

Paul Richards, coordinator of research for the International African Institute's Environmental Review Unit, examines new approaches to environmental research and explains

What environmental crisis means in Africa

ENVIRONMENTAL crisis has become a major neurosis of the seventies, and monitoring and resource management two of its most commonly advocated therapies. But these therapies mean different things in different parts of the world. For richer industrial countries the focus is on the conservation of fossil fuel resources and on pollution problems. But in poorer regions securing the year's food supply from an increasingly overstretched agricultural system frequently overwhelms all other considerations. Atmospheric pollution and petrol rationing are minor irritations in a context of underdevelopment so severe that up to 50% of all live-born children die before they reach the age of five. For the poorest countries, therefore, dead fish and factory-poisoned rivers might be considered welcome evidence of a turn for the better and a small price to pay for escape to prosperity. In contexts such as these, environmental monitoring will tend to focus on nutritional rather than pollution levels, and resource management must, almost of necessity, emphasise quick exploitation rather than longer term conservation.

The distinction between richer and poorer countries in environmental matters goes much deeper than the mere exigencies of current economic planning, however. Environmental research is often location specific, and poorer regions have had less than their fair share of attention in this respect. This in itself is a factor making for continued poverty. Tropical climatology, for example, is a much less well-researched and closely monitored field than its temperate latitude equivalent, with the result that recent drought in Africa has been much less easy to foresee and its consequences much less easy to plan for. But by far and away the most important distinction is that, by taking part in the world trading system, richer nations have been able to diversify and build flexibility into their economies while poorer nations have found themselves beset by a process of structural simplification rendering them less able to withstand environmental shock. Thus the export crop plantation and pesticide spray replace the ecologically subtle polyculture of the subsistence farm with its natural checks and balances. Not only is the new system more vulnerable to pests and diseases, but many plants, skills and habits associated with a sub-

Drought in the Horn of Africa (Photo: Keystone)

sistence way of life disappear irretrievably. Should famine then occur for whatever reason—political or natural—suffering is likely to be much greater.

The subsistence farmer is a natural survivor under conditions of ecological crisis—his answer to the destruction of his crops by grasshopper or locust is to feed on insects for a time. Development pushes in the opposite direction. I have vivid memories of a village meeting on nutritional problems in Nigeria being forced to disband under the bludgeoning of the bulldog amplifier on a van selling patent medicines for an international pharmaceutical concern. When advertising can penetrate—in this way or via radio—to the most isolated rural areas in Africa, then the imported product of modern manufacture enjoys a powerful advantage over local equivalents. Perfectly acceptable local foodstuffs are traded for volumetrically inferior amounts of processed food or totally inappropriate medicines and tonics, and children malnourished on packaged baby foods then become innocent casualties of a world in which the white-coated image of scientific authority on the advertising hoarding is used to undermine confidence in the old ways for the sake of commercial progress.

In Africa the old relations between man and his environment still have much to tell us. The 'alternative technology' movement in industrially advanced societies is struggling to recover some of the self-sufficient technology of an earlier generation.

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In Africa the crops, cultivation practices, crafts and medicines that support a largely self-sufficient way of life are still part of a living tradition, but a major research effort is now required to establish and preserve this knowledge and skill in permanent form. If growing ecological consciousness in science can lead to a greater awareness of and interest in endangered plants and animals, then surely tropical farming systems, pharmacopaeias and technologies deserve at least equal attention. The task is one of trying to encourage, coordinate, publish and where necessary to initiate research into aspects of man-land relationships and pre-industrial technology endangered and discriminated against by processes of 'modernization' and economic development in Africa, in the hope that viable 'alternative' strategies of environmental resource management can thereby be identified.

There is, in fact, a fair amount of activity in this sphere in Africa at the present time, but it is a difficult field in which to work for a number of institutional and organisational reasons. Colonially imposed boundaries and *lingua franca* do not follow ecological lines. Scientists in neighbouring countries may be working on comparable environmental problems but fail to benefit from each others' progress for two reasons: firstly, the anglophone/francophone (not to mention lusophone) barrier is even more difficult to transcend in Africa than it

is in Europe, due to lack of language teaching facilities at secondary school, hardly made good by perfunctory courses in French, English and so on for scientists at university level; and secondly, it often appears easier for an African scientist to arrange study leave and research facilities in Europe or North America than in a neighbouring African country. Comparative approaches, in consequence, are rare, and good local case studies tend to remain local in their impact. But above all, the major difficulty lies in the nature of the work, straddling the divide between social and natural science—an unfortunate line of demarcation hallowed not by logic but by usage.

Leaving aside the arid social-antisocial, natural-supernatural science arguments, there are genuine differences of style and method between social and natural scientists—social scientists, for example, are part of what they study and their language leans towards the polemical in the hope of influencing their material for good. Such differences have to be overcome before the two groups can work together effectively. And yet ethnobotany, 'folk' medicine and 'appropriate' technology would be unthinkable without collaboration between, say, biochemists, ecologists, agronomists and engineers on the one hand and linguists, ethnographers and geographers on the other.

The Environmental Review Unit of the International African Institute is one body trying to find its way across these various barriers and obstacles, partly through its bilingual publications programme, which is based on a working relationship between the

Training for the Environment Programme in Dakar and the IAI (the journal *African Environment/Environnement Africain* and the *Special Report* series of monographs and collections of essays are joint ventures, for example), and partly through a research programme which emphasises the involvement of African scientists and scholars in cross-national studies of environmental problems from a comparative and interdisciplinary point of view. The IAI's traditional strength lies in the linguistic and social science fields, but this is being complemented by links with institutions in Africa having strong natural science representation.

Three major research projects are in the course of being established. The first involves the study of nutritional concepts and strategies in subsistence societies and how these are changing, for better or for worse, under the impact of agricultural development. The second is in a way linked, being an attempt by a group of archaeologists, ethnobotanists and ethnographers to investigate the origins as well as the present-day significance of yam cultivation in Africa. The third project involves looking at the agronomic and ecological conceptions of peasant farmers to assess the role they might play in community-based programmes of environmental monitoring and resource management in Africa; it is based on collaboration between IAI research workers in Africa and the Monitoring and Assessment Research Centre of Chelsea College, London, with initial funding from SCOPE, and has resulted in a preliminary report of a Nigerian case study.

The funding of such research, which falls between the natural and the social sciences, poses problems of its own. But with initial results exhibiting great promise for further development along the lines outlined, the hope is that those who normally fund research on either the social or the natural science side will stretch their terms of reference to cover this vital area. The financial resources required are relatively modest but, even so, no single institution or individual can assemble and effectively combine the range of skill and experience required. Inter-disciplinary co-operation rather than intellectual rivalry is the essential pre-requisite. World wide studies by the Disaster Research Unit at the University of Bradford indicate that, while the probability of the occurrence of geophysical and climate disturbances has remained constant over the last hundred years, 'disasters' have doubled.

The conclusion is plain—namely that human communities are increasingly vulnerable to natural hazard, for social rather than natural reasons. Players of the environmental game appear to have two strategies open to them—minimising maximum losses or maximising potential gains. The modern world opts for the latter in the interests of growth and profit. But someone has to pay the price for this aggressive competitiveness, and it is the poor who end up more vulnerable to ecological breakdown than ever before. Good environmental research is difficult to do because it requires a direct reversal of precisely those qualities of individual rivalry and competitiveness that lie at the root of our present environmental predicament. □

US BUDGET

Escaping the 'New Realism'

Colin Norman explains how science and technology fare

WHEN President Ford unveiled his election year Budget last week, he said it reflected "New Realism" in government policy in the United States. The new realism turned out, however, to be old-style conservatism in the shape of proposals for massive increases in military spending, swingeing cuts in government expenditure in fields such as health and social services, and tax relief for individuals and corporations. Many of those proposals will be unpalatable to the democratic-controlled Congress—which must act on them before they become law—and thus, as a guide to what will actually be spent by government departments and agencies in the 1977 fiscal year (which begins on October 1, 1976), Mr Ford's budget

figures should be treated with considerable caution.

Nevertheless, the budget, which consists of thousands of pages of facts and figures, richly laced with promises and rhetoric, is an important statement of the Administration's political thinking; it sets out in fine detail the programmes for which Mr Ford and his Administration will seek congressional approval in the coming months. As far as science and technology are concerned, the Administration's thinking seems to be surprisingly expansive in view of the frugality displayed elsewhere in the budget.

The extensive axe-wielding which resulted in keeping the total budget request within Mr Ford's target of

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Gerald Ford: 'realist'

\$395,000 million for the federal government next year, left most areas of research and development relatively unscathed. In fact, Mr Ford has proposed hefty increases in several areas