourful rows at sundry shops and supermarkets.

Such drinks have become essential items not only in urban but also rural areas and not only at festivals and celebrations but also in everyday living. A recent trend in eating habits is the American fast food, hamburgers and hot dogs. These chains are spreading fast to even the remotest of towns in rural areas.

An outstanding example of the detrimental influence of introducing new foods to replace traditional practices is the case of infant formula and sweetened condensed milk. Due to aggressive sales promotion by multinational companies, many poor mothers in the rural Third World areas have switched from breastfeeding to bottlefeeding their babies. As is well known, infant formula is a poor and often dangerous substitute for human milk in conditions where water is dirty and the bottle is not properly sterilised.

Even worse is sweetened condensed milk, which is often turned to when infant formula can be afforded. Many rural and estate families can be seen feeding their babies with this sweetened milk. The switch from breast to bottlefeeding has led to malnutrition and death among many babies in developing countries.

On top of it all Malaysia lacks adequate safety measures to ensure the quality of commercially prepared foods. Our food laws are most inadequate. There is no regulation for shelf life of products. Therefore consumers often buy products which have gone bad and there is no law to safeguard them. Ironically companies have been found to pack foods in Malaysia for export to other countries with expiry dates. The same product sold in Malaysia has no expiry date.

Dyes that are banned in other countries have been found in many commercially prepared foods in Malaysia. One example is Red Dye No. 2 or Amaranth. It is used in syrups, bottled drinks, sauces and sweets. Although it was banned recently, it is still widely used. Where laws do exist enforcement is sadly lacking. Food standards are also inadequate and manufacturers are not accountable to the law for what ingredients go into their products.

The usage of pesticides in agriculture is another problem in Malaysia. Pesticides which are harmful and banned overseas are used by local farmers. There is a clear lack of knowledge of the dangers of pesticides among farmers. There is no legislation to provide full safety for all those who are in some way or other exposed to pesticides. In one incident in the northern states of Malaysia, the absence of protective measures and other negligent factors led to the poisoning of 30 farmers. They were admitted to hospital for pesticides poisoning and one of them died.

There is much indiscriminate use of pesticides and the authorities who are vested with wide powers to control and regulate the pesticide industry and trade in Malaysia seem to operate in secrecy without doing very much to protect the safety of the farmers.

Malnutrition in Malaysia

The average Malaysian does not look malnourished but recent studies show that malnutrition is widespread in the country. This may not be too surprising considering the trends in food production. All nutrition surveys carried out in various communities showed that stunting and underweight are common phenomena amongst Malaysian children.

Many of them were also anaemic due to lack of iron in their diets, while infants and children below twelve years of age were prone to skin infections and worm infestation.

A recent study conducted by the Institute for Medical Research on several poor kampungs in Peninsular Malaysia found that 42 per cent of the children were suffering from malnutrition. This resulted in their being stunted or short for their age. The report revealed that the calorie needs of 66 per cent of the households in the study were not met while 34 per cent did not take enough protein.

The situation in East Malaysia is worse. A recent newspaper report stated that some children in a village in Sabah had died of malnutrition while others were only skin and bones. In 1977-78, a study by the Sarawak Medical Services found 81 per cent of 4,106 children in the state's longhouse communities suffering from malnutrition.

The researcher who conducted the study concluded that the level of malnutrition in the longhouse communities was far worse than that in Latin America, Africa and other Asian countries.

This is shocking news for a country with a per capita gross national product of $4,079 in 1982 and a food balance sheet that shows a calorie intake of 2,610 grams per person and a protein intake of 56 grams per person, levels very much above the recommended average.

On the other end of the yardstick, diseases of affluences like heart disease, diabetes, obesity, are major killers in the urban areas. These diseases occur largely due to the introduction of modern junk foods.

This article is an excerpt from a paper presented at the World Food Assembly held in Rome in November 1984.

Rural Poverty and Development in Thailand Indonesia and the Philippines

by Sulak Sivaraksa

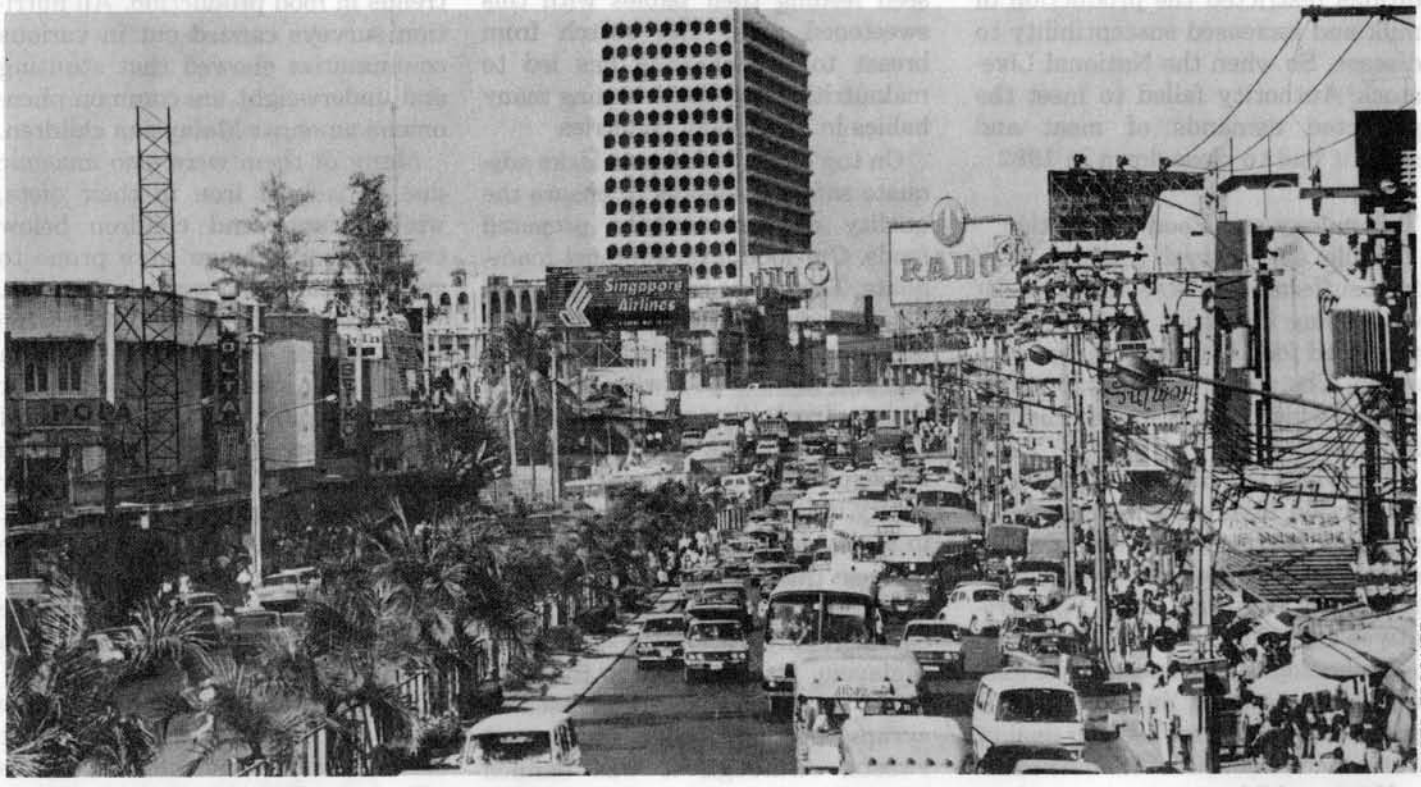

PHOTO: TROCAIRE

Crowded downtown Bangkok, Thailand

In Thailand, Indonesia and the Philippines, the story, as this report makes clear, is much the same. To quote the author, "National governments who took over from colonial governments have continued and accelerated the penetration of market forces and industrial systems of production throughout rural areas of Southeast Asia." Predictably self-sufficient communities have everywhere been destroyed, peasants heavily indebted, forests cut down, land eroded and desertified and poverty and malnutrition increased to the point where sixty per cent of children in Thailand are now suffering from malnutrition.

The lands of Southeast Asia, fertile and rich in natural resources as they are (or rather, were), could undoubtedly provide sufficient food and a simple pleasant life for their inhabitants. Why, then, are 60 per cent of the children in rural Thailand suffering from malnutrition? Why are the small fishermen on the coast of the Malaysian peninsula finding it difficult to survive? Why have millions of Indonesian peasants migrated to the slums of Jakarta? And why have so many Filipinos left their farms to be migrant workers in the Middle East and elsewhere?

There is an old Thai saying: "In the fields there is rice; in the water there are fish". This saying does not simply describe the abundance of food resources available to the populations of the region in the past, it also aptly describes the simple life of self-sufficiency that existed among village communities of Southeast Asia before the advent of colonialism and neo-colonialism. In those days the communities farmed their own land and wove their own cloth. They were governed and protected by their own institutions: the family, the community and the seniority system. Production was carried out by means of co-operation rather than competition, and was geared to self-consumption, thus maintaining the unity and balance of nature.

I do not wish to imply that this was an idyllic life, free from suffering and exploitation. Of course there was disease, natural disasters, warfare, cultural respression of women etc. Also, village communities were not living in complete isolation. With the establishment of state power structures, land rights came under the control of the kings or state rulers. Village communities were required to pay taxes and could be enlisted to dig canals, fight wars etc. Nevertheless, the relationship between the state and the peasantry was of a special nature in that the state dealt with village communities as a whole rather than with individuals or families. This allowed village communities to largely maintain their own independence in carrying-out their production and in dealing with their own problems.

Colonialisation and semi-colonialisation by the western powers brought about a basic upheaval in the village community production

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system. Buying and selling of commodities was introduced at the village level, resulting in the decline of traditional village handicrafts, and a change from agricultural production for self-consumption to agricultural production for national and world markets. The self-sufficiency of village communities was gradually destroyed, while market forces over which the communities had no control dictated the economic and social changes in the lives of the peasants. The establishment of agricultural export markets brought larger proportions of agricultural land under the direct ownership of the local aristocracies, thus increasing the numbers of share-cropping tenants. At the same time, foreign companies took over large tracts of land to establish rubber, sugar-cane, coconut and banana plantations, thus creating a new class of peasants, the agricultural labourers.

During the past fifty years, colonialism has been replaced by neo-colonialism and 'modernisation'. National governments who took over from colonial governments have continued and accelerated the penetration of market forces and capitalist systems of production throughout the rural areas of Southeast Asia. Rural development policies have concentrated on extending and strengthening infrastructures and on promoting investment in agricultural-related industries. Modernisation has forced the peasants to depend on the market for clothing, electricity, water, fuel, construction materials, fertilisers, pesticides, livestock and agricultural tools.

Undoubtedly, 'rural development' and 'modernisation' as carried out by most of the Southeast Asian countries has brought about more efficient agricultural production and an average increase in the income and standard of living of the rural population. But the costs have been extremely high. Most of the benefits have fallen into the hands of the wealthy few, the upper and middle classes, such as the exporters, traders, landlords, plantation owners, agri-businesses, rice and teak-mill owners, farmers with large land-holdings; and businessmen, professionals and high-ranking government officials in general. Economic growth has brought about a comparative growth of the upper and middle classes. Rural development has developed new power structures at the local level in rural areas. The growth of the elite has led to an ever-increasing demand for consumer goods from Japan and the west. This, in turn, requires higher agricultural exports and greater exploitation of the actual agricultural producers.

Modernised agriculture has brought about large-scale depletion of natural resources. Forests are rapidly disappearing and with them much of the wild-life. The mud-fishes and edible frogs that thrived in the rice fields and served as a rich source of food for the peasants are being killed by the use of chemical fertilisers and insecticides. Large-scale trawler fishing is depleting fish stocks and destroying the livelihoods of the small fishermen. It should be noted that the huge appropriation of natural resources and the resulting upheaval of the balance of nature has been mostly for the benefit of the "advanced" societies in Japan and the West, and for the privileged elites in Southeast Asia; not for self-consumption by the agricultural producers themselves i.e. the peasantry of Southeast Asia who form the vast majority of the population of the region.

The plight of the peasants has actually been worsened in many respects by rural development and modernisation. With population growth, the loss of natural resources, and their increasing dependence on market forces, they are finding it more difficult than before to obtain enough food for their own subsistence. They find it necessary to sell their produce at whatever the market price is, in order to pay their debts for the fertilisers, livestock etc. used in the production process. Many do not have enough produce left for their own consumption throughout the year and so have to buy food from the market, thus increasing their debts. Their problems are multiplied during years of drought or flooding. The trends are common throughout the region. The wealthy farmers with enough land to produce a surplus easily obtain bank loans to modernise their production and benefit from government support schemes. But they are a small minority of the rural population. The agri-businesses are also flourishing and gradually extending their operations to the more remote rural areas. They run their own farms or plantations through the use of hired labourers working at subsistence wages, or supply the raw materials and technology for groups of farmers to carry out agricultural or livestock production on their own land, and then purchase the produce from the farmers, deducting their loans of raw materials. While they do benefit some of their contractors in that the farmers may receive higher incomes than before, they have in fact placed the farmers under their control, since they tend to monopolise the markets in their areas of operation. They also drive the small farmers further towards bankruptcy.

As for the vast majority of the rural producers; the middle-peasants with only sufficient land to feed their families, the poor peasants with very small plots of land, the share-cropping tenants who lose up to half of their produce as rent, and the agricultural labourers, they are finding it increasingly difficult to survive. They have no bargaining power concerning market prices, land-rents, and daily wages. To obtain loans they have to resort to the local traders and money-lenders to which they pay exorbitant interest rates. Their costs of production are increasing in respect to the income received from their produce. The peasants of Southeast Asia are therefore plagued by mounting debts. (In Thailand, for example, the five million rural families have accumulated a total debt of over US$1,000 million while the average annual cash income per family is only US$170.00).

Under these conditions, it is not surprising that malnutrition is on the increase among the food producers, and that a large proportion of rural families can no longer survive on agricultural production alone. The poor peasants are gradually losing their land through debt, and millions of peasants flock to the cities each year to seek seasonal or year-round employment.

The young girls work as servants, unskilled factory workers, or are forced into prostitution. Children work illegally in small work-shops under the harshest conditions. Some of them are even 'sold' abroad. The men do heavy labour for low daily wages.

The massive influx of peasants to the cities (in Bangkok, the population has increased from three million to five million in a period of only three years and the same is true of Manila and Jakarta) clearly spotlights the misery of the rural population. But migration to the cities does not solve the problems of rural poverty. Industry is not well enough developed to absorb the rural population. The workers from the rural areas receive barely sufficient wages for their own subsistence. Only a small proportion manage to send back money to their families. Living in the slum areas, they are faced with rising urban unemployment. Many are forced to resort to crime.

The worsening situation of the peasants has contributed to the growing strength of many underground revolutionary movements in the region. In retaliation, the governments have introduced repressive measures such as martial law, detention without trial, censorship, and violations of many fundamental human rights. Most of the Southeast Asian governments are military or military-backed authoritarian governments. Under these conditions, the peasants are subject to atrocities and find it extremely difficult to group together to protect their common interests and struggle for their rights to a better life. Growing peasant movements have been crushed time after time. Most farmers' organisations such as agricultural co-operatives and farmers' unions are tightly controlled by the governments and mainly serve the interests of the wealthy farmers. When governments form a link like the Association of South-East Asian Nations (ASEAN), they share repressive methods against the peasantry too. This is also to serve the interest of the richest nations like Japan and USA.

Women, who form half the work force of the region, have traditionally suffered from cultural repression. In the present age they are also the objects of extreme economic repression. They carry out the hardest work for the lowest wages. Millions are forced into semi-slavery, working as servants or prostitutes. The Southeast Asian sex-market on which the tourist industries of the region thrive is famous throughout the world. Many of these 'girls' have also been 'exported' to Europe, Hong Kong and Japan.

So, the results of the rural development policies, as carried out by the governments of Southeast Asia and supported by Japan and the Western governments as well as international financial institutions, have mainly been to widen the gap between the rich and the poor, and to increase the misery of the rural populations for the benefit of the local elites and the wealthy societies of Japan and the West.

This paper was presented at the World Food Assembly held in Rome in November 1984.

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The Narmada Valley Project— Development or Destruction?

by Kalpavriksh — The Environmental Action Group and the Hindu College Nature Club, Delhi University*

The Narmada Valley Project is typical of World Bank-funded mega-projects. It involves building 30 large dams, 135 medium size dams and 3,000 associated irrigation schemes. Its cost has been estimated at 16,000 million pounds. It will involve depriving over a million, largely tribal, people of their land. The future for them is grim. They will, in effect, be sacrificed on the altar of political and economic expediency. The World Bank is fully aware of the environmental devastation their project will cause and the human misery and impoverishment it will give rise to. *But it still insists on financing it.* The following detailed report (which is also included in the second volume of "The Social and Environmental Effects of Large Dams", just published) exposes the full iniquity of this project. Everything must be done to prevent The World Bank from going ahead with this totally cynical project.

This report is based on the findings of a team of university students who covered the entire length of the Narmada, largely on foot, in the months of July and August, 1983. The aim of the trip was two-fold: to study the possible environmental impact of the massive hydroelectric and irrigation complex planned for the Narmada Valley, and to see and document the existing natural and cultural heritage of the river. During the 50-day trip we visited several of the proposed and existing dam sites, travelled extensively in the area to be flooded and in the catchment areas of the proposed reservoirs, and talked to a wide range of people.

Inevitably, an extensive survey such as this cannot involve much intensive study. Many gaps in information remain, and parts of this report are necessarily impressionistic. We submit, however, that this does not make our findings any less valid.

The conclusions we reach in this report are at two levels. At one level, we consider various problems in the planning and implementation of the project, most of which can (at least theoretically) be eliminated by proper 'management'. But at another level, we question whether the project *as a whole* (even if successfully implemented) and the broad policy behind it, are really 'development' in the true sense of the word—for they may well lead to a chain reaction which would unleash environmentally destructive forces that could negate all the short-term gains made by the project. The environmental, socio-cultural and economic sanity of the project is thus questionable.

The River

The Narmada is the largest west-flowing river in the Indian peninsula, arising on the plateau of Amarkantak in Shahdol district of Madhya Pradesh. Originating in a holy tank in the midst of Hindu temples, the Narmada winds its 1,312 kilometre course to the Arabian Sea through lush forested hills, rich agricultural plains and narrow rocky gorges in a series of falls, rapids, twists and slack waters. As many as 41 major tributaries augment its waters along the way. Its basin, bounded on three sides by mountain ranges (Satpura, Vindhya and Maikal) and on the fourth by the Arabian Sea covers an area of 98,796 square kilometres. Dry and moist deciduous forests cover some 32 per cent of this basin, and black agricultural soils about 60 per cent. Its climate is humid and tropical. There is a fairly high average rainfall of 1,178 millimetres, 65 per cent of which is received in July and August.

According to the 1971 census, about 16 million people reside in the basin, 81 per cent of them in villages. Most are engaged in agriculture and related businesses. There is a sizeable tribal population, divided into several distinct tribes—Bhils, Gonds, Baigas and others. Most of these have now taken to settled agriculture (or been forced into it). Land distribution among the tribals is fairly equitable. This is in sharp contrast to the peasants in the plains of the basin, among whom unequal landholdings are common. In some districts in the lower reaches of the river, 70 per cent of the land is owned by 20 per cent of the farmers. The main crops grown in the valley are wheat, paddy, millets (mainly jowar, bajra, maize and some minor ones), pulses (mainly gram, tuar, teora), oilseeds (groundnut, sesamum, linseed, rapeseed, mustard and niger), cotton and sugar cane.

*This Report was written by: Rajiv Bhartari, Ashish Kothari, Pallava Bagla, Shaila Gupta, Ranu Kayastha, Mahandra Singh, Nandita Hazarika, Roopam Kapoor, Rakesh Kapoor, and Jyotirmoy Khatri.

For Hindus, the Narmada is possibly the most important river in peninsular India. It is held to be far more sacred than the Ganges, which is said to come to the Narmada every year as a coal black cow, wash off her sins and return pure white. The Narmada is supposed to have originated from the body of Lord Shiva and along its entire course, Shiva worship in various forms has long dominated. In fact, every stone found on the bed of the river is said to be a 'Shiva-linga'. Towards the upper reaches there has also been some amount of Shakti worship; Jainism too has spread in some parts.

So deeply ingrained is the Narmada in the religious lives of the inhabitants of the valley, that each one of them is supposed to walk the entire length of the river valley at least once in a lifetime. This 2,600 kilometre long *parikrama*, originated by Rishi Markandaya, is undertaken under strict rules—moving only on foot without any footwear, carrying only the bare minimum of possessions, observing chastity, allowing hair and nails to grow throughout the journey, eating no food cooked in oil, sleeping only on the ground. Along the entire course, pilgrims are looked after by villagers and small centres of worship exist in each village. Over the centuries, millions of pilgrims have devotedly undertaken the long and arduous journey, providing an important link between various regions and communities along the entire river.

Several large and important pilgrimage centres are situated on the banks of the Narmada. For example, Amarkantak, Omkareshwar, Nemawar, Maheshwar, Shuklatirth and several other Hindu centres have ancient temples and monuments which are visited every year by hundreds of thousands of pilgrims from all over India. Jainism too has a few important centres, including Bawan Gaja, an awesome 84-feet tall statue of Adinath, Jainism's first Tirthankar, carved out of a vertical cliff near Barwani in Madhya Pradesh.

The Narmada Valley Development Project

While the basin has extremely rich natural resources, it has remained, in the eyes of India's planners, largely 'backward'. In their opinion, the lack of widespread irrigation; the inadequate exploitation of mineral and forest wealth; the under-utilisation of hydroelectric potential; and the shortage of infrastructural facilities has not been conducive to the 'development' of the region. All the indices of 'underdevelopment' are present—low electricity consumption (50 per cent of national average), little industrial activity, slow urban growth, below-average agricultural yields, lack of modern medical, educational and banking facilities, and so on. (For the time being, we will use the official and popular indices of development. We shall argue, however, that the concept of development on which those indices are based needs to be questioned.)

The lack of 'development' in the valley does not stem from neglect or absence of planning. There are political reasons behind it. The idea of tapping the waters of the Narmada was mooted way back in 1946 by the various concerned provincial governments. But after extensive studies had been conducted, those provinces (later the states of Madhya Pradesh, Gujarat and Maharashtra) quarrelled among themselves—mainly over the sharing of water, the areas to be irrigated in each state and the level of one of the major dams (Sardar Sarovar in Gujarat). After several years of stalemate, the Narmada Water Disputes Tribunal was set up in 1969 to attempt a resolution. Ten years later, the Tribunal submitted its report. Final planning and work was started only then—over 30 years after the project was first conceived.

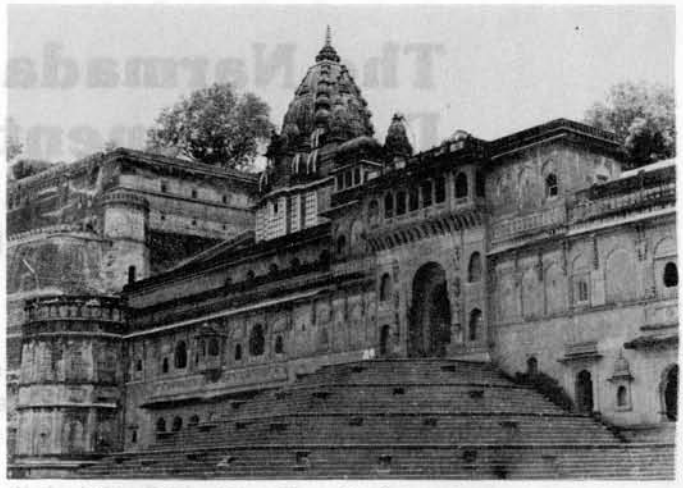

PHOTO: PALLAVA BAGLA

Queen Ahilyabai's memorial and bathing ghats at Maheshwar, a pilgrimage town on the Narmada river.

The Narmada Valley Project is the largest single river valley project in India to date. Its 'Master Plan' envisages the construction of 30 major dams, 10 on the main river and 20 on tributaries. Of these, 5 are hydroelectric schemes, 6 multipurpose and 19 irrigation schemes. In addition, 135 medium and 3,000 minor irrigation schemes are planned. (Minor schemes have a cultivating command area of below 400 hectares; medium schemes of 400 to 10,000 hectares; and major schemes of above 10,000 hectares.) The cost estimate for the whole project is at present Rs. 9,000 crores*, but according to one of the chief engineers of the Narmada Central Authority, it may go up to an incredible Rs. 25,000 crores by the time the project is completed. Even this seems to be an underestimate, since by late 1983, the official cost of just one of the 30 major dams, Sardar Sarovar, had been revised to Rs. 7,200 crores. Since the Government of India and the State Governments cannot afford such a cost, financial aid from the World Bank is being sought. It was earlier planned to complete the project in 22 years in 2 phases, but under an accelerated programme, it is now expected to be finished in 15 years—that is by 1996.

Almost 50 lakhs hectares** of land are expected to be irrigated, a considerable part of this in the drought prone areas of Gujarat and Madhya Pradesh (and a little in Rajasthan). The project will also create an installed power capacity of 2,700 Megawatts (MW) with an output of 800 MW at 100 per cent load factor. Some 11,500,000 people in villages and many more in cities are expected to benefit. In addition, the project is

* 1 Crore = 10,000,000

** 1 Lakh = 100,000

One hundred hectares = 1 square kilometre

expected to check floods; generate pisciculture in the huge reservoirs; give employment to hundreds of thousands of people; supply water for domestic and industrial use; and promote tourism. Overall, it is hoped that the project will bring about an agricultural and industrial revolution which will usher in an 'era of prosperity' for the valley.

Planning and Implementation: Shamefully Inadequate

Any river valley project requires meticulous planning and careful implementation, involving complete and accurate information on all the important variables to be dealt with: economic, socio-cultural, environmental, and political. This is especially true of a gigantic scheme like the Narmada Project. Although the project authorities claim to have undertaken a 'systems analysis' which takes into account these variables, the validity of this analysis is doubtful. We have come across serious inadequacies and distortions in the information base.

Environmental and Geological Factors

The project will entail the large-scale exploitation of natural resources, thus engendering a host of environmental problems. Vast tracts of forest will be submerged, in addition to agricultural and grazing lands. The extension of canal irrigation to several million hectares of land will bring attendant risks of water-logging, salinity, waterborne disease and the growth of weeds. Air and water pollution from new industries and growing urban centres will also prove a problem. Ecological disruption is possibly the most serious aspect of the project, yet it is also one of the most neglected. There is, for instance, no comprehensive information on the extent and diversity of flora and fauna in the valley. Although a study was carried out by Maharaja Saya Jihao University on the ecological impact of the Sardar Sarovar Project in Gujarat, the study was only commissioned *after* the project had been sanctioned: moreover, the six months over which it was conducted allowed little time for field work to be carried out. Indeed, much of the information in the study derives from Government sources rather than from fresh empirical studies. We wonder whether an objective study is possible in such circumstances—particularly when the research had been commissioned by the State Government, the very body which wishes to implement the project.

There is no overall study on the existing state of catchment forests in the Narmada Valley, the present and future pressures on them, or the existing and future demand-supply position for firewood and other forest products. In short, no attempt has been made to find out whether the valley's forest resources can withstand the impact of the project and its ancillary activities.

There is as yet no study on the possible geological impact of the large bodies of impounded water in the reservoirs which will be built—despite the knowledge that the Narmada Valley is a seismic zone. Indeed, Madhya Pradesh's former Environment Commissioner, Mr Sharma, has warned that 'a chain of reservoirs on Narmada could create seismic after-effects'. Given that earthquakes have been triggered off by dams in the past (Koyna in India is one example) the lack of geological studies is shocking.

Whilst extensive areas of 'black soil' in Madhya Pradesh are to be brought under irrigation, there is as yet little data on the conditions under which water-logging occurs in such areas, nor on how to reclaim fields which are affected.

With regard to health effects, a senior official of Madhya Pradesh's health ministry has admitted that neither State nor Central Government officials can evaluate the likely impact of the planned irrigation schemes—or, indeed, the impact that pollution and deforestation will have on the health of the local population.

A glaring example of faulty planning recently came to light when it was found that the original estimates of water availability in the basin were wide off the mark. Three technical consultants were asked by the Narmada Planning Agency (NPA) to look into this, but they were asked to leave before their work was over, reportedly due to serious differences with the NPA. One of the consultants, R.L. Gupta, claims that the method used by NPA ('generated river flow data') yields an overestimate of water availability. The more accurate method ('observed flow data') shows that the basin holds 22.5 million acre feet (maf) rather than the 28 maf originally estimated, or the 26 maf as estimated by analysing 'generated river flow data'. This would imply drastic changes in the design of the major dams.

Socio-cultural factors

Since any development project is ultimately aimed at the good of the people, it is imperative that detailed sociological and anthropological studies be done on the existing socio-cultural features of these people and the likely impact of the changes brought about by the project. This is all the more necessary for the Narmada Valley which has a large number of culturally diverse tribal and peasant societies. Yet, hardly any such studies exist for the valley, though belatedly the project planning authorities have commissioned a few.

As many as one million people will be displaced by the project; many will be forced to move against their wishes. There exist no studies on the possible social repercussions. Even assuming, for the moment, that such a change is necessary, there are no serious plans to help those who are resettled in adopting and adapting to their new environment. Most of the officials we met (even those responsible for rehabilitation) had little concern for (or knowledge about) the socio-cultural life of the people they were planning to move.

At no stage have local people been involved in the planning of the project. When asked about this, some officials seemed amused—their unstated attitude being one of scorn for the abilities of the villagers. Involving them in planning seemed quite absurd. Other officials admitted, however, that this was a serious fault in planning, and that the 'we know-best-for-them' attitude had resulted in the failure of several past projects. A case in point is the Tawa Project in Hoshangabad district of Madhya Pradesh, where some

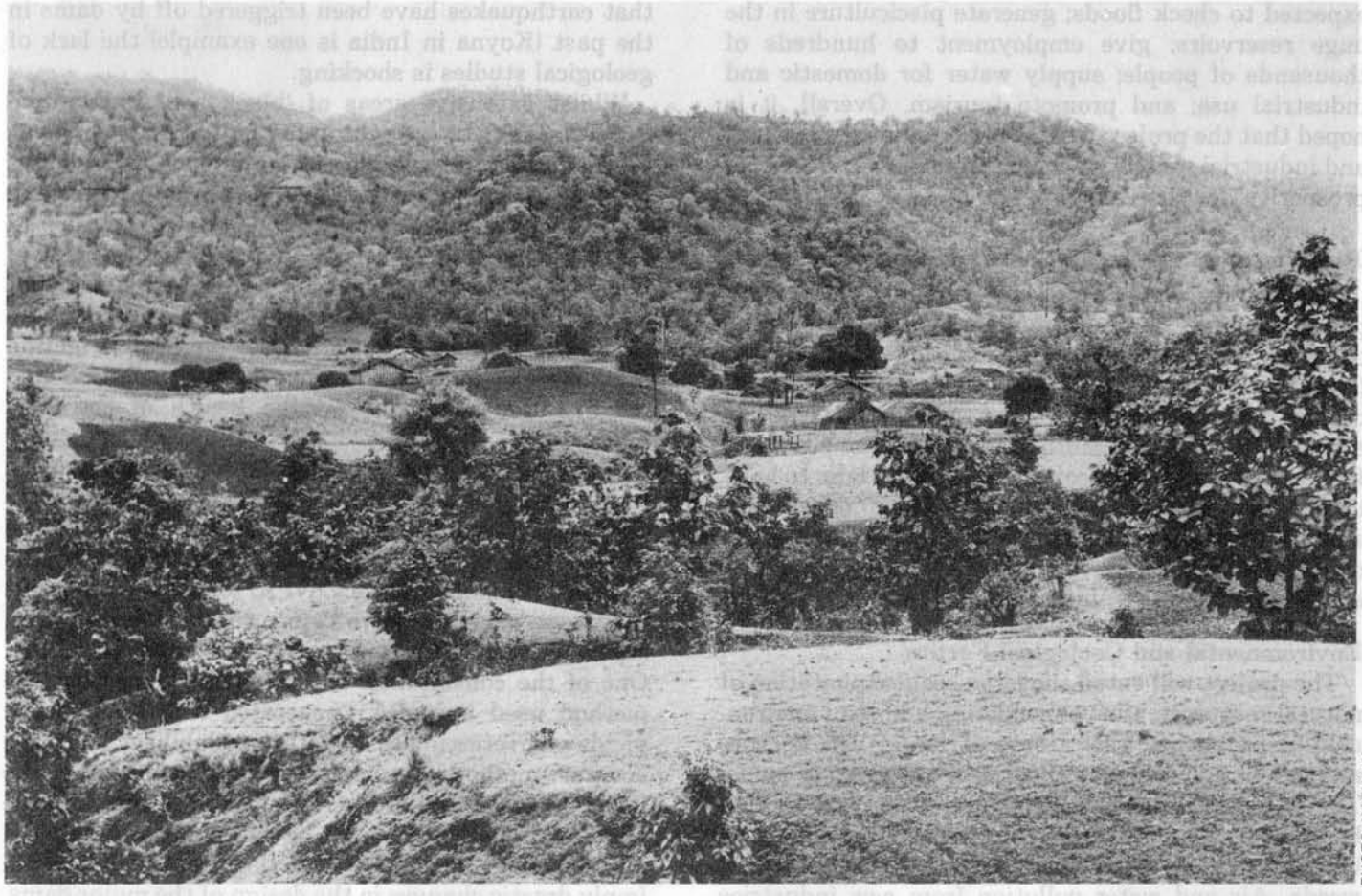

PHOTO: KOTHARI

Submergence zone of Sardar Sarovar Dam in Gujarat—bringing destruction of valuable forests, loss of agricultural land and displacement of thousands of people.

planners who were quite unaware of ground conditions decided to introduce canal irrigation. If they had only asked the farmers, they would have told them that many of the 'black cotton' soils in the region do not need irrigation since this soil has considerable water retention capacity. But irrigation was brought in, and serious waterlogging resulted.

Administrative factors and implementation

The Narmada Development project is a single project. Or, at least, the name suggests so. In reality, planning has been highly compartmentalised and fragmented, and the implementation is likely to be the same.

Firstly, there is no single body which is responsible for overall planning and execution. If the Narmada Project is stated to be a single integrated project, one would have at least expected such a body to be set up. There is a 'Narmada Control Authority' situated in Delhi, but its major function (as one of its top officials told us) is merely to act as a liaison between the Governments of Madhya Pradesh and Gujarat, and between the Central Government and the World Bank. There is also a Narmada Planning Group in Gandhinagar, and a full-fledged ministry for the project in Bhopal, but the former is restricted to Gujarat, the latter to Madhya Pradesh. There seems to be little co-operation between them—in fact, there still remains a feeling of distrust, possibly a hangover from the long-standing dispute between the two states as to how the waters of the Narmada should be shared. One official in Madhya Pradesh complained that 'the Gujarat Government never gives us adequate information on the progress of the Sardar Sarovar dam, which hinders our own planning'. The Gujarat Government on the other hand, claims that Madhya Pradesh is dragging its feet with regard to the sharing of costs for the project.

The absence of a single planning body has meant the absence of a comprehensive plan for the project. Although the 'Master Plan' gives details of the constituent dams and canal systems, it hardly deals with other crucial aspects of the project, such as the preservation of catchment forests, the education of farmers, the provision of medical facilities, the existing and future demand-supply positions for firewood and other forest products,the treatment of pollution or the rehabilitation of those who will be resettled.

The same is true for implementation, which has been entrusted to various departments among whom there is hardly any coordination or cooperation. As of today, the Forest Department, the Soil Conservation Department, the Tribal Welfare Department, the Irrigation Department, the Agricultural Extension Services and various others, work in isolation and often in conflict with each other. A classic example is the clash between the Forest Department trying to reduce the incidence of grazing and the Tribal Welfare Department trying to encourage goat-rearing! Interdepartmental rivalries and lack of coordination are compounded by frequent and irregular transfers, and, of course, the ubiquitous phenomenon of corruption.

Moreover, the various planning and implementation bodies are as open to political interference as any other body, and responsibilities are so divided that ultimate control usually rests in the hands of politicians.

Whilst the project is claimed to be a single integrated one, clearance is being obtained from the Planning Commission and the Department of the Environment for each dam *separately*. The combined effect of all the dams (especially on geological stability and forest cover) is likely to be far greater than the adjudged impact of each individual dam. It is strange that neither of the two bodies at the centre have realised this.

Catchment Forests—Under Attack

The life span of a dam depends upon its storage capacity which, in turn, depends upon the silt load of the river. If the silt load exceeds the amount calculated during the planning stage, the storage capacity is correspondingly diminished, thus reducing the life-span of the dam. So as to ensure the continuity of a dam, soil erosion in the catchment areas has to be prevented, and this is possible only by preserving the catchment forests.

The Narmada Basin is one of the most densely forested river basins in India. According to the Agricultural Commission as much as 32 per cent of it is covered by forests, in the upper reaches almost 45 per cent. But our observations indicate that this situation may not continue for long, as rapid deforestation is taking place.

Paper Mills

We visited three mills in Madhya Pradesh: the state-owned Nepa Mill in Khandwa District, the Security Mill in Hoshangabad District, and the privately-owned Orient mill in Shahdol District. The massive Nepa Newsprint Mill, producing 15 per cent of India's newsprint requirements, turns out on an average 180-200 tonnes of paper every day. As raw material, it uses mainly bamboo and the hardwood 'salai' *(Boswellia serrata)*, along with small amounts of thermo-mechanical pulp, agricultural wastes, waste paper, and the weed *ipomea*. Annually, 75,000 metric tonnes of bamboo, 60,000 tonnes of salai and 40 million litres of fresh water are used. The effect of this mill—which has operated since 1956—on the surrounding forests has been catastrophic. Khandwa bamboo—considered a 'weed' till the early twentieth century—has now been almost exhausted within a radius of 200 kilometres of the mill. It is now being brought mainly from the Balaghat District of Madhya Pradesh, with supplies supplemented by imports from Maharashtra. The condition of salai is even worse, partly because of an extremely low royalty of Rs. 40 per tonne that the mill has to pay to the Forest Department, but mainly because it is now facing genetic isolation and has negligible regeneration. As a result, in 1983, the Forest Department had to put a ban on the felling of these trees for 3-4 years. Much of the area under salai has already been laid bare despite the fact that, being able to withstand drought and fire, the tree is ecologically very important. Belatedly, the Forest Department and

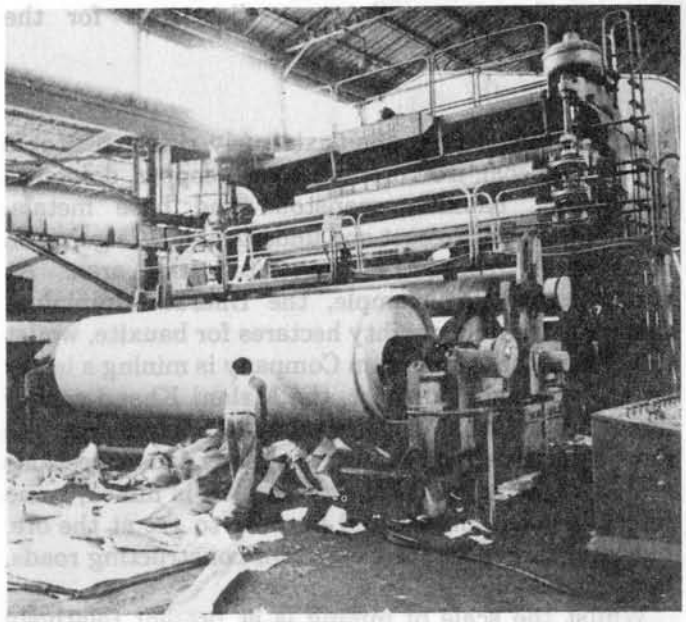

PHOTO: KOTHARI

The Nepa newsprint mill, Nepanagar, Khandwa district (Madhya Pradesh)—one of Asia's largest mills and a serious threat to the Narmada catchment forests.

the Mill authorities have recognised this and plan to replace salai with some other hard wood, for which experiments are going on.

The Orient paper mill at Amlai produces high-quality 'bond' paper, and it too consumes a massive amount of raw material. In a year, the mill needs 44,000 tonnes of bamboo and 60,000 tonnes of hard-woods (any species that does not contain colouring matter is acceptable). Having already finished off the locally available resources, it is now obtaining bamboo from Assam.

At both Nepa Nagar and Amlai, plantations have been started but they are still at an experimental stage and very limited in scale. The Nepa authorities plan to acquire extensive areas around Nepanager for this purpose. Also, the plantations of the State Forest Department have started to give heavy priority to bamboo. Despite all these efforts, however, it is highly doubtful whether these paper mills can be made ecologically viable in the long run. The Conservator of Forests at Nepa insists that they can be made 'self-sustainable'. Forest officials at Khandwa take a more realistic view: "The fate of Nepa hangs in the balance. It may last for another five years or so but not more because there is hardly any wood left." The management of the Orient Mill is frantically trying to acquire land for plantations in order to have an assured supply of wood.

But even if large-scale commercial plantations provide for the demands of paper mills, such plantations cannot serve the same ecological functions as the natural forests in the catchment. Nor will they solve the problems of the local people, especially tribals who are critically dependent on bamboo and other native trees of the area, and who are already facing serious shortages. Deprived of their traditional source of livelihood, many tribals have turned—or are turning—to ecologically destructive occupations like farming forest land or selling 'headloads' of firewood in towns. The direct and indirect effects of the valley's

paper mills may well prove disastrous for the Narmada's catchment area.

Mining

The Narmada Basin has extremely rich exploitable reserves of coal, iron ore, limestone, copper, dolomite, manganese, bauxite, soapstone and base metals. Mining—both open cast and underground—is going on at several places in the catchment area. At Amarkantak, for example, the Bharat Aluminium Company is mining eighty hectares for bauxite, whilst the Hindustan Aluminium Company is mining a lesser area. In Balaghat district, the Malanj Khand copper mines are to be extended for about 2.5 kilometres; the mine's massive spoil heaps are already causing serious ecological damage. Whenever an area is mined, some forest is inevitably cleared in order to get at the ore, but a far larger area is cleared for constructing roads, housing colonies and so on.

Whilst the scale of mining is at present relatively small, the situation is bound to change in the future. This seems inevitable given both the size of mineral reserves in Madhya Pradesh and the present emphasis on mineral-based industrialisation. The state has 10,000 square kilometres of coal reserves, another 14,000 sq kms of bauxite and a long list of other mineral reserves. Most of those reserves are covered by excellent forests or lie beneath farmland. The implications for the catchment area are indeed frightening.

Agricultural Extension and Soil Mismanagement

At several places in the valley (for example, the Rajpipla hills in Gujarat, or Mandla District in Madhya Pradesh), we came across agricultural land that had recently been cut out of forests. Typically, this land is not very fertile, and if it is on hillsides, it is highly prone to erosion. Farmers cannot cultivate it for long; within a generation or two (often less) they have to abandon it and cut more forest. Those cultivating on hillslopes have not developed the sophisticated terracing developed by farmers in the Himalayas; at no place did we see a properly terraced field. In fact, at Gorakhpur in Mandla district, we came across a farmer making vertical rather than horizontal contours on the slope. Naturally, erosion would be highly pronounced. At Chiraidongri, where agriculture has been extended right up to the Narmada, the river is gradually eroding away its banks.

It would, however, be too simplistic (and somewhat distorted) to blame this either on the ignorance of the farmers or their alleged 'population explosion'. The tribes living in the valley have been gradually pushed further and further into forests and onto marginal lands by external pressures and expanding peasant communities. A look at the landholding pattern in the valley shows the control of landlords over fertile lands. On the whole, landholding is considerably skewed, although the inequities are less pronounced in the upper reaches of the river than in the lower zone of Madhya Pradesh, where 80 per cent of the farmers own less than 30 per cent of the total land. Significantly, landholding in the tribal communities is fairly balanced: for instance, in the Gujarat villages destined to be submerged by the Sardar Sarovar dam, 95 per cent of the local Tadavi and Bhil tribals own up to 5 acres, and only 5 per cent own more than 10 acres.

In the upper reaches of the river, we found another cause for the agricultural misuse of land. Tribes which once practised shifting cultivation, like the Baigas of Mandla district, have been forced by the government to settle down permanently. Officials defend the settlement programme by pointing out that shifting cultivation was causing deforestation. But why has an age-old, ecologically sound practice suddenly become destructive? The official contention that there has been a population explosion among the tribals is not supported by fact; the real answer is that the area where shifting cultivation was practised was artificially reduced by declaring most forest land reserved (reserved that is, for paper mills and other commercial interests), thus forcing the tribals into a smaller and smaller cultivation-fallow cycle. What is important here is that the land now given to them for permanent cultivation is forest land, which, since it is not very fertile, simply cannot be used for permanent cultivation. Inevitably, the tribals have to extend their fields illegally by taking over more and more forest land. The 'illegality' does not however remain for long: in a recent populist move in Madhya Pradesh, all pre-1977 encroachments on forest land have been legalised.

Grazing

There is a heavy incidence of over-grazing in most of the areas. Almost no guidelines exist to control the seasonal migration of cattle, goats, sheep and camels. Whatever guidelines there are, are flouted with impunity. In fact, the influx of outside cattle into Madhya Pradesh has led to violent clashes between the Forest Department and the cattle owners, as well as between local farmers and nomads from 'outside'. A five kilometre-long caravan with thousands of cattle, goats and camels was seen heading towards Amarkantak in July 1982. These were owned by Kathiawaris from the Rann of Kutch. Recently 500,000 cattle are reported to have entered into Dhar, and another huge group into Khandwa. The influx of cattle from Gujarat and Rajasthan is in addition to the swelling population of local cattle. Overgrazing is as harmful as deforestation, for it brings regeneration of a forest to a complete halt.

In May 1983, the Supreme Court upheld the right of nomads to graze their livestock in Madhya Pradesh, regardless of which state they were from. This, of course, makes the task of controlling grazing very difficult. But the problem of those who are dependent on livestock is as real as the threat to forests—there seems no immediate solution to this dilemma.

Firewood

Carts full of firewood, villagers carrying loads on their heads, and large Forest Department depots were a common sight on our trip. It is obvious that the forests of the catchment are an important source of firewood, though it is difficult to estimate how much

forest is cut down for firewood every year. A rough idea can be gained from looking at the picture of Madhya Pradesh as a whole. An incredible amount of firewood comes out of the State's forests, much of it to cater to urban demands both in Madhya Pradesh and elsewhere. A recent report by Anil Agarwal and Bhubanesh Bhatt of the Centre for Science and Environment (CSE) states that "Madhya Pradesh is today the biggest supplier of firewood to the cities of India". Delhi, for instance, receives over 150,000 tonnes every year from Madhya Pradesh. Assuming a growing stock of 82 tonnes per hectare, this in itself means the denudation of about 2,250 hectares a year or 6 hectares a day. Taking into account all the firewood coming out of Madhya Pradesh's forests, the destruction must amount to several thousand hectares per year.

Most of the twenty Narmada Basin districts already have a scarcity of firewood. Forest Department studies show that the only two districts that still have a surplus are Shahdol and Betul. Interestingly, as the CSE report points out, a map prepared by the State Government of Madhya Pradesh shows a strong correlation between firewood scarcity and the existence of railway lines: those districts that have an under-developed railway network have satisfactory firewood resources—or even a surplus.

Firewood sales in Madhya Pradesh are now totally controlled by the State Forest Department which has its network of depots spread throughout the state. Forest officials claim that most of the destruction of forests caused by firewood extraction is done by tribals. In Madhya Pradesh, 'headloading' (that is, carrying out of a forest a headload of wood) for personal use is still allowed. Officials claim that this right has been severely abused; people even often use wheelcarts to carry extra wood. At Khalaghat, Khandwa, the Ranger, Mr Vyas, complained that Bhil tribals go to the forests in parties of 50 to 100 people, extract much more wood than is allowed, and sell it off to a waiting contractor. It is very difficult for the Forest Department to catch them in such large groups, and contractors who are caught get away with minimum penalties due to political contacts.

It is undoubtedly true that thousands of tribals in the basin have turned to headloading as a means of livelihood, and illegal extraction too has engaged some of them. But again, it would be fallacious to place the entire blame for deforestation on their shoulders. In many cases, the tribals have turned to selling firewood precisely because the forests where they previously lived—and on which they were dependent for their livelihood—have been destroyed by commercial logging: so too, resettlement schemes and restrictive forestry laws have made it impossible for many tribals to pursue their traditional way of life. A study by the Xavier Institute of Social Service shows that headloading has become popular—despite the hard work involved and the low income it brings—because it provides the only source of income that can be relied on throughout the year. The study also points out that headloading gives women some independence from their menfolk who often squander away their earnings on drink and gambling.

The firewood trade is, thus, a very important factor in the lives of thousands of poor villagers. A ban on headloading, as was emphatically suggested by several of the Forest Department officials we met, would only worsen their situation. Nor, in any case, will it ensure the safety of the forests, for it might only mean a change from private to Government extraction. There is no guarantee that the latter will be less destructive—indeed, it might be more. Recently, after the defeat of the ruling Congress[I] party in a by-election in Sagar in 1982, attributed partly to the shortage of firewood in the city, the Chief Minister ordered Forest Department officials to see to it that Jabalpur (where another by-election was due) got all the firewood it needed before polling took place. Apparently, the party's candidate distributed free firewood to local people and gave them full permission during the campaign period to take as many headloads of firewood from the surrounding forests as they wanted. The 1980 ban on exporting firewood from Madhya Pradesh has never been implemented. Large contractors who buy stocks of firewood at Forest Department auctions are given transit passes which permit them to carry the firewood across the border.

Commercial Forestry

There are excellent teak and sal forests throughout the length of the Narmada Valley. With the rising national demand for a wide range of wood products and the steady depletion of timber resources throughout the country, these remaining forests are under increasing pressure. Already there are several wood-based industries in the valley. Plywood, veneer and fibre-board manufacturers siphon off the best teak. Sawmills in Jabalpur, Itarsi, and other towns supply sawn timber not only to Madhya Pradesh but also other states. The Madhya Pradesh Government accords great importance to commercial forestry; indeed, 52 per cent of its non-tax revenue comes from selling forest products or from forest-based industries. Huge depots of commercial wood can be seen at Betul, Mandla, Budni, Khirkia, and several other places. The official claim that commercial extraction is based on 'scientific' practices and causes no reduction in stock, rings quite hollow if one takes into account the scale of industrial use, paper mill consumption and the official firewood trade.

With such a multi-pronged attack on the valley's forests, the future of the catchment area is far from secure. Certainly, under the present inefficient administrative system, the forests cannot be saved from encroachment by various powerful vested interests. Moreover, the project (and its various subsidiary processes) will itself increase the pressure on the forests. The biggest blow will be the submergence of 11 per cent of the forests in the basin. Furthermore, thousands of hectares of forest will have to be cut down to make way for resettlement schemes, to provide fuel for the multitude of workers on the project site, and to provide construction timber for the project. Such destruction will inevitably cause erosion

and subsequent siltation problems with unknown effects on the life of the dams. Indeed, the Government of Gujarat has candidly admitted that 'no decision' has yet been taken on how the siltation problem is to be handled. In the present situation, no decision *can* be taken.

Submergence

A colossal area is to be flooded under the network of reservoirs that will emerge in the Narmada Valley. One serious aspect of submergence—the displacement of people—has been dealt with below. Detailed here are the other aspects.

Forests and Wildlife

Over 150,000 acres of forest land in the valley will be submerged by the various dams on the main river. The total area of forest which will be flooded due to the entire project may amount to 350,000 hectares (875,000 acres), according to Mr S.D.N. Tiwari, Advisor to the Madhya Pradesh Environment Planning and Coordination Organisation. This amounts to 11 per cent of the basin's forests. Some of India's best deciduous forests, like the rich teak and bamboo forests of the Chandgarh and Punasa ranges in Madhya Pradesh, will be destroyed.

It is very difficult to calculate the *real* long-term costs of flooding the forests of the Narmada Basin. In their cost-benefit analysis, the project authorities took account only of the *direct* economic losses which would be incurred through the destruction of such *tangible* economic assets as timber, firewood and minor forest products. They totally ignored the *intangible* ecological benefits which the forests provide and which will be lost once they are flooded—benefits such as soil preservation, water conservation and replenishment, climatic stabilisation, air purification and wildlife shelter. As mentioned elsewhere, the Forest Research Institute Dehradun estimates that, over a 50-year period, the value of those intangible benefits amount to Rs. 1, 570,000 per tree. But even if the intangible ecological benefits are quantifiable, the social value of forests may not be. Yet, for a tribal, the forest is of great cultural and pschological importance, and its destruction represents a serious disruptive event. Moreover, there is no way of calculating the loss of the economic and genetic potential of a forest, for there may be dozens or hundreds of species which have not yet been even identified. No systematic survey of the plant resources of the valley has yet been done.

The submergence of so much forest area is bound to increase all kinds of human pressures on adjoining forests. So far, such pressure has not been too great in the Narmada Basin (thus the abundance of forests) but submergence coupled with the other impacts of the project (see conclusion) is certainly going to increase it. In all probability, this increase will exceed the carrying capacity of the basin's forests.

It is claimed by the authorities that compensatory afforestation will be carried out to plant the same amount of forest as is being lost. But this is, to say the least, a suspicious claim. The total money allocated for compensatory afforestation in the Narmada Sagar

PHOTO: BAGLA

One of many state-owned firewood depots in Narmada valley, Madhya Pradesh.

Project Report is Rs. 3,100,000. Taking an average cost of Rs. 2,000 per hectare for replanting, the total area that can be covered with a budget of Rs. 3,100,000 is only 1,500 hectares, which is less than one twentieth of the area to be submerged by Narmada Sagar! Even if, with extra finances, all the lost forest is replaced, the afforestation programme will not necessarily replace the same species as those which will be lost. In other cases, there has been a pronounced tendency to plant commercial species of little ecological value. Even if commercial plantations are avoided (and so far, the authorities have pursued a responsible plantation policy) it would be impossible to recreate the diversity and richness of the existing natural forests.

Besides, where is all the land needed for afforestation going to come from? According to an official of the Madhya Pradesh Environment Organisation, there is just not enough government land. Private land will have to be acquired. This would inevitably mean a certain amount of agricultural land—what will be the consequences for the affected farmers?

Some of the forest tracts coming under submergence are extremely rich in wildlife. But, characteristically, there is no plan to relocate this wildlife. The Narmada Sagar Project Report claims that "impact of the Project on wildlife shall be nil, since wildlife has got natural characteristics of shifting to nearby jungles whenever it is felt unsuitable for them". In other words, wildlife will relocate itself. Such an assumption, however, seems to us to be more a convenient excuse, than a serious proposition. Other than birds and possibly a few alert mammals, how many animals really stand a chance of 'relocating' themselves when the waters come their way? How much adjoining forest is there, anyway, for them to move into? Will not such a movement increase competition between animals (especially the strongly territorial ones) in the new habitat? Will the influx of animals not stretch the carrying capacity of invaded areas to the limit? And, if one includes wild flora in the category 'wildlife', how are all the plants going to 'naturally relocate' themselves? Or, for that matter, the micro-organisms?

Incredibly, for some government departments, 'wildlife' seems to mean only tigers and deer and other big mammals. In an answer to a query of the Department of Environment, the Government of Gujarat says, "At present there is no wildlife in the reservoir area of the proposed Sardar Sarovar Dam and its vicinity". To the very next question, the reply is: "After construction of the dam and the creation of the reservoir, it will be possible to develop a wildlife sanctuary or safari park in its vicinity". Where, pray, is all the wildlife suddenly going to come from? When it comes to costs, there seem to be none; when it comes to benefits, there are suddenly a lot. And when asked to specify which rare and endangered species are present in the submergence zone, the Gujarat Government has kept silent. Why?

Agricultural Land

In terms of area, the loss of agricultural land due to the dams on the Narmada itself is even greater than that of forests. Nearly 200,000 acres of cultivable land will be submerged. The valley as a whole may lose up to 500,000 acres of agricultural and other non-forested land under the dam's reservoirs. Since most of this land is situated very close to the rivers, it is highly fertile and productive. Those farmers whose fields will be flooded will not necessarily receive equally (or more) fertile land in return for the land they lose, since there is as yet no requirement for displaced farmers to be rehabilitated in the command areas.

As in the case of the forests, the true value of agricultural land is very difficult to determine. The official estimates take into account only the market value of the crop being produced. The value of the topsoil on such land—which is of greater importance—is underplayed. Considering the already alarming rate of soil degradation and erosion in India, further destruction of topsoil through submersion must be considered a serious matter. Nor has the value of the organisms living in the soil been taken into account—or the socio-psychological significance of ancestral lands to farmers.

Culturally-important Sites

Apart from culturally-significant forest and agricultural land, several sites of significance will be submerged. While the more famous pilgrimage spots (Omkareshwar, Maheshwar, Mandleshwar, Nemawar, Amarkantak, etc.) have been spared, hundreds of less well-known sites will go under water. These include those temples which are present in each village or group of villages to be submerged, several well-frequented bathing ghats, and other small sites of historical interest. While such places are not of national importance, locally they play a crucial role in the life of the peasant or tribal. The Surpaneshwar temple in Gujarat, for example, is the most important pilgrimage spot for villagers from several kilometres around—it will be submerged by the Sardar Sarovar Dam. The same dam will also inundate the Shiva temple at Rajghat near Barwani in Madhya Pradesh and the temple in Brahmangaon, also in Madhya Pradesh. And yet the Gujarat Government has told the Department of Environment that no culturally-important sites will be submerged.

The Narmada Sagar Dam will submerge the Joga Fort, a small 500-year-old fort built by King Hoshang Shah on an island in the middle of the Narmada; it will also inundate the Singhajiki Samadhi, where a big religious fair has been held for the last 450 years.

In some cases, the government plans to relocate the temples, or build new ones at the resettlement sites. The Bargi Dam oustees, for example, will get a new temple at the resettlement site. This will, of course, reduce the loss, though not eliminate it completely.

Grazing and Other Lands

Over 100,000 acres of 'other' land will be submerged by the dams on the Narmada and a much larger area by the project as a whole. The land which will be lost includes grazing lands, human settlements, barren areas, and so on. Undoubtedly, the inundation of grazing lands will have the most serious repercussions.

As we have noted elsewhere, there is already considerable pressure on grazing land in the valley due to the massive seasonal influx of cattle from outside. In such a situation, large scale loss of grazing land can only be disastrous. The project plan, of course, envisages an increase in stall-feeding and decline in free grazing by cattle, but this seems quite an impractical 'solution'. In the guidelines for rehabilitating the oustees, there is not even any requirement to provide alternative fodder sources. The cattle, their owners, and the remaining grazing lands are all likely to be sufferers of the submergence.

The impact of the Narmada Sagar Dam near Punasa in Uttar Pradesh will be particularly serious. This dam will have a full reservoir level (FRL) of 560ft; at this level, the reservoir will spread over an incredible 910 square kilometres, or 90,820 hectares (224,000 acres) of land. This will be the largest reservoir in India. Alone, it will submerge over 100,000 acres of agricultural land, and about 85,000 acres of forests. Some 120,000 people from 326 villages will be displaced, including the entire Tehsil town of Harsud in Khandwa district. The compensation to these oustees alone is estimated to amount to Rs. 2 billion, a little more than £1,000 per family. In addition, a 32 kilometre stretch of railway track will be submerged; building a replacement track will cost over Rs. 650 million.

The social and environmental implications of this massive reservoir have not gone unnoticed. Very recently, a member of the Madhya Pradesh planning board and former irrigation minister, Mr Ramchandra Singhdeo, asked for a review of the project. In a note submitted to the Chief Minister, Mr Singhdeo stated that the economic and environmental cost of the dam may well 'spell disaster' for the state's economy. Nonetheless however, the late Prime Minister, Indira Gandhi, laid its foundation stone in September, 1984. For purely 'sentimental' reasons, it may now be difficult to get a serious reappraisal made!

No objections have been raised against the other dams. This is possibly because *individually*, their reservoirs are likely to have less of an impact than the reservoir at Narmada Sagar. But we would like to

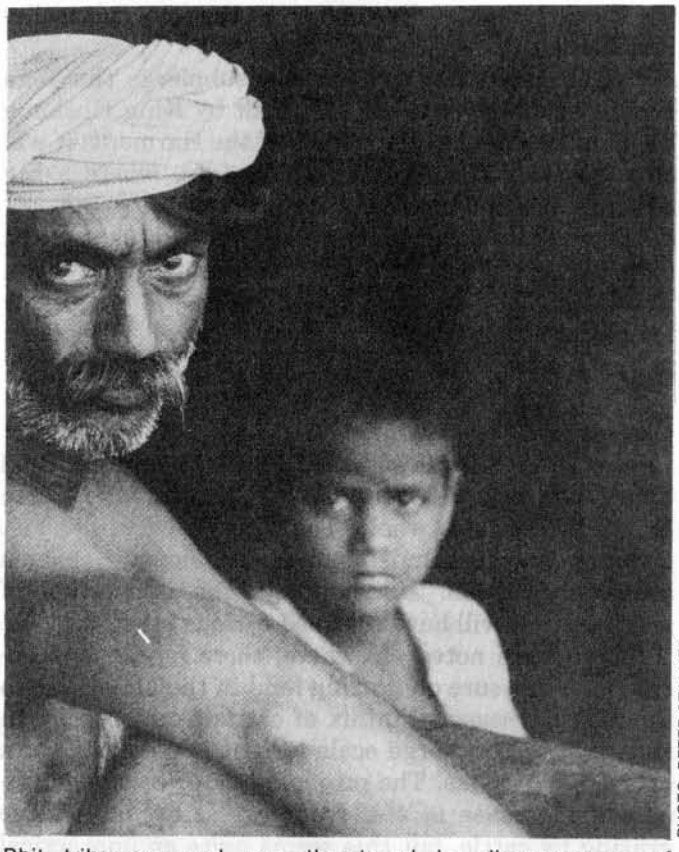

PHOTO: PETER STALKER

Bhil tribesman and son—threatened by disappearance of Narmada forests.

stress that the *combined* effects of the other reservoirs is bound to be highly detrimental to the social, environmental and cultural health of the valley. This in itself is reason enough to undertake a serious reappraisal of these big dams.

Displacement and Rehabilitation

The network of reservoirs that will accompany the project will displace a vast number of people—possibly a million in all, according to the National Institute of Urban Affairs. Many of the oustees will be tribals. Considering the sheer magnitude of the required rehabilitation programme and the present state of the rehabilitation 'machinery', the situation is alarming. We found several faults in both the planning and implementation of the resettlement programme.

The Narmada Water Disputes Tribunal has laid down a series of directives for the resettlement of oustees from the Sardar Sarovar project. As was repeatedly emphasised to us, the directives are a marked improvement on past rehabilitation policies. Since the Sardar Sarovar Dam will displace people in Gujarat, Madhya Pradesh and Maharashtra, the Tribunal was principally concerned with ironing out the problems of interstate relations. Nonetheless, it is likely that its directives will form the basis of the independent rehabilitation policies pursued by each of the three states. It is thus important to review the Tribunal's recommendations in some detail.

The most important directive is that all landowning families who lose at least 25 per cent of their land to flooding must be allocated as much land as is lost—with a minimum of 5 acres. In addition, a resettlement grant (transportation costs, etc) of Rs. 750, plus a grant-in-aid to those receiving total compensation of less than Rs. 2,000, is to be given. In the resettlement villages the oustees must be provided certain civic amenities—including primary schools, panchayat ghars, dispensaries, seed stores, children's parks, a drinking-water well, a main linkroad, and house sites. As far as possible, culturally-important sites are to be relocated. No area can be submerged till compensation and expenses are paid and rehabilitation arrangements complete.

Some of the steps taken so far are indeed commendable. Compensation for houses has been generous, transport costs have been met by the Government and bank accounts opened so that oustees do not quickly fritter away the compensation money. But we found that current rehabilitation efforts are still far from satisfactory. This is both because the directives have not been always adhered to, as also because their recommendations contain serious loopholes and omissions.

For one thing, the Tribunal's directives relate only to oustees from Madhya Pradesh and Maharashtra, not to those from Gujarat itself. A study shows that only about 20 per cent of the farmers are likely to shift to Gujarat; the rest prefering to stay in their home states. In other words, the Tribunal's directives, even if adhered to, will be effective for less than 12 per cent of Sardar Sarovar's oustees!

In fact, the state rehabilitation policies of Gujarat and Madhya Pradesh have not as yet been modelled on the Tribunal's directives. Thus the 'land for land' policy has totally failed in the case of the Gujarat oustees. The Gujarat Government has just not bothered to find adequate land for them. Most of the people (Tadavi tribals) of the 6 villages shifted so far have instead received cash compensation. But while these villagers obtained what seems to be a reasonable compensation of Rs. 4,600 per acre (and that only after sustained public pressure and a court case), the policy of cash compensation is in general a rather callous one. As T. Scudder notes in a report submitted to the World Bank, on rehabilitation in Sardar Sarovar: "Cash compensation usually results in lower living standards and reduced quality of life among the large majority of relocatees".

There are several reasons for this, including the fact that assets held by the oustees are generally undervalued while the value of assets in the adjacent areas where oustees want to move is inflated. The rest of the Gujarat oustees are being offered only Rs. 3,200 per acre, while land of equivalent quality is available at a minimum of Rs. 6,000 per acre. Cash compensation also exposes oustees, especially tribals, to the exploitative practices of money-lenders, lawyers and landowners. To make matters worse, the Gujarat Government has refused to act as intermediary between the tribal oustees and landsellers. Yet another problem of cash compensation is that the planned rehabilitation villages exist only on paper, since the oustees have been forced to scatter over a wide area—instead of being relocated together. In fact, the Madhya Pradesh status report on land acquisition and rehabilitation (with regard to Sardar Sarovar) states:

"It is expected that much of the land will be bought by oustees themselves with compensation paid to them. It is not expected that many new rehabilitation villages will have to be set up."

Both the agencies contracted to study the rehabilitation problem, the centre for Social Studies (Surat) and the National Institute of Urban Affairs (New Delhi), strongly recommended against a policy where oustees were expected to purchase land on the open market. Yet both Madhya Pradesh and Gujarat are following this policy. Scudder notes that, due to this, "the odds are high that the majority of (Sardar Sarovar's) oustees will be worse off following removal".

The scattering of tribals into far-flung areas is likely to have serious socio-cultural repercussions. Scholars at the Centre for Social Studies, Surat, told us that the Sardar Sarovar oustees have a marriage circle consisting of several neighbouring villages. Being forced to resettle outside this circle could itself be a major jolt to their social and personal lives.

The problem of social disruption is exacerbated by the system of land registration. In tribal areas, many large, joint family holdings are registered in the name of the household head. Under the Land Acquisition Act, however, only this titleholder gets compensation. Scudder notes that this policy is sociologically devastating since it creates tensions and ill-will between fathers and sons, between brothers, and between other kin with joint rights in land. The policy throughout India to compensate only the individual title holder actually exacerbates community tensions and disintegration. This disruption has occurred in the case of the tribals already shifted in Gujarat, as documented by the Centre for Social Studies. And as the Chattra Yuva Sangharsh Vahini, an organisation working among the Sardar Sarovar oustees, points out, 2,109 families in the 19 Gujarat villages which will be submerged are dependent on the use of only 624 holdings. Consequently, the existing policy "will leave the majority landless, and will also disrupt the social relationships between those involved".

Two other policies will add to the problem of social disruption. One is to pay compensation only for land that is *actually* submerged. This has meant an overall loss for those whose land is only partially submerged but who will nevertheless have to abandon the whole of it. One oustee we met, Natwarbhai, had 27 acres, but only 15 of these were to be actually inundated —he did not get compensation for the remaining 12 acres. In the first five Gujarat villages which have been shifted, almost 100 acres has already been lost due to this insensitive policy. However, in some cases, the new land bought has been more productive, which has partially compensated the loss. Otherwise, villagers have had to make up the loss by working as temporary labourers on the dam site or elsewhere.

A second policy is to compensate only that land for which the cultivator has a legal ownership lease. In those tribal villages of Gujarat which have still to be shifted, as many as 1,095 out of 1,721 families cultivate some 'forest land'. Since this land legally belongs to the Government, no compensation will be paid even if it has been cultivated for a few generations. For many families this will obviously be a severe blow. The problem in Madhya Pradesh may, however, not be so acute since all forest encroachments prior to 1977 have been regularised.

For the forest-dwelling tribals, possibly the most serious aspect of displacement (apart from social disruption) is the break from their natural surroundings. The forests and the river play a central part in their cultural and economic life—neither will be available where they resettle. The tribals are especially dependent on locally abundant trees like mohwa *(Madhuca indica)*, teak *(Tectona grandis)* and bamboo. Already, those who have been resettled are facing a shortage of fuelwood and fodder which were plentiful in their previous environment. Unable to afford or obtain enough fodder and firewood, oustees settled at Khadagda village travel 25 to 30 kilometres with their cattle to their original village (Khalwani), where the forests are still intact. But even this is only a temporary source—firewood will have to be *bought* once Khalwani is submerged. There is no move yet to provide alternatives. Promises by the Forest Department to start plantations have not yet materialised and will in any case not solve the problem for another 8 to 10 years. At some resettlement sites, there is also a shortage of water, a situation never before faced by villagers living on the banks of the river.

The Tribunal's Directives—indeed the rehabilitation policies in general—show a callous disregard for the landless. While they will be paid compensation for their houses, there is no plan to provide them with alternative employment, or with facilities to continue their current occupations in their new villages. What is usually ignored is that these people are intimately tied to a community by the services they provide to it—the displacement and dispersal of their community thus inevitably leads to loss of livelihood. At Bargi Dam, oustees are being given priority in employment schemes, but this is an exception. At Sardar Sarovar (and possibly elsewhere too?) the landless (and those who cultivate only forest land) have not even been counted as oustees. There is as yet no detailed training programme which could ensure these people a secure economic future.

While the Gujarat oustees have been able to organise themselves and demand better rehabilitation (with the help of Chattra Yuva Sangharsh Vahini, a voluntary activist organisation), there is no sign of this among the Madhya Pradesh oustees of the Sardar Sarovar and Narmada Sagar dams. Our talks with oustees in Madhya Pradesh revealed that until now they had only a vague idea that they 'had to move', with no clue as to when, where, how and with what compensation. In fact, not even the officials we met knew these details—everything was still 'under preparation'. In the tribal area affected by Narmada Sagar, there was a firm belief that nothing could stop the flow of 'Narmada Mai'; the dam just could not be built.

The rehabilitation of the citizens of Harsud, a town in Khandwa district, which will be entirely submerged by Narmada Sagar, has caused considerable controversy. The site chosen for resettlement, Suktapur,

Protest rally by tribal peoples ousted by Sardar Sarovar Dam, March 8th 1985.

is claimed by the citizens to be too rocky. They want land near Ashapur, which is just a few kilometres away from Suktapur and which is more accessible. But this land is forested and the Forest Department refuses to relinquish it. Harsud's citizens argue that if the Government has no qualms about submerging 80,000 acres of forest, why cannot it give 1,500 acres more for rehabilitation? No final decision has yet been taken.

Meanwhile, the nature of the government's priorities becomes clear when one looks at the temporary colonies that are being built to house the staff working on the dams. The buildings at Kevadia Colony, which houses 5,000 staff members working on the Sardar Sarovar Dam, have cost the princely sum of Rs. 230 million. This is not surprising, considering the VIP rest houses and circuit houses that have been built. Add to this sum, the cost of building roads, supplying electricity and setting up a communications network and the total cost comes to Rs. 330 million—more than has been allotted for the permanent resettlement of the 67,000 people displaced by the dam. At the staff colony being built at the Narmada Sagar site, dense forest has been cut down to make way for an airstrip, presumably for use by World Bank officials (and the Prime Minister during the inauguration?). To top it all, the authorities have little idea of what to do with most of the facilities created in these colonies once the dam is completed. The colony of the now completed Tawa dam in Hoshangabad district, was built to accommodate 10,000 people—today only 2,000 use it. If these colonies are so temporary, why not use cheaper material that can be dismantled? What is the need for VIP rest houses and circuit houses?

Rehabilitation is a delicate matter, requiring a good deal of understanding and dedication. Scudder argues that it is a callous mistake to let officials from the Irrigation and Revenue Department handle it, as is the case at Sardar Sarovar. "The strengths of (these) officials relate to land acquisition and compensation but not to rehabilitation . . . Their approach to rehabilitation lays emphasis not on the future welfare of oustees but on their physical transference from the reservoir basin." The rehabilitation officials we met were usually quite indifferent to their work, barring some exceptional officials who were fairly well motivated. By and large, however, there was a general ignorance of the socio-cultural patterns of the oustees and an attitude of disrespect towards them. As the rehabilitation officer of Sardar Sarovar remarked, "they (the oustees) are in a 'Jungle' state, we are bringing them into civilisation".

Most of the oustees of the Narmada Project are still to be moved. If their rehabilitation is not to be a total disaster, it will be necessary to ensure that land *is* given for land: that *all* the land lost is replaced; that alternative sources of firewood and fodder be provided; that all members of a single village be resettled together; that land be given in the command area; and that the landless be looked after with special care. Most necessary, however, is that in-depth sociological and anthropological studies be immediately carried out to find out the special requirements of the oustees.

Without a total understanding of the cultural ethos and psychological make-up of the tribal and the peasant, rehabilitation is bound to be a failure. But given the massive scale of the resettlement programme necessitated by the Narmada Project, is all this feasible? Will it be possible to ensure that the above conditions are observed?

Irrigation

Over the last few decades, India has gone in for large canal irrigation schemes on a massive scale. But there are indications that most of these schemes have not fully achieved their stated objectives.* In fact, Dr B.R. Bhumbla, former Vice-Chancellor of Haryana Agricultural University, questions whether any irrigation project in India for the last 100 years has been cost-effective or beneficial to agriculture in the long run. According to him: "It is evident that the benefits (of large and medium projects in India) in arid areas though spectacular for the first 10-20 years, gradually get reduced and a considerable portion of the land deteriorates because of waterlogging and salinity. The life of buildings and roads gets reduced . . . the incidence of disease increases. In humid areas, benefits are doubtful and in many cases negative. *The programmes of major and medium irrigation works that have been envisaged for the future in humid areas, would not only lead to disastrous consequences in degradation of soil and environment but would also result in reduced agricultural production.*"

In view of the above, one must treat with suspicion the claims made for the Narmada Project. A total of 4,960,000 hectares are expected to be irrigated. Whether this will be possible within the stipulated time period is itself questionable, considering the present level of efficiency of Government departments. What is even more questionable is the expected increase in production after irrigation—in the case of Narmada Sagar Dam (Khandwa District), this has been put at an incredible 8-fold increase. Scepticism about such claims is further strengthened by a look at the experience of one of the few major dams already constructed in the valley—the Tawa Project.

The Tawa Dam, situated on the River Tawa in Hoshangabad District, was started in the late 1960s but the full canal system is yet to be completed. A revised estimate claimed that it would achieve full irrigation potential of 333,000 hectares by June 1983, but by then only one-third of this area had been covered, and an official at the dam site admitted that the scheme would take a few more years to complete. Meanwhile, the delay has already led to an escalation in costs of over 500 per cent—from Rs. 180 million (estimated in 1958) to the present estimate of Rs. 1 billion.

But the greatest controversy has been over the project's environmental effects, mainly waterlogging and the proliferation of weeds. Neither the main nor the subsidiary canals were given 'pucca' lining, and no importance was given to a proper drainage system. The result: instead of an expected 30 per cent seepage rate (which itself is atrocious), the seepage (according to the then Deputy Director General of Indian Council of Agricultural Research) was about 60 per cent. This, coupled with the water-retentive property of black cotton soil, has meant large-scale waterlogging and the threat of salinity. Opinions differ on the extent of waterlogging—official reports put it at 200 hectares, but farmers represented by the 'Save the Soil Campaign' claim that it is over 1,000 hectares, and steadily increasing.** As only a part of the command area is as yet irrigated, the problem is bound to increase. Even five years after the waterlogging was first detected, no steps had been taken to reclaim the land. The Government claims it will do so in 1985.

The Tawa project is today held to be a classic case of faulty planning and mismanagement. One engineer who had been connected with the project told us that some officials with little field experience decided to provide irrigation in order that paddy could be grown during the dry season. They did not know that the black cotton soil of the area is unsuited to paddy. Experiments in the first year (at the farmers' expense) proved to be a failure, and it was later decided to convert the land to soyabean cultivation. Extensive areas are now under soyabean, and while this has increased monetary returns to farmers, it has caused problems typical of the conversion from food to cash crops. For one thing, such 'commercialisation' of agriculture makes farmers dependent on the vagaries of the market, from which they were previously relatively independent. Secondly, the crops that have been replaced are usually those amenable to immediate local use, which the new ones are not. In Hoshangabad, soyabean has replaced jowar, alsi, and tuar. Jowar provided food for humans and fodder for cattle from November to February. Soyabean cannot be used directly; it has to be sold to be processed. Is there any guarantee that the presently high market value of soyabean will be maintained? Moreover, large-scale conversion to non-food cash cropping (as is being promoted now in the valley) is bound to affect local foodgrain production. Farmers will have to buy more and more of the food they once produced for themselves. Moreover, the lure of materialism is strong and many families may be persuaded to spend their money on consumer goods rather than nutritious food—to the detriment of the health of both parents and children.

The production of foodgrains was supposed to increase by 1,396,000 tons as a result of the Tawa project, but there are doubts about whether there has been *any* increase at all. The Auditor-General of India reported in 1981 that according to the findings of the State Land Record Commissioner, there had actually been a *decline* in the yield of every major crop in Hoshangabad. The average yield per acre of wheat fell from 3.14 quintals before irrigation to 3.06 quintals in 1978-79; of grams from 2.43 to 2.08 quintals; jowar

*Instead of increasing production to the expected 4.5 tons per hectare, irrigation has on the average increased it to only 1.7 tons, and most major schemes have fallen short of their stated irrigation potential.

**There has also been phenomenal growth of all sorts of weeds and grasses along canals and on fields, some of them extremely hard to eradicate. Farmers also complained of increasing incidence of waterborne diseases, though we could not confirm this.

from 2.82 to 2.74 quintals; maize from 4.48 to 4.01 quintals; and paddy from 4 to 3.83 quintals. The ICAR Deputy Director-General pointed out that those areas that were the most productive under unirrigated conditions have been worst affected because they are low-lying.

Some officials claim that the Auditor-General's report is based on incorrect data, and that, in fact, there has been a great increase in production. A 1983 article in *The Statesman* claimed that production of HYV wheat and local wheat has increased by 146,900 quintals and 52,101 quintals respectively. But the article did not mention the source for those figures. If one is asked to disbelieve the Auditor-General's report (based on Government data), how is one to trust any Government data showing increase in production?

It is possible that the Tawa experience may be repeated at the other irrigation projects being set up in black soil areas with high rainfall, which includes most of the Narmada Valley. The Barna project in Raisen district is reported to be causing widespread water-logging and the farmers are now rising up in protest. To a large extent, of course, lining of canals (required by the World Bank) in the new schemes will reduce seepage—but it will not necessarily eliminate it. Considering the high water table and the high average rainfall of the basin, waterlogging is a definite threat. To reduce the risk, it will be necessary not only to line the canals, but also to ensure large-scale utilisation of groundwater, proper field drainage, the education of farmers on irrigation methods, the strict implementation of canal-construction laws, and so on. Given the massive scale of the project, will all these requirements be fully met? We doubt it, considering the yawning gap between planning and implementation, the inefficiency of Government departments and the lack of coordination between them.

But at least planners seem to be aware of these problems and are promising to do something about them. In the plans for the Sardar Sarovar dam project (the biggest in terms of irrigation potential in the Narmada scheme), Rs. 40 million has been allocated for drainage measures, and only one-third of the water supplied in earlier schemes will be provided per hectare of the command area (which is in any case mostly drought-prone). Studies are being conducted to check the spread of weeds, disease, and pollution from fertilisers and pesticides. Grain production is expected to go up by 3.5 times—a more modest and realistic projection than that made for Narmada Sagar.

The case of Tawa and other such projects underlines the urgent need for a comprehensive, in-depth evaluation of all the irrigation schemes set up in the past in India. There is, moreover, the need to pay greater attention to alternatives to large-scale, river-based irrigation, such as groundwater utilisation and efficient rainwater management.

Benefit-Cost Analysis

A project is sanctioned by the Planning Commission only when the benefit-cost ratio is over 1.5 to 1: that is, for every rupee spent there must be a return of at least Rs. 1.50. The assumption, of course, is that the ratio has been honestly calculated by the project authorities. But this is rarely so—as one of the engineers of Sardar Sarovar dam admitted to us, the ratio is often distorted by exaggerating the benefits and underplaying the costs, so as to get the project sanctioned. Details about the benefit-cost analysis are often vague, incomplete and, at times, seriously faulty. Below, we give some specific examples.

Costs

Submergence of Forests: The annual growth rate (the increment) of the forests to be submerged is multiplied by 100 to obtain the loss that would accrue to the Forest Department over a period of 100 years (the expected life of the dam). But when the standing forests which yield timber and firewood (the capital) are felled and sold, the Forest Department earns sizeable revenue. This is deducted from the earlier loss, and the figure obtained is taken to be the value of the forest lost to submergence. We feel that there are three things seriously wrong with this method of computation:

a) Why should the capital (the value of the standing forest in terms of timber, fuelwood and minor produce) be deducted from the total loss? Had the forests not been submerged, under proper management they would have yielded the annual increment *while the capital would have remained intact even after a period of 100 years.* Also, of course, the annual increment would have come indefinitely—not just for the next 100 years. But even if one accepts this artificial time limit, the total loss due to submergence would be the incremental value for 100 years *plus* value of capital, not *minus* it. Of course, if this was done, most projects which drown large areas of forest would become quite uneconomic!

b) Why should the value of a forest be calculated only in terms of commercial products— timber, firewood, and minor produce? Are not the intangible ecological benefits far more valuable? As we have seen, the value of benefits like soil conservation, climatic regulation, water recharging, and wildlife habitat has been calculated at 1,570,000 rupees per tree per 50 years! The loss of ecological benefits is never taken into account, because for our planners a tree is only timber and firewood.

c) Forest submergence also entails the flooding of diverse wild flora and fauna. This loss is never taken into account. 'Wildlife' is thought to refer only to a few large mammals, and even then it is assumed that 'natural relocation' will save such mammals from drowning.

Rehabilitation and Land Acquisition: The cost of these items is frequently underestimated. As a result, if officials keep to the estimated costs, oustees inevitably receive inadequate compensation. If, however, actual costs are allowed to exceed estimated costs, then the benefit-cost ratio is distorted. Usually, dam projects are characterised by both inadequate compensation to oustees and distorted benefit-cost ratios.

Other Costs: No account is ever taken of minerals lost to flooding, of administrative overheads, the costs of pre-impoundment studies or of maintenance operations in catchment areas.

Benefits

Irrigation: The expected increase in crop pro-

duction is usually exaggerated and is rarely realised for two reasons—first, the dams often fail to provide irrigation to the entire stipulated command area and second, the per acre production rarely increases 4-5 times as expected. Also, a lot of land is often lost to waterlogging and salinity.

What is most glaring however, is that the expected increase in agricultural production is made out to be a result exclusively of irrigation, at least for the purposes of the benefit-cost ratio. In reality, the increase is due to various other inputs also, like fertilisers, HYV seeds, pesticides etc—yet, curiously, the cost of these inputs is omitted.

Power: Again, the expected benefits seem exaggerated, since power generation is usually below the expected rate, and an enormous amount is lost during transmission. Also, the cost of transmission of the power is not taken into account.

Benefit-Cost Analysis of the Narmada Project

In the case of the Narmada Project, some of our findings indicate that the benefit-cost analysis might have been distorted for two of the major dams—Narmada Sagar and Sardar Sarovar.

It is claimed that the irrigation provided by Narmada Sagar will bring an 8-fold increase in grain production! In fact, according to Dr Sahni of the Indian Agricultural Research Institute (IARI), there has been no increase in grain production in Khandwa district despite the area under irrigation increasing from 3.4 per cent of the land in 1961 to 9.9 per cent in 1981. The reasons for this are being investigated by IARI. But certainly, the estimated increase in grain production under Narmada Sagar (from 97,000 tonnes to 802,000 tonnes) is highly questionable. Since increased food production is the major benefit claimed for the dam, the benefit-cost ratio itself becomes questionable. In the case of Sardar Sarovar Dam, a more sober increase of 3.5 times is expected, but there is no certainty of even this, for it will only be possible if a completely different pattern of agriculture is introduced.

The costs of *submergence* and *rehabilitation* too have been seriously underplayed. Scudder notes that Gujarat has underplayed relocation costs since it has to pay for relocation in all three States affected by the reservoir of the Sardar Sarovar Dam. The Project Report of Narmada Sagar, brought out in 1982, puts the cost of Unit 1 (the dam, *including* submergence and rehabilitation) at Rs. 3.45 billion. But according to a Senior Official in the Madhya Pradesh Environment Planning and Coordination Organisation, the purely economic value of the forest which will be submerged is alone Rs. 3.3 billion. Rehabilitation will cost another Rs. 2 billion and relocation of the 32 kilometre railway line that is to be submerged an additional Rs. 650 million. All this adds up to Rs. 5.95 billion—far more than the estimated cost of Unit 1 without even including the cost of dam construction or the loss of agricultural land. Moreover, in the case of both Narmada Sagar and Sardar Sarovar, the value of the forest lost is calculated in the illogical manner described above (i.e. the value of capital is deducted from the value of

PHOTO: KOTHARI

Traditional boatman near Barwani, Madhya Pradesh, who will be forced out by the Sardar Sarovar Dam on the Narmada.

100 years increment). If the real value were calculated, the cost of submergence would be far greater—particularly in the case of the Narmada Sagar Dam which will submerge 33,000 hectares of prime teak forest.

The loss of wildlife is omitted from the benefit-cost analysis for both dams. In fact the Sardar Sarovar authorities have claimed that "there is no wildlife in the submergence area"! The Narmada Sagar authorities however cannot make such a claim, because some of the areas to be submerged are very rich in wildlife—especially the Punasa and Chandgarh ranges.

It is claimed for every acre of forest lost to submergence, an acre will be afforested. If however this is to be done for Narmada Sagar, over Rs. 66 million will have to be spent (assuming a per hectare plantation cost of Rs. 2,000). But the money allocated for 'compensatory afforestation' is only Rs. 3.1 million. Either the figure is distorted, or else afforestation will be woefully inadequate. The Sardar Sarovar plan, however, allots Rs. 50 million for afforestation, which is much more than is needed for compensating the forest loss.

Land acquisition costs have, in fact, been underplayed elsewhere too. For Sardar Sarovar, land acquisition for rehabilitation and for canal construction was estimated to cost Rs. 2,000 per acre. Yet the rehabilitation of the first five villages to be resettled has alone cost Rs. 4,600 per acre—and the laying of canals in Bharuch district has cost Rs. 3,200 per acre. No funds have been allocated to acquire arable land for resettling oustees. Costs for land acquisition will be much greater than estimated in the benefit-cost analysis—unless of course the remaining oustees are given abominably low compensation!

Finally, but most significantly, there is the inevitable problem of cost escalation. At present the Narmada Project is expected to cost Rs. 90 billion—but the final cost may be over Rs. 250 billion. Of course, the value of benefits will also increase but there is no guarantee that they will increase at the same rate as costs. How will this affect the benefit-cost ratio?

To conclude, then, it seems to us that the benefit-cost analysis for the project (at least for these two

dams) has been inadequately carried out and in some cases the figures appear to have been deliberately distorted.

Conclusion: Is this Development?

The sheer scale of the Narmada Valley Development project is mind-boggling. Thirty large dams, together with 135 medium-sized and 3,000 minor dams, are expected to be built in the valley in the next two decades or so. Thousands of miles of canals and power transmission lines are to be constructed. One million people will have to be rehabilitated, necessitating large-scale land acquisition in the command areas. At least 350,000 hectares of forest has to be compensated for, and a large-scale planting programme (as well as a strict policy for protecting forests in the catchment areas) will have to be undertaken. At least 5 million hectares of agricultural land in the command areas will have to be protected against waterlogging and salinity, and extensive measures taken to check the inevitable increase in waterborne diseases and the growth of weeds. Most importantly, thousands of farmers will have to be educated about the new agricultural practices that are to be introduced.

The authorities claim that all this will be smoothly carried out. From our observations we can assert that this claim is at best a delusion, at worst a blatant lie. As we have indicated earlier, the planning of the project has been grossly inadequate—implementation can be expected to be worse. There is a serious shortage of technically-qualified personnel, and existing personnel are often poorly informed. Many of the engineers we met at the dam sites knew hardly anything about the dam they were working on, and one top official admitted that he knew less than we did about the project. Simply integrating the hundreds of dams and their multiple functions into one single system is a stupendous task, yet no-one appears to have a clear idea how it will be achieved: inter-departmental rivalry and lack of coordination is common, transfers of officials frequent, and irregular political interference rampant. Worst of all, local people (both those to be displaced and those already in the command area) have not been involved in either the planning or the implementation of the project—yet they are expected to make drastic changes in their lifestyles, working patterns, attitudes and social relationships within a single generation.

Most of the problems noted above are really issues of 'management'—but the changes that the project will bring about are so immense, and so sudden, that 'managing' them in present conditions may well be impossible. On that score alone, the project appears to be sheer madness—or at best, a dangerous gamble.

But there are more serious implications. Even if the project is implemented successfully, the very nature of the changes that it will initiate may cause the environmental destruction of the valley and, consequently, the negation of any short term benefits the project might bring.

It is expected that with the completion of the project, the Narmada Valley and its adjoining areas will witness a dramatic agricultural revolution. Dairy farming and pisciculture will be greatly boosted, a consumer economy ushered in, and rapid urbanisation will take place. An industrial revolution—based on the exploitation of mineral resources, forest products and hydroelectricity—is also expected. The scenario for 'prosperity' is thus complete.

But the scenario is also very frightening, for there is little forethought about the environmental and social consequences of all these 'revolutions'. The very forces which are causing destruction of the catchment forests today—mining, agricultural extension, urban firewood and timber consumption, demand from paperpulp and other wood-based industries, and so on—are precisely the same as those which will be encouraged by the project. The strain that this will place on the valley's environment is in addition to the direct and indirect impacts of the colossal submergence that the dams will entail. It is unlikely that plantations can fully mitigate these impacts—in any case, plantations rarely serve the same ecological and social functions that natural forests do. With the inevitable destruction of catchment forests the rate of siltation may become much higher than presently estimated, thus reducing the life of the dams. Soil erosion will also affect agriculture. In addition, the inputs of the expected 'green revolution' will take their toll, as they have done elsewhere in India and the world. Most of the valley has black soil, and a fairly moist climate—under such conditions, canal irrigation invariably leads to extensive waterlogging. Extensive monoculture and large-scale use of chemical fertilisers may prove counter-productive in the long run, for they reduce the fertility of the soil. Chemical pesticides may kill useful organisms and have adverse effects on human health; in addition, their benefits are only short-term since pests quickly develop resistance to them. The introduction of uniform high yielding varieties (HYVP) may lead to a dangerous decline in the genetic diversity of crops. All these negative impacts have already been felt where the 'green revolution' has been initiated. Nor can the proponents of the 'revolution' honestly claim to have substantially reduced, much less eliminated, hunger and malnutrition. In fact there has been a decline in per capita availability of cereals and pulses from 469 grams per day in 1961 to 452 grams in 1977-78. The picture is worse on the consumption side: according to the National Sample Survey, per capita calorie intake declined from 2,455 calories a day in 1961-62 to 2,170 in 1971-72. It is expected that grain production will increase to over 300 million tonnes by the turn of this century—this may well happen, but the long-term environmental impact (declining soil fertility, increasing pest resistance, narrowing genetic base etc.) may eventually offset this 'short-term' gain. Any human activity which is carried on *against* rather than *with* Nature is bound to backfire—and the 'synthetic' agriculture that is being promoted under the 'green revolution' will not be an exception.

Yet another assault on the valley's environment will come in the form of air, water, and noise pollution from the industries and town which are planned in the area. The Narmada is so far one of the least polluted rivers

in India—the project will see to it that it no longer remains so.

The cultural and psychological effect of the project on the people of the valley, especially the thousands of tribals who will be displaced, is as alarming as the scheme's likely environmental impact. There is little sociological understanding of the various tribes living in the valley. Even where there is the knowledge, there is little respect and sympathy for their spiritual or religious beliefs and values, their strong links with their physical environments, their social lifestyles and interrelations, and their unique integration of economic, social, cultural and political factors. With the advent of the project, these tribals are expected to be 'brought into civilisation' and to adopt commercial, materialist, consumerist, competitive attitudes. In one sudden move, they are expected to fit into a social and physical environment that is drastically different from the one in which they have lived for generations. The 'culture shock' will be massive. If there is nothing to re-establish their strongly integrated society (which will inevitably break down) these people will cease to live independent and dignified lives and will instead be transformed into an exploited and alienated mass.

Another adverse impact on cultural life will be the disruption of the 'parikrama'—a tradition which has through the centuries become deeply ingrained in the minds of the valley's inhabitants. With nine big reservoirs coming up along the Narmada, how are pilgrims going to circumambulate the valley on foot? What kind of changes will have to be made to the traditional rules? What will be the consequent socio-psychological effects? There is no clear understanding of these problems. The only positive aspect is that the Government will relocate many (though certainly not all) of the temples being submerged. But temples and other physical constructs are a small part of the cultural ethos of a region—the rest is being ignored or treated as lightly as wildlife relocation.

Deforestation, soil erosion and impoverishment, siltation of reservoirs, pollution, land scarring, wildlife destruction, cultural disruption—all these seem to us to be *inevitable* impacts of the kind of activities that the Narmada Project *in its present form* envisages. In the long run, *such environmental disruption is bound to reverse the temporary gains made by the project.* Indeed, the project appears to us to be nothing short of suicidal.

The destruction which the Narmada Scheme will cause is not isolated. In fact, destruction is the overwhelming characteristic of the present 'developmental' model that we in India have borrowed almost wholesale from the West, without paying heed to its possible consequences. Its typical components are: large-scale industrialisation, technological sophistication, commercialisation of agriculture, rapid urbanisation, mechanisation, consumerism and gross materialism. And its typical results? Large-scale resource depletion, ecological destruction, socio-cultural disruption and alienation, concentration of wealth and power.

In India, we have adopted this model without critically appraising its long term consequences and implications, without learning at all from the experiences of the West. Just a couple of examples will suffice here. The proponents of the 'green revolution' are advocating the use of crop varieties dependent on chemical fertilisers, not realising (or conveniently ignoring?) the fact that these fertilisers are based on petroleum, supplies of which will soon run out. A consumerist economy and culture is being introduced without realising that the USA, with one-third of India's population, needs 40 per cent of the world's resources to maintain its consumerism. Many more such short-sighted and suicidal elements of our 'development' process can be cited.

The process we have embarked on is not only ecologically non-sustainable, it is also socio-culturally destructive. It has increased inequalities; concentrated power in the hands of a few; swamped valuable traditional cultures and knowledge systems; destroyed the spiritual part in us; broken integrative social relationships and isolated individuals from each other and from Nature. Most damagingly, our fixation with this 'Western' model of development has meant the neglect of all alternative forms of change, including the possibility of developing on traditional time-tested, ecologically-sound practices like organic farming.

Is this development?

Acknowledgements and Postscript:

During this study, we have received the support and encouragement of a large number of people, both in Delhi and in the Narmada Valley. We would like especially to thank Dr Ishwar Das (former Resident Commissioner, MP) who was instrumental in making many of the arrangements for the trip; scholars at the Centre for Social Studies, especially Dr Ghanshyam Shah for giving us financial aid for photography and Kashyap Mankodi who accompanied us for a week in Gujarat; Channa Chagan Bhai of Humachia village in Gujarat who put us up for two nights in his hut; Suresh Diwan, Shri Chaudhry and others of Mitti Bachao Abhiyan; Ambrish Mehta, Ashok Bhai and Rakshbehn of the Chattra Yuva Sangarsh Vahini; Pratap Aggarwal and Marjorie Sykes of Friends Rural Centre, Rasulia; Major D.N. Das who helped in the planning of the trip; all the engineers at the various dam sites and forest officials of various districts; Mr A.J. Perreira who looked after us so well at Narmada Sagar dam site; Shekhar Singh of IIPA and Dunu Roy of Vidushak Karkhena, Shahdol.

A follow-up trip was made in October 1983 to Amarkantak to start an intensive study on the source of the Narmada. This study will continue as part of a longer project on resource conflicts in some of the catchment areas of the upper Narmada, to be undertaken in summer 1984.

Meanwhile, as mentioned earlier, there remain several gaps in information in this Report, which has not allowed us to make as conclusive a report as we would have liked to. We request all those who may have further information on the project and its likely impacts to get in touch with us. And, of course, we eagerly await reactions to this Report. Please write to: Ashish Kothari, 1 Court Road, Delhi-110054.

STOP PRESS. The World Bank has suddenly announced that is has suspended for three months further funding for the Narmada Scheme. But to suspend it is not enough. Funding must be irrevocably cancelled.

The World Bank ignores Human Suffering and is in Breach of International Law

by Marcus Colchester

The author, in this report, provides further information on the plans to resettle 60,000 tribal people to be dispossessed by the Sardar Sarovar Dam, the most advanced of the 30 dams planned for the Narmada Valley, which as we have seen will lead to the displacement of over a million people and which the World Bank admits to be "the largest River Basin population resettlement to date". Contrary to all Government and World Bank assurances, the majority of the tribals, who make up 75 per cent of the oustees, will obtain *no compensation at all,* since they have no title deeds over their land, and are typically classified as 'squatters'. The Bank, in financing the scheme not only ignores recommendations made by its own consultants, but is *in a clear breach of International Law,* which gives tribal people, among whom the concept of individual land ownership is unknown, communal rights over land they have traditionally occupied.

The Narmada project, first envisaged in the late forties but only revived in the mid-sixties, is due for completion in 1995. When 'on stream' the project will supposedly generate some 3,830 megawatts of electricity for use in India's burgeoning industries. The project is also planned to provide irrigation for 496,000 hectares of agricultural land. The World Bank claims that eleven million people will benefit from the project, which will cost over six billion dollars at 1983 prices.[1]

Sardar Sarovar

One of the most advanced of the dams in this ambitious project is the Sardar Sarovar scheme, a World Bank funded venture, that is already tellingly revealing the very serious problems to which the tribespeople are to be subjected to make way for this 'development'.

The dam itself will be 155 metres high and will impound a reservoir 210 kilometres long, submerging approximately 370 square kilometres. It will have an installed capacity of 1,450 megawatts and will provide 40,000 cusecs of irrigation water to 12 of the 19 districts of Gujarat and even parts of Rajasthan, served by a main canal over 440 kms long. The World Bank is funding this project to the tune of US$ 300 million: US$ 200 million as an IBRD loan (with normal Bank interest rates) and a further US$ 100 million as an IDA credit (with the IDA's usual 'soft' terms).

Some 236 communities in three different states will have to be relocated to make way for the Sardar Sarovar scheme. A total of more than 67,340 people. Of these as many as 59,572 are tribal people, though for various reasons these figures are probably underestimates.[2]

Tribal Peoples at Risk

The tribal people, whose futures are set in jeopardy by the Sardar Sarovar project, belong in the majority to the groups referred to as Tadavis, Vasavas, Dungari Bhils, Rathwas, Naikas and Goval. Of these the Tadavis predominate, constituting some 65 per cent of the population to be affected. The Dungari Bhils are the second largest group, making up about 25 per cent.

The groups vary considerably in the extent of their insertion into the national economy. Some groups are virtually landless and have migrated into the area relatively recently. They survive as a migrant labour force. The majority, however, have been in the area as long as historical records relate. Some communities, especially those in Madhya Pradesh, practise an efficient agricultural system on their rainfed fields, which is notable for being more productive than that of their non-tribal neighbours. The more isolated Bhils remain essentially marginal to the market economy. They are held in low esteem locally. According to one of the government officials directing the rehabilitation programme associated with the project: "they are in a 'jungle state': we are bringing them into civilisation."[3]

The great majority of these tribal people are, according to the laws prevalent in India, 'landless'. Many of the tribal people work lands that are in fact titled to an elder relative. Large parts of the tribal territories have been taken over by the state through their designation as 'Forest Reserves'. Other tribal areas have been designated as (state-owned) 'waste lands' and 'traverse *(Kharaba)* land'. In spite of the fact that these people may be practising agriculture on what they consider their traditional territories, the state regards them as landless: their cultivations on state lands are 'illegal encroachments'.

The tribal people's use of their traditional lands extends far beyond the small plots that they cultivate. Some 32 per cent of their area remains under forest cover, despite the depredations made by local contractors to supply the woodfuel and timber needs of the growing urban centres and the voracious demands for pulp. The forests supply the tribal people with essential supplements to their economies. Fodder for their draft animals, fuelwood for their cooking, materials for building their houses and minor forest produce for sale in the regional markets.

The Effects of Resettlement

In a detailed assessment of the likely impact of the Sardar Sarovar project, a World Bank official has noted that it is generally true that such projects are carried out against

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the will of the majority of those to be relocated. These people are, according to the same official, generally "relatively isolated, illiterate, low income and powerless rural people with strong ties to their land and to community groupings larger than the family".[3] Relocation for these people can, according to the World Bank, "be expected to cause multi-dimensional stress".[2]

The stress associated with relocation is analysed in the Bank's study in terms of three categories. 'Psychological' stress includes the "grieving-for-a-lost-home syndrome", "anxiety for the future" and "feelings of impotence associated with one's inability to protect one's home and community from disruption". These stresses may become so great as to cause problems under the second category of stress: 'Physiological', discernible as an actual increase in health disorders. While such stress problems may be reversible, the stress factors that come under the rubric 'Sociocultural stress' may not be. The "cessation of a range of familiar and satisfying economic, social and religious activities which are tied to the oustees old home" are related to an overall breakdown in society, particularly political structures. The leaders of the oustee communities find themselves in a "no-win situation", since they lose legitimacy if they approve the removal of their people against the will of the majority, but also if they oppose the removal, because ultimately they are proved powerless.

Of course, such an analysis tells only a small part of the story. The removal of tribal peoples from their ancestral lands to make way for development is generally fatal for the entire way of life of the tribal communities. Traditional marriage systems that link together neighbouring communities are critically disrupted by relocation and are rarely reconstituted. The close ties between the society and the traditional forest environment are broken. Subtle patterns of resource use, developed over centuries, are shattered. Social and religious ceremonies linking the tribal people to their environment and to specific burial grounds and sacred sites become meaningless. The very ground of their being is cut from them.

PHOTO: KOTHARI

Site of Sadar Sarovar Dam, one of the biggest on the Narmada River.

Moreover, as the World Bank recognises, 'rehabilitation' following removal is unlikely to benefit the tribal people even financially. According to the World Bank "the odds are high that the majority of (Sardar Sarovar's) . . . oustees will be worse off following removal."[3] "The current policies . . . will not only lower living standards among large numbers of oustees but accelerate the process of environmental degradation."[2]

Problems with Compulsory Relocation

The World Bank's sanguine appraisal of the prospects for the oustees is based on a detailed evaluation of previous resettlement programmes carried out in India. Seven factors have been isolated by this study as largely responsible for this sorry record:

1. The absence of a national policy regarding resettlement.
2. Certain provisions of the 1894 Land Acquisitions Act.
3. The emphasis on cash compensation.
4. The tendency to relocate oustees as individual households rather than as communities.
5. The failure of the government to make use of social science expertise relating to compulsory relocation.
6. The execution of the relocation by the Irrigation and Revenue Departments, which are neither qualified nor motivated to carry out the task.
7. The almost total absence of a system for monitoring and evaluating the relocation programme.

Tensions are generated among the oustees because cash compensation is only paid to 'legal' land-owners, giving rise to rivalries and jealousies. Community ties are further broken by the piecemeal pattern of relocation. Many of the tribal people declared landless receive no compensation at all. Those who do, unused to treating land as a saleable commodity and inexperienced in the use of cash anyway, fall easy prey to the unscrupulous. Besides, the prices paid for land are frequently nugatory and inadequate for the tribal people to acquire equivalent lands on the market. Land speculation and rising land prices in the relocation areas exacerbate the problem. Other members of the local communities who made a living as artisans, deprived of the communities they depended on, become destitute. Even where the tribal people do manage to resettle on pieces of land, they are deprived of contact with their traditional environment. Forest produce, once integral to their way of life, becomes unobtainable. Finally, the increased pressure on resources as the landless oustees seek to make a living by clearing cultivations on watersheds and in other marginal areas accelerates the process of environmental degradation.

World Bank Recommendations

The World Bank's internal document,[2] makes specific recommendations for overcoming these problems. A national policy regarding resettlement programmes should be carefully worked out. Measures should be taken to ensure that all oustees are given land in compensation, not just those who have managed to obtain legal title. Resettlement should take into consideration the preferences of the peoples themselves to be relocated as communities. Cash compensation should only be offered to oustees who reject compensation with land. Resettlement should become the responsibility of a specially created government agency which should solicit the advice of local representatives and community development groups active on the tribal people's behalf. Careful plans should be laid not just for relocating the oustees but for promoting their economic development after relocation and the programme should be continuously monitored to allow for modifications in the procedures.

Since the drafting of these recommendations considerable pressure has been exerted on senior Bank officials, both from within the Bank and from international development and human rights organisations, including Survival International, to comply with these recommendations and to ensure that the resettlement programme provides a reasonable future to the displaced tribal people. After drawn out negotiations with the Indian authorities, the Bank finally announced that it had incorporated a comprehensive programme for the displaced tribal people into the loan agreements signed in May 1985 with the governments of India and the three participating States of Gujarat, Madhya Pradesh and Maharashtra. The Bank refused, however, to release copies of the loan agreement.

Having obtained a copy of the document by independent means, Survival International has been able to determine that the loan agreement not only does not incorporate all the recommendations made by the Bank's consultants, but does not even satisfy the Bank's own guidelines for the development of tribal areas.[2] Moreover, the agreement as it stands is a clear breach of international law. Far from recognising the rights of tribal peoples to the collective ownership of their traditional lands, the agreement considers 'landless' all tribal people (about 74 per cent) who lack individual land titles. There are no measures for ensuring that compensation is paid to the tribal people for the loss of the uncultivated portions of their land. Inadequate provisions exist for resettling the tribal people in forest areas similar to those that they have been forced to leave. As things stand only one per cent of the project's costs have been allocated to the relocation, less than has been spent housing the few hundred project staff.

Violation of International Law

Survival International has repeatedly drawn the Bank's attention to the terms of the International Labour Organisation's Convention 107, relating to Tribal and Indigenous Populations, which has been signed with India. The organisation has in particular singled out three articles of the convention, which the Bank is clearly violating:

Article 6: The improvement of the conditions of life and work and level of education of the populations concerned shall be given high priority in plans for the overall economic development of areas inhabited by these populations. Special projects for the economic development of the areas in question shall also be designed as to promote such improvement.

Article 11: The right of ownership, collective or individual, of the members of the populations concerned over the lands which these populations traditionally occupy shall be recognised.

Article 12: When in such cases removal of these populations is necessary as an exceptional measure, they shall be provided with lands of quality at least equal to that of the lands previously occupied by them, suitable for their present needs and future development.

Survival International has also focused attention on the Bank's own guidelines for the development of tribal areas, published in 1982 after the Bank had come under severe criticism for its support for development programmes on tribal lands in Brazilian Amazonia and the Philippines:

The Bank will assist projects within areas used or occupied by tribal people only if it is satisfied that best efforts have been made to obtain the voluntary, full, and conscionable agreement of the tribal people . . . and that the project design and implementation strategy are appropriate to meet the special needs and wishes of such peoples.

Similarly, the bank will not support projects on tribal lands, or that will affect tribal lands, unless the tribal society is in agreement with the objectives of the project, as they affect the tribe, and unless it is assured that the borrower has the capability of implementing effective measures to safeguard tribal populations and their lands against any harmful side effects resulting from the project.

Certain basic needs must be acknowledged and accommodated if tribal groups are to benefit from—rather than be harmed by—development projects . . . (a) recognition of territorial rights, (b) protection from introduced diseases (c) time to adapt to the national society and (d) self-determination.

Such a policy of self-determination emphasises the choice of tribal groups to their own way of life and seeks, therefore, to minimise the imposition of different social or economic systems until such a time as the tribal society is sufficiently robust and resilient to tolerate the effects of change . . . The following conditions are essential . . .

a. National governments and international organisations must support rights to land used or occupied by tribal people, to their ethnic identity, and to cultural autonomy.

b. The tribe must be provided with interim safeguards that enable it to deal with unwelcome outside influences on its own land until the tribe adapts sufficiently.

c. Neither the nation nor the non-tribal neighbours should compete with the tribal society on its own lands for its resources.[4]

Land Ownership in the Sardar Sarovar Area

The agreement signed between the World Bank and the Governments of India, Gujarat, Madhya Pradesh and Maharashtra regarding the Resettlement and Rehabilitation (R&R) programme for resettling tribal people in the Sardar Sarovar Dam and Power Project, makes a clear distinction between 'landed' tribal people, who will receive compensation for the loss of certain of their cultivated plots and 'landless' tribal people who are only offered the rather vague assurance that they will be "rehabilitated in the agricultural and non-agricultural sectors, as the case may be, and shall be entitled to stable means of livelihood . . ."

Any evaluation of the likely effects of such an R&R programme must, therefore, take as it's starting point the actual pattern of land ownership in the area in question, as the criterion of 'owning' land is made critical in determining the likely fate of each individual tribal person.

The pattern of cultivation in the village of Vadgam, one of the villages already in the process of being dispossessed by the dam's construction programme, is typical. Legally, there are only 124 land holdings, totalling 629 acres, in Vadgam, though there are 464 families dependent on these holdings; 17 farmers have no rights at all to private land. Since these holdings are inadequate for the tribal people's subsistence, they also cultivate 453 acres of Kharaba (traverse) land and 452 acres of forest land. The tribal people have not been able to acquire legal title to these cultivations, which are treated as 'illegal encroachments' on state land. Many of the tribal people have paid penalties to the various authorities for their 'illegal' use of this land.

Taking the 19 villages in Gujarat to be affected by the Sardar Sarovar Project together, it can be noted that of the 2,394 families inhabiting these villages only 1,973 have access to private land, these latter having to share only 633 actual holdings. In some villages more than 80 per cent of the families have no legal rights to private lands. Depending on how the criteria of the R&R agreement are applied to the displaced tribal people in Gujarat, it seems that as few as 26 per cent of the families (633/2,394) will be treated as 'landed' and thus liable to compensation in land.

Implementation of Agreement

Aside from the fact that the R&R agreement is in any case inadequate, being liable to result in serious problems for the displaced tribal people and not conforming with international law, there is the open question of whether the local authorities will satisfactorily uphold the agreement anyway.

Attention has focused on the 19 villages in Gujarat which are already being affected by the scheme. Social workers in the region alerted the tribal people to the serious shortcomings of the Gujarat Government's policy regarding resettlement. When the tribal people discovered that the government had no intention of compensating those without title for the loss of their cultivations, let alone other lands, they came out in open protest against the scheme.

Although the Gujarat authorities, in response to this public pressure, have made public statements promising to fairly compensate all the tribal people for the loss of their lands, yet they have consistently refused to set this promise down in writing. As the actual process of building rock-filled retaining dykes across their lands commenced, the tribal people took their case to the Supreme Court of India, where it has become clear that it regards the 'wasteland' and 'forest reserve' cultivations of the tribal people as nothing more than illegal encroachments on state land, for the loss of which the tribal people deserve no compensation.

Moreover, in response to claims for the release of state owned forest reserves for the rehabilitation of the tribal oustees, the government has argued that: "Resettling the tribal people on government land would involve using forest areas. This would have caused an ecological imbalance and led to the destruction of valuable resources"[5] The supreme irony of the fact that the government is at the same time engaged in a massive project that will flood eleven per cent of all the forests of the Narmada valley has apparently escaped the government's comprehension.

As the court case in the Supreme Court of India has made clear, the Gujarat authorities have seriously abused their powers in forcibly dispossessing tribal people of their lands. Even tribal people who have land titles have found the top soil from their fields being trundled away in trucks leaving them destitute.

The latest news from the region is that the government of Gujarat has been trying to repudiate the legal agreement with the World Bank regarding the rehabilitation programme. Whether it succeeds in this or not it is clear that there exists little political will in Gujarat to offer a fair deal to the tribal people. Their future thus seems grim.

The Prospects

The Sardar Sarovar is but the most advanced of a whole series of dams planned for the Narmada valley. As things stand it seems clear that a vast number of tribal people stand to be dispossessed by the scheme, their traditional lands flooded, their livelihoods destroyed. Considering the appalling record of previous resettlement programmes in India and the extreme reluctance of the Indian state governments to comply with even the inadequate safeguards that the World Bank has tried to impose for the Sardar Sarovar scheme, it is quite clear that thousands of tribal people are to be condemned to increasing poverty.

By the time this article is published, the fate of the sixty thousand tribal people to be dispossessed by the Sardar Sarovar scheme will have been sealed. Latest reports indicate that the Bank is due to effect a final transfer of its US$ 300 million on November 9 1985. Rushing to meet deadlines that are set by financial and economic considerations rather than by the social needs of those most directly affected by the project, it seems inevitable at this late juncture that the Bank will go ahead with its loans despite the clear evidence that the project is morally, legally, environmentally and maybe even economically suspect.

Perhaps the most alarming aspect of the Sardar Sarovar scheme is the fact that the resettlement programme associated with it may, despite its very serious shortcomings, be the best rather than worst to be associated with the Narmada valley project as a whole. Further up the valley, in Madhya Pradesh, a second major dam, Narmada Sagar, promises to cause even greater dislocation of the tribal peoples' lives.

As the World Bank notes, "if the Narmada Sagar, Sardar Sarovar, Omkareshwar and Maheshwar projects are all completed, the State of Madhya Pradesh will be responsible for the largest river-basin population resettlement in the world to date. Approximately 80,500 people will be resettled by the Narmada Sagar reservoir . . ."[6] Recognising the enormous scale of this programme the same report attempts to grapple with the fate of the displaced people "whose homes and livelihoods have been destroyed and those (approx. 40,000) hosts whose economic and social systems will be stretched to the breaking point by the influx of the homeless".[6]

The real dilemma faced by the planners is the lack of land available for resettling the thousands of people to be relocated. The same report notes:

> In the past, planners administrators, and politicians frequently assumed (accurately or not) that displaced populations could be compensated for the loss of valuable agricultural lands with replacement lands of equal value elsewhere. Whether through purchase of private land tracts, nationalisation of large land holdings, or through simply opening up putatively uninhabited forest and savanah lands to colonisation, the guiding strategy has been moving the entire displaced population to equivalent replacement land. Throwing all oustees onto the open market to purchase replacement lands in already settled areas with compensation monies has proven to be such a disastrous policy that it should be rejected at the outset. However, in many countries today land anywhere near comparable in value is less and less valuable for colonisation. Planning thus far for the Narmada Sagar project resettlement is based on the realistic and innovative assumption that many oustees will not be able to acquire equivalent land to replace that flooded.

Chillingly, the same report concludes:

> The NPA (Narmada Planning Authority) at this point lacks the organisational strength and professional personnel to carry out a resettlement and rehabilitation project of great magnitude. . .

What is at stake in the Narmada valley project is not just the physical survival of the one million people who will be displaced by the overall scheme but their survival as viable societies. Yet the World Bank is so little concerned for the social life of the people to be affected by the project that it takes as its starting point the fact that a whole "way of life will be destroyed by displacement"[7]

It is time the taxpayers in the first world, who provide the bulk of the World Bank's funding, started asking themselves if they are happy about their complicity in these ethnocidal schemes. If not it is time they began to protest. For while they remain silent, the ways of life of tribal people all over the world are being sacrificed on the altar of 'economic pragmatism'.

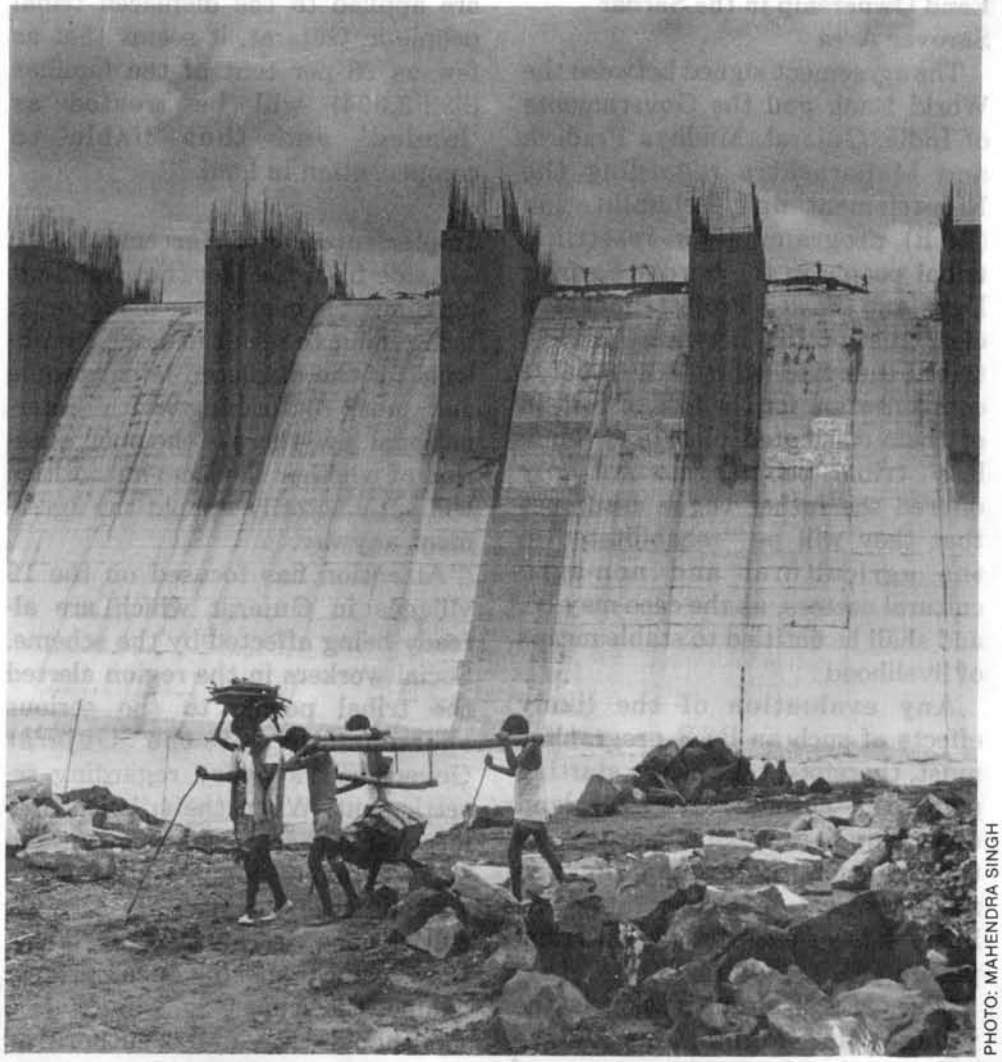

PHOTO: MAHENDRA SINGH

The Bargi Dam near Jabalpur Madhya Pradesh, one of the nine major projects on the Narmada River and the only one nearing completion.

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Correspondence on the Narmada Scheme
The World Bank defends its Position

We sent a copy of the Kalpavriksh (pp.269-285 of this issue) article to Mr Clausen, asking how he could possibly justify financing so totally irresponsible a project as the Narmada Valley Scheme. We received this answer, sent to us by Dr Robert Goodland of the World Bank's Environmental Affairs Department together with an enclosed "Note on Environmental Aspects".

Dear Mr Goldsmith,

Thank you for your letter of 18 February to Mr Clausen regarding the Narmada Valley hydro and irrigation project in India.

As you will see from the attached "Note on Environmental Aspects", GOI is addressing these aspects and has completed detailed environmental analyses. The preventive and mitigatory measures financed as an integral part of the project will, we believe, reduce the social and ecological effects you predict so that they are outweighed by the major benefits including agricultural production (310,000 ha irrigated by 2011) and electric power (1,200 MW by 1993 and later 1,600 MW).

Thank you for your consideration.

Yours sincerely,

R. Goodland
Office of Environmental and
Scientific Affairs

INDIA
NARMADA SAGAR DAM AND POWER PROJECT
NOTE ON ENVIRONMENTAL ASPECTS

Environmental Review Committee (ERC)

1. The ERC (MP) was formed in November 1984 and had its first meeting at the Environmental Workshop on December 3-4, 1984 (formal proceedings terminated due to the gas tragedy). It was recognised that since the full committee has such broad interests, subcommittees are being formed for specific topics which will meet regularly, but would report to the full ERC annually.

Environment Joint Workshops with Gujarat

2. The first Joint Workshop with Gujarat was held in Bhopal on December 3-4, 1984, but formal activities were terminated on the first day due to the gas tragedy. Important decisions included:

(a) Gujarat would form its own ERC and that non-state (e.g. Centre or National Organisation) members would be common to the ERCs in both states;
(b) Future workshops would concentrate on one or two specific topics, working papers would be circulated before the workshop convened, specific plans or action would be evolved with regard to topic problems before the workshop dispersed; and
(c) The next workshop is scheduled for August 1985 with Schistosomiasis as the special topic.

Environmental Staffing in Narmada Planning Agency (NPA)

3. The NPA has outlined the organisation for an Environment Cell under the Public Health Engineer of NPA. This Environment Cell would be:

(a) Under the jurisdiction of the NPA Forestry;
(b) Would have a small office in Bhopal staffed with scientists with experience in specific environmental fields;
(c) Would establish field offices for data collection and water quality (physical, chemical and biological) monitoring at Jabalpur (Barge lake and river reach below), Hoshangabad (Tawa Lake and the river reach below), and Punasa (Narmada Sagar/Omkareshwar) with a monitoring station at Sanaval.

The Environment Cell would depend on other state organisations and universities for specialised services. Staffing will be specified in the next three months (i.e. by end-June 1985).

Environment Training

4. NPA proposes a three-tier staff training operation:

(a) A three-day course for senior administrators and senior technical officers to be run twice yearly at the State Government Academy of Administration, Bhopal. Each course would be attended by 20-25 officers. A course programme has been worked out. The first course will be held from September 10-12, 1985 and the second from February 4-6, 1986.
(b) A six-day course for middle-level officers to be run twice yearly at the Academy of Administration. Each course would be attended by 30-40 officers. A course programme has been worked out. The first course will be held from August 5-10, 1985 and the second from January 6-11, 1986.
(c) A two-week course for officers of the rank of Assistant Engineer and below. The course would be organised in collaboration with the Environmental Planning and Co-ordination Organisation (EPCO), Bhopal, and would be attended by 30-40 officers. A course programme has been worked out. The frequency of the courses and the date of the first course have yet to be decided.

Information Booklet on Environmental Aspects of the Project

5. NPA has requested EPCO to produce such a booklet and work is in progress.

Fisheries

6. NPA has produced a volume entitled "Integrated Development of Reservoir Fisheries in Narmada Basin" (138 p). The report discusses:

(a) all available information on the existing situation on the river (considerable work has been done by central and state organisations since 1958)
(b) the proposed reservoir projects and management of fish habitats;
(c) impact of impoundment on upstream fisheries;
(d) fisheries development in the four reservoirs;
(e) phasing of the development programme.

NPA has requested the Fisheries Department to carry out surveys of the existing situation (in November 1984 to January 1985) on four reaches of the river. The terms of reference were given in detail. The reports are under preparation.

7. NPA has requested the Fisheries Department to select a number of deep pools which will be managed as fish sanctuaries. NPA is preparing a budget for the proposed fisheries programme.

Limnology

8. NPA has commissioned a study of the limnology of the river by Bhopal University, and the report has been received. Bhopal University has also produced a proposal and budget for a longer term study, which is being reviewed by NPA.

Forestry

9. A report has been commissioned by NPA from Dr Tiwari, ex-Chief Conservator of Forest (MP), covering all aspects of Forestry and Wildlife.

Wildlife

10. Following the wildlife analysis commissioned by NPA, an existing sanctuary which will border the Narmada Sagar Lake on the north side will be upgraded to a National Park. Forest lands on the south side of the lake will be designated as Bison Sanctuary. Bird sanctuaries are planned for islands which will be created within the lake.

Zoological and Botanical Inventories

11. NPA has accepted a proposal from the Botanical Survey of India to carry out a three-year survey of the plant population of the Narmada Valley. The proposal includes a budget for the operation. NPA is negotiating with the Zoological Survey of India to study and inventory the animal population of the Valley. A proposal is expected. These works will supplement measures which will be carried out by the Forestry Department.

Public Health

12. At the request of the NPA, the Director of Medical Services, MP, has produced a status report on the incidence of water-related disease (by districts) in the Narmada Valley area. The report covers the years 1982, 1983, 1984 and gives data on incidence of cholera, gastro-enteritis, malaria and filaria. The report also gives district information on the number of villages known to be infected with guinea worm and the number of cases reported in June 1984.

13. NPA has received a proposal for a research project on human schistosomiasis in relation to the Narmada Valley Development from Dr M.C. Agrawal, College of Veterinary Science, Jabalpur, which was sent to WHO, New Delhi for comment. The proposed Agrawal study (estimated cost Rs 810,000 has a duration of 3 years). The National Institute of Communicable Diseases has designed a reconnaissance and risk assessment study of schistosomiasis in India, scheduled for late 1985.

Archaeology

14. Present NPA policy is that important temples (and similar artifacts) in the reservoir area will be moved to new sites. Provision will also be made for rerouting the "Narmada Pilgrimage" together with the traditional stopping places.

Afforestation and Soil Conservation

15. A report has been prepared by the Forestry Department on afforestation and soil conservation requirements of the Narmada Basin (MP) giving a 20-year programme of works and cost estimates. A similar report by the Agricultural Department is being prepared.

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A New Bottle for the Same Old Wine
An Answer to the World Bank

by Ashish Kothari

Dr Robert Goodland is an ecologist whose integrity and erudition are respected by everyone in the Ecological Movement. What is more, his knowledge of the environmental effects of large dams and other water development schemes is legendary. Over the years, we at *The Ecologist* have made considerable use of the many papers he has published on this and related subjects. However, in this case we felt that he was trying to defend the indefensible and his letter (see p. 291) was sent to Ashish Kothari of Kalpavriksh for comment. The latter's reply is published below.

It feels a little strange to write a rejoinder to such a sketchy note presented on behalf of the Government of India, but I will assume that the essence of the government's standpoint is presented in it. Let me make it clear that neither in this note nor in our previous report do we (i.e. the environmental group Kalpavriksh) imply that the officials in charge of the Narmada Project are solely to blame for the problems we have outlined. We realise that their plans and actions are often determined by a certain socio-economic and political system and by a certain ingrained way of thinking rather than by ulterior motivations. Our criticism of the Narmada Project must be taken in this light.

Before I come to the specific points made in the Government of India note, let me raise two fundamental issues. One deals with the fragmentary nature of Government of India's work, the other with the fraudulent nature of the kind of environmental assessment being made.

The Government of India note deals only with one dam, Narmada Sagar. This happens to be just one of the 30 large dams (in addition to 135 medium and 3000 minor ones) which are part of a single Narmada Valley Development Project. While it may be justified to treat each dam separately as and when its construction is to begin, I would argue that an environmental assessment of *the entire Project* must also be made. It should be obvious that the combined environmental and social impact of so many dams within one valley is likely to be far more serious than can be gauged by looking at each dam in isolation. As an example, one can take seismicity. The Narmada Sagar reservoir, says EPCO[1] is unlikely to generate seismic activity on its own. But 30 large reservoirs in one valley may have a disastrous combined effect. At any rate, there is no study to show that this will not happen.

The second point is perhaps the most important. The various studies that the government has commissioned, the various committees it has set up, and the training/staffing it has mentioned, *have all been done after work on the project has started.* Enormous amounts of money have already been spent on planning, site investigation, digging, infrastructure, staff colony construction, etc.; the late Prime Minister has even inaugurated the dam. It is obvious that there is an *a priori* assumption of the dam being more beneficial than costly. It seems that the World Bank has fallen for this fraud: in a letter to Goldsmith, Mr R. Goodland of the Bank states that "the preventive and mitigatory measures financed as an integral part of the project will, we believe, reduce the social and ecological effects you predict so that they are outweighed by the major benefits . . ." But, as I will try to show below, many of the necessary preventive and mitigatory measures have not even been thought of or planned out yet, much less being incorporated into the project finances. The benefit-cost ratio presented by the Narmada Sagar authorities does not include, or underplays several ecological and social costs; in any case, how can it include costs of measures which have yet to be fully studied?! This is a mockery both of a genuine benefit-cost analysis as well as of what is called 'environmental impact assessment'.

This mockery is shown further by the status of the so-called Environmental Review Committee (ERC). I talked to one of its members, and he told me frankly that ERC had a largely advisory status. Even if it found that environmental costs exceeded benefits, it had no power to *halt* the project. In such a situation it would be natural for ERC not to make public any findings which could embarrass the Narmada Planning Agency (NPA), the top body in charge of the project. Indeed, the ERC is not even conducting a full environmental impact assessment. This was supposed to have been done by the M.P. Environment Planning & Co-ordination Organisation (EPCO), but the 120 page report it submitted in 1984 contains more queries and gaps than definitive conclusions.

The formation of ERC and the provisions for environment staffing and training do represent commendable steps in the right direction. So also the commissioning of several detailed studies. Most previous river valley projects in India have

Ashish Kothari *is studying sociology at the Delhi School of Economics and is a member of Kalpavriksh—The Environmental Action Group.*

not even gone this far. But the setting up of committees, the crash-course training of officials and detailed studies cannot by themselves ensure the minimisation of environmental costs. There are much more fundamental problems which are not amenable to purely administrative or 'managerial' solutions. As noted above, one basic fault lies in an *a priori* assumption of the project's usefulness. While we cannot comment on many of the studies that the Government of India note mentions, since they have yet to be finished, several other specific points can be made.

Catchment and Siltation

It is now well-recognised that adequate forest cover in the catchment area of a river is absolutely necessary for a river valley project to have a long lifespan. As pointed out in our earlier report,[2] the Narmada catchment forests are under serious threat from a variety of sources: paper mills and other forest-based industries, urbanisation, mining, agricultural extension, firewood collection and grazing. In view of the fact that all these threats are rapidly increasing, we find unjustified the assumption that the siltation rate of the Narmada Sagar reservoir will remain constant.[1] This assumption has been proved wrong for almost all of India's major river valley projects. Moreover, some of the direct threats to the catchment forests, vis. industrial and urban demand, and mining, will themselves be greatly increased by the Narmada Sagar Project. While a detailed proposal on soil conservation in the catchment has been forwarded by the Forest Department we are not at all confident about its success, for three reasons:

* The previous record of the Forest Department in such matters is quite poor;
* Soil conservation will require perfect coordination between various government departments, which does not seem very likely; and
* Most important, *there is no study to assess the demand on forest produce that will be generated by the rapid industrial and urban growth brought about by the project.* Without such a study, how can the government claim that the catchment forests (which will inevitably be a major supplier to the demand) will be preserved?

Loss of Forests

A huge area of forest will be submerged by Narmada Sagar reservoir: 35,325 ha (approx 353 sq km) of classified forest and 5,007 ha (50 sq km) of unclassified forests.[1] In addition, some 1,500 ha (15 sq km) of forest will be cut for building the staff colony, canal and related works. This represents a very large loss indeed, especially considering the fact that a lot of it is amongst India's richest natural moist deciduous forests. In a country with natural forest cover down to less than 10 per cent of the total surface area (as against the required minimum of 33 per cent, stipulated by the government itself), such a loss is in itself a cause to question the sanity of the project.

It is claimed that 'compensatory afforestation' will be undertaken to make good this loss. I have several problems with this:

(a) The amount of money allocated for afforestation is very meagre,[3] adequate perhaps for compensating only *one-twentieth* of the forest lost. This has been noted by EPCO itself,[1] and it has made a plea for the amount to be increased. So far, this has not been done.

(b) Even if enough funds are allocated, the *nature* of the afforestation must be studied. Plantation will be in the hands of the Forest Department which even now has more of a commercial viewpoint than an ecological one. Among the species of trees suggested by EPCO for afforestation, some are native, some exotic (including the controversial eucalyptus); some ecologically and socially useful, others commercially so.[1] If the choice of species is left to the Forest Department, we are frankly not confident that afforestation will be oriented to compensating the ecological loss of submergence. Indeed, Dr S.D.N. Tiwari, who has been asked to prepare the report on forests and wildlife, has suggested 'irrigated plantations' and the use of chemical fertilisers for 'intensive forestry'. Obviously the stress is on commercial plantations—a mixed plantation left untouched for ecological benefits does not need irrigation, much less fertilisers! It does not seem, therefore, that the government is even thinking of adequately compensating the *natural* ecosystems to be lost under submergence.

Loss of Wildlife

The forest area to be submerged is extremely rich in wildlife, though no sanctuary has been declared there. We cannot comment here on the studies to be undertaken by the Zoological and Botanical Surveys of India, for they will be ready only after a few years. A few remarks on some suggestions made by EPCO can however be made.[1]

A map of the submergence zone [1] shows that while there is contiguous forest area to the north of the forests to be inundated, this is not so in the south. The assumption of wildlife 'relocating itself' thus holds true only for the former. For the latter, there is a suggestion to create 'corridors' linking the submergence zone with the nearest forest area. However, this seems to be highly unrealistic, especially in the south-east and east, where the nearest suitable areas are 100 km and 40 km away, respectively. Another suggestion made is to have 'squads' of specially trained staff for driving the animals to safety, for animals may stray into agricultural fields before reaching other forests. One ERC member I talked to agreed that this seemed to be a rather harebrained scheme! It is fairly apparent that loss of wildlife on the southern side will be significant.

But even to the north, there is the question of whether the contiguous forest area can support the sudden and large-scale influx of wildlife from the submergence zone. Declaration of this area as a National Park may help, but there is no study to show that its carrying capacity will not be crossed by the additional population. Nor is there any study of the potential conflicts between highly territorial species. Finally EPCO itself has noted that submergence of such a large area is bound to increase pressure of all sorts on the surrounding forests. This will further reduce the carrying capacity.

Cultural and Archaeological Loss

One must commend the NPA policy (if properly implemented) of relocating important temples which are in

the submergence zone. This was often not done in earlier river valley schemes. But here too there are curious anomalies; on our visit to the area in 1983, we noted the existence of a 500-year-old island fort (Joga Fort) on the river, which will be submerged by Narmada Sagar, but which finds no mention in the documents relating to archaeological rehabilitation!

More crucial however is the impact of the dam on non-material elements of traditional culture. It is uncertain how exactly the government plans to reroute the ages old 'Narmada pilgrimage', which involves a 2600km long circumambulation of the river on foot. Are the thousands of pilgrims who undertake this journey expected to circle around the ten massive lakes that will be created on the Narmada? Or will they be provided with boats to cross directly, in which case, it no longer remains a foot march? We doubt very much if the pilgrimage can be 'rerouted' without drastically affecting its very nature.

The effect on traditional local cultures, especially tribal, is likely to be even more serious. The devastating effect of throwing tribals into a materialist, consumerist and competitive environment has been shown in previous 'development' schemes of this type, and it seems highly unlikely that the Narmada project authorities can do anything about it.

Impact of Irrigation

A study just released by the Indian Institute of Science, Bangalore, has warned that *as much as 40 per cent of Narmada Sagar's command area is likely to become water logged* if very careful and widespread measures are not taken. The most important measure will be groundwater utilisation—the institute has recommended that one well be dug for every 6.2 hectares, and that water from this be pumped out for at least 400 hours yearly. This is a colossal task, and we are not at all confident that MP's irrigation department has the capacity to do it. In any case, the cost of these measures has *not* been budgeted for. It seems more than likely that, as in the case of the two major projects completed so far in the Narmada Basin (Tawa and Barna Dams), Narmada Sagar is going to cause waterlogging in a huge area. Up to 100,000 hectares of agricultural land faces possible ruin.

Public Health

Preliminary studies on the health impact of the project indicate that while schistosomiasis and Guinea-worm diseases are not likely to occur or increase significantly, incidence of malaria, filaria, cholera, gastro-enteritis, viral encephalitis, goitre, and some other water borne diseases is likely to go up.[4] How the government intends to cope is extremely unclear, especially considering that no funds for this have been budgeted for in the project proposal. With respect to malaria, for instance, EPCO has admitted that "it may not be possible to take preventive action through spraying, etc, over such a large area (i.e. the command), it can only be hoped that medical facilities will be adequate to deal with cases of malaria".[1] This seems a rather callous attitude. It is difficult to say anything further on health impact until government plans become clear, except for the observation that to date there seems to be no example in India where such an impact has been effectively minimised.

Displacement

The Government of India note does not mention the massive problem of human displacement to be caused by Narmada Sagar, possibly because this is not considered an 'environmental' problem. Nearly 100,000 people will be displaced. The past record of rehabilitation of both the state and central governments has been dismal, even where much smaller numbers have been handled. However, the Narmada Project does incorporate a few welcome steps towards a better rehabilitation policy, as we have noted in our earlier report. One of these is the commissioning of very detailed studies on some of the oustee villages.

Nevertheless, very serious problems remain. The Madhya Pradesh Government has not formulated its own rehabilitation policy yet, but ERC members were told in February 1985 that the policy adopted by the neighbouring state of Gujarat would be used. If this is so, we can immediately note three potential problems:

(a) The Gujarat policy states that those oustees who lose their lands under submergence will be given equal or greater amounts of land elsewhere. But this 'land for land' policy has hardly been implemented in Gujarat itself. In the case of Narmada Sagar Dam, Mr S.C. Verma, Chairman of the NPA, has admitted that there is just not enough suitable land for this policy to be applied.[5] In other words, cash compensation will be given and it will be necessary to "motivate and mentally prepare the oustee families to take avocations other than agriculture". That this represents a major disruption is obvious. The practice of cash compensation is also known to cause serious problems like social fragmentation, exploitation by commercial agents, indebtedness, etc.[6] It makes impossible the creation of resettlement villages with amenities. This has already occurred in the case of Sardar Sarovar, a sister dam of Narmada Sagar in Gujarat State, but the project authorities do not seem to have learnt the lesson.

(b) The EPCO report states that there are 11 tribal villages existing in predominantly forest surroundings, to be submerged by Narmada Sagar.[1] The Forest Department proposes to settle them in other forest villages, for which 2000 ha of forest will have to be cut. But this contradicts the latest policy of Gujarat and other states *not* to lease out forest land for rehabilitation. Mr S.C. Verma himself has stated that "It is no longer possible to reduce the forest area any further."[5] This is a typical example of how various government departments or personnel contradict each other. Anyway, it seems highly likely that alternative forest land will not be given, in which case the socio-cultural disruption caused will be immense.

(c) The Gujarat policy does not include provision of basic necessities like fuelwood and fodder to the displaced people.[2] To people dependent on nearby forests for these needs, resettlement in an area with meagre forest cover can

be very disruptive. They have to buy these items, which cuts down their income. Moreover, most tribals are heavily dependent on minor and major forest produce of all sorts (gum, honey, bamboo, edible plants, saps, juices, etc) many of which may be absent at the resettlement site. Gujarat policy has no provisions to provide alternatives to these. If the Narmada Sagar authorities are going to follow this policy, then the suffering caused is likely to be great.

Benefit-Cost Analysis

While I am not in a position to give a detailed independent assessment of the benefit-cost ratio of Narmada Sagar, I can point to certain glaring distortions which question the validity of the ratio presented by the dam authorities. As pointed out in our earlier report, these distortions are inevitable when planning is done with the stubborn assumption that a project *is* beneficial, whatever its costs. There then emerges a tendency, openly acknowledged by project officials themselves to exaggerate benefits and underplay costs.

Take the case of benefits from increase in agricultural production due to irrigation. We noted in our earlier report[2] that the expected eight-fold increase in production (as stated in the Detailed Project Report 1982[3]) seemed highly unrealistic. It seems the project authorities realised this: The 1984 EPCO report[1] envisages a more modest four-fold increase. But even this may be on the high side judging by the performance of irrigation schemes elsewhere in India—the Planning Commission has noted that on average irrigation has increased production to just 1.7 tonnes per hectare rather than the expected 4.5 tonnes per hectare.

Moreover, while calculating agricultural benefits it seems that the cost of only irrigation extension is taken into account. This is curious, for the government itself notes that a leap in agricultural production will be possible only if several other inputs are provided, viz. fertilisers, pesticides, education of farmers, development of markets, and utilisation of groundwater. To the best of my knowledge the cost of these units is not included in the ratio.[3]

The loss of forests under submergence is greatly underestimated. As noted in our earlier report, the cost of Unit 1 of Narmada Sagar (including dam construction, submergence loss and rehabilitation) has been put as Rs. 3,450 million. But a senior official of EPCO told us that loss of forest alone is worth Rs. 3,300 million. Obviously forest loss has been undervalued.

Several other costs have not been taken into account at all, e.g. those of ecological disturbances caused by groundwater utilisation and other hydrological changes (noted by EPCO itself)[1] or those of health measures in the command and reservoir areas. There is also the question of how costs of human displacement and rehabilitation can be reasonably calculated without first formulating a clear cut policy, which has yet to be done!

Obviously the Benefit-Cost ratio presented in 1982[3] for approval by the Planning Commission is far from accurate.

Finally, two important considerations. First, the Narmada Sagar Scheme, like all such schemes, totally ignores *ecological and cultural damage as a 'legitimate' cost.* For instance, the value of forests is taken to be merely the value of the timber, firewood, and minor forest produce it yields. This ignores its more essential ecological functions. The Forest Research Institute, India, has calculated that each tree performs Rs. 1.5 million worth of such functions in 50 years. We do not know if a similar value has been put on the psychological and social costs of human displacement. *But simply because such costs may not be quantifiable is no justification for ignoring them.* Benefit-cost analysis must, after all, be a study of human welfare relative to human cost, *not* a simple exercise in mathematics.

Secondly, such analysis always leaves out the crucial *class-factor,* i.e. who benefits and at whose cost? It is by now evident that most river valley projects in India overwhelmingly benefited the privileged sections, and at the cost of the already underprivileged. The section to be worst hit are tribals, and landless peasants, and those to benefit the most are landlords, industrialists, contractors, bureaucrats, and rich urban consumers. The very logic of the present developmental process is such, and it is highly unlikely that the same logic will not apply in the Narmada Project.

In conclusion, therefore, I would like to assert that while a number of positive, new steps have been taken by the Narmada Project authorities, most of these are cosmetic in nature and do not tackle certain fundamental problems. There is thus no justification for assuming, as the World Bank seems to do, that the project's benefits will be greater than its costs. If the Indian Government is genuinely concerned about human welfare and about environmental safety, let it immediately halt work on the Narmada Project till an honest and independent benefit-cost and class-benefit analysis is completed. Otherwise, the plea that "we've already spent too much money, we cannot stop this project now" will overrule any environmental and socio-cultural considerations, however serious they may be.

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Amazonian Forest Reserves, Fact or Fiction?

by Philip M. Fearnside and Gabriel de lima Ferreira

The World Bank has been compelled by Senator Kasten, Chairman of a sub-committee of the USA Senates' Appropriations Committee, which deals with the funding of International Agencies, to suspend funding of the socially and environmentally destructive Polonoroeste Project (see *The Ecologist* volume 15 no 1/2, 1985, and also the editorial in *The Ecologist* No. 4, 1985), until such time as, in The World Bank's words, "a remedial action plan" can be "discussed and agreed with the Bank".

One can only presume that such 'remedial action' consists of setting up reserves within which samples of the forests together have already been agreed to and the Bank satisfied that it would achieve its desired end. "Progress has been made" we are told, and presumably this means that funding for those schemes will go ahead.

The authors of the following report show that the reservations so far set up by the Brazilian Government *exist in name only.* This gives some idea of just how strictly this 'remedial plan' is likely to be implemented. The World Bank knows the Brazilian Government's record as well as we do. Why then does it pretend to take its assurances so seriously?

Throughout the Brazilian Amazon, reserves of every category have been bisected by roads and/or reduced in size to allow quicker and cheaper economic exploitation of resources than would be possible without them. Best known is the loss of a substantial portion of the Xingú Indian Park in 1971, to make way for the construction of the BR-080 Highway.[1] In 1982, Maria Tereza Jorge Pádua, the head of National Parks Department, resigned her post when President Joao Figueiredo, together with the highest levels of IBDF (Brazil's National Institute for Forestry Development), granted approval for construction of a highway through the Araguaia National Park.[2] In both cases, Brazilian laws guaranteeing the integrity of parks and reserves were simply ignored when the reserves proved inconvenient for road-building plans. These examples illustrate a persistent problem in Amazonia; the rapid proliferation of road-building practically guarantees that similar conflicts of interest will arise on many future occasions.

Nowhere are such conflicts more evident than in Rondônia, a newly-created State bordering on Bolivia in the southwestern corner of the Brazilian Amazonian region (Fig. 1). Rondônia is the gateway to the Amazon for migrants who are being expelled from Brazil's southern states, where large estates with mechanised production of soybeans, wheat, and sugar-cane, are replacing labour-intensive small farms producing coffee and food-crops. The Cuiabá-Porto Velho Highway (BR-364) is being asphalted as a part of the massive Polonoroeste regional development plan, with completion scheduled for this year.[3] A loan from the World Bank contributes one-third of the programme's total costs, budgeted at the equivalent of US $1.1 thousand millions at the January 1981 exchange rate[3] (p. iii).

Many of the ambitious plans for Amazonian highway construction that appeared on maps in the early 1970s remain unbuilt. In Rondônia today the situation is different: as a result of the availability of funds and the relentless pressure generated by the flood of immigrants (as well as by speculators and investors of seemingly every possible description) a vast network of highways is, in fact, being built.

Roads in Rondônia

In conjunction with the Cuiabá-Porto Velho Highway (BR-364), the Polonoroeste programme provides funds for improvement of side-roads in existing colonisation areas, as well as in several new areas such as Urupá, Machadinho, Capitao Silva, and Marmelo, to be financed under the programme. Other colonisation areas—such as Bom Princípio, Conceicáo, and Samaúma—are planned with financing from the Finsocial programme. All planned settlement areas are under the direction of the National Institute for Colonisation and Agrarian Reform (INCRA). In addition, unplanned spontaneous settlements outside of official colonisation zones are, frequently, later given legal status and incorporated into INCRA programmes. The long-standing tradition of legalising squatter claims makes future repetition of this pattern likely.[4] Currently-planned access roads will link the various official and other developments to the major trunk-roads. The planned roads follow straight lines to points on the existing road network, thereby cutting across any reserves that may be located in their paths.

The Farce of Unprotected Reserves

Brazil has a variety of types of forest reserves, each with legal protection against invasion and forest clearing.[5] Reserve types include national parks, biological reserves, and forest reserves under the administration of the Brazilian Institute for Forestry Development (IBDF); ecological stations under the administration of the Special Secretariat

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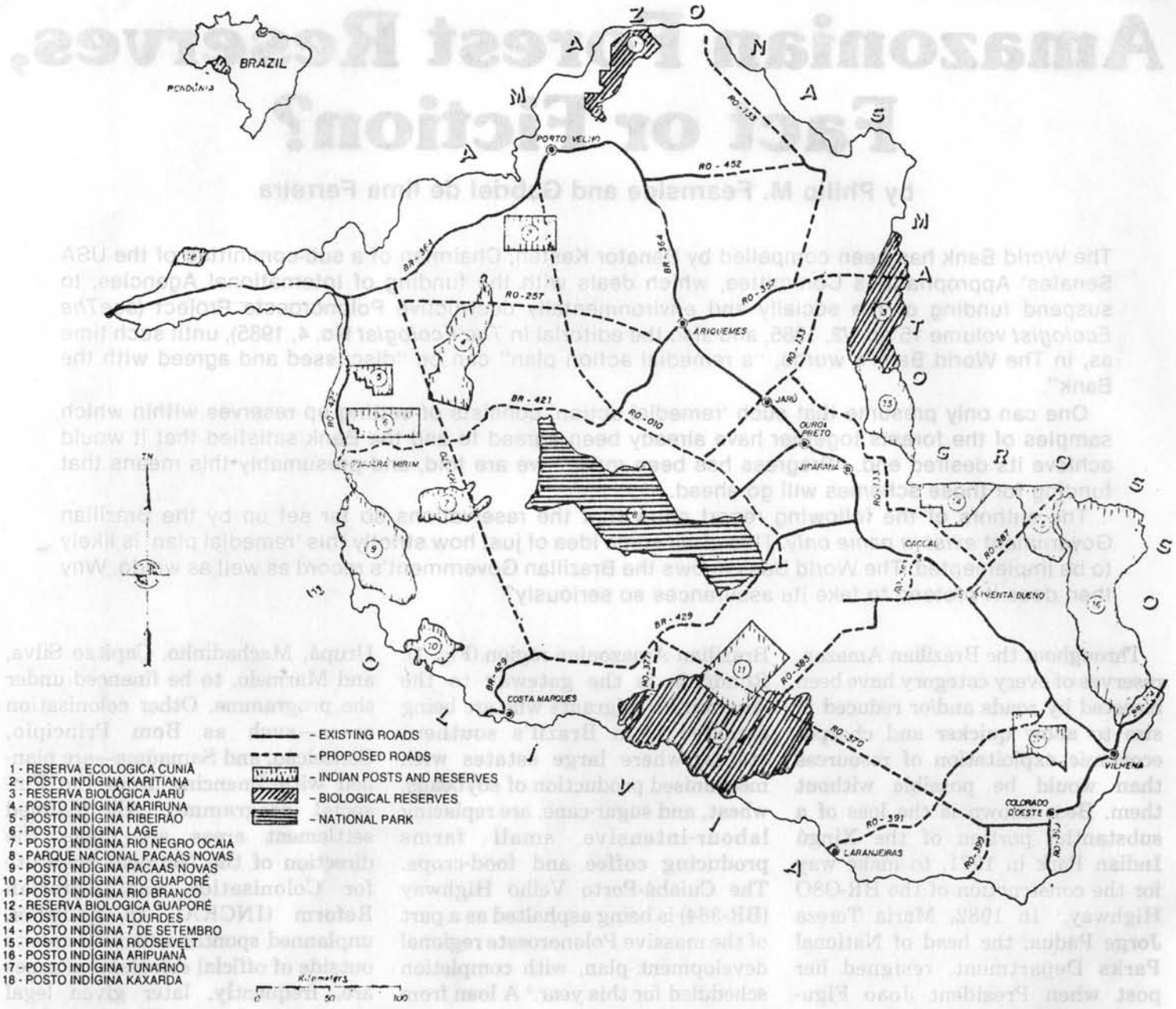

Fig. 1 Map of Rondônia, showing Indian Posts and Reserves (vertical hatching and marginal dashes), Biological Reserves (diagonal hatching), and National Park (horizontal hatching): also Roads both existing and proposed. Planned roads would bisect the Guaporé and Jarú Biological Reserves and the Rio Branco, Roosevelt, Karitiana, Kariruna, Rio Negro, and Tubarão Indian Reserves (redrawn from Brazil, Governo de Rondônia, CODARON, 1983)

of the Environment (SEMA); Amerindian ('Indian') reserves under the administration of the National Indian Foundation (FUNAI); and various other types of reserves that are administered by research and other entities.

Reserves in Rondônia, on land in the public domain, include the Guaporé Biological Reserve, created 20 September 1982, of 600,000 ha (*see* map, Fig. 1). The Reserve had been planned for several years prior to its official creation, during which time the boundaries were moved—first by shifting the southern boundary to the north, to avoid the strip of occupied land along the Guaporé River (which forms the border between Brazil and Bolivia), and then further shrinking the reserve on the eastern and western boundaries to avoid conflicts with already-existing land-claims there (the southern boundary shown on the map reproduced in Fig. 1 is apparently in error, as the Rondônia Delegate for IBDF claims that the reserve no longer reaches the river's margin).

The shrinking of the Reserve from its edges, however, is insignificant in comparison with the losses implied by road-building plans. Rondônia's Department of Roads and Highways (DER) and Company for Agriculture and Cattle Ranching Development of Rondônia (CODARON) have both published maps showing three planned highways crossing the Guaporé Biological Reserve: RO-383 linking Santa Luzia to Pedras Negras, RO-377 from the Rio Guaporé to the BR-429, and RO-370 from Cerejeiras to the BR-429 (Fig. 1).[6,7] The roads would assure substantial losses for the Reserve's forests in two ways: 1) the direct loss to road construction, and, far more seriously, 2) the rapid entry of squatters when once highways are constructed—such as has been the inevitable result of similar road-building experiences throughout Amazonia.

The Jarú Biological Reserve, originally decreed as a forest reserve in 1961 of 1,085,000 ha, has suffered various reverses.[8] Incorporation of much of the Reserve into the Burareiro Directed Settlement

Area, a project where 500-ha estates were sold through sealed tenders *(licitacão)* for development of cacao plantations, left the reserve with an official area of only 268,150 ha when its designation was changed to that of a biological reserve in 1979[9] (Decree law 83.716, p. 44). The Reserve has never had a forest guard or staff of any kind, and an undetermined number of squatters are now clearing within its boundaries. A highway is also being projected to bisect the reserve: the RO-357 linking Ariquemes with the State of Mato Grosso.

Amerindian reserves cut by projected roads include 1) the Posto Indígena Rio Branco, cut by the RO-370 Highway between Colorado do Oeste and the BR-429; 2) the Posto Indígina Roosevelt, cut by the RO-287 Highway between Espigao do Oeste and the State of Mato Grosso, 3) the Posto Indígena Karitiana, cut by the RO-010 Highway linking the BR-429 and the BR-364; 4) the Posto Indígina Karirуna, cut by both the RO-370 Highway between the BR-364 and the BR-429, and by the RO-257 Highway between the RO-010 and the RO-370; 5) the Posto Indígina Rio Negro, cut by the RO-370 Highway between the BR-429 and the BR-364; and 6) the Posto Indígina Tubarão, cut by the R0-391 Highway between the BR-364 and Laranjeiras.

One type of reserve is within property owned by private individuals and corporations. These are the reserves of 50 per cent of the forested area that Brazil's Forestry Code (Decree Law 4771, Article 44) requires be kept in natural vegetation. However, in practice there is no enforcement whatsoever of this provision of the Forestry Code.[4] Many colonists in older government colonisation projects in Rondônia and elsewhere have cleared their entire lots, with no legal consequences. In the colonisation projects that are now being implanted or planned, the reserves within each property have been replaced by a communal reserve representing half of the land-area of the entire project. In the case of the Urupá project, begun in 1982, approximately 200 squatters had already established themselves within the communal reserve by 1983. Many of the legally-settled colonists who have not yet completed clearing the above-mentioned 50 per cent of their land outside of the reserve area, talk of plans to continue clearing in the reserve area when once their separate agricultural plot has been cleared and converted to cattle pasture.

The ubiquitous excuse for non-enforcement of forestry laws is that IBDF has only a minimal staff and budget. This situation, of course, reflects national priorities that consider reserve protection far less worthy of funding than projects such as road-building or colonisation. In the case of Rondônia, the excuse of lack of funds is, in itself, inadequate to explain the total lack of enforcement, given the funding included in the Polonoroeste budget. Funds are even included to patrol reserves by helicopter!

Discussion and Conclusion

Reordering of priorities is needed in the Brazilian Government's planning of development, with an end being put to the present pattern of any reserve losing as soon as a conflict of interest arises with other uses. In order for this to occur, the value of reserves for future generations of Brazilians must be appreciated, and planners must give greatly increased weight to the well-being of future generations. Brazil can ill-afford to continue the practice of relegating such concerns to the lowest of planes, regardless of how clear the future negative consequences of a given development scheme may be.

The rapid pace of road construction and settlement in the Brazilian Amazon, particularly in the State of Rondônia, means that decisions to effect such changes must be taken immediately, and at the highest level, if the farce of unprotected forest reserves is to be halted while the reserves still remain in existence or at least 'on the map'.

Acknowledgements

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THE WORLD FOOD ASSEMBLY

TO ATTACK THE ROOTS OF HUNGER needs a concerted effort by a lot of people. **The World Food Assembly** is an alliance of independent groups and people from all parts of the world, united in the conviction that radical changes are needed if we are to meet our human responsibility of ensuring food for all.

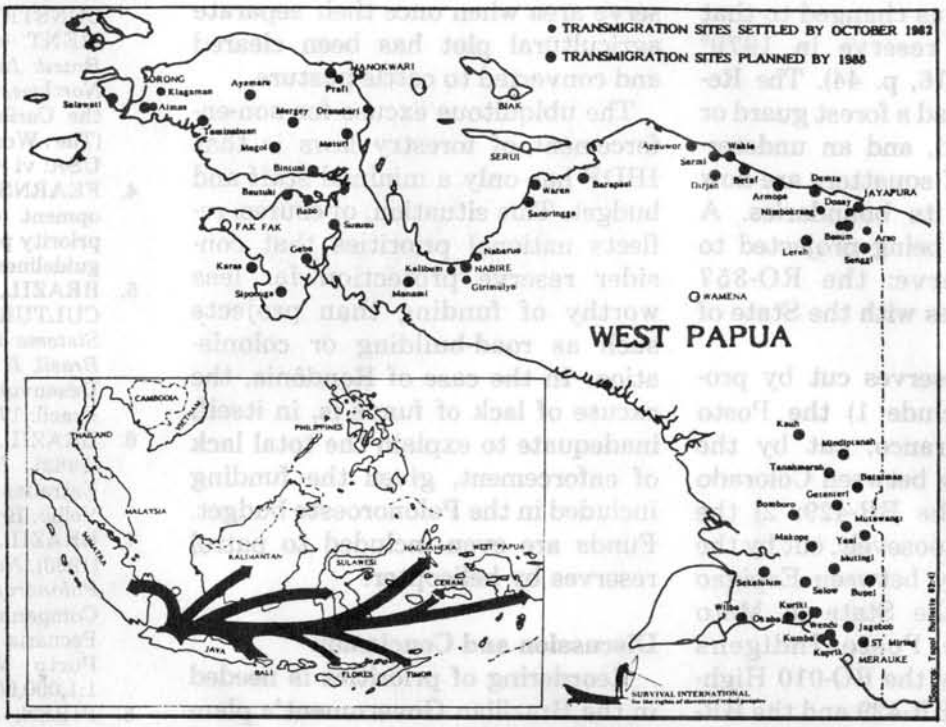
The WFA action programme, building on the recommendations of the Assembly held in Rome in November 1984, is now focussing on three principal areas of work for 1986. These are:

- an international campaign on Food, Debt and the IMF;
- the strengthening and co-ordination of regional food action networks, and
- information and support services for WFA member groups and national/ regional coalitions.

Like other such networks, the WFA is operating on a shoestring. Financial as well as human resources are urgently needed to enable us to carry through our current programme of work and especially to help member groups in lower-income countries to strengthen their work at the grassroots. To join our growing movement, or if you can help in any way, please write to us:

THE WORLD FOOD ASSEMBLY
15 Devonshire Terrace, London W2 3DW, England.

Indonesian Transmigration:
The World Bank's most irresponsible project



Transmigration—the largest colonisation programme in history—is, contrary to what Mr Botafogo tells us, having a devastating effect on tribal peoples, whose rights to their traditional lands are being violated on a massive scale. Largely funded by inter-national agencies, the programme is destroying vast areas of tropical rain forests and the ways of life of the forest dwellers who inhabit them.

In Indonesia, millions of dollars of international aid are being spent on the largest colonisation programme in history. But the mass relocation, which critics claim is no more than a disguised invasion programme, is having a disastrous effect on the local environments and the tribal peoples whose lands are being expropriated to make way for the 'development'. Last year the government announced that Irian Jaya (West Papua) was to be the main target for the next phase of the transmigration programme, threatening to make the Papuans a minority in their own lands.

Background

The chronic problem of overpopulation on the central islands of the Indonesian archipelago becomes more severe every year. Over 60 per cent of the 162 million people of Indonesia, the world's fifth largest country, live on the two central islands of Java and Madura with a population density higher than Bangladesh. The majority of these people live below the poverty line and, in spite of an overall growth in the nation's GNP, become poorer every year. The problems of overcrowding and landlessness are exacerbated by a repressive military government that responds to urban unrest with death squads and crackdowns, rather than grassroots development, and by a highly uneven distribution of resources: over one third of the land on Java is in the hands of one per cent of the landowners.

For years the government has argued that the solution to the overcrowding in the central islands is to step up the programme of Transmigration, the mass colonisation of the outer islands with the poor and landless of the centre. Started in 1905 by the Dutch, Transmigration has been greatly accelerated in recent years. By 1984 over 3.6 million people had been moved off Java, Bali and Madura, 2.5 m in the last five years.

Basic Model

The government's seven aims for the Transmigration programme are to promote national unity, national security, an equal distribution of the population, national development, the preservation of nature, help to the farming classes and the improvement of the lot of local peoples.

The Transmigration programme is designed according to a 'Standard Farm Model', whereby a man and wife and, optimally, their three children, are supplied with the tools, seeds, fertilisers, herbicides and pesticides that they need to set themselves up as dry rice farmers. Each family is provided with 2.5 to 5 hectares of land, one hectare of which has been clear-felled for immediate cultivation, and food for one year. After that they are expected to fend for themselves in their (often hostile) new environment.

The programme, which costs an estimated US$ 9,000 per family, absorbs six per cent of the national budget, but is largely funded by the international agencies.

Ironically the programme has had no impact on the population problem at the centre, as natural increase has more than made up the loss. Moreover spontaneous in-migration of richer, upwardly mobile students and members of the middle class has almost equalled the government-sponsored out-migration. The result is that the peripheral areas are being inundated by poor and unskilled labour while drained of their few skilled and well-trained members. Critics refer to the phenomenon as "the export of poverty".

Environmental Degradation

The Transmigration programme has been widely criticised on environmental grounds. As the programme has gathered momentum there has been less and less time for proper feasibility studies. Many of the transmigrants are being forced to settle on marginal lands often against the recommendations of consultants paid for by the World Bank, which has emphasised the need for more research and the development of more appropriate farming models.

International Funding for Transmigration

World Bank	$400.3 m
United Nations Development Programme	$ 4.9 m
World Food Programme	$ 56.7 m
European Economic Community	$ 11.5 m
Asian Development Bank	$ 34.3 m
Islamic Development Bank	$ 10.0 m
Federal Republic of Germany	DM 88.5 m
France	$ 1.9 m
Netherlands	fl 22.2 m
United States of America	$ 15.0 m
Others, including NGOs	$ 5.1 m
TOTAL (approx.)	$600.0 m

Clear-felling of new sites has had to be mechanised to keep up to the ambitious schedules. In Kalimantan (East Borneo) Transmigration accounts for the deforestation of 200 thousand hectares per year. Serious problems result including the loss of top soil through erosion.

The incompatibility of the agricultural techniques of the settlers, evolved on the rich volcanic soils of Java, with the poor tropical forest soils of the outer islands is leading to serious environmental degradation. Most settlers experience a 50 per cent decline in crop yield in their second year and total crop failure after four or five years. Many then abandon their sites either drifting into nearby urban centres or engaging in shifting agriculture, a practice that the local forests cannot sustain with the enlarged populations.

Even the United Nations Development Programme, which contributes substantially to the scheme, has signalled the widespread problem of declining agricultural yields. Only one in ten Transmigration sites are considered economically profitable.

Political Motivation

In spite of the demographic, economic and ecological failure of Transmigration, the government aims to step up the programme still further. Recently the Ministry for Transmigration announced that it plans to move a further 65 million people over the next 20 years!

The real motivation for this extravagant movement of people is not humanitarian but political. Ever since 1949, the Indonesian State, born in the ashes of the Dutch Empire of the East Indies, has had to struggle to maintain unity. And though it has paid lip-service to the demands of local peoples through the slogan "Unity in Diversity", the numerical dominance of the Javanese has meant that its vigorously pursued programmes of "Indonesianisation" have meant little more than "Javanisation" to those on the peripheral islands.

Many of the outer islands have resisted centralist attempts to control their affairs and view the Transmigration programme as no more than a disguised invasion of their lands.

Colonisation as Invasion

Nowhere are the problems posed by Transmigration more acute than in West Papua, annexed by the expansionist Indonesian State in 1969 (see UAB/PAP/1/MAY/84). In spite of the fact that the World Bank estimates that 95 per cent of the soils of the island are unsuitable for rice cultivation, the area is now a priority target for Transmigration. Recently published figures suggest that the government aims to introduce 500,000 to 1 million transmigrants over the next five years: to a country whose total population is no more than 1.2 million, 20 per cent of whom are already settlers.

West Papuans have already lost some 700,000 hectares to transmigrants. If the planned colonisation goes ahead they stand to lose a further 3.6 m hectares by 1989. In Merauke district, in the south-east of the country, where there is already visible degradation of the environment, fully two thirds of tribal lands have been set aside for transmigrants. Nor are the tribals receiving compensation for their lands, for in any case Indonesian (as opposed to Papuan) traditional law does not recognise tribal rights to hunting and gathering territories or lands set aside for shifting agriculture. Many communities have been intimidated into signing away their lands, often after being hectored by Indonesian officials, backed up by contingents of armed soldiers, on the benefits of development.

Rural Development as Pacification

Transmigration in West Papua is only one part of an overall programme which has the aim of 'integrating' the Papuans into Indonesian society. Rural development programmes throughout the area are aimed at bringing the tribals out of isolation and into contact with modern communications and the market economy. The Transmigration programme itself has been modified to the same end so that fully 25 per cent of the people settling the new sites are to be 'translocals', local Papuans alienated from their traditional communities, who find themselves in a minority, despised for their 'primitive' customs and forced to conform to the lifestyle of their invaders.

West Papua has been singled out for special treatment because the local peoples are becoming increasingly resistant to Indonesian economic exploitation and oppression. Ever since 1969 there have been louder and louder calls for independence, which the government has responded to with such violence that, according to the Jakarta-based Association for Legal Aid Institutes, West Papua is the worst region for human rights abuse in Indonesia.

The fact is that Indonesia cannot contemplate granting independence to what is now its sixth most profitable province. Nor does the military regime feel it can allow even a minimal degree of regional autonomy for fear of encouraging the separatist movements in the other peripheral islands. The only alternative is increasing repression from the 20,000 occupying armed forces, a strategy that also accounts for the programme of *transmigrasi saptamarga* by which the government plans to settle a *cordon sanitaire* of ex-military personnel all along the Jayapura-Merauke highway, currently under construction.

Last year some 10 to 12,000 West Papuans abandoned their traditional lands and fled to Papua New Guinea. A recent investigation by the Australian Section of the International Commission of Jurists, revealed that one of the main reasons for the exodus was fear of the Transmigration programme.

The programme, which threatens to destroy the lives and lifestyles of the West Papuans and make them a minority in their own lands, is being funded with international capital, two thirds of it via the World Bank. This is in spite of the fact that Transmigration denies tribal land rights and is being fiercely resisted by tribal people in some areas. The Bank is thus directly contravening its own guidelines.

Books

The illusion of our time

IN THE NAME OF PROGRESS. The Underside of Foreign Aid. Patricia Adams and Lawrence Solomon. 1985. Energy Probe, Research Foundation, 100 College Street, Toronto, Canada, M5G 1L5. $12.95.

This is a short book, 166 pages to which is added another 60 pages or so of notes and appendices. It sets out to disillusion the public as to the desirability of foreign aid. It is made up of 16 short chapters. Each one deals with a currently accepted myth about foreign aid and in general the food crisis in the Third World. Each one is effective in achieving its aim. The introduction is particularly illuminating. Among other things it points out that aid programmes are not designed to help the people of the Third World, they are designed instead to help unrepresentative and usually tyrannical governments, in whose present interest it is to undertake vast agricultural and industrial projects. "The misery these projects produce for the local population", the authors note, "is justified by their presumed benefit to the greater economy: they are seen as economic imperatives in much the same way as the slave trade a century or more ago was deemed necessary for the economic progress of Western nations."

The analogy of the slave trade is very much closer than one might think. Indeed "the West was able to finance its slave trade itself, but most Third World governments have no such means. As a result, they have turned to the West's international financiers to see their projects through: foreign aid agencies like the World Bank, the United States Agency for International Development, and the Canadian International Development Agency etc." These international bodies "are financing national governments against local populations".

The anti-slavery society in London also compares these projects to the slave trade. This society was originally set up to combat and still combats "Threats commonly faced by indigenous peoples throughout the world including dispossession of land, flooding of land through hydroelectric schemes, deforestation and the consequent damage to traditional agriculture, armed forces carrying out the policies of distant central governments, desecration of places of worship and ethnocide, the destruction of a culture. The enemies, wittingly or not, of indigenous peoples are multinational companies, international funding agencies and governments bent on 'development' at all costs."

The first myth it sets out to expose is that foreign aid is humanitarian and does not violate human rights. It does this by describing the forced displacement of tens of thousands of tribal peoples whose land is flooded by large water development schemes financed by multi-lateral development banks. The second myth is that eventually the billions we are spending on energy aid could pay off the Third World's poor. This pursues the same theme as that of the first chapter but accentuates the plight of those who are pushed off their land to make way for large schemes whose goal it is really to satisfy the personal interests of politicians and other parasites.

An important myth is explained in chapter five, the myth that the Third World with its billions of people is straining the world's resources. Indeed the World Bank, the FAO and other promoters of environmentally destructive schemes do everything to blame the poor for the destruction of their environment.

The authors point to the environmental disasters of El Salvador where 77 per cent of the land is suffering from soil erosion and just about all its forests have been cut down. It may look as if it is the peasants who are doing the damage but then the real cause of the damage becomes clear when one finds out that 5 per cent of the land owners have 70 per cent of the arable land, most of which is devoted to export markets. The peasants of course are forced as a result to plough marginal land in the mountains which quickly erode. This would clearly not occur if most of the good land were not used for producing food for export.

Chapter 8 exposes the myth that the Third World cannot afford to worry about protecting its environment when it has more important things to worry about "like feeding its billions". "We cannot afford ecological luxury" stated Vasudevan Nair, Premier of India's Kerala State. It is surprising how many educated people still believe that environmental conservation is only a concern of the middle classes, they forget that famine in the Third World today is largely the consequence of environmental degradation. People who live in an untouched, highly forested environment, teeming with game and who necessarily have ample water supplies do not starve.

Chapter 9 exposes the myth that floods are an act of God, the particular act of God incriminated in South America today being the erratic behaviour of that oceanic current called El Nino.

Thus, in the 1983 annual report of the Inter-American Development Bank, we are now told "climatic changes precipitated by El Nino current off the west coast of South America in late 1982 and early 1983 created severe drought in the dry plateau and valleys of Bolivia and produced floods in lowland areas." The authors point out that the floods like the other discontinuities we are subject to today are the result of human mismanagement.

The authors end up by making a number of useful recommendations concerning the way development aid should be controlled and the MDBs and the various development agencies be made accountable for their acts. Ross Campbell, ex chairman of Atomic Energy of Canada Ltd, stated at a 1978 meeting with the No Candu for Argentina Committee, Ottawa that "Business is business and human rights is human rights." This attitude is clearly no longer tolerable.

Edward Goldsmith

Pulling the wool over our eyes

NO IMMEDIATE DANGER: PROGNOSIS FOR A RADIOACTIVE EARTH by Rosalie Bertell. The Women's Press, London. 1985. £5.95.

My initial reaction on opening *No Immediate Danger* was one of some surprise. What had the Warsaw Ghetto of World War 2, or US Aid and the process of development in Peru to do with the atom? The slick answer is probably 'not very much' and so, why the digression? Well, I think Rosalie Bertell is absolutely correct in equating the proliferation of nuclear arms and of nuclear power stations throughout the world with the growing success of state enterprises in manipulating and exploiting people to suit their own nationalistic goals of industrialised development. Both nuclear weapons and nuclear power stations are inimical to the spiritual and physical well-being of human beings, and both aspects of the atom are used to prop up elitist business enterprises with the total

commitment and support of national governments. Furthermore, people, like the Jews in the Warsaw Ghetto, tend to accept an authority which informs them that so long as they comply with the imposed order, life will become better for them; they will be paternalistically protected. We in Britain, for instance, have had the ground prepared through a long and exceedingly costly miners' strike to accept nuclear power as a vital, and safe alternative. The strike was indeed the best PR propaganda that Mrs Thatcher's government could have devised. The real issues meanwhile were brushed aside.

Much of *No Immediate Danger* is dedicated to informing us about the biological effects of radiation on human health, and Rosalie Bertell provides us with a wealth of material. Indeed only the most sceptical among us could ignore the catalogue of sickness and premature death wrought upon mankind, let alone the rest of creation, through the exploitation of the atom. How naive we all were, and how naive the authorities, including those supposedly concerned with protecting us, wanted us to be. Dr Bertell tells of young girls in Utah standing out of doors to watch the mushroom clouds of the Nevada tests floating away, only to find themselves incapable of having children later in life, and of others who succumbed to cancers. How many have suffered and will suffer because of the arms race and the development of nuclear power? According to Rosalie a staggering number. "The global victims of the radiation pollution related to nuclear weapons production, testing, use and waste conservatively number 13 million. The current rate of weapon production globally (1985) generated between 7000 and 15,000 victims yearly (between 20 and 40 a day) even without further nuclear testing."

Has Dr Bertell exaggerated? In all probability not, since her figures are based firmly on the results of more than half a century's experience with ionising radiation and all her sources are derived from published papers in recognised scientific journals. The real problem is that such numbers tend if anything to be lost among the 100 million or so of the world's population who die each year. Percentage-wise, the victims hardly reckon. Justifiably, Dr Bertell fears that the insidious encroachment on human health will accelerate as nuclear power and its military offshoots spread throughout the world.

As her last chapter, A Time to Bloom, tells us that the decisions relating to our own lives have increasingly been taken out of our hands. Experts inform the decision-makers who then impose their will, through force if necessary, on the population. Bertell believes that a balance will be restored only when international, global connections override inward-looking nationalistic ones; when people themselves become concerned with the good of the whole rather than with pursuing their own selfish interests. Dr Bertell is asking for a revolution in awareness and a resolve to act. Or do we like the majority of those in the Warsaw Ghetto hope upon hope that what we know to be true will not really happen to us, but will leave us surviving while all else crumbles?

Peter Bunyard

What happens to Radionuclides

RADIOACTIVITY IN THE ENVIRONMENT—SOURCES, DISTRIBUTION AND SURVEILLANCE by Ronald L. Kathren. Harwood Academic Publishers, New York, $66.

At $66, I doubt whether many Ecologist readers will be able to afford *Radioactivity in the Environment*, and clearly it is a book for specialist libraries and institutions. Nevertheless for those with a good grounding in mathematics and a keen desire to know basic facts about radioactivity on our planet, Ronald Kathren has written an excellent book. Every kind of radioactive source is gone into, whether it be part of natural background or the result of human nuclear activities, and he has very good chapters on fall-out from nuclear explosives, on the hazards of mining for uranium as well as on the operation of nuclear power plants.

Kathren is not dogmatic, and he makes it clear that much uncertainty still exists over the movement of radionuclides through the environment and into living organisms. While the book is not concerned with the biological effects of ionising radiation, it touches on the enormous quantity of radioactivity introduced into the environment through weapon testing, particularly in atmospheric explosions. Indeed, according to his calculations as much as 3.3×10^{18} curies of fission products have been injected into the atmosphere from fission explosions alone.

Radioactivity in the Environment is essential reading for anyone who wishes to study in detail the sources and movement of radionuclides through the ecosystem. With the kind of information Kathren presents in his book, noone should be allowed again to assume that substances such as plutonium get fixed and immobilised in the sediment at the bottom of the Irish Sea.

Peter Bunyard

Our changing climate

GLOBAL CLIMATIC SYSTEMS by J.G. Lockwood, Edward Arnold, London, 1985. £17.50.

The fickleness of our world's climate has been brought to the attention of all of us by the media: for example the financial loss caused by hurricanes in Miami and the human suffering caused by drought in the horn of Africa. Lockwood seeks to explain in this book, the way in which the climate system produces such events. This book is aimed at an undergraduate audience with a basic grounding in climatological concepts. Lockwood explores each of the elements of the global climate as an individual system. The book has been split into two main parts termed aspects of the climate system and impacts of the climate system, although the aspects form far the largest portion of the book. Chapter 1 is an introduction to the general circulation of the atmosphere, while Chapters 2 through to 6 examine what Lockwood has termed climatic subsystems. It is these individual chapters which are the best feature of this book. Oceanic, glacial, arid, grassland and forest subsystems are all considered.

Each chapter provides an introduction to its respective area although more detailed treatments are given of forest and grassland systems than of glacial systems. In part II of the book "Impacts of the climate system", Lockwood considers the interaction of man and some of the climatic subsystems already outlined. In these two final chapters Lockwood has underlined the need for a good knowledge of climate in understanding ecosystems and in understanding the vulnerability of mankind.

One major flaw detracts from the quality of this book: little effort has been made to homogenize the scientific units used in diagrams and hence in discussion. Although decimetres can be readily converted to millimetres or metres, the same cannot be said of the conversions from Kcal cm^{-2} yr^{-1} to W m^{-2}.

Students often fail to realise that these units are interchangeable, especially when conversion factors are not given, and they reproduce diagrams and maps in such outdated units as Langleys/minute. Since all reputable meteorological and climatological journals now insist upon SI units, text books *must*, I feel, do likewise. The use of such a mixture of units is unforgiveable and reduces an otherwise useful textbook to a dimensional mess.

K. McGuffie

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ERRATA:

We apologise for a misprint in A H Walter's article, *Nitrates in Food* (Vol 15 No 4 p.189) where in the introduction, 3rd paragraph line 7 it should read nitrites not nitrates.

Classified

CALL FOR PAPERS

First announcement and call for papers for the THIRD INTERNATIONAL SYMPOSIUM ON ENVIRONMENTAL MANAGEMENT FOR DEVELOPING COUNTRIES on Tourism-Industry-Environment and Appropriate Technology for Treatment and Disposal of Hazardous Wastes. The Symposium will take place in Istanbul, Turkey, between August 6-12, 1986. Papers describing techniques appropriate for developing countries will have priority. Engineers and scientists of any nationality are welcome to submit a copy of a maximum 500-word abstract by December 15, 1985. For further information please contact: ENVITEK, Bahariye Cad. 56, Kadiköy-Istanbul, Turkey. Tel. (90-1) 336 47 95.

Third International Conference on ECOLOGY AND ENVIRONMENTAL QUALITY. Jerusalem, Israel June 1986. Authors are invited to submit papers, no longer than ten pages on a variety of subjects ranging from Aquatic Ecology to Toxic Waste Disposal, by January 31st 1986. Further details from Israel Society for Ecology and Environmental Sciences, The Hewbrew University of Jerusalem, PO Box 1172, Jerusalem, Israel.

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