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Disaster Relief or Relief Disaster? A Challenge to the International Community*

LORD JUDD OF PORTSEA

Over the next few weeks the 46th session of the United Nations will be considering a number of important issues. For those of us who are concerned with the prevention and relief of disasters, this session is of particular importance as it will be dealing with proposals to improve the international community’s response to disasters. If the international community is to live up to its responsibilities and the UN is to fulfil the hopes and aspirations of its founders, then the world should not miss this opportunity to agree measures which could prevent massive suffering in the future.

The recent famines and disasters in the Gulf, Africa and Bangladesh have revealed the full horror of mass suffering — horrors which have left thousands dead and millions stunted by poverty, horrors which I hope will now mobilise international action at the forthcoming General Assembly. I tremble to think of the challenges ahead in what has been the Soviet Union, in what has been Yugoslavia, in Cambodia, Sri Lanka and Central America. We must be resolute. A primary call on any peace dividend made possible by the end of the Cold War must be additionality in the resources available for the positive fight for humanity. It would be intolerable if Peter were robbed to pay Paul. Free market economies, democracy, accountability and peace, as they are established in the Third World, pose every bit as great a challenge for us to put our money where our frequently pompous mouths are, as do events in the East.

In this speech I want to explain some of the inadequacies of the present disaster relief system and suggest a number of solutions. First, I shall illustrate the scale of the problem with some examples drawn from visits I recently made to Ethiopia and Mozambique with my colleague Justin Forsyth.

SOME EXAMPLES

In Ethiopia we visited the Hartishek Somali refugee camp in the Ogaden. The desperate situation facing 250,000 people living in makeshift shelters, reliant on food being transported hundreds of miles and water being trucked from boreholes 70 km away — over 1 million litres of water everyday — graphically demonstrated the precarious existence of so many people.

These people, forced to live in the barren Ogaden, have become reliant on an umbilical cord — an umbilical cord that was to be broken when a combination of events

* This is the text of a speech given by Lord Judd, who retired as Director of Oxfam at the end of last year, at the Royal Institute of International Affairs on 19 September 1991.
combined to upset their fragile existence. Drought in the surrounding Ogaden region, affecting over 500,000 Ethiopians, increased the pressure on the limited food reserves. Escalating conflict in Somalia forced 150,000 new Somali refugees to flee to the Ogaden with 200,000 Ethiopian returnees — people who had fled the Ogaden war into Somalia and who were now fleeing back into Ethiopia. The resilience of people is truly remarkable; I saw tired people clambering from dilapidated open lorries with their few possessions after a nightmarish journey of sixteen days, on indescribably bad roads, through areas where fighting was continuing and without adequate food and water. Imagine the horrors that drove them to embark on this dangerous journey to an uncertain future.

At Kebri Beyah, a camp of 20,000 Ethiopian returnees, food had run out — people were already dying. Dying not because the world’s leaders had not been informed of the scale of the problem or because the situation had become too insecure (as it was to become a few weeks later when Mengistu fell) but because the international disaster relief system was unable to respond adequately to a changing situation. My criticism is not of the remarkable work of UN and NGO people in the field who work around the clock but of the UN system as a whole which lacks the necessary mechanisms and donor support to provide coordination and leadership in a fast moving situation.

Again and again during my trip I realized that the single most important factor in solving the frustrating problems we were witnessing was political will: political will by the donor community to provide substantial amounts of food aid and to ensure its speedy delivery; political will by the governments represented in the Security Council to lead the world in organising a response; political will by those involved in conflict to allow access to those in need; and political will by the leaders of the UN to act decisively with the full weight of their personal authority.

In Mozambique the need for improved UN coordination and leadership was equally apparent. The Mozambican relief system is close to collapse — partly due to the 15 year war but also because the Mozambican government’s capacity to deliver is being undermined by the lack of a joint UN—donor—NGO strategy and set of priorities. There are too many donors acting independently.

The tragedy of Mozambique is that, while conflicts are coming to an end in Angola and Ethiopia and democratisation is beginning to emerge in Africa, in Mozambique, the war continues relentlessly, draining the life blood from a weary people and thwarting the moves of the government to democratise the country. Yes, there has been serious diversion of supplies in Mozambique. But corruption thrives on shortage. It is the total inadequacy of the international response which has fuelled the corruption.

The situation left me feeling very angry — angry that in one community at Nipepe in Niassa province the innocent people’s struggle for survival was constantly being set back by attacks by Renamo. The community had managed to plant crops and begin to become self sufficient again after being displaced the year before. When we arrived we immediately knew something was wrong. The local administrator explained to us that, after weeks of similar harassment, Renamo had again attacked the previous day injuring over 40 people. Ominously they had left a note saying they would be back that day. The attacks had forced the people to leave their crops to be plundered by the bandits. We evacuated a number of wounded people in our light plane — some hacked with pangas and others bleeding from grave bullet wounds.

These innocent victims of destabilisation are just the tip of an iceberg. All over the African continent, conflict has left
millions of displaced people and refugees in a desperate plight. If these people are to be helped then it is not enough simply to provide more aid. The UN and the international community needs to link its relief work with its conflict resolution work. When there is the political will, as has been shown in Angola, then peace can be achieved. Even if lasting peace proves elusive, then the UN, with the backing of the Security Council, should be more proactive in helping to establish access to those in need by building on its successful experiences with peace corridors, cross border operations and the monitoring of human rights. We at Oxfam believe that the international community should improve its response to emergencies in three main ways: (a) by enhancing the coordination, leadership and donor support of the UN; (b) by improving access to, and the protection of, people in need; and (c) by re-examining UN agency mandates.

COORDINATION, LEADERSHIP AND SUPPORT

As the examples I have described indicate, all disasters have in common the need for a dynamic and purposeful UN with the capacity to coordinate and lead, based on the firm support of the international community. Many donors, NGOs and UN agencies, and certainly we in Oxfam, believe that UN relief co-ordination and leadership has succeeded best in some of its ad hoc operations, and cite in particular the Office for Emergency Operations in Africa (OEOA). OEOA's success in the mid 1980's can be attributed, firstly to its strong and experienced leadership (by such people as Maurice Strong, Brad Morse and Kurt Jansson); secondly to its effective co-ordination of host governments, UN agencies, donors and NGOs at a field and international level; thirdly to the credibility of the information it provided; and, fourthly and crucially, to the direct authority of the Secretary General.

By contrast, our experience on the Turkey/Iraq border revealed a number of the shortcomings of the international relief system, particularly in relation to the UN's capacity to coordinate a response to emergencies. Oxfam reports from the Isikveran area of Turkey in early April 1991 revealed the problems being faced by aid workers and Kurds living and working in 'deep mud', 200 feet below the snow line. The lack of shelter, water, food and basic medical supplies, compounded by the almost impossible supply lines to the refugees, all underlined the need for an improved UN capacity to respond. A report from the Office of the UN Resident Coordinator in Ankara spoke of 'The absence of clear and focussed leadership from UN headquarters, the imprecise role, responsibility and authority of the Resident Coordinator at the field level, and the general lack of preparedness by the UN system at large . . . '

A UN supremo in the field with the direct personal authority of the Secretary General, with access to experts, funds, buffer stocks of relief items and the authority to liaise and co-ordinate with NGOs and the Turkish government could have prevented many deaths in the early days of the emergency. The Kurdish situation taught us how important it is to be properly prepared, to have a UN system able instantly to respond and, above all, the importance of the UN having the authority to insist on access to those in need. But it is not just a question of improving the capacity and the leadership of the UN. If it is to operate to its full capacity it needs increased donor support. Many of the UN's problems are due to the under-resourcing and under utilisation of its present structures and powers.

The international community failed to respond, for example, to the early warnings of famine in Africa by UN agencies and NGOs in October 1990. Africa needed both
funds for food aid and logistics but also the attention of the international community
to help ensure access to those in need in conflict situations and to support the re-
vitalising of an OEOA type structure. The lack of political will led to a slow response
by the international community which resulted in a desperate situation in early 1991 with 30
million people facing starvation, only half of food needs pledged and even less delivered.
Donors have also underfunded the work of UN agencies. UNHCR's special Iraq
programme still has a $98m shortfall and its global general programme has a shortfall of
$65m for 1991. These shortfalls in funding have a direct impact on the capacity of
UNHCR to respond to the needs of refugees. The UN High Commissioner for
Refugees, Mrs Ogata, recently indicated that probably between ½ and ⅓ of recognised
refugees were not receiving assistance from UNHCR. Many of the other UN
humanitarian agencies also face budgetary shortfalls and rely for the bulk of their funds
on voluntary contributions, making them vulnerable to fluctuations in support.

PROTECTION OF PEOPLE IN NEED
The difficulties of providing humanitarian assistance to civilians caught up in conflict
has recently been highlighted by events in Iraq. It is questionable, however, whether
Iraq should be seen as the norm either as a type of emergency or in the international
response to it. It is unlikely, even if it were felt appropriate, that the international community
would intervene in the same way in a country like Somalia, where thousands of war victims
are also beyond the reach of international assistance. Nevertheless it is now more widely accepted, as a result of the Iraqi experience, that sovereignty — particularly when claimed by governments with no
democratic legitimacy — should not be used as an excuse for inaction when people are
in need. The responsibility of the inter-
national community to protect or safeguard
human life is increasingly being accepted as
the underlying principle for determining
whether to act in emergencies.
The UN, with its enormous experience
of working in conflict situations, has, over
the years, increased its role in establishing
greater access to protect and assist people
in need. Building on Article 59 and the 2nd
Protocol of the Geneva Convention, which
aim to protect civilians in internal conflicts,
there have been a number of other resolu-
tions and declarations. The Cairo declara-
tion, for example, established safe passage
for the distribution of emergency food and
there have been days of tranquillity for
child immunisation in El Salvador and the
southern line was established in Ethiopia for
relief goods distribution. More recently the
Security Council adopted resolution 688
which insists that 'Iraq allows immediate
access by international humanitarian organi-
sations to all those in need of assistance in
all parts of Iraq and to make available all
necessary facilities for their operations'.
These examples indicate that principles
of humanitarian access are gradually gain-
ing ground. In many other conflicts in
which Oxfam works, however, access to
people in need has not been adequately
established. In Ethiopia, for example, the
inability of the UN to work in the rebel held
territory of Tigray and Eritrea left NGOs
having to organise cross-border relief opera-
tions without adequate UN support or
protection.
Access is a vital part of any relief opera-
tion, not only because it provides practical
relief but because the mere presence of an
external organisation often provides protec-
tion. Building on the UN's successes in
establishing peace corridors, cross-border
operations, monitoring peace and relief
arrangements and becoming directly in-
volved in helping negotiate peace agree-
ments is a vital element in improving relief
operations.
One of the limitations of the UN system
is that it does not always link its relief work with its work for the resolution of political conflict. It has, for example, been heavily involved for years with relief work in Ethiopia but was conspicuous by its absence from the negotiations to transfer power and achieve peace. If the root causes of emergencies are not addressed, in conjunction with the relief work, then the situation often deteriorates rapidly. Conflict resolution should be seen as part of disaster prevention and human rights protection.

In any new arrangements that are established, mechanisms should be put in place to bring any acute civil war or emergency situation to the attention of the Secretary General and the Security Council, obliging them to consider action. If the right of the UN to access to protect life is to be more firmly established, the sincerity of the UN’s actions must be beyond misunderstanding. The UN must act automatically and consistently in its response to emergencies, using humanitarian criteria as the trigger for action and not the foreign policy considerations of any one nation.

While it is important to ensure the right of the UN to access for the protection of people in conflict situations, it has been shown in the past that, when the Secretary General and the Security Council focus their attention on a humanitarian problem, solutions are often found. The lack of political will is often the main obstacle to progress.

UN AGENCY MANDATES

No single UN agency is mandated to protect or take care of those displaced by internal conflicts and, although the International Committee of the Red Cross has a right of initiative in internal conflicts as part of the Geneva convention, it does not have, in the same way as UNHCR, the authority of the General Assembly. Many displaced people have consequently been left without adequate protection or material support. In Sudan, for example, 1.8m displaced people are being forcibly removed by the government to makeshift and inadequate holding camps. In Mozambique communities have been forced to move to camps without adequate food supplies and, as a consequence, are vulnerable to disease and malnutrition.

At one camp at Mulevala in Zambezia, thousands died as a consequence. In a recent speech, Mrs Ogata recognised that ‘for the human being directly affected, legal definitions — or artificial borders — are meaningless’. She pointed out that, for an Ethiopian, the suffering is the same whether they cross the border into Sudan as a refugee or remain displaced in a refugee-like situation.

UNHCR’s main functions are to provide international protection to refugees and to promote permanent solutions. The legal status of refugees is defined in two international treaties — the 1951 convention and the 1967 protocol. The protocol and convention define their rights and duties and make provisions for their everyday lives. While UNHCR has been involved with internally displaced people in Laos, Vietnam, Cyprus, Bangladesh and Iraq at the request of the Secretary General or Security Council, it has no mandate to act to help or protect all displaced people. The Second Geneva protocol calls for the protection of the civilian population in internal conflicts but provides no means, such as through the UNHCR, to enforce this protection and care.

Is it not time for a UN agency, perhaps UNHCR, or the new Deputy Secretary General to take on responsibility for the displaced? Above all, is it not time for the Security Council, as the effective ‘clout’ of the international community when the will exists, to put humanitarian needs as firmly on its agenda as other political crises?

BRITAIN AND THE EC

Before I turn to my concluding remarks I want to say a few words about the British
Government and the European Community. The British Government has played an admirable role in helping mobilise substantial amounts of EC aid for Africa and Lynda Chalker did extremely well in gaining an extra £60 million for emergency relief work in Africa and the Gulf. The army’s role in helping the Kurds and Bangladeshis was crucial in saving many lives and we were particularly impressed by the relationship they built with the local Kurdish people. It may well be appropriate to use their special expertise and those of the other armed services in the future, particularly in situations where access is difficult due to floods or weather conditions. Their professionalism in logistics, communications, health and other disciplines can be at a premium. It is absurd that ODA should be recharged for the services provided. Service of this kind by the armed forces frequently has a tremendous morale and training significance for those involved. It is also important to remember, however, that it is often the local people and organisations who are best equipped to respond to disasters and in some instances foreign experts can undermine the capacity of local people to solve their own problems. Recently the British Government announced plans to improve their response to disasters by instigating a 3 stage action plan. We welcome this initiative which is particularly targeted at speeding up response in the first days of disasters. But we hope the teams of experts will be used appropriately and that, where possible, local structures will be utilised.

As I hope I have illustrated, it is vital to ensure that the underlying causes of disasters are tackled. Any response to disasters must be part of a wider development strategy to provide resources for development and help end conflict. While the British have come up with significant resources for disaster relief (although it is truly outrageous that the Ministry of Defence’s costs should have been paid for by the ODA) their overall development aid budget is still only 0.27 per cent against the UN target of 0.7 per cent and little progress has been made to reduce substantially the crippling debt burden and improve terms of trade. As the Secretary General revealed in his recent report to the UNPAAERD (UN Program of Action for African Economic Recovery and Development) review, people are getting poorer not richer in Africa. The international community has failed to fulfil its responsibilities in helping stimulate sustainable development in Africa, despite positive moves by many African governments.

From a recent conversation I had with Commissioner Marin in Brussels, I understand he is also considering proposals to improve the EC’s response to disasters. I hope both the EC and ODA will continue to develop their important role in disasters but at the same time ensure that their different proposals compliment each other. From our perspective, we believe that only the UN has the status and capacity to respond, on the necessary scale, to major emergencies and that, while other international players have important supporting roles, they must use their influence to support the building up of the UN’s capacity and legitimacy.

CONCLUSION
I want to recommend a number of measures I believe could greatly improve the international community’s response to disasters.

1) The UN should establish a unit for Emergency Operations headed by a Deputy Secretary General to co-ordinate relief efforts.

The new Deputy Secretary General is destined to failure, however, if he is expected to operate in a political vacuum — success depends upon international will. And will must be demonstrated whenever necessary by the governments of the world as represented in the Security Council. The
Security Council must promote disaster response and prevention to as high a priority in the defence of humanity as more traditionally conceived threats to peace. The creation of a new UN mechanism must not become an excuse for the Security Council members to pass the buck — it must be quite clear that they themselves have the inescapable responsibility to generate the will for action.

It is essential that this unit should be established in New York on the 38th Floor with the direct authority of the Secretary General and have the following tasks:

- to mobilise and trigger a rapid reaction force of experts to co-ordinate relief efforts and if need be to protect life; the Deputy Secretary General should have the support of emergency ‘trigger’ ombudsmen whose job it would be to monitor possible emergency situations and advise the Deputy Secretary General to initiate action;
- to administer a standby pump priming emergency fund;
- to compile up-to-date information and regularly brief the media, politicians and public; corroborated information should be derived from a wide range of sources and presented in a uniform manner to give it credibility with the donors;
- to prepare joint appeals and to lobby donors to respond; these appeals should be prepared on a consolidated basis, indicating which agency is doing what; appeals should be of a standard format, regularly updated and designed to promote donor confidence;
- with the services of specially appointed field co-ordinators of standing and repute, to ensure effective co-operation in the field and New York between UN agencies, donors, NGOs and host governments, to secure joint relief strategies and to ensure a clear division of labour between the different actors to prevent duplication and rivalry;
- to identify priority relief needs and significant shortfalls in response;
- to assist the Secretary General to solve political and conflict situations which affect the distribution of relief and the violation of human rights and to help ensure access to those in need through establishing cross line and cross border relief operations;
- to prepare for disasters by establishing early warning systems, inventories of stockpiles and buffer stocks of food and relief items pre-positioned in disaster-prone countries and regions; and
- to coordinate the specialised UN agencies in an effective programme of post-disaster recovery.

(2) The international community should fully fund the UN agencies it has made responsible to fulfil its humanitarian mandate. UN humanitarian agency budgets should form part of the regular UN budget with voluntary contributions only being sought for unforeseen emergency funding.

(3) The international community should establish, as a basis for its relief work, that humanitarian assistance and protection constitute a fundamental human right. In conflict situations, where access is difficult, the Secretary General should use his good offices to establish access to those in need to enable relief supplies to be delivered, to protect relief workers and to prevent human rights abuse. If need be, the Security Council should act to compel the parties to allow access.

(4) The Secretary General should build on and develop the work of the UN to facilitate peace negotiations in conflict and emergency situations.

(5) The mandate of the UNHCR should be extended to include responsibility for displaced people; and the new Deputy Secretary General should be empowered to mobilise UNHCR or other UN agencies to intervene to guarantee their relief and protection.
We are at a challenging time in history — and we have a choice. We can continue to provide only very limited resources in response to the growing problems of poverty and suffering in the third world, preferring to protect our own ‘oasis’ of prosperity, or we can recognise the modern reality: that poverty is a direct threat to our own existence and that the escalation of conflict, environmental degradation and disasters threatens our own stability as migrants and refugees flee.

Disasters often reflect more deeprooted problems of political, economic and social decline. Famine is a political issue. It is often caused by bad politics in the first place and effective relief work — at a national as well as international level — is often blocked for political reasons. Put at its simplest, famine is a political issue because it is the ultimate litmus test of social failure. Politics, the business of how the world’s people organise society, has failed 30 million African people this year — that is roughly half of the total British population.

If we are to improve our response in relieving disasters we should, at the same time, help prevent them by improving the international community’s role in conflict resolution and increasing resources available to stimulate sustainable development in the context of democratic accountability. A revitalised, task orientated (rather than bureaucratically orientated) United Nations, with an increased role to respond to and prevent disasters, is an important first step in establishing a new world order: a world order that actively prevents rather than sluggishly reacts to disasters.

Lord Judd of Portsea
Oxfam
274 Banbury Road
Oxford
OX2 7DZ
UK
The Impact of Drought on Production, Consumption and Nutrition in Southwestern Kenya

EILEEN KENNEDY

In this paper I compare the effects of the 1984 drought on agricultural production, income, food consumption, and nutrition of farm and non-farm households in South Nyanza District, Kenya. Survey work covered the period 1984 to 1987. It was the late arrival of the long rains in spring 1984, rather than an absolute shortfall in rain, that caused most of the fluctuations in agricultural production. Agricultural households who were least affected by the drought were able to cope by increasing the amount of cultivated land and by relying more on coarse grain production. Coping strategies for the landless households in South Nyanza were more limited and this group of households therefore experienced greater fluctuations in income between the drought and non-drought periods than did most types of agricultural households. Surprisingly, changes in food consumption between the drought and non-drought periods were small for most households. In spite of differences in production, food availability and incomes, however, the health and nutritional status of pre-school-aged children was not significantly different in the two time periods. Differences in health and nutritional status appear to be influenced more by community-level health and sanitation factors than by differences in agricultural production and incomes in drought and non-drought years.

Fluctuations in agricultural production and incomes, which are usually the result of regular seasonal or intermittent annual variations in climatic conditions, place limitations on long-term income growth and improvements in household food security and individual well-being for many agricultural households. The sale of assets and reductions in consumption often incurred by households during the regular ‘hungry season’ or more acute drought conditions can create a downward ratcheting effect, diminishing human and physical capital resources and limiting future productivity.

While households are often able to adapt activities to the more predictable seasonal variations in climate, isolated annual fluctuations — drought — are more difficult to predict and households are therefore less likely to respond effectively. The impact of drought on household income, food security, and individual well-being is generally more severe than the effects of seasonality.

The growing literature on the impact of drought on rural households usually provides a taxonomy of household responses, which include the diversification of pro-
ductive activities and income sources, the sale of assets, and reductions in levels of consumption (Longhurst, 1986; Corbett, 1988; Webb and von Braun, 1991). However, few studies provide a direct analysis of the links between changes in production and income strategies during drought and their impact on household consumption and individual welfare. Rather than any single activity, it is usually the interaction of a number of factors that determines household and individual outcomes during drought.

The research described below aimed to assess the differential impact of drought on rural households according to their ability to respond by altering production and income strategies. Using data from a longitudinal study in southwestern Kenya, I shall contrast the experiences of households during the 1984/85 drought and the subsequent ‘normal’ 1985/87 period. Specifically, I shall explore the links between changes in production and income strategies and their impact on household consumption levels and the health and nutrition of pre-schoolers. The data highlight the role of commercialized sugarcane production in the study area in raising household incomes and providing stability against isolated annual fluctuations in rainfall.

STUDY AREA AND RESEARCH DESIGN

The research was conducted in Nyanza Province, South Nyanza District, in the southwestern part of Kenya. While historically an important surplus-grain-producing area, supplying basic staples for much of Kenya since the early 1970s, Nyanza Province has become part of the area known as the ‘sugar belt’ of the country. Agricultural production is generally a mix of maize and sugarcane cultivation. Soils in the study area are generally medium-to-high quality and the population density is low. The region has benefitted from the expansion of commercialized sugarcane production associated with the development of the South Nyanza Sugar Factory (SONY) in 1977.

Maize production generally follows the bimodal pattern of rainfall in the region, with households normally planting a crop during both the long rains, which usually begin in February, and the short rains, which usually begin in September or October. Sugarcane production extends over a much longer period, with the first harvest ready nearly 24 months after the initial planting and one or two additional harvests obtained in 18-month increments thereafter. Planting and harvesting of sugarcane occurs throughout most of the year.

Fieldwork was undertaken in two parts, with an eight-month baseline survey of 504 households initiated in June 1984 and a follow-up survey of 462 households from the original baseline survey from December 1985 through March 1987. To ensure broad coverage of the range of household types in the study area, the baseline survey sample was stratified according to the following categories.

1. Sugar farmers under contract with the SONY factory. A sample of 181 households was selected at random from a list of 6,000 contract farmers provided by SONY. Households selected were required to have at least one pre-schooler present, could not own more than 20 hectares of land, and could not be non-resident farmers. Of these contract farmers, 42 were recent entries in the SONY scheme and had not yet received payment for any sugar harvest. This subgroup is referred to as new entrant farmers and is treated separately in the analysis.

2. Non-sugar farmers, who were not under contract with SONY. A sample of 231 households was selected at random from among the nearest neighbors of each SONY contract farmer in the sample. These households were also
required to meet the same selection criteria as the contract farmers.

(3) Landless households (N=43), are defined as those not owning land and without permanent sources of income. Wage earner households (N=18) are defined as landless, but with permanent income sources. These households were selected from a restricted area census of all households in the area without land. While not owning land themselves, many landless and wage earner households were able to cultivate on small plots obtained from community landholdings.

(4) Merchant households (N=29), randomly selected from a mapping of all businesses in the project area. While most were engaged in agricultural activities as well, merchant households were designated as such if their major source of income was from business activities.

IMPACT OF DROUGHT ON AGRICULTURAL PRODUCTION

Total rainfall in Nyanza Province was 32 per cent below normal in 1984, but the quantity was still sufficient for good crops (Pinckney and Muthaka, 1984). It was the late arrival of both the long and short rains, rather than an absolute deficit in rainfall, that created problems for cultivators. The drought's impact on agricultural households was primarily through its reduction of yields for both local (852 kg per hectare) and hybrid maize varieties (989 kg per hectare), which are not considered drought resistant. By contrast, in the non-drought 1986 season, maize yields were approximately 60 per cent higher than in 1984. Yields varied only slightly in each year across household types. There was also little difference in yields between local and hybrid varieties in either 1984 or 1986, suggesting little additional advantage in using the purchased hybrid variety, especially under drought conditions.

Because of the crop's longer growing period, the late rains did not have an immediate impact on sugarcane production. Sugarcane harvested in 1984 was planted as early as 1982 and yields were nearly 8 per cent above the 1978-to-1984 average. For sugar producers, the impact of drought in 1984 would be most evident only as much as 24 months later, when crops established in 1984 would have been harvested. Yields for crops planted in 1984, but harvested in 1986, were almost 10 per cent below the 1978-to-1984 average.

With the exception of new entrants, the proportion of total area planted to all crops was much higher in 1984 (60.3 per cent) than in 1986 (48.7 per cent). The proportion of total area planted to food crops was also higher in the drought period (49.2 per cent) than the non-drought period (37 per cent) across all household types as well. The most dramatic change in cultivated area was among non-sugar farmers who planted 52.1 per cent of total area to food crops in 1984, compared to only 40.3 per cent in 1986. Despite the higher proportion of land devoted to food crops in 1984, however, lower yields resulted in lower levels of food availability during the drought, by as much as 15 to 20 per cent below those in 1986.

In addition to changes in overall area planted to food crops, the mix of crops planted varied between the drought and non-drought periods as well. The share of cultivated area planted to more drought-resistant food crops, such as sorghum and millet, was much higher in the drought period, especially among non-sugar farmers — 22.6 per cent of land in 1984 compared to 2.0 per cent of land in 1986. These coarse grains — sorghum, millet and finger millet — are not normally preferred in the study area, in part because of greater time requirements in their processing and in their preparation for meals.

The changes in crop mix reflect concerns over the maintenance of household consumption and income levels in response
to drought. As will be discussed below, in spite of lower yields for major crops, sugar farmers were able to secure their consumption levels by exploiting their relatively large landholdings and stable income from sugarcane planted in previous seasons. Non-sugar farmers, with smaller landholdings and with less access to cash crop income, were forced to rely more on the expansion of the home production of food crops.

Somewhat counter-intuitively, data indicate that agricultural households actually kept proportionally less of their maize production during the drought year. In part, the shift to coarse grains production allowed households to maintain their consumption while taking advantage of the higher maize prices as a result of drought, selling a higher proportion of the maize harvest to further augment incomes.

For all agricultural households, the 1984 drought year, because of the expansion of land area planted, produced a higher demand for labor in cultivation as well. Looking at production during the long rains season, the late arrival of the long rains meant that fields had to be re-prepared and replanted over an increased area. The additional labor required for these activities amounted to 30 to 40 days per hectare in the 1984 long, rainy season, compared to 1986. The greatest proportionate change in labor requirements resulted primarily from higher land clearing and weeding activities during the drought. Women, in particular, spent significantly more time in agriculture — excluding sugarcane production — in 1984 than in 1986. The greater efforts by women in agriculture came at the expense of time devoted to home production activities, which was lower by 14 per cent in 1984, and time devoted to sleep, which was 10 per cent lower in 1984 than in 1986.

SHIFTS IN INCOME SOURCES

Because 1984 was a drought year in Kenya, it might be expected that the incomes of agricultural households would be lower than in a normal production year. Indeed, between the baseline survey in 1984/85 and the follow-up 1985/87 survey, the annual per capita incomes of agricultural households — sugar farmers, new entrants, and non-sugar farmers — did increase in real terms (Table 1).

The data in Table 1 indicate that the differential production response between household groups resulted in varying degrees of success in insulating incomes from large changes between the drought and non-drought periods. For example, the incomes of new entrant farmers rose by 57 per cent between the 1984/85 and 1985/87 periods. That fact can be explained, in part, by their lower area planted during the drought, which limited agricultural incomes. Along with increases in semi-subsistence agricultural incomes between periods, new entrants also began to receive payments on their sugar contracts in the 1985/87 period, resulting in significantly higher incomes from marketed agricultural production.

Although crop yields increased significantly in the non-drought period, the incomes of non-sugar farmers increased only slightly, by 13 per cent, a result, in part, of the reduced area planted in 1986. The income of sugar farmers remained somewhat stable between the two periods. However, while overall agricultural income remained fairly constant across periods, the level of agricultural output marketed fell by 47 per cent in the 1985/87 period. The decline in income from marketed output for sugar farmers can be explained by lower yields for sugarcane harvested in 1985/87 as a result of the previous drought. Also, many sugar farmers in the sample had entered their second contract with the SONY factory. During the follow-up survey period, many were in the process of plowing and reseeding their sugarcane plots and did not receive any payment for sugar crops in the 1985/87 period.
Non-agricultural households, especially wage laborers and landless households, were unable to expand the area planted in response to drought, because of their relatively limited access to community-owned land. Low yields during the drought, therefore, severely limited their income from agricultural sources. Incomes for these households increased as well in 1985/87, again attributable primarily to increases from semi-subsistence agricultural sources due to higher yields in the non-drought period.

The commercialization of agriculture through increased sugarcane production has generally improved income opportunities in the study area. An indication of the direct benefits of participation in the sugar scheme is reflected in the fact that sugar farmer incomes were significantly higher than the incomes of non-sugar farmers in 1984/85. Again, in 1985/87, much

### TABLE 1
Mean annual income per capita, total and by source for household groups, 1984/85 baseline and 1985/87 follow-up surveys

<table>
<thead>
<tr>
<th>Survey</th>
<th>Total income per capita&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Agricultural income</th>
<th>Non-agricultural income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Own consumption</td>
<td>marketed</td>
<td></td>
</tr>
<tr>
<td>1984/85 Baseline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New entrants</td>
<td>1,956</td>
<td>37</td>
<td>21</td>
</tr>
<tr>
<td>Sugar farmers</td>
<td>2,591&lt;sup&gt;b&lt;/sup&gt;</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td>Nonsugar farmers</td>
<td>1,924</td>
<td>43</td>
<td>20</td>
</tr>
<tr>
<td>Merchants</td>
<td>2,209</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Wage laborers</td>
<td>2,037</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Landless</td>
<td>1,290</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Sample mean</td>
<td>2,077</td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td>N</td>
<td>(502)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985/87 Follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New entrants</td>
<td>3,070&lt;sup&gt;c&lt;/sup&gt;</td>
<td>46</td>
<td>21</td>
</tr>
<tr>
<td>Sugar farmers</td>
<td>2,712&lt;sup&gt;d&lt;/sup&gt;</td>
<td>40</td>
<td>19</td>
</tr>
<tr>
<td>Nonsugar farmers</td>
<td>2,166&lt;sup&gt;c,d&lt;/sup&gt;</td>
<td>48</td>
<td>14</td>
</tr>
<tr>
<td>Merchants</td>
<td>4,212&lt;sup&gt;e&lt;/sup&gt;</td>
<td>11</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Wage laborers</td>
<td>2,578</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>Landless</td>
<td>1,870</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>Sample mean</td>
<td>2,473</td>
<td>42</td>
<td>15</td>
</tr>
<tr>
<td>N</td>
<td>(440)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: IFPRI 1984/85 and 1985/87 South Nyanza surveys.

<sup>a</sup> 1985/87 incomes adjusted to 1984/85 levels using GDP deflator (World Bank, various years).
<sup>b</sup> Sugar farmers significantly (p<0.05) higher income than nonsugar and landless groups.
<sup>c</sup> New entrant incomes significantly (p<0.05) higher than nonsugar farmers.
<sup>d</sup> Sugar farmers incomes significantly (p<0.05) higher than nonsugar farmers.
<sup>e</sup> Merchant incomes significantly (p<0.05) higher than landless, nonsugar, and sugar farmer groups.
of the additional income received by new entrants was attributed to commercialized agricultural production, primarily sugar-cane. In that later period, the incomes of new entrants were significantly higher than both sugar and non-sugar farmers. Sugar farmer incomes remained significantly higher than non-sugar farmers as well.

The effects of commercialized sugar production have also benefitted landless households through increases in local employment. While labor requirements per hectare are less for sugarcane than for food crops, participation in the sugar scheme usually leads to an expansion of area planted and an expansion of the use of hired labor for both food and non-food crops. New entrants and sugar farmers have maintained the area planted to food crops in spite of their participation in the sugar scheme. For sugar farmers, the amount of hired labor per hectare used for all crops was 24 per cent higher than for non-sugar farmers in 1984/85. Sugarcane production accounted for 26 per cent of total hired labor for sugar farmers in 1984/85 and 77 per cent of total labor hired by new entrants. The expansion of sugarcane production, therefore, has probably expanded landless household incomes in general, and may have provided some buffer for their incomes during the drought.

The data in Table 1 also show that income sources are highly diversified, even among agricultural households. For new entrants, sugar farmers, and non-sugar farmers, non-agricultural sources accounted for 33, 41, and 38 per cent, respectively, of total incomes in 1986. In general, non-agricultural households were slightly more reliant on non-agricultural income sources during the drought as well.

IMPLICATIONS FOR FOOD CONSUMPTION

The overall level of caloric intake is similar for the two time periods — 2,657 calories per adult equivalent per day for the baseline study (1984/1985), compared to 2,666 for the follow-up study (1986/1987). Thus, the significant increase in yields for most major crops, the expansion in food availability and increases in incomes reported above did not lead to a concurrent increase in caloric intakes in the 1985/87 period. Since the level of energy intake was relatively high in both time periods, averaging 93 and 95 per cent of requirements in the baseline and follow-up surveys respectively, a dramatic increase in consumption might not be expected.

New entrant farmers reported the highest per capita consumption levels in both periods (2,822 calories per Adult Equivalent (AE) in 1984 and 2,848 calories per AE in 1986), while merchants' consumption levels (2,281 per AE and 2,462 per AE, respectively) were consistently the lowest among the household groups. None of the differences between groups, however, were statistically significant in either period. Landless households reported a 10 per cent increase in caloric intake levels between the 1984/85 and 1985/87 surveys, reflecting the more severe effects of drought on those with little capacity to alter production and income sources in response. Caloric intake among merchant households increased by 8 per cent between the drought and non-drought periods as well.

The proportion of households obtaining less than 80 per cent of calorie requirements fell slightly between the drought (29.6 per cent) and non-drought (27.6 per cent) periods. Even in the relatively good period, however (1985/87), the distribution of consumption remained highly unequal, with between 14 and 41 per cent of households in each group obtaining less than 80 per cent of required calorie levels. Again, the difference between the drought and non-drought periods was greatest for landless households. For the landless, the share of households falling below the 80 per cent cutoff fell from 34.3 per cent in 1984/85 to 26.5 per cent in 1985/87. There was little
difference in the distribution of consumption between periods for agricultural households.

Among all household groups, the share of food obtained through purchases was significantly higher during the drought, at 57 per cent compared to only 43 per cent in the non-drought period. For landless households, the proportion of food purchased during 1984/85 was 33 per cent higher than in 1985/87. Again, the ability to shield incomes by altering production strategies contributed to households' ability to rely on greater purchased quantities of food during the drought.

HEALTH AND NUTRITION EFFECTS OF DROUGHT

The prevalence of morbidity is normally high among pre-schoolers in the area. In spite of differences in income levels between the various household groups, there is no significant difference in total time ill between pre-schoolers from those groups. Contrary to expectations, the prevalence of morbidity is slightly higher (although not significantly so) in the non-drought (30.3 per cent total time ill) 1985/87 period compared to 1984/1985 (27.4 per cent total time ill). Given that the prevalence of some symptoms, especially fever, often peaks in the rainy season, the shorter rains during 1984/85 may explain the slightly lower morbidity during the drought.

The analysis of the nutritional status of pre-schoolers, as indicated by height for age, weight for age, and weight for height measurements, also shows no significant differences between households groups in either period, in spite of differences in income levels.

As indicated in the growth models presented in Table 2, the single biggest determinant of pre-schooler nutritional status in 1985/87 was the initial baseline measure of nutritional status obtained in 1984/85. Children who were not doing well in the earlier periods continue to have a high probability of having a lower nutritional status. Child age and the total time ill with diarrhea are also important determinants of nutritional status.

Nutritional status seems not to be very dependent on differences in income between households, or on fluctuations in incomes between years as a result of drought. Table 3 contrasts the characteristics of pre-schoolers who were less than 80 per cent of the standard weight for age measure in both 1984/85 and 1985/87 with those of children who were above the 80 per cent standard in each period. The data reflect the fact that there is no significant difference in the per capita incomes of households with or without malnourished children. On most variables, the characteristics of children who are malnourished are remarkably similar to those who are not malnourished. Only two criteria differentiate the two groups of children: children who are malnourished over multiyear periods tend to be sicker and their families have a higher proportion of non-farm income.

CONCLUSIONS

Not all households were equally affected by the 1984/85 drought. The impact of lower crop yields was offset with relative degrees of success by changes in household productive strategies. For sugar and non-sugar farmers, changes in agricultural income across drought and non-drought periods were relatively small, in part because of their decisions to expand the area under cultivation in response to lower yields during the drought. Because of their failure to expand the area planted, new entrant farmers experienced large fluctuations in income across periods. Similarly, for non-agricultural households, incomes were generally much lower in a drought period, because of their inability to expand the area planted.
TABLE 2
Regressions of pre-schoolers Z-scores for height for age, weight for age, and weight for height, 1985/87 study

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Height/Age</th>
<th>Weight/Age</th>
<th>Weight/Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>T-Statistic</td>
<td>B</td>
</tr>
<tr>
<td>HOH away</td>
<td>-0.134</td>
<td>-0.74</td>
<td>-0.137</td>
</tr>
<tr>
<td>Household size</td>
<td>-0.012</td>
<td>-1.51</td>
<td>-4.28-03</td>
</tr>
<tr>
<td>Sex (1=boy)</td>
<td>0.090</td>
<td>1.09</td>
<td>0.03</td>
</tr>
<tr>
<td>Female HOH</td>
<td>-0.211</td>
<td>-1.45</td>
<td>-0.14</td>
</tr>
<tr>
<td>Baseline Z-score in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984/85 study</td>
<td>0.605</td>
<td>20.67</td>
<td>0.55</td>
</tr>
<tr>
<td>Child's calories</td>
<td>2.42-04</td>
<td>1.96</td>
<td>2.02-04</td>
</tr>
<tr>
<td>Percent diarrhea</td>
<td>-0.02</td>
<td>-3.36</td>
<td>-0.014</td>
</tr>
<tr>
<td>Mother's height</td>
<td>0.026</td>
<td>3.69</td>
<td>7.80-03</td>
</tr>
<tr>
<td>Area (in hectare)</td>
<td>2.98-03</td>
<td>0.29</td>
<td>0.01</td>
</tr>
<tr>
<td>Age</td>
<td>0.025</td>
<td>8.10</td>
<td>0.01</td>
</tr>
<tr>
<td>Constant</td>
<td>-5.60</td>
<td>-4.56</td>
<td>-2.03</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td>0.51</td>
</tr>
</tbody>
</table>

Analysis of variance

<table>
<thead>
<tr>
<th></th>
<th>Regression</th>
<th>Residual</th>
<th>F</th>
<th>Sig. F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>512</td>
<td>53.4</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>514</td>
<td>49.3</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>512</td>
<td>13.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Commercialized sugarcane production has led to higher incomes for participating agricultural households. Evidence suggests it has led to higher employment and incomes for non-agricultural households as well, especially among the landless. Because of the extended production cycle of sugarcane, its producers were also more insulated from the immediate ill-effects of an isolated drought year; whereas, households more dependent on the production of seasonal crops, such as maize, were much more vulnerable to fluctuations in annual rainfall patterns. Commercial sugarcane production probably benefitted non-agricultural households as well, providing a more stable source of demand for labor.

Changes in household food consumption between the drought and non-drought periods were small. Consumption levels remained near 100 per cent of requirements in both periods, despite a 20 per cent increase in food availability between the 1984/85 drought and 1985/87 non-drought periods. During the drought, the higher proportion of area planted to food crops, a shift to drought-resistant coarse grains production, the greater marketed share of maize production to augment incomes and the higher proportion of food purchases enabled households to maintain fairly constant levels of consumption. Again, households with less ability to alter their production strategies, especially the landless, experienced the greatest fluctuation in consumption levels between periods.

In spite of differences in production, food availability and incomes, however, the health and nutritional status of pre-schoolers was not significantly different between the two periods. Differences in health and nutritional status do not, in
## TABLE 3
Characteristics of pre-schoolers malnourished\(^a\) and not malnourished, both study 1 and study 2

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Malnourished both studies</th>
<th>Not malnourished either study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent of sample</td>
<td>14.7</td>
<td>65.4</td>
</tr>
<tr>
<td>N</td>
<td>110</td>
<td>490</td>
</tr>
<tr>
<td>Mean age — study 1 (in months)</td>
<td>27.8</td>
<td>26.1</td>
</tr>
<tr>
<td>Birth order</td>
<td>4.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Mean number of hours to fetch water</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Health expenditures per capita</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td>49.5</td>
<td>42.2</td>
</tr>
<tr>
<td>Study 2</td>
<td>123.7</td>
<td>101.1</td>
</tr>
<tr>
<td>Age of introduction to solids</td>
<td>5.9</td>
<td>5.7</td>
</tr>
<tr>
<td>Age breast-feeding stopped</td>
<td>18.1</td>
<td>18.4</td>
</tr>
<tr>
<td>Landholdings per capita (hectare)</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Per cent energy adequacy per adult equivalent unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td>92.0</td>
<td>91.1</td>
</tr>
<tr>
<td>Study 2</td>
<td>90.8</td>
<td>94.6</td>
</tr>
<tr>
<td>Per cent time ill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td>32.1</td>
<td>26.9</td>
</tr>
<tr>
<td>Study 2</td>
<td>34.7</td>
<td>27.2</td>
</tr>
<tr>
<td>Mean income per capita</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td>1,679</td>
<td>1,983</td>
</tr>
<tr>
<td>Study 2</td>
<td>2,887</td>
<td>3,107</td>
</tr>
<tr>
<td>Marketed farm income (per cent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td>17.8</td>
<td>21.5</td>
</tr>
<tr>
<td>Study 2</td>
<td>11.3</td>
<td>13.4</td>
</tr>
<tr>
<td>Nonfarm income (per cent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td>45.6</td>
<td>40.9</td>
</tr>
<tr>
<td>Study 2</td>
<td>40.8</td>
<td>37.1</td>
</tr>
</tbody>
</table>

\(^a\) Based on less than 80 per cent weight for age.

Differences in nutritional status are more directly related to prior nutritional status, child age, and morbidity. For policymakers, the research described above suggests the importance of diversity of cropping patterns and income sources to maintain long-term income growth in drought-prone regions. Investig...
ment in research to develop drought-resistant crop varieties and crops with varying production cycles, as well as efforts to expand agricultural extension to provide farmers with better access to improved and more diverse crop varieties could do much to ensure the stability of incomes during drought. The differences in household experiences during the drought suggest that, in addition to incomes, other factors that influence households' ability to respond to drought may provide important information in attempts to target feeding programs and relief interventions.

Notes
1. See Kennedy (1989) for a more detailed description of the study.
2. Data on sugarcane yields refer only to the first harvest of those crops planted in 1982.
3. Although the fieldwork covered the period 1984 to 1987, the data available from factory supplied records provided information for the sugarcane producers that covered the period 1978 to 1987. The longitudinal nature of the data allowed an assessment of farmers at various stages of sugarcane production.

References
The Resilience of Households to Famine in El Fasher, Sudan, 1982–89

ALISON S. PYLE

This paper examines issues related to famine resilience and describes the results of a survey of households who migrated from famine affected rural communities in Northern Darfur to the provincial capital, El Fasher, in western Sudan. It reveals that asset wealth did not enhance household resilience to famine; rather, the data indicate that households who reportedly practiced more numerous survival strategies before migrating to El Fasher were on the whole able to stay longer in their villages before migrating. The data also suggest that some households might have been better able to endure the deteriorating rural conditions by participating in intra-communal practices of sharing resources. An additional issue influencing the timing of migration to El Fasher is previous familiarity with the economic opportunities in the provincial capital.

Since the famines of the 1970's and 1980's, the issue of food insecurity has received much attention both by those concerned with policy and those interested in theoretical analysis. A debate surrounding the causes and conditions of famine has centred on the roles of such factors as the failure of supply, or 'Food Availability Decline' (Sen, 1981, p. 118), the failure of the market (Seaman and Holt, 1980) and Amartya Sen's entitlement thesis which examines the impact of famine conditions on different occupations as well as non-monetized economic activity (Sen, 1981). An additional component of famine analysis, which requires further research, is the role of households' risk-reducing strategies, including intra-communal institutions of support and investment diversification across sectors.

In this paper I describe the results of a survey of households who migrated from rural communities in Northern Darfur to the provincial capital, El Fasher. Three hours by air from Khartoum, Northern Darfur is a vast area located in western Sudan, bordering Chad, on the southern edge of the Sahara Desert.

It is not clear from this study how the livelihoods of the respondents were affected either by environmental or economic conditions in their communities of origin. What it does indicate is that those interviewed responded to the changing environmental and economic conditions by resettling in El Fasher where they perceived the opportunities for protection against future vulnerability to famine to be more favourable. The survey shows that survival and recovery strategies have been multi-sectoral. Respondents plan to continue to maximize returns from investment in the agriculture,
livestock and non-farm sectors as a general strategy to reduce future vulnerability to famine.

I address four main questions.

(1) Did asset wealth enhance the ability of households to resist the impact of the famine?

(2) Did prior experience in coping with severe and prolonged food shortages enhance household resilience to the famine?

(3) Was prior familiarity with economic opportunities in El Fasher a dominant pull factor influencing household migration?

(4) Did comparatively more extensive use of intra-communal institutions of support enable some respondent households to be relatively more resilient to the impact of the famine than others?

One hundred households were interviewed in El Fasher from March through April, 1989. The respondents reported having arrived between 1982 and 1986, most during the summers of 1984 and 1985. Many of the households had been living in a neighbourhood known as Hai El Nasr, a large area which accommodates migrants who have been arriving from villages in Northern Darfur for many years. The rest of the respondent households had been living in the smaller quarters of Deim Silk, Deim Siyal, Sowra Janub, El Wahda and Deim Mesani.

The field work coordinator selected and trained three secondary school teachers in El Fasher as enumerators. Each enumerator and the field work coordinator individually interviewed household heads using a questionnaire prepared in Arabic and a set of interview topic guides, also prepared in advance in Arabic. These semi-structured interviews were supplemented with spontaneous informal focus group discussions with topics introduced from the set of interview guides. Most of the information collected in this study is based on the subjective recall of the respondents; and since interviews could not be followed up with surveys in the villages, much of the data are left unconfirmed. Data on respondents' assets and productive resources are used as a general indication of relative wealth. Their recollection of livestock holdings, size of land cultivated and income earned has been assessed within this context.

PRODUCTION AND THE ENVIRONMENT

Respondents reportedly came from as far away as the northwest border with Chad, and from as near as the areas surrounding El Fasher town. In all of Northern Darfur, marginal subsistence production with household labour prevails as the main livelihood. Around El Fasher, rainfed cultivation of millet, with some animal husbandry, is the main form of rural production. Further north, there is greater investment in pastoralism and less in farming. Both forms are supplemented by the collection and consumption of wild foods.

Rainfall varies in intensity and occurrence all over Northern Darfur. The meteorological station at Kutum town recorded 212.0 mm of rainfall in 1987, a poor year, and 369.0 mm in 1988 (Agricultural Planning Unit, 1988). The average annual rainfall for El Fasher for the years 1917 to 1986 was 270.4 mm (ODA, 1987, Table 11.1), 239.1 mm of rainfall in 1987 and 243.2 mm in 1988 (Agricultural Planning Unit, 1988). This makes the cultivation of millet, which requires an average annual rainfall of 250 mm, a precarious source of livelihood.

Further contributing to the marginality of the physical environment, the predominantly sandy soil is low in fertility, has a low moisture holding capacity and has little protection from wind and water erosion (the most common vegetation being annual grasses, scattered trees and shrubs). Surface water catchments and hand-dug wells contain the main water supplies.
DIFFERENTIATION AMONG RESPONDENTS

Ninety-seven questionnaires and interviews were completed, and the respondent households were categorized by dividing them into three groups according to the year they reported having migrated to El Fasher in relation to the year(s) in which they perceived the famine to have been the most severe. Twenty-five households, identified as Group 1, reported that the most severe famine years had preceded their migration to El Fasher; thirty-seven households, identified as Group 2, reported that their most severe years had been at the time of their migration; and thirty-five households, identified as Group 3, reported that they had experienced the most severe famine years after they migrated to El Fasher. The three periods of migration suggest differences in individual household’s tolerance of deteriorating rural conditions and thereby raise questions concerning the vulnerability of households to famine.

All ninety-seven households migrated to El Fasher to reduce the impact of the famine but wealth differences do not appear to have been a significant factor influencing their ability to cope with deteriorating rural conditions. Table 1 shows the distribution of households across three wealth categories, based on possession of livestock, cash, grain or seeds, tools and carts either during the famine or upon arrival in El Fasher. The wealthiest households reportedly possessed a combination of valuable livestock (camels, cattle, or a substantial flock of sheep), a substantial amount of cash and any amount of grain or seeds; the middle economic level reportedly possessed a combination of less valuable livestock (goats and donkeys), a minimal amount of cash and some grain or seeds, tools or a cart; and the poorest households reportedly possessed either a minimal number of goats, or a minimal amount of cash, some grain or seeds, or nothing at all. Comparative data on household wealth ranking in selected villages in Northeastern Darfur, by size and composition of livestock herds, is available in ODA, 1987, p. 69. Broader figures on household livestock holdings in Northern Darfur are available in Buckley (1986, Table 9).

There are proportionately more ‘wealthy’ households in Group 3 than in Groups 1 and 2 combined — 43 per cent against 26 per cent. The significance of this is lessened by the fact that the longer households remained in their villages, the further their resources diminished. What is significant is that respondents in Group 3 decided to migrate before the years they recall as having been the most severe. This may have been because they were less resilient to the impact of worsening rural conditions. Weaker resilience among Group 3 might be the product of previous years of poor harvests during which they had survived on their savings, instead of developing more diverse coping strategies.

Table 2 supports the notion that households who migrated later, in relation to the year(s) they considered to have been the most severe, lost more of their assets before migration. This is further supported by the famine conditions reported by almost all the respondents: livestock death, diminished or

<table>
<thead>
<tr>
<th>Household groups according to migration period</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealthy</td>
<td>6</td>
<td>10</td>
<td>15</td>
<td>31</td>
</tr>
<tr>
<td>Middle-level</td>
<td>15</td>
<td>19</td>
<td>14</td>
<td>48</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>37</td>
<td>35</td>
<td>97</td>
</tr>
</tbody>
</table>

TABLE 1
Wealth of households during the famine and on arrival in El Fasher (number of households)
The respondents' reasons for migration reveal another relevant comparison: almost one quarter of the Group 3 households had specific income generating and trade opportunities which drew them to El Fasher; whereas most of the households in Group 1 reported that their decision to migrate for work was made only after having exhausted other strategies and in order to look for any type of employment. This suggests that, while Group 1 households used more diverse and numerous strategies for survival in their villages, Group 3 households migrated earlier partly because they were more familiar with opportunities in El Fasher.

This is supported by Table 4 which shows that Group 3 households included the highest percentage of those who reported that migration to El Fasher was their only strategy for survival during the drought. This compares with the higher percentages of Groups 1 and 2 households who reported using additional survival strategies before their migration to El

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TABLE 2
Percentage of wealthy and middle-level households in each group

<table>
<thead>
<tr>
<th>Group</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealthy</td>
<td>24</td>
<td>27</td>
<td>43</td>
<td>32</td>
</tr>
<tr>
<td>Middle-level</td>
<td>60</td>
<td>51</td>
<td>40</td>
<td>49</td>
</tr>
</tbody>
</table>

depleted grain stocks and increasing grain prices. Moving across Table 2 from Group 1 to Group 3, the percentage of 'wealthy' households increases, while the percentage of 'mid-level wealth' households decreases.

The data on respondents' reasons for migrating to El Fasher also indicate a higher percentage of Group 3 households who had less tolerance for the deteriorating conditions in their villages, in comparison with Group 1 households. Table 3 shows that proportionately more Group 3 households migrated to El Fasher in an effort either to escape the impact of drought or in search of food, water or services.

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TABLE 3
Reasons for migration to El Fasher (percentage of households in each group)

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any work and better income</td>
<td>96</td>
<td>78</td>
<td>77</td>
<td>84</td>
</tr>
<tr>
<td>Escape impact of drought; search for food, water, services</td>
<td>16</td>
<td>19</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>Work in IGA or livestock trade</td>
<td>14</td>
<td>23</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

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TABLE 4
Pre-migration survival strategies (percentage of households in each Group)

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct migration</td>
<td>28</td>
<td>30</td>
<td>49</td>
<td>36</td>
</tr>
<tr>
<td>Additional survival strategies</td>
<td>72</td>
<td>70</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>IGA; wage labour</td>
<td>56</td>
<td>65</td>
<td>46</td>
<td>56</td>
</tr>
<tr>
<td>Rural strategies</td>
<td>8</td>
<td>8</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>No use of IGA or wage labour</td>
<td>16</td>
<td>5</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
thus, the more numerous the strategies employed, the longer households were able to survive in their villages, while those who had better access to resources and opportunities in El Fasher did not need to resort to pre-migration survival strategies.

The most popular strategies reported were the use of alternative income generating activities (IGA), ranging from the collection and sale of wild foods to transport hire services, and wage labour. More than half the households reported having used one or both types of strategy before migrating to El Fasher.

Group 1 includes the highest percentage of respondents who reported relying on strategies other than IGA and wage labour. These included the ‘rural strategies’ of changing cropping patterns, cultivating larger areas, multiple cropping and the use of different pastures; and, to a greater degree, the use of alternative markets for buying and selling products and possessions. The greatest use of rural strategies was reported by Group 3 households, which suggests that they had migrated shortly after a period when such alternative strategies were still viable. Households in Group 1 and Group 2, on the other hand, may not have considered these practices as having been among their survival strategies because they had employed them before the year(s) which they considered the ‘famine years’.

**Households’ pre-migration income**

A comparison of responses from households across the three groups defined by their periods of migration indicates interesting differences about their main source of income before migration: Table 5 shows that households who reported migrating earlier are comparatively more evenly divided between those who reported pre-migration rural incomes and pre-migration access to urban income generating activities, than are either Group 1 or Group 2 households. This higher rate of access to urban economic activities during the famine may explain both why Group 3 households migrated earlier and why 49 per cent of them migrated directly to El Fasher without first pursuing other survival strategies (Table 4). It is also interesting to note that the percentages of households who reported pre-migration access to the urban economy (Table 5) match very closely the percentages of households who reported direct migration.

Table 6, however, suggests that in most cases across the whole sample, pre-migration access to the urban economy was not an influential factor in a household’s decision to migrate directly to El Fasher. It does not indicate what influence access to the urban economy had on the timing of household migration. It is still a reasonable assumption that those who migrated before the year(s) they consider to have been the most severe famine year(s), did so because they were either less tolerant of the deteriorating rural conditions or were familiar with the economic opportunities in El Fasher, or both.

Table 7 shows the distribution of households from each group who reported having

<table>
<thead>
<tr>
<th>TABLE 5</th>
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</thead>
<tbody>
<tr>
<td>Pre-migration income (percentage of households in each Group)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Rural production only</td>
</tr>
<tr>
<td>Rural production with access to urban economy</td>
</tr>
</tbody>
</table>
TABLE 6
Pre-migration income and choice of survival strategies

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Rural production only (63 households)</th>
<th>Rural production and urban economy (34 households)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migration only</td>
<td>35</td>
<td>38</td>
<td>36</td>
</tr>
<tr>
<td>IGA; wage labour</td>
<td>38</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Combination of other strategies</td>
<td>27</td>
<td>32</td>
<td>29</td>
</tr>
</tbody>
</table>

TABLE 7
Pre-migration income of households who migrated directly to El Fasher (number of households)

<table>
<thead>
<tr>
<th>Pre-migration income source</th>
<th>Rural production only</th>
<th>Rural production and urban economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Group 3</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

migrated directly to El Fasher. It suggests that access to the urban economy was a more influential factor in the decision to migrate directly, among households in Group 3. There is much less difference among the households who reported not having earned an income from urban economic activities or trade before migrating to El Fasher.

In order to understand household vulnerability to famine more fully, it is helpful to look at the practice of sharing resources in communities affected by severe and prolonged food shortages. This practice may disguise the impact of drought and market failure on poor and moderate-income households, while it depletes the store of assets among the more wealthy households. When resources in a community finally run out, the onset of a crisis appears to be sudden and devastating. Furthermore, the existence of intra-communal redistributive institutions blurs the differences between economic levels when shortages occur. In other words, control over household assets is jeopardized by the implicit obligation to share resources with less fortunate households at the same time as access to resources is enhanced by one’s right to claim assistance from the community.

The percentage of households in each group who reportedly used the inter-household labour-sharing institution nafir (workparty) indicates that it played a comparatively more significant role in production among households who stayed longer in their villages, and was possibly advantageous in helping those households to remain longer during the famine. Although nafir was reported not to have been used during the famine, in previous years it would have assisted households with limited labour supplies to weed a large enough cropping area to allow for larger harvests and greater stocks of grain. Participation in karama, the communal meal which celebrates rainfall with the hope of a good harvest, was greater in Group 2 and Group 3.

The custom of estisgha, the communal prayer for rain, appears to have been widely practiced in the respondents’ communities during the years before migration to El Fasher. These prayers have a dual role in
TABLE 8
Use of intra-communal sharing institutions (percentage of households in each Group)

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nafir</td>
<td>68</td>
<td>49</td>
<td>37</td>
<td>49</td>
</tr>
<tr>
<td>Karama</td>
<td>36</td>
<td>59</td>
<td>54</td>
<td>52</td>
</tr>
<tr>
<td>Estisgaha</td>
<td>76</td>
<td>68</td>
<td>86</td>
<td>76</td>
</tr>
<tr>
<td>Gave zakat</td>
<td>76</td>
<td>62</td>
<td>49</td>
<td>61</td>
</tr>
<tr>
<td>Received zakat</td>
<td>28</td>
<td>5</td>
<td>17</td>
<td>12</td>
</tr>
</tbody>
</table>

times of crisis: they not only enhance inter-household cohesion, but are also ritual performances which provide alms for the poor (dry food, a meal or cash). Although this practice appears to have been widespread in the respondents’ villages, it does not appear to have been instrumental in delaying emigration from the villages, since Group 3 households reported the highest rate of participation.

A large percentage of households also reported having participated in the transfer of zakat, an Islamic system of taxation. Four forms of zakat exist. They are paid once a year, by the relatively wealthy to the relatively poor, in the form of grain, livestock or cash. Respondents in Group 1 reported the greatest use of this institution, which might have been a factor enabling more of them to remain longer in their villages.

EXTERNAL SUPPORT

The data presented so far suggest that both economic diversification measures and intra-communal institutions of support contributed to the survival of households in the study during the 1984–86 famine. External aid was reportedly available to less than half of the respondent households.

Respondents report that famine conditions (shortages of good pasture and the consumption of food stores) were recognisable from as early as 1982. They had to rely on their families and local communities for support since they did not have a channel of communication with the government through which they could voice their claims for assistance. Before the 1984–86 famine, there was no system for monitoring the food security and health status of rural communities in Northern Darfur.

In early 1985, the Khartoum government formally recognized the existence of crisis conditions in Darfur and officially announced an emergency. The first shipment of Project West USAID sorghum finally arrived in the middle of May 1985, and 27,351 metric tonnes of grain were distributed (de Waal, 1987, p. 131). Table 9 shows that the highest percentage of households who reported having received external aid was in Group 1. This is possibly another reason for their apparently stronger resilience to the 1984–86 famine.

CONCLUSION

Household famine vulnerability is not characterised by impoverishment alone, but is contingent upon the strength of socio-economic and political factors influencing sources of support, both local and external. Production failure and the failure of the market can act as famine triggers for poor and moderately wealthy households and communities. A household is most vulnerable when it is faced with both destitution and the collapse of the intra-communal
TABLE 9
Percentage of households in each Group who reported receiving external aid during the famine

<table>
<thead>
<tr>
<th>Source of aid</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudanese government</td>
<td>52</td>
<td>41</td>
<td>29</td>
<td>39</td>
</tr>
<tr>
<td>Red Crescent</td>
<td>52</td>
<td>41</td>
<td>40</td>
<td>43</td>
</tr>
</tbody>
</table>

Institutions of assistance. Furthermore, what appears to develop suddenly may have been present for months or years, but masked by intra-communal sharing practices. It is difficult to tell, from this study, whether household participation in intra-communal support systems had a direct influence on the timing of household migration, but the data suggest that it might have enabled some households to endure the deteriorating rural conditions longer. Three additional observations are suggested.

(1) Asset wealth did not enhance the ability of households to resist the impact of famine. On the contrary, the migration group with the largest percentage of 'wealthy' households migrated earliest.

(2) Households who chose to migrate earlier appear to have been influenced by their prior familiarity with economic opportunities in the provincial capital, as well as an inability to endure deteriorating rural conditions.

(3) The data suggest that the more numerous the survival strategies practiced before migrating to El Fasher, the longer households were able to stay in their villages. This suggests that prior experience coping with drought enhanced households' abilities to resist the impact of deteriorating conditions in their villages.

Future drought insurance may be more reliant upon migration employment, as communities are further impoverished by each famine; none of the respondents stated that they would return to their villages on a permanent basis. Some, mainly from closer villages, have resumed agricultural production in their original communities during the wet season, but return to El Fasher in the dry season to work in the urban economy. In these cases, income earned in El Fasher was reported to be invested in rural production; when available, surplus grain is then brought to El Fasher to market, and the revenue is then invested in urban income generating activities.

Notes

This article is based on research carried out in partnership with the Economic and Social Research Council in Khartoum. A separate report, co-authored with Omar Abdel Gabbar, is available as a Working Paper at the Social Science Research Council in New York.

1. Households are defined as all the individuals living in one house and eating from one kitchen. The selection of households was random; each quarter listed was divided into four even sections and one section was randomly selected. Every second household was then interviewed; when it was found empty, the next available household was selected. Since every household interviewed was headed by a male, the perceptions and strategy choices of women in these households are unclear.

2. The Sudanese Red Crescent, a local NGO established itself in Northern Darfur in 1985 and a second monitoring source, the Agricultural Planning Unit of the Department of Agriculture and Animal Resources, set up its office in El Fasher in 1987. The Drought Monitoring Programme, which was set up by the Sudanese Red Crescent and USAID in...
Northern Darfur in 1988, was discontinued in 1990 (personal communication from Richard Margoluis, 1990).

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Alison S. Pyle
91, Whidborne Building
Tonbridge Street
London, WC1H 8HE
UK
Mortality and Morbidity in Refugee Camps in Eastern Sudan: 1985–90

ALEX MERCER

Civil war has disrupted life in Ethiopia since the 1960s and many people have sought refuge in Eastern Sudan, particularly during the famine emergency of 1984–85. UNHCR has provided the main financial support for the refugee programme, but began scaling down operations in 1990. Nearly 300,000 refugees still live in camps and benefit from food and health programmes. Health services are co-ordinated by the Sudanese Refugee Health Unit which operates a centralised health and nutrition surveillance system with the co-operation of the NGOs responsible for health care in the camps. A revision of the monthly reporting system and the establishment of a computer database in 1990 provided an opportunity to review the situation in the camps over the five years since the emergency. Child death rates for example, appear to have been reduced to levels below those expected in rural Africa. Patterns of mortality, morbidity, and nutritional status are outlined here and point to the general effectiveness of the health care programme. The surveillance system can, however, be used to identify those camps which have persistent problems, while monthly comparisons with the situation in previous years can provide early warning of deteriorating conditions.

The large influx of refugees from Ethiopia into Eastern Sudan began over twenty years ago and, in early 1984, about 130,000 were living in 24 settlements, some of which dated back to 1967. In the emergency of 1984–85, thousands of refugees made the journey from Eritrea and Tigray so that, by April 1985, an additional 334,000 new arrivals were being assisted. In 1990 there were approximately 900,000 refugees from Ethiopia living in the Eastern Region of the Sudan and about 300,000 were still living in settlements and large reception camps where there is provision for basic needs, including food, water, shelter and health care. Responsibility for these camps lies with the host government through the Commissioner of Refugees (COR) and the Sudanese Refugee Settlement Administration based in Showak. The programme is financed and monitored by the United Nations High Commissioner for Refugees (UNHCR), which also co-ordinates international support and the work of the non-governmental organisations (NGOs) who provide preventive and curative health care in most of the camps.

During the emergency in the early part of 1985, the need for co-ordination and standardisation of health services became more pronounced and the COR Refugee Health Unit (RHU) was formed (Commissioner of Refugees, 1986). Health and nutrition surveillance systems were estab-
lished allowing monthly monitoring of the situation in all camps. An Extended Programme of Immunisation (EPI) was introduced and screening of new arrivals was standardised. Guidelines were produced for these programmes and training developed for health visitors and those carrying out nutrition surveys. At the time of the emergency, death rates in the refugee camps in Eastern Sudan were among the highest reported in any of the twelve large-scale movements of refugees across international borders since 1971. The death rate reached 14 per 10,000 per day in one of the reception camps, which would produce an annual crude death rate of over 500 per 1000. The expected level for rural areas of the developing world under peaceful conditions is 0.5 per 10,000 per day; 2.0 per 10,000 per day is the level at which an emergency is considered to be out of control. A recent comparative study found that death rates in camps for Tigrayans in the Eastern Region of Sudan fell more slowly than among Kampuchean refugees in Thailand in 1979–80. It was one year before rates in some reception camps were down to the estimated national level (Toole and Waldman, 1986). Here, I consider trends in mortality and morbidity in the five year period 1986–90 following the emergency, based on data from the health and disease surveillance system.

METHODS

The Health Unit of the Refugee Settlement Administration in Showak operates a health surveillance system with co-operation from the voluntary organisations providing health care in the camps. Each month, a comprehensive report is submitted for each camp with information on causes of deaths occurring, episodes of sickness presenting at outpatient clinics, use made of mother and child health (MCH), ante-natal, and post-natal clinics, and use of TB facilities, ORT, and laboratory testing. Weight-for-height monitoring and immunisations are also reported from MCH clinics, while additional data are available from regular random sample surveys conducted in the camps. During the course of 1990 a review and revision of the health surveillance reporting system took place, to implement standardisation more rigorously, improve the quality of the data collected, and set up a database on microcomputer. Despite previous deficiencies in the reporting of some of the data, the death rates and morbidity rates provide a reasonable picture of variation between camps. An important aspect of the database that has been developed is that it can also be used to compare rates in the current month with those in the same month in at least two previous years. Many settlements have fairly stable populations so that incidence, mortality and case-fatality rates do indicate changes in health status or in the effectiveness of health services and can be compared with rates elsewhere. The settlements have existed for many years and look very much like Sudanese villages, having traditional round houses made of local materials with thatched roofs. Reception camps have large areas with similar houses, but also contain new arrivals often with little or no shelter. Refugees either make a home in more established areas of the camp or transfer to settlements. The largest reception camp is Wad Sherefe with perhaps 60,000 refugees in mid 1990. Movement in and out to the nearby regional capital of Kassala contributes to the unreliability of the population estimate.

Death rates are expressed as deaths per 1000 population per year to enable comparisons with rates for other populations such as those reported in UN and WHO publications. Rates for each month are expressed as deaths per 10,000 per day, which is appropriate for monitoring relief situations since the indicator needs to be more sensitive to short-term changes. The denominator used for child death rates is
derived from estimates of the number of children aged 0–11 months and 1–4 years. These are provided each month by health visitors who are assigned a particular zone of a camp and are responsible for following up every new child and ensuring that mothers with children under 5 years attend the clinic. In calculating infant mortality rates per 1000, an average of the twelve monthly estimates of numbers of children aged 0–11 months was taken as the denominator, in preference to the number of live births reported, because many mothers move to stay with relatives when in labour and because many infants in reception camps would also have been born elsewhere. Morbidity rates are expressed as episodes of sickness per 1000 population in each month, based on records of new cases for that month. Case fatality is assessed by considering the ratio of deaths to episodes of sickness recorded each month, expressed as a rate per 1000. The condition diagnosed as the main cause of sickness by examiners in outpatient clinics is used for classification, although it should be noted that clear guidelines concerning definitions had not been issued. Cause of death is that assigned by health workers who may have seen the person as a patient, or by home visitors who had consulted relatives.

RESULTS

At the height of the emergency in January 1985, the death rate in one of the reception camps, Wad Kowli, was about 10 per 10,000 per day, and in June 1985 in Shagarab II it was over 14 per 10,000 per day. The equivalent annual death rates of 365 and 511 per 1000 occurred at a time when the death rate for non-refugees in the area was about 17 per 1000. While the death rate in Shagarab fell very quickly to 0.5 per 10,000 per day by November, which is about normal for rural Africa in peacetime, that for Wad Kowli took longer to fall, as shown in Fig. 1(a). However, for reception camps as a whole the death rate fell to 0.5 per 10,000 per day by the end of 1985 and remained around this level in 1986. For several camps, the child death rate at ages 0–4 years had been in the range 22.2 to 32.6 per 10,000 per day in March 1985, and at these rates all the children could have died within a year. The first month for which a child death rate is available for all reception camps is August 1985, when it was 3.2 per 10,000 per day. Again by the end of the year it had dropped below 1 per 10,000 per day, with an annual equivalent ranging between 20 and 60 per 1000 during 1986. The apparent resurgence of the child death rate in mid 1986, shown in Fig. 1(b), will be seen later as fairly typical of the seasonal pattern found in subsequent years.

The child death rate for 1986 was in fact 34 per 1000 in reception camps and 30 per 1000 in settlements, compared with equivalent annual rates of 83 per 1000 and 36 per 1000 in the period August–December 1985. The rates fell even further in 1987, to 29 per 1000 in the reception camps and 22 per 1000 in the settlements, but rose again in 1988 to 40 per 1000 and 49 per 1000 respectively. The data in Table 1 show that these rates were above the average for the whole period 1986–89, but in 1989 and in January–September 1990 the child death rate was down to below 25 per 1000 in both reception camps and settlements. There was considerable variation, however, in death rates in the settlements. The higher child death rates of over 40 per 1000 per annum and crude death rates over 10 per 1000 per annum for the period 1986–89 as a whole mainly occurred in the large settlements, with the exception of Abuda. This is reflected in the coefficient of correlation between the population aged 0–4 and the death rate at these ages in the settlements which was +0.76 in 1989.

Some of the highest rates of malnutrition at ages 0–4 were also found in the larger camps. The proportions of children less than 80 per cent of the WHO standard
weight-for-height, found in cluster sample surveys in 1989, are shown in Table 1. The coefficient of correlation between the malnutrition rate and the child death rate was +0.60 in 1989, but in 1986 it was only +0.18, and in 1987 it was −0.18. In fact the correlation coefficients in Table 2 show that there was no consistent association between


<table>
<thead>
<tr>
<th>Reception Camps</th>
<th>Population aged 0–4</th>
<th>% of children malnourished</th>
<th>Death rate per 1000 aged 0–4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wad Sherefe</td>
<td>5,651</td>
<td>8.0%</td>
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</tr>
<tr>
<td>Shagarab I</td>
<td>2,496</td>
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<td></td>
</tr>
<tr>
<td>Shagarab II</td>
<td>1,570</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Shagarab III</td>
<td>1,438</td>
<td>13</td>
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<tr>
<td>Sefawa</td>
<td>2,205</td>
<td>34</td>
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<tr>
<td>Settlements</td>
<td>19,450</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td>Fau 5</td>
<td>463</td>
<td>11.4%</td>
<td></td>
</tr>
<tr>
<td>Kilo 5</td>
<td>262</td>
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<tr>
<td>Awad Es Sid</td>
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<td>6</td>
<td></td>
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<tr>
<td>Kilo 7</td>
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<td>7</td>
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</tr>
<tr>
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<td>—</td>
<td></td>
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<tr>
<td>Umakiba</td>
<td>1,906</td>
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<td></td>
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<tr>
<td>Kashm El Girba</td>
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<td>Karkora</td>
<td>1,786</td>
<td>11.6%</td>
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</tr>
<tr>
<td>Kilo 26</td>
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</tr>
<tr>
<td>Tawawa</td>
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<td>Abu Rakham</td>
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<td>3.0%</td>
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<td>Tenedba</td>
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<td>Adingrar</td>
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<tr>
<td>Umbrush</td>
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<tr>
<td>Umsagata</td>
<td>1,080</td>
<td>3.9%</td>
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</tr>
</tbody>
</table>

Note: 'Malnourished' is defined as less than 80 per cent of the WHO standard weight-for-height. 'CI' = 95 per cent confidence intervals.
the malnutrition rates and child death rates in the same year or subsequent years, over the period 1986–89. The surveys in 1985 had revealed much higher proportions of children less than 80 per cent of the WHO standard weight-for-height. In Wad Sherefe reception camp, for example, 35 per cent of children were malnourished on this definition. In 1986 all camps had less than 12 per cent of children malnourished and the lower levels were maintained after this, except in 1988, when they reached 15–20 per cent in four camps. By 1989 only four settlements had a child malnutrition rate over 10 per cent. Two of these, Kashm el Girba and Karkora, did have the highest child death rates in 1989 and infant mortality rates of 91 and 106 per 1000, which were high compared with other camps. The infant mortality rate for all camps in 1989 was only 48 per 1000.

The maternal death rate for all camps was also low for Africa at 389 per 100,000 infants in the first half of 1989. Out of a total of 15 maternal deaths in this period, 7 in fact occurred in one camp, and the death rate in this large reception camp, Wad Sherefe, was 1429 per 100,000. Karkora, also had a higher maternal death rate of 1681 per 100,000 infants, although this was based on only 3 deaths in the period.

Most pregnant mothers probably received tetanus toxoid vaccination to protect their infants, but data on coverage are not reliable. The number of vaccinations given in 1989 was about the same as the number of recorded births. As well as an under-recording of births, however, there was an over-recording of vaccinations in some camps because many Sudanese women from surrounding villages were also given vaccinations which were not recorded separately before the review of the information system in 1990. For other types of vaccination, more reliable estimates of coverage among the residents of the refugee camps are available from information collected in surveys which are conducted each year in most camps. Coverage rates for DPT (3 Doses), polio (3 Doses), BCG and measles were in the range 60–100 per cent in 1989, with most camps achieving 80–90 per cent coverage.

Measles had probably caused about half the child deaths in some camps at the height of the emergency, but incidence was down to 2 episodes per 1000 of the total population in 1986 and there were very few cases in 1990. Similarly, meningitis was under control in 1990 following strict surveillance and immunisation under the threat of epidemics in previous years. Tuberculosis

TABLE 2
Coefficient of correlation between the malnutrition rate* and death rate for children aged 0–4 in 22 settlements in Eastern Region, Sudan 1986–89

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1986</td>
<td>+0.18</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1987</td>
<td>—0.17</td>
<td>—0.18</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1988</td>
<td>+0.28</td>
<td>—0.07</td>
<td>+0.50</td>
<td>—</td>
</tr>
<tr>
<td>1989</td>
<td>+0.28</td>
<td>—0.15</td>
<td>+0.35</td>
<td>+0.60</td>
</tr>
</tbody>
</table>

*Percentage under 80 percent of the WHO standard weight-for-height
had been a major problem in the emergency period, but the incidence of new cases fell by half from 15.1 per 1000 in 1986 to 7.9 in 1987, 6.3 in 1988, and 6.8 per 1000 in 1989. In two camps, Kashm el Girba and Tawawa, however, incidence rates were still 17.2 and 15.8 per 1000 in 1989. Overall monthly incidence rates for the first half of 1990 were again lower than in 1989, with the estimated annual incidence of new cases being only 4.5 per 1000. Among the communicable diseases not controlled by immunisation in the camps, hepatitis threatened to make a resurgence in 1989 when environmental conditions may have deteriorated in particular camps. The overall incidence rate for the camps was, however, still fairly low at 4.1 per 1000, compared with 2.1, 3.7, and 2.1 per 1000 in the years 1986, 1987, and 1988. Only a few camps had significant incidence of the disease in the first half of 1990 and, in the months after February, the overall episode rate was lower than in the previous year.

By far the most significant of the specific communicable diseases was malaria which is endemic, and the disease caused a marked resurgence of death rates in 1988. Rates per 1000 population of new episodes of malaria occurring in each month were about three times as high in 1988 as in other years, reaching 179 per 1000 at the height of the epidemic in October. The incidence rate for diarrhoeal disease was generally much lower than that for malaria, even at the mid-year peak when it was about 33 per 1000 per month in June and July of 1989. Incidence rates for respiratory infection requiring the use of antibiotics were slightly higher than for diarrhoeal disease, with the highest monthly rate being 43 per 1000 in April 1989. The annual incidence rate for malaria was also by far the highest of any disease, at over 600 episodes per 1000 per year. The rates for the four years 1986–89 were 604, 619, 687, and 611 per 1000. The incidence rates for diarrhoeal disease and respiratory infection requiring antibiotics, were also high at between 250–400 episodes per 1000 population.

Overall, camp residents as a whole had an average of 2–3 episodes of sickness for which treatment was sought at a clinic in 1989. Children under 5 had on average more than one episode per year of each of the main diseases, malaria, diarrhoeal disease and respiratory disease. In many camps, an average of 3 or 4 new episodes of these diseases per child was recorded, although in some camps the average was less than one per year. In the first six months of 1990, a period not affected by any particular epidemics, there was a consistency in the level of recording of new episodes of sickness in each month. Most episodes of sickness were attributed to malaria (17.3 per cent), respiratory infections for which antibiotics were required (15.0 per cent), other respiratory infections (12.8 per cent), diarrhoeal disease (11.3 per cent), accidents (7.1 per cent) and eye complaints (6.2 per cent). Skin complaints, worms, anaemia and problems with the urinary tract each accounted for 2–3 per cent of the episodes of sickness, while vitamin A deficiency, sexually transmitted diseases and obstetric or gynaecological problems accounted for about 1 per cent each.

Although no cause of death was given in a large proportion of cases, the proportional mortality rate for the main diseases usually reflected the pattern of morbidity outlined above. In the period August–December 1985, however, for which death rates by cause are first available for all reception camps, 67.0 per cent of deaths were attributed to the three main causes; 17.0 per cent to malaria, 27.3 per cent to diarrhoeal disease, and 22.7 per cent to respiratory disease. The death rate from malaria was in fact higher than in 1988, when it caused the resurgence of the overall death rate and accounted for 31.6 per cent of deaths. In 1989, the disease accounted for 19.4 per cent of deaths, and 13.9 per cent.
in 1990 (based on January—September). The proportion of deaths attributed to respiratory disease was much lower than in 1985, being 9.1 per cent in 1988, 9.5 per cent in 1989, and 10.5 per cent in 1990. Similarly, diarrhoeal disease accounted for a lower proportion of deaths than in 1985; 14.5 per cent in 1988, 10.4 per cent in 1989, and 13.6 per cent of deaths in 1990. The proportion of child deaths attributed to the main diseases was much the same as that for all ages, with malaria accounting for 31.4 per cent in 1988 and 19.9 per cent in 1989. Diarrhoeal disease accounted for 17.5 per cent of deaths at ages 0–4 years in 1988, and respiratory disease accounted for 9.2 per cent of child deaths, and similar proportions were recorded in 1989.

The seasonal pattern of mortality for the main causes is illustrated in Figs. 2, 3 and 4, which show monthly incidence, case fatality, and death rates for children aged 0–4 in the years 1988, 1989, and 1990. Normally there is an increase in diarrhoeal disease mortality in the rains between June and September, and in 1988 this peak was even more pronounced during the heavier and prolonged rains of that year, as shown in Fig. 2(c). There is also a peak earlier in the year which coincides with the beginning of the hot season in March—April. Malaria and respiratory disease death rates do not usually display such a distinct seasonal pattern. However, the severity of the malaria epidemic in 1988 is reflected in the death rate for October which was about ten times higher than in 1989, as shown in Fig. 3(c). The climatic conditions at that time which underly this high death rate probably also contributed to the high death rate from respiratory disease in that month shown in Fig. 4(c).

Figs. 2(a) and 2(b) show that, for diarrhoeal disease, there was much the same pattern and level of incidence in each of the years 1988, 1989 and 1990, but case fatality was much higher from May–November in 1988. When the seasonal peak in incidence occurred, this produced the much higher child death rate from May–September shown in Fig. 2(c). For malaria, monthly incidence rates were also much the same in the three years except for the epidemic from September–November 1988 shown in Fig. 3(a). It can be seen from Fig. 3(b) that, again, higher case fatality, as well as a higher incidence of the disease, contributed to the dramatic peak in the child death rate from malaria in October 1988. For respiratory disease there was a similar pattern of incidence in each of the three years, as shown in Fig. 4(a). Case fatality was again much higher, however, in October 1988, as shown in Fig. 4(b), and this accounted for the high child death rate from the disease at that time.

The importance of monitoring case fatality ratios, as well as the more usual indicators of incidence and death rates, is illustrated by these three Figures. For each disease case fatality rose in May 1988 to an early peak in June. It then declined for a few months, but rose again to a second peak in October or November of that year. In the case of diarrhoeal disease, the exceptional circumstances of that year were already apparent because the death rate rose abnormally in May and June although incidence did not. On the other hand, with regard to malaria and respiratory disease, there was nothing particularly exceptional in the incidence rate or the death rate in May and June. Among the slightly lower number of cases recorded, however, there was a higher proportion of deaths from both diseases. It might be that fewer cases presented at outpatient clinics because of the disruption in the camps caused by the rains. This could have exaggerated the case fatality ratio somewhat, but it may not account for all the increase. To the extent that changes in case fatality rates are genuine, they might serve as early warning that more severe forms of infection are occurring. High case fatality would predictably lead to high death rates when expected seasonal increases in
FIGURE 2(a)  Diarrhoea episode rate per 1000, age 0–4 all camps

FIGURE 2(b)  Diarrhoea deaths per 1000 episodes, age 0–4 all camps

FIGURE 2(c)  Diarrhoea death rate per 10,000 per day, age 0–4 all camps
FIGURE 3(a) Malaria incidence rate per 1000, age 0—4 all camps

FIGURE 3(b) Malaria deaths per 1000 episodes, age 0—4 all camps

FIGURE 3(c) Malaria death rate per 10,000 per day, age 0—4 all camps
FIGURE 4(a) Respiratory infection episodes per 1000, age 0–4 all camps

FIGURE 4(b) Respiratory deaths per 1000 episodes, age 0–4 all camps

FIGURE 4(c) Respiratory death rate per 10,000 per day, age 0–4 all camps
incidence occurred. In the light of such information from a surveillance system it may be possible to take preventive action or organise the necessary medical supplies to provide adequate treatment.

DISCUSSION

At the height of the emergency in March 1985, several refugee camps in Eastern Sudan experienced death rates in the range 8–15 per 10,000 per day — with annual equivalent death rates of 290–540 per 1000. The daily average for camps remained over 1.0 per 10,000 in each month until October of that year. By the end of 1985, however, the health status of refugees had improved markedly and death rates among new arrivals had decreased to a daily average of 0.8 per 10,000 population. Nutritional status had improved, with the proportion of malnourished falling from 40 per cent of all children under 5 years old in reception camps in early 1985, to generally less than 10 per cent. The study of the camps for Tigrayan refugees in Eastern Sudan reported high rates of undernutrition in the period December 1984 to April 1985, with between 13.8 per cent and 50.0 per cent of children less than 80 per cent standard weight-for-height. Child death rates for one of the reception camps, Wad Kowli, actually appeared to deteriorate in this period, and Fig. 1(a) shows how the child death rate remained higher than in other reception camps. It was suggested that children who were not severely malnourished when they arrived may have lost weight on the food rations they received, but severe forms of infectious disease could also have had this effect.

A study of famine mortality in Western Sudan in 1984–85 (De Waal, 1989) suggested that excess deaths in such crisis situations were due primarily to the changed disease environment. Normal patterns of production and consumption breakdown and people migrate, and eventually crowd together in large numbers in a refugee camp. In such circumstances children are particularly prone to airborne infectious diseases such as measles, while at all ages diseases associated with insanitary and crowded conditions, which are transmitted by the faecal-oral route, become a major problem. In the study in Western Sudan it was found that malnutrition classified as 'moderate' did not itself contribute significantly to higher mortality while severe malnutrition, which might have done so, was in fact rare. The data on child mortality for refugee camps in Eastern Sudan in the post crisis period 1986–88 also reveal little correlation with the proportion of children who were moderately malnourished. Again, severe malnutrition, defined as less than 70 per cent standard weight-for-height, did not vary enough between camps, and was too rare because of the monitoring and feeding programmes in operation, to have been the cause of quite large differences in death rates between camps. Factors affecting the transmission of infectious disease may have continued to be significant in relation to differences in child mortality between refugee camps in the period 1985–90. Although the occurrence of higher child mortality in the large camps could be due to many aspects of the environment or way of life there, it might in part be the result of more rapid transmission of infectious diseases. Large households, crowded living conditions and large numbers of children are conducive to rapid transmission, which probably leads to more severe forms of infection and hence higher mortality rates (Aaby et al., 1986).

In addition to malnutrition and low resistance among refugees, such factors as crowding and poor sanitation contributed to epidemics of cholera, hepatitis, encephalitis, meningitis and pertussis in the crisis period 1984–85. During 1986 there were no major outbreaks of these diseases. Good coverage rates were achieved in the immunisation programme for polio, DPT and also measles, and these were subsequently
maintained. Measles had been a significant factor contributing to the high child death rates in late 1984 and early 1985, when severe crowding probably increased rates of transmission with infection occurring at younger ages when children are more vulnerable and more likely to die from the disease (Reeves, 1985). Incidence fell progressively, however, during 1986, as a result of immunisation and, as mentioned, the maintenance of high coverage rates led to the virtual elimination of the disease by 1990.

With the control in 1986 of many of the epidemic diseases which caused acute infection, through immunisation and measures to prevent transmission from infected cases, it was malaria and tuberculosis that were the major communicable diseases in the camps. A TB programme, however, became fully operational in that year and mantoux surveys were conducted in reception camps to determine prevalence. At ages 5–14 years, 10.4 per cent of Tigrayans and 5.5 per cent of Eritreans were infected. The RHU provided guidelines for TB control based on the Sudanese protocols, with identification of sputum positive cases, and treatment to render them non-infective. High vaccination rates with BCG were also achieved and have been maintained since then, contributing to the relatively low incidence rate for new cases of 4.5 per 1000 population in 1990. In response to endemic malaria, good coverage with chloroquine chemoprophylaxis, spraying, and testing for mosquito sensitivity to the insecticides were implemented, although these measures were not effectively used to prevent a major epidemic and high mortality in 1988.

All the measures outlined here probably contributed to the general improvement in health status in the refugee camps after the crisis of 1984–85. This meant that, from 1986, NGOs were able to concentrate more on developing health promotion activities. Mother and child health programmes were extended with regular monitoring of weight and height, and supplementary feeding services, as well as immunisation. Training programmes for health visitors and traditional birth attendants were designed to ensure that effective outreach could be achieved. A control of diarrhoeal disease (CDD) programme was introduced in the second half of 1988. The monthly health surveillance system enables the possible effects of the programme to be monitored and certainly the child death rate from diarrhoeal disease was lower in 1990 than in previous years. Case fatality ratios were also lower compared with 1988, even in the first four months of the year not affected by the rains.

There is now more co-ordination of refugee health care with MOH programmes. Both the CDD and the EPI programme were introduced in accordance with protocols specified by the MOH and this provides a basis for the integration of other services. Even so, a relatively sophisticated health care and health surveillance system for those in refugee settlements still contrasts with virtually non-existent health services for most people in surrounding rural areas of Eastern Sudan. Health Areas with Management Teams were established by the MOH in 1988, to develop and supervise health centres, dispensaries, dressing stations and primary health care units from bases in rural hospitals in the Sudan. Major objectives were the encouragement of community participation at the village level and the improvement of the capacity of training institutes in the country (Commissioner of Refugees, 1989). A major objective of the refugee programme supported by UNHCR is the standardisation of the health care systems for settled refugees and those for Sudanese and others in refugee affected areas. The aim has been integration of health services and a redirection of resources to promote long-term financially sustainable health care for both popula-
Generally though, the organisational arrangements for health and other forms of refugee assistance have reflected structures established in the 1984–85 emergency, and programmes still depend on outside support which is now being considerably reduced.

Infant mortality and child mortality rates for refugees in the camps in the Eastern Region were under 50 per 1000 in 1989–90, which was possibly half the rate for the surrounding area of Kassala Province, or for rural Sudan as a whole. There is little evidence that the child and maternal mortality rates in rural Sudan are very much lower than the United Nations estimates for the period 1980–85 (United Nations, 1988). Child death rates in Kassala Province were probably still about the same as the national average (World Health Organisation, 1981). Maternal mortality from hospital statistics and surveys in the Sudan ranged from 541–2270 per 100,000 live births, with a national average of 655 in the early 1980s. The maternal death rate for refugee camps in 1989 was below 400, which compares favourably with that for the province with the lowest death rate, Khartoum. The crude death rate in the refugee camps was about 5 per 1000 in 1990, while the rate for Sudan has probably fallen little since the UN estimate of 19 per 1000 in the mid 1980s. The crude birth rate was about 22 per 1000 and, even allowing for under-reporting of births of possibly 25 per cent, this is still nearly half the rate of 50 per 1000 for Sudan as a whole, despite the lack of any well organised family planning programme in the camps. These crude rates do not allow for any difference in the age structure of the refugee population, on which there is not adequate data. They do suggest, however, that the natural growth rate of the population in refugee camps in the Eastern Region is about 1.5 per cent per annum which, again, is about half that for Sudan as a whole (Sudan Census Office, 1987).

There has been little suggestion of gross under-reporting of deaths in the refugee camps of Eastern Sudan in the more stable period of 1986–90. The lower child and maternal death rates, compared with rural Sudan and Africa generally, are probably a good indication of what can be achieved with preventive health measures, accessible primary health care, and supplementary feeding. The main source of external technical assistance and funding for the refugee programme in Eastern Sudan has, however, been UNHCR, which has a policy of scaling down operations some time after a situation has stabilised. The area did not require emergency aid in the period 1986–89 after the stabilisation of health conditions at the end of 1985. Considerable cuts in the refugee programme were made in 1990 and there are now increasing demands on the limited resources available to UNHCR from other parts of the world which further threaten the commitment to the programme in the Sudan. In 1990–91, political circumstances led to increasing difficulties for relief agencies trying to operate even in the north and east of the country where there has been no fighting. The civil war continues and the Gulf War further disrupted the refugee programme and other relief efforts to deal with major food shortages in many parts of the country. The full impact of this combination of circumstances on the population of the refugee camps and on the rest of the Sudan has yet to be assessed.

References


Alex Mercer
Medical Demography Unit
London School of Hygiene and Tropical Medicine
99 Gower Street
London, WC1
UK
A Comparison of Health Provision and Status in Ban Napho Refugee Camp and Nakhon Phanom Province, Northeastern Thailand

SUSANNA MAYBIN

Health care provision and health status in Ban Napho Refugee Camp is compared with that of the surrounding Nakhon Phanom Province for the year 1988. Records for the period 1984–88 were also examined to compare trends in health status. Personal experience of health services in the Camp and visits made to local schools and health facilities were also used in the comparison. Although direct comparison was difficult (because of the mobile nature of the camp population and problems to do with the interpretation of statistics), it was found that health care for refugees was more comprehensive, at a primary level, than for the Thai population of the surrounding Province. Access to primary health care facilities in the Camp was, moreover, easier and free of charge. This may explain the higher use of health facilities in the Camp but, despite this, health and nutritional status appeared to be worse in the Camp than in the Province. Possible reasons for the difference in reported health status and the use of facilities are discussed.

The presence of a refugee population may have a negative effect on host nationals, their health and health related services (Dick, 1985). In addition, friction may occur between refugees and communities living nearby because it is perceived by the host community that the provision of services to refugees far exceeds that which the government can provide for its own people (Nelson, 1981).

In 1975, when the Pathet Lao took power in Laos, Laotian refugees began to flee to Thailand (Waters, 1990). Ban Napho Camp was opened in 1977 in order to accommodate 500 Laotian refugees. In 1981, following a decision of the Royal Thai Government to bring together Indochinese refugees in four main camps, the capacity of Ban Napho was expanded, with support from the United Nations High Commissioner for Refugees (UNHCR), to 15,000. With the closure of Ubon and Nong Khai camps in 1982, the population reached a peak of 45,000 in 1985. Since then, as a result of official and unofficial movements, the population has declined. In June 1989 it stood at 13,942. Save the Children Fund (SCF) UK has been the leading agency in the provision of health care in the Camp since 1983 and is responsible for this to the Thai Ministry of Public Health (MoPH).

The majority of refugees in the Camp
are from Lowland Laos and have a similar ethnic background to the people of Nakhon Phanom Province, in which the Camp is situated. In the past, before relations between the two countries deteriorated, there was much movement across the border, with many families having relatives on both sides. By June 1989, many had been refugees for a number of years and some had spent several years in other camps, where medical services were also operating, before being transferred to Ban Napho.

In view of the similarity of ethnic background, the length of time the Camp had been operating, the period of time over which the refugees had been exposed to camp medical services and the consistency of those services, I decided to compare the health provision and status of the camp population in the year 1988 with that of Nakhon Phanom Province. The aim was to see whether, in this case, there was any foundation to criticisms that the standard of health care provision to refugees is often higher than that of the host country. I also decided to examine trends over the four years leading up to 1988.

Information was collected from:

- SCF (UK) records for the Camp covering the years 1985–89;
- records from the Provincial Department of the MoPH for the years 1985–88;
- visits to three health stations and two community hospitals outside the Camp; and
- primary schools outside the Camp which were visited as part of SCF (UK) work.

BACKGROUND

Nakhon Phanom Province is in northeastern Thailand, on the border with Laos, which is formed here by the Mekong River. It covers an area of about 5500 km² and has a population of just over 535,000 (MoPH figures). Over 94 per cent of the population is rural and most are engaged in agriculture, the main crops being rice, tobacco and maize. Population density in the rural areas is around 100 per km².

Ban Napho Camp is 23 km from Nakhon Phanom town and covers an area of 3.48 km². Shelter consists primarily of long houses, each divided by bamboo partitions into 20 or 30 living units, each accommodating up to 10 persons. Between 1983 and 1985, bamboo and thatch house extensions were built by refugees to accommodate the increased population. During this time the population rose to 42,000 with a density of 12,000 per km². By June 1988 it had fallen to 16,675 and in June 1989 it stood at 13,942. In 1986 a fire destroyed 44 longhouses, leaving 6000 refugees homeless. Further fires occurred in January and November 1988.

Rows of water flush latrines are located in buildings near the housing units. Water is supplied from 7 deep wells in the Camp and pumped into elevated storage units. Stand pipes are located at water distribution areas throughout the Camp. Surface water is controlled by a series of ponds, channels and pumps and runs off into a natural drainage channel at the rear of the Camp. Despite the existence of a water supply in the Camp, in 1988 refugees often used water from outside it. UNHCR provides food rations and shelter freely to all refugees.

Initially, many of the refugees arriving at the camp had come from professional backgrounds, having worked as teachers, doctors, nurses and government officials in the previous regime in Laos. As the years passed, however, many of these people were accepted by third countries and left the Camp, leaving behind a fairly static population of refugees from a poorer socio-economic background. Employment is provided by the agencies working in the Camp and by the Thai Ministry of the Interior. Less than 1000 refugees were employed in 1988 and for their work at that time they received a bimonthly payment in
kind amounting to 100 baht (£2.50). In 1988 there was a small amount of private enterprise in the camp. Several families had set up cafes and stalls, and weaving and basket work was also carried out.

In 1988, the two populations differed mainly in density, structure and mobility. Even by 1988, when the camp population density had dropped dramatically, it was much greater than in the provincial population. The camp population was heavily biased towards young male adults whereas that of the Province followed a more symmetrical pyramidal pattern. In the Camp, 15.6 per cent of the population were under 5 years as compared to 9.5 per cent of the Province population.

The literacy rate in the Camp was difficult to estimate. According to SCF (UK) figures, 60 per cent of children age 6—14 attended school either part or full time. More than 10 per cent of the adult population was estimated to be illiterate in Ecoles Sans Frontiers figures. According to MoPH figures, the literacy rate in the Province was 100 per cent but it is not known by what standards ‘literacy’ was measured.

The provision of water and sanitation in the Camp was as good as, if not better than, in the Province and although living conditions were basic, shelter was available to all refugees along with food rations, the quality and quantity of which had been laid down in UNHCR guidelines. Theoretically, therefore, the refugees should not have had to experience the seasonal food shortages suffered by the provincial population.

HEALTH PROVISION

Nakhon Phanom Province

In 1988 the Province was served by one general hospital (in Nakhon Phanom town) with 270 beds, one community hospital with 60 beds, two community hospitals with 30 beds each, six community hospitals with 10 beds each and 119 health stations. There were also private clinics in Nakhon Phanom town, run by doctors from the hospital. Health personnel included 49 doctors (one for every 12,000 of the population), 146 professional nurses (one for every 4000 of the population) and 227 midwives (one for every 2,600 of the population). There were also 8088 health volunteers (one for every 66 of the population).

As a result of the National Health Development Policy and Plan (1972—81 and 1982—6) a provincial health care system was developed to deal with a large rural population by a network of provincial and district health offices, provincial hospitals, district hospitals, community health centres, mobile teams and medical care services through radio communication units (Boonyoen, n.d.). 7500 health stations were also established.

Experience gained from pilot projects in primary health care delivery systems led to the development of a nationwide programme of primary health care in 1977. Community participation was emphasised and a large network of Village Health Volunteers (VHVs) and Village Health Communicators (VHCs) was deployed. Various community financing schemes were introduced to support village primary health care activities, such as village drug funds, nutrition units and sanitation funds. The VHC is responsible for 8—15 households and his or her role is mainly in preventive and promotive health care. The VHV provides curative as well as preventive and promotive service. Volunteers receive a short training and small incentives (Hongvivatana et al., n.d.). In an attempt to control major communicable diseases, relevant programmes were designed specifically to tackle TB, leprosy, diarrhoeal disease and EPI.

The health stations generally have a staff of three: one with public health training, one with nursing training and one with midwifery training. Each health station covers a population of 3—5000. There were
facilities at the three I visited for carrying out preventive and curative activities and separate clinics were run for geriatrics, antenatal, MCH, Family Planning, School Health and Immunisation. A mobile immunisation team was sent out to villages which were further than 2 km from the health station. A limited list of drugs was available, including antibiotics, antimalarials, analgesics and vitamins. Drugs were ordered from Nakhon Phanom and no difficulty was expressed about getting new stocks.

Community hospitals are staffed by doctors and nurses. 'Rotating doctors' from the hospitals in Nakhon Phanom Province carry out clinics at health stations in order to extend the health service into the community. Both Community Hospitals I visited were well equipped for inpatients and out patients and there were dentistry, X-Ray and laboratory facilities and a well stocked pharmacy. There were also facilities for carrying out minor surgery and, in one of the hospitals, appendectomies and herniotomies were regularly performed. Patients for caesarian sections and more complicated surgery were referred to the general hospital at Nakhon Phanom.

Traditional medicine is popular and used particularly in areas far from the road. Five main herbs have been promoted and introduced in the clinics and community hospitals. By 1988, herbs had been planted in the gardens of 118 health stations and 2 community hospitals.

Theoretically, access to the health system was via the Community Health Volunteer (CVH) or health station. In practice, however, many people self referred to the hospitals. Villages were generally within three to five km of a health station.

Payment for health care was made through private insurance, through the health card scheme — an insurance scheme covering MCH and immunisation services along with curative medical care (Hongvivatana et al., n.d.) — or through the free medical care cards which were available to those below a defined poverty line. In 1988, 71.48 per cent of villages were covered by drug funds. The decision whether the patient could afford to pay was made by the health worker.

**Ban Napho Camp**

In 1988 preventative and curative care and Supplementary Feeding services were provided free by SCF(UK). The Sovereign Order of Malta ran a Traditional Medicine Centre which, as well as providing traditional therapy, managed patients with psychological and psychiatric problems. Family Planning services were provided by the Planned Parenthood Association of Thailand, physiotherapy and rehabilitation by Handicap International and Sanitation and Vector Control by the International Rescue Committee.

Each agency was represented in the camp by Thai and/or expatriate staff who trained and supervised the refugees in carrying out the work. There were 4 doctors (one per 4,327 of the population), two of whom were refugees; 10 nurses (one per 1,731 of the population); 74 paramedics and 234 public health workers. Traditional therapy was provided by Laotian refugee traditional healers. The emphasis was very much on refugees providing their own services. Some of the refugees already had appropriate health skills from their previous employment in Laos but, by 1988, their number was dwindling and many working for the agencies had had no previous experience.

There were outpatients clinics for under and over five year olds, antenatal and MCH clinics, a dressing clinic, tuberculosis clinic and laboratory and pharmacy facilities, all open six days a week. A gynaecology and venereal diseases clinic was held twice weekly and a dental clinic once weekly. An active follow-up system existed for the TB, MCH and antenatal clinics, as well as for patients with chronic medical illnesses,
ensuring regular attendance and treatment. The clinics were run by SCF(UK) trained paramedics. An expatriate doctor carried out a daily clinic (mainly to see patients with chronic medical conditions) and was available if the paramedic needed help or advice about a case.

Referral for secondary care was to the 14 bed camp hospital. This was run by an SCF(UK) Thai nurse who trained refugee staff to work there. Those conditions which could not be treated at the hospital were referred to Nakhon Phanom Hospital. This included complicated obstetrics and surgical conditions. There were no facilities for blood transfusion or X-ray in the Camp and these cases were also referred, as were cases (mostly ophthalmic) for consultant opinion. Occasionally, when facilities for investigation or treatment were not available at Nakhon Phanom, referral was made to the University Hospital at Khon Kaen. Because of the restrictions on the movement of refugees outside the Camp, however, these referrals had to be carefully considered and a complicated procedure followed in order to obtain permission from the Ministry of the Interior and UNHCR. In all, 14 referrals were made to Khon Kaen in 1988, 4 of which were psychiatric. (There were no facilities for psychiatric inpatient treatment in Nakhon Phanom but the Traditional Medicine Centre in the Camp was visited regularly by an expatriate psychologist and psychiatrist.) Night cover was provided by the refugees supervised by a nurse and midwife from Nakhon Phanom Department of Public Health. The MoPH also sent one dentist one morning a week and a doctor two mornings a week to help with outpatients.

Public health workers carried out regular home visits, held regular health education sessions and were responsible for the monthly Camp census. They were also responsible for contact tracing in cases of infectious disease tuberculosis, and helped to trace refugees who had defaulted from immunisation, supplementary feeding and tuberculosis treatment. Health Education campaigns were also carried out by the International Rescue Committee as part of its sanitation and vector control programme.

School health clinics were held regularly to distribute prophylactic vitamin A and pyrantel pamoate, detect malnourished children and carry out booster immunisations against tetanus and polio. The Supplementary Feeding Programme was attended by antenatal mothers, weaning children, malnourished children (less than 80 per cent weight-for-height) and medical cases.

The primary health contact point was usually one of the outpatient clinics, the Traditional Medicine Centre or the public health buildings. Patients were also referred by SCF public health workers and the other agencies. SCF and the Sovereign Order of Malta worked closely together and patients were frequently referred in both directions between Traditional Medicine Centre and the SCF clinics. During the night, patients would present directly to the camp hospital.

The SCF outpatient clinics, the hospital and the family planning clinic were located at one end of the Camp next to the main entrance. The SCF public health building and the Traditional Medicine Centre were located in the middle of the Camp. The furthest point in the Camp from the clinic was 2.8 km. Although the terrain was fairly flat, this distance was considered by some of the refugees to be considerable. The areas of the Camp furthest from the clinic were noted to be the poorest, with the most public health problems.

Services in Ban Napho were more accessible than in the Province and, moreover, they were free. The majority of the staff were refugees with little training but highly trained staff supervised the refugees and were accessible most of the time. The health stations, both in the Province and the clinic complex in the Camp, offered comprehen-
sive curative and preventative services. Services provided by the community hospitals and the Camp hospital were also comparable, although the community hospitals I visited had more provision for minor operations and X-ray. The Camp did, however, provide psychiatric and rehabilitation services which were not provided on any great scale in the Province. Referral in the Camp followed a strict system while self-referral to hospital facilities was common in the Province.

IMMUNISATION

In 1988 the proportion of under one year-olds who had had measles and DPT (3 vaccinations) injections were similar in the Camp and Province — 85.6 per cent and 86.8 per cent respectively in the Camp and 85.4 per cent and 92.4 per cent in the Province. The camp, however, had only recently achieved a rate above 80 per cent for DPT coverage whereas, for the Province, a rate had been reported of above 80 per cent since 1984. Figures for measles coverage for the under one year old population in the Camp other than for 1988 were not available. In the Province, coverage rose steadily from 23.5 per cent in 1984 to the 1988 figure of 85.4 per cent.

Although the camp was theoretically a captive population, high immunisation rates were difficult to achieve in the early years because of the rapid turnover of population and the arrival of unimmunised refugees from Laos. Despite low immunisation rates before 1988, no cases of polio or diphtheria were reported in the Camp between the years 1984 and 1988 and cases of pertussis were kept at a low level.

HEALTH INDICATORS

The birth rate in the Camp was 30 per 1000 in 1988, whereas in the Province it was much lower (Table 1). Despite the preponderance of young adults in the Camp, the percentage of the female population of child bearing age in both populations was very similar (24.8 per cent in the Camp and 24.3 per cent in the Province). A very active Family Planning policy was followed in the Province and 79.9 per cent of couples were reported to be using contraception in 1988. In the Camp, between September 1988 and February 1989, 56 per cent of married women were estimated to be using contraception but the population growth rate was more than twice that of the Province.

Infant Mortality in the Camp was at its highest between July 1985 and June 1986, a time when the camp population had reached a peak and conditions were very crowded. There was a rise during the autumn of 1987 and spring of 1988. This resulted in a rate of 45.6 per cent being reported for the year July 1987 to June 1988. This coincided with an increase in the reporting of malnutrition. During that reporting year a greater percentage of low birth weight (less than 2.5 kg) babies were born in the Camp and the commonest cause of death in the infant group was reported as ‘prematurity/small baby’. This is not given as a leading cause of death in figures.

| TABLE 1 |
| Health Indicators for Ban Napho Camp and Nakhon Phanom Province, January – December 1988 |
| Camp (SCF figures) | Province (MoPH figures) |
| Population | 17,309 | 535,083 |
| Birth rate (per 1000) | 30 | 17.7 |
| Death rate (per 1000) | 3.3 | 5.3 |
| Maternal mortality (per 10,000) | 38 | 5 |
| Infant mortality (per 1000) | 27.0 | 17.3 |
for the Province. On the other hand, diarrhoea, pneumonia and pneumonitis were reported to be among the leading causes of death in the Province but not in the Camp. By the end of 1988, infant mortality in the Camp had fallen again and, when calculated for January to December 1988, it was reported to be 27 per cent. Infant mortality in the Province has fallen slowly over the years and was reported to be 17.3 per cent in 1988.

All reported deaths in the Camp, whether they occurred in the hospital or at home, were seen by either an SCF nurse or doctor and thus the cause of death was reported as accurately as possible. Reporting of cause of death is more difficult in the Province, particularly when trained personnel are not present. This makes it difficult to make a useful comparison between the Camp and the Province as far as the pattern of all other deaths (excluding those under one year) is concerned. All one can say is that the causes of death in the Camp are those one would expect to find in a younger population. According to MoPH figures, for example, 36.6 per cent of deaths in this group in the Province in 1988 were due to 'old age', while in the Camp, 5 of 42 deaths recorded in that year are described as 'sudden' and 'unexplained'. This is a recognised condition, which has been described in young male Indochinese refugees, both in camps in Thailand and in the United States, following resettlement (Manger, 1987).

The pattern of illness in the Camp in 1988 was very similar to that in the Province. Respiratory tract disease was the leading cause of illness for both populations and gastro-intestinal problems, parasites and skin problems were all common reasons for consultations.

Over the last five years the nutritional status of the population under 5 years in the Province has improved. Supplementary feeding is given to those who have 2nd and 3rd degree malnutrition (60—74 per cent weight-for-age and less than 60 per cent respectively). In 1988, over 18 per cent of villages had a village fund which helped to support the supplementary feeding programme. During 1988 the MoPH directed its attention specifically to reducing malnutrition, with the objective that there should be no cases of 3rd degree malnutrition.

In its early days, when it was faced with many new arrivals, many of whom were poorly nourished, the Camp had a problem with malnutrition. As the population stabilised and reduced in number, so nutrition improved. Theoretically, all refugees in the Camp should have received basic food rations from the UNHCR and, in addition, SCF(UK) ran a supplementary feeding programme for pregnant women, weaning children, medically at risk groups and children less than 80 per cent weight-for-height. In 1987, a problem with nutrition was again noted when a survey of under fives showed that 9 per cent were less than 80 per cent weight-for-height. The supplementary feeding programme was reassessed, registration of at risk groups improved and a survey team established so that regular assessment could be made of nutritional status in the Camp. Following this, the nutritional status of under fives once again improved. But, if we compare 1988 weight-for-age figures for under fives in the Province with those of the under five Camp population in January 1989, we see that, while neither population had children with 3rd degree malnutrition, the percentage with grade 1 and 2 malnutrition was greater in the Camp than the Province.

Given that the UNHCR food supply should have been regular and adequate in the Camp, one would have expected less seasonal variation in nutritional status in the Camp, although other factors, such as water borne and diarrhoeal disease could also have contributed to malnutrition. January is a time when there was usually a lower incidence of diarrhoeal diseases in the
Camp and one would have expected the nutritional status of the children to have been better than during the monsoon (May, June). Serial assessment of weight for height in the under five population of the Camp showed an improvement after 1987 and, by the beginning of 1989, nutrition was regarded as 'good'. When compared with the Thai population, however, it was still seen to lag behind the Province.

CLINICAL AND HOSPITAL ACTIVITY

In 1988, primary health care facilities were used much more frequently in the Camp than in the Province, even allowing for under reporting in the Camp due to the method of collecting the statistics. (Camp outpatient department statistics were based on pharmacy figures — i.e., those patients receiving medication — and were therefore an underestimate of all patients seen.) 36.8 per cent of the provincial population were seen in health stations and hospital outpatients departments, compared with 265.9 per cent of the Camp population. This could have been because the Camp population was much less healthy than the population of the Province or because they consulted more often for trivial complaints or because the Camp health facilities were more accessible. The high birth rate in the Camp and a larger percentage of under fives compared with the Province might be expected to lead to a greater demand on health services. This, however, should be partially offset by the higher proportion of young, relatively fit, adult males in the Camp population.

It is possible that the Camp population has become 'doctor/nurse dependent'. Treatment is free, the outpatients' clinic is very accessible and waiting in the outpatients' queue provides a pleasant distraction from an otherwise boring day of Camp life. Medication can be purchased occasionally in the market adjacent to the Camp but is not as freely available there as in the Province. A consultation is required at the Camp outpatients' department, even by those refugees requesting drugs which elsewhere could be used in self medication (paracetamol, for example). The large network of community health workers in the Province may provide treatment or advice for minor illnesses, thus making the journey to the health station unnecessary. Since the clinic in the Camp is often as easily accessible as the public health workers, many of the refugees will choose to go straight there.

A much larger percentage of those seen in health stations and outpatients' departments in Nakhon Phanom Province were admitted to hospital — 15.9 per cent compared with 4.8 per cent in the Camp. This could be because those who attend health stations and outpatients' departments in the Province are generally more sick than those who attend the Camp outpatients' department or because patients have had to travel to the hospital in the Province and are therefore more likely to be admitted. It could also be that the lack of doctors and nurses in the community has resulted in a reluctance to send patients home after consultation. (A doctor is always available in the Camp during the day.)

Despite a lower percentage of total patients consulting in the Camp outpatients department being admitted to hospital, the much greater rate of outpatient consultation by refugees (more than seven times that of the provincial population) led in all to a greater percentage (12.76 per cent) of the Camp population being admitted to hospital as compared to the Province (5.87 per cent). This may reflect the poorer health of the Camp population or simply the greater accessibility of the Camp hospital. In the Province, many villages are far from the main road and it may not be possible for sick people to reach hospital.

DISCUSSION

This attempt to compare health provision and status in Ban Napho Camp and
Nakhon Phanom Province has been greatly hindered by the difficulty of obtaining accurate and comparable statistics. Furthermore, despite their similar ethnic backgrounds, the two populations had a different age/sex structure and the refugee population had been very mobile in the past. This could have resulted in different health needs and it could be argued that health provision must be different in order to accommodate these needs. By 1988, however, movements to and from the Camp had slowed down and many of the refugees had been in Ban Napho and other camps for a number of years. The 'acute refugee situation' of earlier years no longer existed and many had been exposed to SCF medical services for a considerable period of time.

Primary health care provision was found to be comprehensive in both the Camp and the Province but there was a larger number of highly trained staff per head of population in the Camp. The psychiatric and rehabilitative needs of the refugees were also better provided for than were those of the provincial population. Theoretically, both populations had easy access to primary health care volunteer workers but access to primary health care facilities where treatment and diagnosis of a wide variety of complaints could be made was much easier in the Camp. These services, moreover, were free. Although treatment and diagnosis were carried out by refugee paramedics who had had only a few months training in the Camp, a qualified nurse or doctor was present most of the time to advise and supervise.

Demands made by the refugees on the health services were much greater than those reported for the provincial population and the higher birth rate in the Camp and greater proportion of under fives in the population may have contributed to this. It is also possible that the easy access to health facilities encouraged consultation for trivial complaints.

The morbidity pattern in the Camp was similar to that reported for the Province. Causes of death reflected the age structures of the two populations, although some differences were noted in causes of death for those under one year old. There was, however, some indication that the population of the Camp, even after spending a number of years exposed to medical services, was less healthy than that of the Province: namely, a poorer nutritional status in the under fives, a higher infant mortality and a higher hospital admission rate.

The last point raises the question whether the refugees suffered from the same diseases as the local Thais, but with greater severity. The crowded living conditions and a poor diet over a number of years could have led to a poor state of general health, while the psychological effect of living in a refugee camp and uncertainty about the future may also be a significant factor.

Criticisms about the differences in the level of health services may indeed be justified in the case of Ban Napho and Nakhon Phanom Province. And yet, although health service provision in the Camp was, according to the above measures, 'better' than in the Province, the refugees still appeared to be a less healthy population.

Notes
1. These figures are taken from the monthly census carried out by SCF (UK) refugee workers. A number of refugees left the Camp unofficially and thus there are discrepancies between the official figures, supplied by UNHCR, and those of the SCF census. No figures were available to calculate the mean duration of stay in the Camp. In 1986, following the introduction by the Thai government of a screening procedure for new arrivals from Laos, only those who had been given official refugee status were placed in Ban Napho. These were more likely than
those who had been in the Camp for a number of years, and who had never been screened, to be accepted by third countries. Many of the ‘official arrivals’, therefore, stayed only one or two years. Otherwise, there was a large static population, some of whom had been in camps for up to 10 years.

2. The excess of adult males is accounted for by the fact that many men arrived without their families. In June 1988, 56.64 per cent of the Camp population was male and 43.36 per cent female. The sex bias was most marked in the age groups 15–19 (60.8 per cent male), 30–44 (58.9 per cent male) and 45–59 (61.8 per cent male).

References


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**Susanna Maybin**

Save the Children Fund (UK)

G.P.O. Box 992

Kathmandu

Nepal
In early September 1989, Hurricane Hugo started as a tropical depression in the sub-Saharan area of Africa; by September 11 the depression had moved southwest of the Cape Verde Islands; by September 12, it had attained tropical storm wind speeds of 39 miles per hour and was named Hugo. By September 13, Hugo was 1,000 miles east of the Lesser Antilles and had wind speeds of 74 miles per hour — hurricane velocity. On September 17, Hugo hit Guadeloupe, Monserrat, Antigua, St. Kitts, and the British and U.S. Virgin Islands. At daybreak on September 18, Hugo crossed the northeast corner of Puerto Rico and then turned towards the southeast coast of the United States. At midnight, on September 21, Hurricane Hugo hit Charleston, S.C., with wind speeds up to 135 miles per hour. On September 22, Hugo was downgraded to a tropical storm.

Hurricane associated mortality can occur in any one of three phases: before the hurricane (pre-impact phase), during the hurricane (impact phase), or after the hurricane (post-impact phase). Historically, most hurricane-associated deaths have been due to drowning during the impact phase, and most drownings have occurred in high seawater produced by the storm surge, rather than in floodwaters produced by heavy rains. The United States National Weather Service (NWS) estimates that 9 of every 10 hurricane-associated deaths are due to the storm surge (Frazier, 1979, pp. 152–3).

Many sources of information on hurricane-related mortality are available, including medical examiners and coroners (MEC), the American Red Cross (ARC), the National Weather Service (NWS), police departments, fire departments, emergency medical services, and death certificates. Data from these sources, however, are not based on a universally accepted definition of disaster-related deaths. We decided to contact all medical examiners and coroners in the affected areas to determine the number of hurricane related deaths, since we found, during our previous work with medical examiners and coroners, that they were good sources of detailed information on traumatic deaths.

The death investigation system in the United States varies by state or territory, with each state or territory having either a medical examiner system or a coroner system or a combination of the two (Centers for Disease Control, 1989a). A medical examiner is a physician, usually a forensic pathologist who has been appointed to the position, who has jurisdiction at either the county, district, or state level. A coroner usually does not have medical training and is usually an elected official, with jurisdiction at either the county or district level.
Puerto Rico and Charleston County, South Carolina, have medical examiners; other counties in South Carolina have coroners.

METHODS

We defined a case as any death that an MEC determined was hurricane-related and that occurred in Puerto Rico on or between September 17 and 30, 1989 and in any of 25 South Carolina counties on or between September 21 and October 4, 1989 (Figure 1). We arbitrarily chose to collect data pertaining to deaths that occurred during a 14-day period: the day before the hurricane, the day of the hurricane, and 12 days after the hurricane. In Puerto Rico, we collected data from the territorial Medical Examiner; in South Carolina we collected data from the coroners in 24 counties, and from the Medical Examiner in Charleston County. Between September 25 and October 6, 1989, using a simple questionnaire, we collected information by phone. MECs were asked to report the number of deaths, the cause and circumstances of each death, and the demographic characteristics for all deaths that they considered to be hurricane-related.

RESULTS

MECs attributed 44 deaths to Hurricane Hugo. The distribution of these deaths by age and sex for Puerto Rico and for South Carolina is shown in Table 1. Ages ranged from 1 to 94 years, with a mean of 43 years. Among those who died were 32 men and 12 women. In both Puerto Rico and South Carolina, more men than women died. In addition, in South Carolina, 17 (49 per cent) of deaths occurred among the very old and the very young.

In Table 2, deaths related to Hurricane Hugo are shown by day of fatal injury or

FIGURE 1  Deaths related to Hurricane Hugo, South Carolina, September 21–October 4, 1989
### TABLE 1
Age and sex of 44 deaths related to Hurricane Hugo in South Carolina and Puerto Rico, 1989

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<td>40–49</td>
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<td>24 12</td>
<td>8 1</td>
<td>32 12 44</td>
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### TABLE 2
Deaths Related to Hurricane Hugo by Day of Fatal Injury, Fatal Event, or Discovery of Death, Puerto Rico and South Carolina, 1989

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>(Pre-impact)</td>
<td>–1</td>
<td>–</td>
</tr>
<tr>
<td>(Impact)</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>(Post-impact)</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>35</td>
</tr>
</tbody>
</table>

event or, if day of injury is unknown, by day the death was discovered. Since the hurricane hit Puerto Rico and South Carolina on different dates, the days of the study period (e.g., day –1, day 0, day 1) occurred on different dates at each location. All deaths are therefore shown in relation to the arrival and impact of Hurricane Hugo. One death occurred in Puerto Rico during the pre-impact phase, two during
the impact phase, and six during the post-impact phase, for a total of nine deaths during the reporting period. No deaths occurred in South Carolina in the pre-impact phase; 13 occurred in the impact phase and 22 in the post-impact phase.

The cause and circumstances of all 44 hurricane-related deaths are shown in Table 3. Electrocutions accounted for 11 (25 per cent) of all deaths; 5 of the 7 electrocutions in Puerto Rico were occupationally related. Two of these electrical workers were electrocuted when they touched lines they believed to be de-energized but which had received ‘feedback’ current from portable emergency generators in use in the area. A third electrical worker was electrocuted by a dangling energized power line that he touched while working in a dark area. A fourth electrical worker was using a bucket truck when he unintentionally activated the bucket, which then moved him into an energized power line. The fifth person electrocuted in a work-related incident was a meter reader who was helping a line crew and who touched a metal clothesline that

<table>
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<tr>
<th>TABLE 3</th>
<th>Circumstances of 44 Deaths Related to Hurricane Hugo, South Carolina (SC) and Puerto Rico (PR), 1989</th>
</tr>
</thead>
</table>

**Pre-impact Phase**
- Electrocution:
  - 1 person died when removing an outside TV antenna (PR)

**Impact Phase**
- Drowning:
  - 6 persons died either in their boats, or while attempting to move their boats during the storm (1 PR, 5 SC)
  - 2 persons, who did not evacuate their homes, died in the storm surge (1 PR, 1 SC)
- Blunt trauma:
  - 4 persons were crushed when their mobile homes collapsed (SC)
  - 2 persons were killed by falling trees (SC)
  - 1 person was crushed by a house (SC)

**Post-impact Phase**
- Electrocution:
  - 6 power company workers died in occupationally related incidents (5 PR, 1 SC)
  - 4 persons were electrocuted during other clean-up activities (1 PR, 3 SC)
- Fire (smoke inhalation or burns):
  - 9 persons died in fires in houses where candles had been used (SC)
- Blunt trauma:
  - 1 person was hit by a falling tree during clean-up (SC)
- Other clean up activities:
  - 1 person died because of a chain saw laceration to the neck (SC)
  - 1 person asphyxiated while trapped under an uprooted tree (SC)
- ‘Heart attacks’
  - 6 persons died as a result of ‘heart attacks’ attributed to stress (SC)
was energized through contact between the clothesline pole and a metal roof with an energized electrical line on it. In South Carolina four persons died as a result of post-impact electrocutions; only one was an electrical worker. The other three persons were electrocuted while clearing debris or attempting repairs.

Nine (20 per cent) of all deaths were related to fires that began in houses where candles were being used. Eight of the 15 impact phase deaths (53 per cent) were drownings during the storm surge, but these eight deaths accounted for only 18 per cent of all hurricane-related deaths. Blunt trauma, either during or after the impact phase of the hurricane, killed eight persons: four were crushed by mobile homes during the storm; one was crushed by timbers falling from their house; and three were fatally injured by falling trees. Six deaths (14 per cent) in South Carolina were attributed to hurricane-related ‘heart attacks’, five in Dorchester county and one in Berkeley county. One death resulted from a chain saw laceration of the neck, and one from asphyxiation secondary to chest compression by a tree that fell back into a hole from which it had been uprooted.

DISCUSSION

In the United States several agencies (besides those mentioned earlier) collect information on disaster-related morbidity. These include the NWS for hurricanes and tornadoes and the U.S. Geological Survey for earthquakes and volcanoes. The Office of U.S. Foreign Disaster Assistance collects data on deaths and injuries that occur during disasters outside the United States for which U.S. Government assistance has been requested. Other sources of morbidity and mortality data in disasters include hospitals, in particular emergency department logs of patient visits. American Red Cross (ARC) statistics concerning deaths, injuries, and illnesses are additional sources of information. Unfortunately, each of these institutions and agencies uses different methods and criteria for case selection (e.g., they each use different definitions of disaster-related injury), and no single source collects all the required information on deaths and injuries. To conduct a comprehensive analysis, therefore, of the impacts disasters have on health, one must collect information from many sources and compare them systematically.

As an example, the Centers for Disease Control (CDC) in collaboration with the ARC has developed a natural disaster surveillance system for morbidity and mortality. Information is collected on deaths, injuries, and illnesses as well as on the mechanism of injury. The CDC-ARC disaster surveillance system has the goals of identifying risk factors for specific adverse health outcomes and of assessing disaster preparedness efficacy. Although a comprehensive analysis of the health impact of Hurricane Hugo is beyond the scope of the work reported here, we are conducting other studies to compare the information collected by the ARC and MECs, as well as information obtained through emergency department logs and other sources.

Medical Examiners and Coroners as sources of information

Although we had to make a large number of phone calls over a two week period, collecting data from MECs was relatively easy after phone service was re-established. Information obtained was more detailed, particularly concerning the circumstances of death, than that which could have been obtained from death certificates. Autopsy and toxicology reports were not available when we collected our data. In addition, information from MECs was easier to get and available sooner than data from death certificates. The timeliness of the information allowed us to issue the first report of
mortality data less than three weeks after the disaster — in time for our report to have a beneficial impact on the health outcomes of any other hurricane disasters that season (Centers for Disease Control, 1989b, 1989c, 1989d).

Definition of disaster related deaths

At present no universally accepted definition of a hurricane-related death exists, and agencies do not use standardized methods to count disaster-related deaths. Deaths were reported to us by at least 31 MECs, MEC assistants, and other officials. Our case definition allowed MECs to determine whether a death was hurricane-related. This led to differences among MECs’ determinations of the types of deaths that were hurricane-related. As an example of inter-agency variation, no MEC reported deaths due to motor vehicle crashes as hurricane-related, while the American Red Cross did. As an example of inter-MEC variation, two coroners in South Carolina reported ‘heart attacks’ as related to hurricane-induced stress, but other coroners and medical examiners did not consider heart attacks to be hurricane related and did not report them as such.

Although the NWS has a long history of reporting hurricane-related deaths, its written definition of a weather-related death is open to interpretation. The NWS reports ‘direct’ and ‘indirect’ fatalities, and in a recent discussion of weather related fatalities, staffers at NWS noted ‘There is plenty of grey area on this issue’ (National Weather Service, 1989).

Thus it is not surprising that the NWS attributes a greater proportion of hurricane-related deaths to the storm surge than the MECs who gave us data for our study (90 per cent vs. 18 per cent). The local Warning Preparedness Meteorologist determines the storm relatedness of a death. In general, any death that is due to a hurricane during its impact phase or to a hurricane by-product, such as a thunderstorm or tornado, is considered a direct hurricane-related death (Pat Brown, Warning Preparedness Meteorologist, NWS, personal communication, 1990).

We found that only 8 of 44 deaths (18 per cent) were drownings due to the storm surge, and those 8 deaths were only 53 per cent of the 15 impact-phase deaths. The other impact-phase deaths were a result of blunt trauma from the collapse of mobile homes, houses, or trees. Only 15 of 44 deaths, or 34 per cent of all hurricane related deaths, occurred during the impact phase. In this survey, we found that the major causes of death were electrocutions (all but one of which was post-impact) and fires (all post-impact). Without a universally accepted definition of hurricane-related death, however, comparing death data from different sources is difficult.

Death Rates

We did not calculate death rates for several reasons. Although census data for the population of the counties surveyed is available, we did not believe that these data would accurately reflect the population at risk. People throughout South Carolina evacuated, even though evacuations were ordered only in the ‘low lying coastal counties’. The governor’s office estimated the number of evacuees from six coastal counties to be about 250,000. This figure is only an estimate, however, and the destinations of the evacuees are unknown. Evacuees may have simply moved from one of the counties we surveyed to another. Also, the entire population was not at risk for each of the various causes of death reported. The number of people who used chain saws, for example, and who were therefore at risk of chain saw injuries is unknown. For these reasons, we decided to report only the total number of deaths.
CONCLUSIONS

We recommend the following prevention strategies for future hurricane disasters: (1) evacuate persons from the path of the storm to a safe location, particularly persons in buildings with poor structural integrity such as mobile homes; (2) prohibit boating shortly before and during storms; (3) educate the public and remind electrical workers of the possibility of electrocution from downed power lines; (4) educate the public about the hazards of using unattended candles or other open flames during power outages; and (5) emphasize the continued risk of injury during disaster clean-up.

We consider medical examiners and coroners to be an important source of information on disaster-related deaths and recommend that information from MECs continue to be used in studies of future disasters. A better definition of ‘disaster-related death’ is needed to make data from different reporters more comparable and to assess the impact of disasters on public health. Until a uniform definition of disaster-related death is in common use, assessing the full impact of these deaths from a public health perspective will be difficult.

Note

We would like to thank the many coroners and medical examiners who assisted us in data collection, as well as the health departments of Puerto Rico and the state of South Carolina for their cooperation and assistance.

The use of trade names is for identification only and does not constitute endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

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Rossanne M. Philen, Debra L. Combs, Lynn Miller, Lee M. Sanderson, R. Gibson Parrish and Roy Ing

Centers for Disease Control
Public Health Service
US Department of Health and Human Services
Atlanta
Georgia 30333
USA
Drought Management in India: The Long Term Perspective

KULDEEP MATHUR and NIRAJA G. JAYAL

Drought and famine have been a recurrent phenomenon in recent Indian history. People recall the tragedy associated with the series of famines during the British colonial period which ended with the Great Bengal Famine of 1943—44. The post-independence period has had its own share of calamities but with one significant difference: the modern Indian state now marshalls all its resources to see that no human lives are lost and starvation deaths do not occur. The political and administrative machinery is fully mobilised to meet the challenge. It is also now possible to transport food and fodder to the affected areas with much greater speed. Modern means of communication have helped create an increased sense of empathy for the people afflicted by thirst and hunger. This has also resulted in a greater willingness of the people to supplement the efforts of the government in this regard.

Much of this effort, however, is based on the premise that famine and drought are a result of the vagaries of nature. Erratic monsoons are a consequence of the changing moods of the gods. Little can be done about it and all that we can do is to provide succour to the unfortunate ones. Undoubtedly, variations in rainfall are significant. But when drought is recurrent or the area affected by it seems to increase continually or its intensity deepens, then one has to sit up and ask whether it is a natural phenomenon only.

Emphasis on drought as a natural hazard is valid up to a point but viewing it only as a visitation of nature has serious consequences for public policy. Attention gets diverted from a whole range of social and human activities that intensify or mitigate the impact of the disaster. It leads to a blurred understanding of the social and economic effects of drought. Public policies are formulated to meet a crisis and are evaluated accordingly. Success so defined explains to a great extent the mobilization of administrative machinery, the easy availability of finance and the relaxation of normal administrative and financial rules when food and water have to be provided on an emergency basis. (Mathur and Bhattacharya, 1975). Policies are formulated with limited concerns and the goals are to save human lives and wait for the next monsoon to come. Employment, food distribution, drinking water supply or health measures are all directed to achieve these goals.

In its wider perspective the phenomenon of drought is reflected in several problems that society faces. Ecological degradation is one serious issue that is closely linked, not only to the recurrence of drought but also to its increasing impact and intensity. Rapid deforestation is affecting life support systems, turning productive land to wasteland and reducing ground water levels. A government committee emphasized that 'the economic backward-
ness of the drought prone districts outside the desert areas is due not only to the limitation of natural advantages but also to the manner in which the existing endowments have been put to use by man. Unplanned and over-exploitation of natural resources and neglect of conservation measures are responsible for substantial imbalances in the ecology of these areas (Government of India, 1981, p. 8). Drought significantly increases the vulnerability of the poor, making them greatly dependent on outside agencies, both moneylenders and traders, as well as government departments. An economy based on shared community resources gets destroyed with the erosion of cultural life as well. The intensity of the drought experienced in an area depends to a great extent on the way available natural resources have been used, and the ecological balance maintained, in that area.

The purpose of this paper is to report on the findings of a larger study conducted to examine the response of the government in India to the problems created by the frequent occurrence of drought in the country. We are concerned with the policy processes and also with the programmes that have been evolved to meet the challenge of drought. The question that has guided our investigation is related to the long-term perspective of restoring ecological balance in drought affected areas. In crisis management, the time to act is perceived to be short. Reaction to crisis often results in the implementation of hastily prepared schemes. It becomes more important to save lives than to worry about the efficient uses of men and material. It is this peculiar nature of drought and its impact on society that makes it difficult to judge and evaluate the government's policy. It is successful because it has saved lives. Can we say the same for its management of natural resources and their use?

Traditionally, the evaluation of public policies has primarily focussed on efficiency and effectiveness. These kinds of assessments are important but they make one important assumption. They accept the officially stated goals or objectives of the policy and do not question their validity. Such assessments provide a wealth of data and analysis for policy makers but are unable to provide policy alternatives. Donna Kerr has identified a third criterion of policy failure which is completely unrelated to achievement or efficiency. She refers to this as the 'normative justification dimension' wherein a 'policy's goal or purpose must be justifiable by appeal to some norm, principle or value which the relevant public shares with and sees applicable in this particular case' (Kerr, 1976). It is not a matter of taking objectives for granted, then, but of asking whether these objectives are appropriate for society. It makes no difference whether a particular policy is achieving its stated objectives or not. What is more important is to judge whether it is right or wrong.

How does one decide that a policy is right or wrong? Many environmentalists argue, for example, that the construction of large dams is not right when economic costs and benefits are not taken into account or the welfare of those whose land is inundated is not provided for. For them, the policies are wrong because they neglect the long term interests of the people and the environment and do irreparable damage to a way of life. Development does not give the right to destroy.

We argue that drought policies cannot be judged on the basis of their stated objectives alone. The restoration of ecological balance should be an important criterion and this requires a long term perspective. The problem is that, in a democracy, short term interests tend to be given precedence. The way demands are articulated usually serves sectarian interests. Policies then have political uses (Gupta, 1990a). Thus, policies may help in bolstering the image of a regime or ruler. Short term concerns also tend to
dominate regimes which are politically unstable or have yet to legitimize themselves. In such cases, the politics of development is burdened and distorted by the politics of regime survival (Smith, 1989).

EVOLUTION OF POLICY

During the British period in India, three Famine Commissions were appointed (in 1880, 1898 and 1901) to investigate the nature and causes of recurring famines, to assess the relief measures adopted and to suggest guidelines for the future (for a summary, see Government of India, 1989). These Famine Commissions influenced the adoption of guidelines for relief during the post-independence period. During the 1950s, these famine relief codes were replaced by what have come to be known as 'scarcity relief manuals'. The transition from famine to scarcity was made to allow for planning relief activities. Scarcity was to be declared when early indications pointed to the deterioration of agricultural conditions due to a failure of the rains.

Every major drought in the country led to some changes in the planning and objectives of relief work. The 1972 drought emphasised the need for massive employment programmes to enhance the purchasing power of the people rather than running free kitchens. In 1987 the government reiterated that 'the approach to the relief policy is more towards drought mitigation and is preventive in nature rather than merely curative. The Relief scheme is, therefore, not to be conceived in isolation but should be integrated with the development ethos and programmes under implementation under various Five Year Plans' (Government of India, 1989, p. 10).

This statement was not the first expression of such a concern. The prolonged drought during 1965–67 had made the policy-makers realize that something more substantial needed to be done because the relief funds were often being spent on improvised employment schemes which did not provide lasting benefits for the drought affected areas. An All India coordinated research project for Dryland Agriculture was initiated in 1970–71 in around 20 districts to test the applicability of a package of dryland practices. In addition a Rural Works Programme was started in the same year in 54 districts of 13 states. The emphasis of this programme was on the construction of civil works of a permanent nature which would facilitate the development of the area.

It was the review of this programme by the Planning Commission in 1973 that led to the formulation of a long term strategy of integrated agricultural development which would help in restoring ecological balance in the area. The Drought Prone Area Programme (DPAP) and Desert Development Programme (DDP) emerged as the means to implement this long term strategy. The district became the unit of planning and implementation. Policy objectives were refined with the experience of the programme and the Planning Commission is now laying considerable emphasis on watershed planning.

While the DPAP and DDP have been implemented in several districts over the course of the last twenty years, no formal evaluation of their impact has been made by the government. It is obvious, however, that the area covered by DPAP is too small and the level of investment too low. When drought affects more than 200 districts, as it is said to have done in 1987, initiating a programme in only 70–90 districts in a limited number of sub-district units makes little sense in the long term. The DPAP and DDP have also not been able to bring about the much needed coordination and integration of efforts that the many expert committees have been calling for.

The cause of the failure has been that 'we have been more concerned with registering expenditure than with developing a resource management system approp-
riate to areas where droughts are more frequent and where desert conditions are more pronounced’ (Swaminathan, 1982). The watershed approach has not been made the basis of area planning because various necessary tasks have not been completed. Experts are not available at the local level and sectoral officers do not seem to take an interest in the integrated approach to development. Many of the schemes duplicate the existing schemes of various line departments without having much to do with the long term objectives of the Programmes. In addition, they are neither well prepared nor rigorously appraised before approval. The result is that the Programmes have failed to achieve the objectives of drought prevention, arresting desertification and mitigating the hardships of the people.

This is borne out by the fact that in the areas where the Programmes have been in operation for the last three five-year plans, relief expenditure has also been rising. In Rajasthan, the DPAP and DDP have been implemented in thirteen of its twenty-six districts. Table 1 below shows that relief expenditure has continued to be a high proportion of both total plan expenditure and expenditure on these Programmes. The inadequacy of drought prevention efforts is obvious. With the experience gained over the years, the emphasis on famine relief should have lessened by now. But the dry regions continue to demand relief when the rains fail and this relief is provided according to schemes suggested by the relief manuals.

It is also true that the states have used ‘crises’ to ask for more and more funds from the centre. Rajasthan has used its high proportion of arid and semi-arid land to justify repeated requests for central assistance. It is rarely asked why these areas have not received adequate attention in state plans. Relief tends to obfuscate failures of long term policy and reiterates the emphasis on drought as a natural calamity. The state political leadership measures its success by the amount of relief funds it is able to attract from the central government.

The result is that relief administration gets a higher priority. An elaborate bureaucratic network has evolved over the years that assesses the needs of states affected by drought and determines the financial allocations necessary. The process begins only after a crisis has been created and less attention is therefore paid to long term efforts at drought prevention. Little concern is expressed for the efficient use of resources: the wage component of schemes is high and this results in ‘fire-fighting’ operations like road construction or building percolation tanks. The impact of earlier relief schemes is not evaluated and current schemes are not monitored.

THE POLITICAL PERSPECTIVE

The dominance of the relief psychology is a product not only of administrative concerns but also of political demands. An examination of the six day debate on drought in the national Parliament during

<table>
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<th>Percentage of Plan expenditure</th>
<th>Percentage of DPAP and DDP investment</th>
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August 1987 provides useful insights into the thinking and perspectives of legislators. Even though more than 250 districts were affected by drought, only 93 members out of 512 participated in the debate. Judging by the numbers present, drought did not evoke much interest, even though the government had already described the 1987 drought as 'the drought of the century'. The quorum issue was raised several times in the House and one MP commented that if members were not present to express the feelings of the people, the government would have to fight drought on the advice of officials alone.

Members of Parliament have largely concentrated on drawing attention to conditions in their constituencies and on pleading either for greater relief or that certain areas within their constituencies should be declared drought stricken so as to qualify for relief assistance. There was, however, some emphasis on the importance of formulating a national policy to deal with drought. Some dissatisfaction with the planning process was also expressed on the grounds that it had not been able to build an anti-drought programme into its development strategy. The fact that the DPAP has been in operation since 1973–74 and has not had any visible impact passes without comment. The major issues raised by MPs are the failure of relief expenditure to meet the needs of the people and the poor monitoring of relief programmes.

MPs rarely voice policy alternatives or grill the government on the failures of its long term policies. The central government justifies its role as a provider of finance and formulator of guidelines but allows state governments to be blamed for faulty implementation. What is indeed remarkable is that drought and the way to handle it did not figure in the election campaigns of candidates for an assembly election whom we interviewed in a drought hit constituency. The DPAP was not referred to in the election speeches and no concern for these programmes was shown by the leading candidates.

It appears that political leaders tend to respond to constituents who see their interests only in a short term perspective. Candidates do not pay enough attention to educating the electorate, probably because they themselves are not aware of the components of a long term strategy. Irrigation projects or loan schemes stir their imagination more than, for example, afforestation, the cooperative use of resources and the transfer of technology in dry land farming.

CONCLUSION

Seeing drought as a natural phenomenon is valid up to a point but to overemphasise it diverts attention from crucial issues. Agricultural policy in India has focussed on increasing agricultural output and attaining self sufficiency in the production of foodgrains. These goals have been fulfilled at the expense of backward regions which are more or less dependent on rainfall. Due to variation in rainfall there is considerable variation in agricultural production in these areas, but policies to stabilise production have not attracted adequate attention from the country's policy planners (Hanumantha Rao et. al., 1988). Problems of rainfed agriculture have remained at the periphery of agricultural policies and people dependent on agricultural activities in these areas attract attention only when disaster strikes, when all the blame is put on the vagaries of nature.

Research scientists have also contributed to this neglect by not paying adequate attention to issues of dryland farming. A recent survey points out that on-farm research investigations of dryland farm practices have been very few (Gupta, 1990b).

Treating drought as a crisis also serves certain political purposes. Relief measures provide an opportunity for the government to project itself as the guardian of public
welfare. The party in power tends to show itself as a champion of the cause of the poor and the backward and uses relief measures to gain political mileage. During the 1987 drought, the Prime Minister visited several states and announced special grants in public meetings. The image of the state political leadership was bolstered by having the Prime Minister in its midst and he in turn was able to refurbish his own image as the champion of the poor, the backward and the suffering.

A classic example of self-congratulation is provided by the following statement from the government report on the 1987 famine.

The Indian experience of managing the drought of 1987, regarded as one of the worst the country faced in the century, evoked appreciation in both India and abroad. The management of drought highlighted the resilience Indian agriculture had come to acquire over the last two decades; it also bore eloquent testimony to the responsiveness and capability of the Indian administrative set-up in times of crisis (Government of India, 1989).

By setting themselves limited goals, bureaucrats demonstrate their success as competent managers. This success is used to hide the failure to implement long term programmes. In the process, both the political and administrative leadership unite in calling drought a natural calamity. Pride is taken in the way the crisis is met. The failure of not being prepared for it is hardly noticed.

Note
This is a summary of a larger study which forms part of a research project on the Sustainable Development of High Risk Environments, coordinated by Professor Anil K. Gupta of the Indian Institute of Management, Ahmedabad.

References

Rural Malians ‘cope’ with low food and income levels during dry seasons by diversifying their income sources and trying to limit asset sales. ‘Soudure’ refers to the hungry season between June, the start of the rains, and October, the start of the harvest, when there is little food left over from the harvest and energy is yet to be expended on work in the fields. However, this period begins earlier if stocks have been depleted in the dry season (February to June). This report tracks the use of ‘coping’ strategies during the dry season in five Malian villages about 250 km. north of Bamako (Mourdiah, Gallo, Wolokoro, Kaloumba, N’Tominkoro) on the road to Nara, near the Mauritanian border.

These villages are not located near major water sources (such as the Niger or Senegal rivers), are overwhelmingly agro-pastoral, and have relatively easy access by tarmac road to the larger cities of Bamako and Nara. These cities are centres of seasonal migration and proximity to them therefore increases work options for those who live in central Mali. Farmers and herders in this area face difficulties in meeting food needs due to their dependence upon rainfall for crops, pasture and watering their animals. They also use a variety of seasonal strategies to generate food and income to make up for the shortfalls of the previous season and to provide enough money for the field work and transhumance of the rainy season.

Much has been written about famine coping strategies (e.g. de Waal, 1988; Watts, 1987; Corbett, 1989; Mortimore, 1989; Sen, 1981; and Moris, 1989), and virtually every Sahelian country has an early-warning system, such as the Systeme d’Alerte Precoce (S.A.P.) in Mali (Autier et al., 1989). If we assume that famine begins, potentially, with each hungry season, it can be caused by household indebtedness, low food stocks and unexpected setbacks to the household income and assets due to insect damage, livestock disease, household illness and large variations in current market prices for food and assets. ‘Normal’ hunger needs to be seen as the first phase along a continuum of rationing, sales and (possibly) starvation. Households and villages manage their assets by reacting to the supply of food and work opportunities available and the market demand for their goods and services. We must monitor strategies seasonally.

Apart from a recent collection of papers edited by Chambers (1989) and the passing recognition by many writers that dry-season migration is a safety valve for villages as well as a source of food and income, there has been little direct documentation of seasonal coping strategies. Many writers have described strategies for coping with famine once it is well under way, but few have examined dry season strategies as both indicators of ‘famine’ and as a package of measures which are taken to prevent its later stages.
The 1989–90 harvest (October–January) was mediocre throughout northern Mali. It followed an excellent harvest the year before and a poor one in 1987. The grain glut of 1988, however, was insufficient to cover debts from previous years and to provide farmers with enough savings of food and money to cope with the low harvest yields in north-central Mali in 1990–91. (It must be emphasized that, given the size of the country, the diversity of production systems and climatic variability, generalizations across regions are very difficult to make.)

Agricultural production in the five villages varied because of many factors: drought/delayed rain, grasshoppers, locusts, blister beetles and birds. Lack of rain was cited by village councils in two of the villages, but insect infestation was cited in all five. All five were extremely vulnerable to poor rainfall, insect infestation, and livestock disease. Food consumption, income and outlays were immediately affected by the above factors in 1990–91, which indicates a low level of food security in these villages. Although there were wealthier people such as herders who had sent their herds east, closer to the Niger River, where pasture conditions were better, the majority of villagers were suffering from the effects of the drought and insect pests.

Villagers responded to the food and income shortages by increasing out-migration. Across much of northern Mali, villagers rely on remittances from migrants to survive between February and June. The old and the young are left behind in the villages, while stronger family members find work elsewhere, often far away. But one should not underestimate the contribution made by those who remain in the villages to their own self-provisioning by, for example, producing and selling mats and soap. They also supplement reserves by foraging for edible wild foods (roots, berries, insects) and selling firewood.

Migration in 1991 showed a marked increase even from 1990. Four of the villages sent roughly 80 per cent of their ‘bras valides’ (able-bodied workers between the ages of 14 and 40) out of the area in search of work in 1990–91, as compared to 30–50 per cent in other years. Although several of the pastoral villages in the larger area under the responsibility of the District Head depended on seasonal transhumance, less than 5 per cent of these villagers migrated for more than 1 year; most migration takes place during the winter and dry seasons. Migrants returned in May or June after the first rains to move herds to northern pastures or plough and sow fields.

MOURDIAH

According to the district head, 1990–91 was the worst harvest since 1984, when drought and insects decimated crops. It had not been possible to rebuild food reserves since then, and resources had fallen further by the collection of taxes which had been due last year. He estimated that three quarters of all able-bodied men and women had left the villages of his district in search of work and that remittances from these migrants, whether in the form of grain or money, were insufficient to maintain the villagers over the ‘soudure’.

Responding to earlier food deficit indicators, the S.A.P. had sent an investigation team to Mourdiah in mid-December to assess needs, and OXFAM had separately brought 500 tons of grain to Mourdiah to sell at a subsidized Bamako price (wholesale without transport charges) to all heads of household registered with the district. The district head had also requested 1,000 tons but the S.A.P. recommended only 60 tons to feed 2,200 people. This was distributed by June, the start of the rainy season, in order to feed those most in need during the three months of the planting season. The S.A.P. assumed that each individual could manage on 9 kg per month. In 1991, all 40
of the Nara Cercle (sub-regional district) villages had received only 30 tons, and the district head commented that the state could not satisfy all of their local food needs, even when NGOs sold grain. The district head is actively looking for NGO partners to spur development. His frustration at his inability to respond to villagers’ needs was palpable.

GALLO

The population of this Sarakhole and Bambara village was 250 at the height of the dry season and approached 1,000 at planting time. By the time we arrived there in late March, virtually the only inhabitants we found were elderly men and infants. Gallo is located 70 km southwest of Mourdiah, roughly 20 km off of the laterite road.

The village Council of eleven men reported dismal crop yields in 1990–91. I was shown a 2-hectare millet field quite near the village which had over half of the millet heads left on the ground due to insect and bird damage. One man had tried to sell his goats in the Mourdiah market over several weeks but, even at the low price of CFA 3,000 (compared to the December price of CFA 5,000) there had been no buyers. (The CFA (Franc de la Communauté Française Africaine) exchange rate was £1 to CFA 500 in April 1991.) There is, or rather was, a cereal bank, stocked by the Office de Produits Agricole du Mali (OPAM) but it was now empty; Gallo had requested 100 tons of grain for free distribution, but had received no response.

The ‘bras valides’ of the village had already left. They usually migrated to find seasonal work in Bamako or Nara to make money and, equally important, to decrease demand on the village food supply, which is already strained by February. Out of a compound of four households with 10 able-bodied workers, around half will have usually left by April in search of work. This year, on average, eight had left by February. The type of migrants also changed this year to include not only non-lactating women and younger men, but also more of the ‘planting force’ of middle-aged men and women. Several youths had gone to the Ivory Coast to work on coffee and cocoa plantations. Others had worked elsewhere in Mali as bricklayers, construction workers, tailors and assistants in cloth shops, weavers, temporary domestic servants and vendors of food, perfume or cassette tapes.

As food becomes increasingly scarce, it is ‘reserved’ for the very young and the very old but, by April 1991, these groups were limiting their meals to one a day and mixing millet with baobab leaves, which can be toxic when overeaten. It was a case of when, not whether, to start eating less. The aim was to conserve energy for the period of field preparation and sowing between May and June, while trying to postpone sales of livestock and farm tools for as long as possible. Some of Gallo’s poorest households were reportedly foraging for wild foods as early as January in order to avoid selling their assets to buy grain.

Those who remained in the village hoped that the migrants would return by June with enough money to purchase increasingly expensive grain and seed for the coming planting. Grain prices had doubled from CFA 160 per mourd in December to CFA 325 per mourd at the end of March. (Mourd is a local measure equal to 2.5 kg.) Elders stated that year-to-year uncertainty about whether seeds would be available had become usual since the early 1980s, and that the situation had only worsened as Malian migration has increased, depressing salaries, remittances, and available food. The village Council reported that they had already eaten all of their seed for the 1991 planting, so unless migrants returned having successfully ‘coped’, the following year’s harvest was already in jeopardy.

The S.A.P. assesses food needs based upon estimated reserves and household income from primary occupations (farming,
herding, fishing) and estimates of dry-season supplemental remittances. But the villagers remaining behind had little control over either, and the Council of elders watched in frustration as the price of small ruminants fell and that of millet rose. In fact, the only dry season strategies in Gallo were based upon those natural resources still within range of the village — wild foods and fuelwood.

Other income generating activities were dependent on rainfall. Several women of Gallo had ‘always’ tended a communal cotton field, selling some of the crop and dying indigo cloth for their households. As rains became increasingly erratic, village labour has concentrated on ploughing, planting and weeding their individual and household millet fields, rather than the communal fields. The cotton field was finally abandoned this year, which has led to the loss of income generating opportunities, such as cleaning the wool and making and decorating the cloth.

One pre-emptive response to food shortages were village ‘market gardens’, run by women of a village association. These usually covered less than half a hectare, were located next to the village and were tended individually, except in years of good rainfall, when they were managed collectively. Because of a shortage of water this year (for watering them by hand), only onions and tomatoes were planted, while in earlier years, gardens had included potatoes, salad, pimento, cabbage and squash. These vegetables were sold in Mourdiah or Wolokoro or were dried in the sun and stored.

Livestock and small ruminants are used as portable ‘savings accounts’ which can be liquidated throughout the year. All agro-pastoral households that I encountered kept a mix of small ruminants (goats and sheep), poultry and, if possible, a cow. These would be sold as needed with the small animals being sold first.

The agro-pastoralists of Gallo planned to avoid another disastrous year in 1992, by shifting their crops to a type of sorghum (gachaba) which has a longer-maturation cycle but which is more tolerant of short rainfall interruptions. Given the decreasing rainfall over the last decade, however, changing to more drought-resistant crops will not necessarily allow them to depend less on migrants.

WOLOKORO

Judging by the ‘number of mouths’ (600) present during the ‘soudure’, this was a relatively large village, particularly assuming that at least half of the able-bodied workers had migrated. There were 186 male tax payers, eight of whom made up the Chief’s Council and, as in Gallo, they were predominantly Sarakhole and Bambara. Household sizes ranged from 100 (the Chief’s compound) to five. Mourdiah is 140 km to the north.

The Chief’s Council told us that in 1989–90 most households were able to eat from their grain reserves until the following harvest, but this year they had already finished them by March. They attributed the poor harvest to drought, grasshoppers, beetles and caterpillars, in that order. In this area, ripe millet and sorghum are harvested between September and December. Thus, if they were already out of grain by March, five very difficult months loomed. One man told us:

This year is comparable to 1984. This year, in an eight hectare field, I harvested 45 kg. In the past, in a good year, I would harvest up to 10 tons. Although our village received food aid in 1986, it was maize which we are not used to, but we would gladly accept this year.

The Council members had told the government’s agricultural service representative in September 1990 that their reserves would not last and had also reported it to the District Chief at the end of November. Both men in turn report to

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the early-warning system, S.A.P., but as of April, there was no news about food distributions for Wolokoro.

Nonetheless, they tried various activities to ease next year’s economic difficulties, such as migration, livestock sales, dry season gardening and food rationing. In ‘normal’ years, seasonal migration involves about 30 per cent of the able bodied workers, usually men. This year at least 20 per cent had left for the Ivory Coast, and a further 60 per cent were still looking for work elsewhere in Mali. It is significant that some had migrated as early as December, just after the harvest. Several households sent their sons to work on the government’s irrigated rice field (Office du Niger). Some youths had travelled south to Bamako and west to Kayes to look for work as household servants. Yet while many youths had routinely done this in years after good harvests to save for marriage expenses, it had increasingly become a ‘coping strategy’ as they had to forfeit their savings and remit the money to their families left in the villages. To the best of the Chief’s knowledge, only one 100 kg sack of grain had arrived in December as a remittance from Bamako.

We were told that much livestock had already been sold and that villagers counted themselves lucky if they had any small ruminants left to sell, provided they could find a buyer. Those with livestock were able to save their seed grain while many poorer households had already been forced to eat the seed they had stored for the following season. According to the Chief, no-one’s grain from the 1990—91 harvest lasted more than two months.

Strategies adopted by family members included sending small children to dig up ooteques (grasshopper larvae) — half-inch brown pods buried in fields and under trees awaiting the first rains in order to hatch. Some women had also planted individual gardens with salad, tomatoes, onions, tobacco, pimento and potatoes. As there was limited land available near the wells, the amount available to sell was low.

When asked what they would do differently next year to prevent food problems, the Council’s response was that they would ‘confide in God and his rain.’ They did not plan to abandon their village, even though little help seemed to be forthcoming.

KALOUMBA

This was the largest of the five villages visited, with an exclusively Sarakhole population of 1,500 in 81 households. These were agro-pastoralists who cultivated millet and sorghum, some maize, dah (hibiscus), groundnut, beans and gumbo (okra).

Their 1989/90 harvest had been sufficient until the following year but, after the payment of taxes, this year’s grain reserves were as low as in 1983/4. On one field, 500 mounds (200 kg) had been harvested in 1990—91 compared to 2,000 mounds (800 kg) in 1988. To appreciate the impact of harvesting only one quarter of the expected yield, one must remember that 50 per cent of the population of Mali is under the age of 25 and that the proportion of dependents to productive adults is rising every year. Such low harvests increase both the pressure to migrate and the competition for scarce local jobs. Seasonal cash-for-work — for example on road improvements — could employ these workers locally while improving access to the village. This would also help women who travel to Mourdiah and Nara markets to sell their produce. The day we arrived, several women had spent hours in the bush gathering leaves and seeds to sell as ‘famine foods’ in these markets to supplement their household income.

One village elder reminded me that migration of the ‘bras valides’ may be a burden as well as a blessing. This happens when one of the migrants is injured or becomes ill due to poor living conditions. In these cases, the family must go to fetch him or her, spend scarce currency, lose an
income, lose a fieldworker and gain another mouth to feed. This happens often enough to be a deterrent to migration but it was stressed that, this year, there was not a household in the village which had not been forced by circumstances to send a youth to work elsewhere. All those over 15, without small children, had been asked by the Chief to leave and seek work.

But when poor households lost their field workers and had less seed to plant (having eaten their reserves) they could not plant early varieties and had to wait longer for the harvest. Thus, they survived in the short run while being forced to continue in a long term cycle of hunger. On the other hand, without an injection of new capital via remittances and seed from those working in Nara or Bamako, their harvest would be too small to cover their expenses even for the four months of rain.

N'TOMINKORO

Sedentarized Soninkhe, Peulhs and Maures dominated this pastoralist village about 20 km from the laterite road. Most households tended fields in addition to herding livestock. They had planted 60 per cent millet and 40 per cent sorghum and beans, but half of these crops were lost in 1991 due to drought. The food produced was for consumption within the village and was sold only when money was needed for taxes. This is often typical for those agro-pastoralists who rely on livestock for their primary income, providing they can afford to store grain and live off of revenues from their animals.

A 15–20 hectare field which would be expected to yield 10,000 kg in a good year and 5–6,000 kg in an average year, produced only 2,750 kg in 1990–91. This shortfall was attributed to drought, grasshoppers, and birds. Villagers planted two varieties of millet to hedge their (rainfall) bets. According to the Chief, the millet of the longer growing and indigenous variety, *sanyo*, was being sown less while the early, fast-growing *souna* which needed more rain but took only two and a half to three months to ripen was growing in popularity. This was primarily because, as the *souna* matures, people start cutting and eating the unripe heads of grain during pre-harvest months of hunger, around September. This is the opposite of the choice made by Gallo’s cultivators.

The village Council had decided that they would follow the advice of the agricultural expert next year by adding organic fertilizer to the fields most in use and chemical fertilizer to other fields. They had been reluctant to use the latter because they had found before that, without heavy rain, yields actually fell in comparison with untreated fields. But they hope that, after two years of less-than-normal rainfall, next year will be better, and are willing to take the risk on small parcels of land.

In April, 70 per cent of all ‘able-bodied workers’ had left to search for seasonal work, whereas in a good year, only 25 per cent would have left. But thus far the villagers had received neither money nor grain from the migrants, and they could only hope that the migrants would return in May with sufficient millet to take them through the planting season.

N’Tominkoro does have a village association, or *ton*, which is a source of food for themselves and other villages in the area. The *ton* is organized as a wholesaler for grain and goods, using a system of governmental credit from the central bank to purchase grain at low harvest prices and to store it for later use and sale. It is run by an executive committee of ten men, with the rest of the village as *ton* members. This committee has expanded its role by investing profits from sales of grain in the purchase of groundnuts, salt, soap, tea, sugar, aspirin and niviquin, which they buy in Nara and resell in N’Tominkoro.

This association originated with men of the village working together on a communal
field between 1986 and 1989. They sold the harvest at the local store and put the proceeds away to pay the government 'water and forests' fine for members caught chopping down trees (for livestock fodder) without a licence. This communal work then led to the local authorities legitimizing them as a ton in 1989. While work on the communal field continues, the ton has produced quite substantial profits for the committee and association members. It has also increased the availability of cheaper grain at a time when prices are up to two and a half times their December level. They had also used profits to speculate in livestock, buying small ruminants in March, when pastoralists and poorer households were starting to sell, fattening them and reselling in June and July.

CONCLUSION

The coping strategies documented here are only a few of the ingenious ways in which rural Malians are adapting to change to ensure long-run viability. Decreasing harvests have increasingly led them to rely on income generated from outside their agricultural and pastoral activities of June to December. Dry season strategies need to be supported by development projects which use the surplus labour available during these months to improve, both financially and nutritionally, prospects for a successful year once the rains begin. Two kinds of projects suggest themselves. Firstly, local labour could be employed to improve the infrastructure (e.g., roads and communal granaries, if any). Secondly, training programmes could be introduced, possibly at the district town, to teach basic adult literacy, the repair of well pumps and new cultivation and herding techniques. Such projects would be most successful in supporting local initiatives if they were coordinated with the provision of credit through cereal banks. As the coping strategies described above illustrate, there is no lack of willingness to work throughout the dry season. This annual shift in occupation and residence may, in fact, be becoming normal in these marginal areas. We must recognize the flexibility and diversification of activities in central Mali (and elsewhere) during the 'soudure' as strategies which have become vital for survival.

Note

This report is based upon a survey carried out in March and April 1991 in the company of Alex Kremer (ODA pest control project) and Aminata Simpara (a Bambara interpreter). It was part of a field study (February–June 1991) during which I interviewed 24 village council and village association heads in partial fulfillment of dissertation research at The Fletcher School of Law and Diplomacy (USA). It was funded by the Pew Charitable Trust (USA) and based upon recent work as a research associate at the African Studies Centre, University of Cambridge.

References


The need for systematic and organised data for disaster response and management has been an increasing concern of both international and national relief agencies. Until recently, each agency approached the problem in a relatively ad hoc manner collecting the information at the time of the emergency. As a result, data were incomplete, outdated or unuseable for a variety of reasons, even if better quality information existed. The time pressure to respond quickly for fund raising or relief planning was usually paramount and the quality and availability of information suffered. This reflected a lack of preparedness by a community of professionals who have, in recent years, actively promoted disaster preparedness.

Why has such a database not been constructed or compiled earlier, especially since many of the data were available? The principal answer lies in the reactive nature of disaster management. Action was always taken post facto and pre-planning was rarely considered a funding or policy priority. However, with the increase in the number of disasters requiring external assistance and the recurrent nature of some disasters (e.g., floods in Bangladesh), donors (governments, bilateral and multilateral aid agencies) are increasingly aware of the need for a rational approach to disaster relief. The need to improve the efficacy of emergency missions, including needs assessments, has been highlighted with particular reference to the requirement for systematically organised information.

The Emergency Preparedness and Response Office of the World Health Organisation noted the importance of a planned response and the rationalisation of relief, as well as the need for speedily provided country briefs for emergency missions. The Office undertook an examination of the feasibility and the conceptual design of systems to answer these needs.

DISASTER EVENTS DATABASE (EM-DAT)

The Centre for Research on the Epidemiology of Disasters (CRED) has explored possible designs for, and the feasibility of, a system of databases for the management of and response to disasters globally. An Emergency Management Information System (EMIS) was designed to provide rapid and accurate information for eventual use by the World Health Organisation and other agencies involved in disaster preparedness and response. The original design of the system is presented in Figure 1.

In the second phase, CRED developed Subsystem B in greater detail with three databases that were of greatest general need in preparedness, rapid response planning and emergency briefing. (Figure 2). These were: (a) disaster events and their essential characteristics; (b) key information related to disasters or relevant to planning response by country; and (c) disaster-related institu-
FIGURE 1  Emergency Management Information System: outline and contents

FIGURE 2  Emergency Management Information System: layout for databases on sub-system B

tional and human resources by country. This article presents the technical aspects of the first of these databases — Disaster Events Database or EM-DAT.

DESCRIPTION AND STRUCTURE

The database was developed using resources provided by the University of
Louvain and CRED. The existing computer support and documentation collection at CRED provided the basis for the start-up. Staff supported by the University provided daily management and data entry services for the system. Additional staff support was provided by CRED. The project currently involves four staff members (part-time) with two external assistants for short-term programming and research.

EM-DAT is currently operational with its own menu for updates, modifications and retrievals. It has 5870 records and is being checked case by case for redundancies, inconsistencies and completion of missing data.

METHODOLOGICAL ISSUES IN EM-DAT OPERATION

The definition of a disaster is much debated and various versions are used by different agencies, largely according to their needs. According to the World Health Organisation,

A disaster is any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area. (WHO Manual, Section XV.4 article 20, 1/3/89.)

For the purposes of the database, a working definition had to be formulated to help the data manager and technical staff to decide what would constitute a valid case for entry. The following definition, worked out in collaboration with UNDRO, is currently in use:

An interruption in time and space of normal processes beyond the coping capacity of the community, causing death, injury or homelessness, direct material losses and/or negative economic impact. The interruption can be either sudden or gradual onset.

This definition encompasses the following categories.

(1) Sudden natural disasters:
- disasters of geological origin, e.g. earthquakes, landslides, avalanche, volcanic activity, tsunami;
- disasters of hydro-meteorological origin, e.g. floods, high wind (tropical cyclones, hurricanes and typhoons), local storms, extremes of weather (heat or cold); and
- insect infestation.

(2) Natural disasters of gradual onset:
- e.g. drought, famine (food shortage plus malnutrition and their consequences), epidemic disease.

(3) Man-made disasters:
- violent mass conflicts, e.g. civil war, major riots, uprisings;
- political origins, not necessarily violent, e.g. displaced persons (mass evacuation, refugees, expellees);
- accidents, e.g. transportation, food or insecticide poisoning, explosions; and
- chemical accidents, e.g. factory explosion, nuclear accident but not including slow pollution.

The categorisation of disasters significantly affects the validity and accuracy of the information gathered. The typology used for the EM-DAT is shown in Table 1. It has many weaknesses and will be reviewed and refined. Many questions can be raised about the typology but it is easy to lose sight of what is practical and feasible in maintaining the database at the optimal level of detail without entailing a major investment of staff and materials.

The general approach is to have as many clearly defined categories as possible. Although this detailed categorisation means that the information is more useful for specialists, it poses logistical problems. It increases the number of categories so that the retrieval of data usually requires the selection of a number of categories, thus complicating procedures for retrieval and use. Hurricanes, typhoons and cyclones, for
example, are disasters created by high winds and are largely differentiated by their place of origin. In simple terms, all of these phenomena are tropical cyclones. Typhoons and hurricanes are local terms used for those originating in the Pacific (China Sea region) and the Caribbean seas respectively. Thus, classifying them separately unnecessarily sub-divides a group which would normally be considered as a whole. Any retrieval, in this form, would require selecting all of the different sub-types that are relevant and adding them to obtain the total. In this case, it may make it simpler for most users if all these events were entered under one category, namely high winds. Obviously, in the comments section, the exact nature, specific location and path of the event would be provided for the interested user.

The problem is less obvious for other disasters. ‘Displaced persons’, for example, is listed as a category separate from famine, civil unrest and drought. But displaced persons are a consequence of the disaster, albeit often the principal one, not the disaster itself. From the user’s point of view, the event should be recorded in the form most appropriate for the database’s objectives — i.e., policy formulation, prioritisation and relief efficiency. It was decided, therefore, that ‘displaced persons’ should be entered as the event itself and that its cause should be entered in the comments section.

There are other ambiguities within this category. Currently, it includes only expellees (those persons expelled from their country of residence, such as Indians from Uganda); returnees (those persons obliged to return to their home countries, such as Mozambicans from South Africa) and refugees (those persons obliged to leave their home country because of religious, racial or political persecution). There are other groups, however, which also belong, potentially, to this category, such as persons forced to move due to the scarcity of food and water, or those who have moved due to civil war. Sometimes these groups move within their own country and do not cross international borders and are therefore not refugees or expellees. The question remains whether all types of displaced persons should be recorded within the same category or whether there should be separate categories for those outside and inside their national borders.

The problem of typology is currently addressed by classifying a disaster according to the list shown in Table 1. All other relevant information is then entered in the comments section. This allows for the deletion and creation of categories as necessary.

There are several other important issues related to the typology of disasters that require conceptual clarification. The main consideration in deciding on a typology for a database is that there is sufficient detail for it to be meaningful without being so detailed as to make it over complicated for the wide user community.
CRITERIA FOR ENTRY

The following criteria are used for entering an event in the database.

A disaster has to have killed 10 or more persons or affected 100 or more persons. An international appeal for assistance, however, takes first precedence for entry, even if the first two criteria are not fulfilled.

Where there is conflicting information, priority is given to data from the government of the affected country, followed by UNDRO and OFDA, in that order. If, however, two of the above sources provide the same estimate, this figure would then have priority over the third, regardless of its source. All other estimates are registered in the comments section and any research or analytical work should be undertaken using all the information available on that record. It should be emphasised that this does not reflect the value placed on the quality of data. It is well known that, especially in disasters, most reporting sources have a vested interest in the numbers they report. Figures are inflated or deflated according to socio-political considerations.

Certain events require different criteria for entry. For displaced persons, any displacement of 2000 or more persons (but not necessarily any killed) would be eligible for entry into the database. Similarly, for drought and famine, the threshold for entry is 2000 or more affected persons. Fires present another special case. There are industrial or urban fires and bush or forest fires. Some of the latter can go on for months or even years. Fires and accidents must be sudden to be eligible and the criteria for entry are those for natural disasters (i.e., 10 dead or 100 affected). As for chemical accidents, all reported events are entered, even if there are no dead or affected.

Finally, dates have been a source of ambiguity. The declared date for an event such as a famine is on the one hand necessary but on the other almost meaningless. Neither famines nor population displacements occur on one particular date. Civil strife occasionally erupts on a precise date but it also builds up over time. Similarly, there is rarely an exact date for the outbreak of an epidemic. For these events, the declaration of an emergency by an appropriate body has to be used as the date for entry and, as always, further information is entered in the comments section.

One might have thought that, for natural sudden-onset disasters (cyclones, earthquakes, flash floods), the date of the occurrence and date of declaration would be identical. In practice, however, there are often discrepancies between these two dates. The declaration of an emergency varies widely according to who declares it and the government concerned. Sometimes external agencies declare an emergency before national authorities and sometimes it is the opposite. The declaration often takes place one or two days after the actual occurrence. For natural disasters, the solution is relatively easy. The physical occurrence of earthquakes, cyclones and other sudden natural events are generally well monitored and scientifically accurate information is available. The problem is much more difficult for the slow onset and man-made disaster, where declaration is as much a political decision as an issue of fact.

STATISTICAL INFORMATION

There are five variables for statistical information: number of persons killed, number of persons injured, number of persons homeless, number of persons affected and the monetary value of losses sustained. Each of these has definitional ambiguities that require clarification.

The number of persons killed as an immediate consequence of the disaster should include all confirmed dead, all missing and all presumed dead. If the event is entered immediately after its actual
occurrence, the number of 'missing' is often not included in the estimated dead, particularly if the source provides preliminary figures. Estimates of dead currently include all confirmed dead in the immediate post-impact period. Later estimates of dead will include those missing for a lengthy period. With no international standards, this definition varies from source to source. Currently, CRED checks each entry for clarification on this point.

'Persons injured' is meant to include all those with physical injuries requiring medical attention or hospitalisation. It remains to be decided whether ambulatory care, provided at the site of the disaster, should be included, as well as what constitutes medical care. It should be remembered that care provided by para-medics and other auxiliary medical personnel is often the main source and form of care in the immediate aftermath. Whether all persons receiving these services would qualify as injured is also an issue. A simpler alternative could be only to include physical trauma, such as fractures and crushes. This has the advantage of clearly defining the scope of the variable, but it excludes important health effects that are not traumatic. In addition, the classification of severe psychological stress and its effects remains unresolved. Injuries are currently registered only for those disasters that may entail acute physical injury, such as earthquakes, cyclones and avalanches. Famines and epidemics do not have injuries recorded, only numbers dead or affected.

Homelessness is defined as loss of personal residence. Another discrepancy in reporting units arises, in the case of the affected and homeless, where the units may be individuals or families. The current procedure is to convert all figures into individuals by multiplying the families by the average family size of the region (5.6 for developing countries and 3.5 for developed countries). For a less crude estimate one could use the specific average family size for the country in question but, given the quality of the base figure, such refinements may be unnecessary.

Defining 'persons affected' is extremely difficult because there is a wide variety of parameters. In famines and civil strife, for example, major structural breakdowns in the social and economic framework are the essential elements that are responsible for the human impact. An estimate of the population affected by such a breakdown must always be relatively broad.

Disparities in units of reporting have also posed a problem. The monetary value of damages may, for example, be provided in U.S. dollars or the local currency. On the one hand, it is simpler to leave the currency unit in the form in which the source has reported it and convert it only when the event is of interest. On the other hand, this precludes comparisons or computations that are often required by users, such as the total annual financial damage caused by a type of disaster, or the total losses sustained by a country. The uniform conversion of all reported losses into one currency unit (U.S. dollars or Swiss Franc) may be easily programmed in but it should be standardised to a base index value (consumer price index) for it to be truly comparable.

Insurance and re-insurance companies would make a good source for damage estimates but there can be serious biases in their data. They would, for example, only report insured damages, which do not reflect the real damage caused. In addition, in developing countries, personal property is only insured by the wealthier members of the community and therefore the use of insurance data can be seriously misleading for relief and rehabilitation purposes.

CONCLUSIONS AND FUTURE DEVELOPMENTS

The creation of a valid and useable database for disasters is fundamentally dependent on the clarity of the concepts and definitions
underlying it. In a field that has only recently engaged a professional and scientific interest, this conceptual development is in its infancy. Individual disciplines that are traditionally involved in disaster research, such as geology, engineering, meteorology and other earth and atmospheric sciences, have their own definitions and information systems. The issue becomes complex when a multi-disciplinary database has to be compiled that brings together, in an optimal mix, data from different disciplines with different conceptual bases.

Experience so far in putting together the EM-DAT database has given every indication that such an enterprise is feasible, but with one very important qualification: the collaboration of different disciplines and the establishment of a working network is essential for its success. An informal association with some of the major figures in the field of disaster data collection has already been established by CRED as the project has developed.

Two main directions are envisaged for the development of the project through the extension of its scope to include the following information groups.

(a) **Donor response**: This concerns amounts and types of relief. The exact layout and detail of data to be entered remains to be defined. The projected use of the data will determine the nature of its contents.

(b) **Physical characteristics of the event**: These are its physical indices (e.g. Richter, Mercalli and other readings, wind speeds and paths), location and precise time of occurrence. Ambiguities in the declared date of the event will be avoided by using only such scientifically based data.

It is clear that substantial research is needed into the design of methodologies for estimating the numbers of dead or in need of food or life-line services in disasters. This is important, not only in order to gain more reliable information, but also to improve disaster response management. The adoption of standard methods and agreed definitions by major international agencies would improve the quality of estimates quickly, with minimum investment.

**Note**

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**Debarati G. Sapir**  
Claudine Misson  
Centre for Research on Disaster Epidemiology (CRED)  
University of Louvain School of Public Health  
B-1200 Brussels  
Belgium
The Refugee Studies Programme (RSP) started in 1982, with a three-year Fellowship awarded to Dr B.E. Harrell-Bond by the United Kingdom Overseas Development Administration to study forced migration. Today, the RSP is part of a Department of the University, Queen Elizabeth House, Oxford’s International Development Centre. With a professional staff of 12, plus Visitors, Research Associates and clerical support, the RSP is dedicated to the multidisciplinary study of forced migration in all its aspects, through the activities of research, teaching, publication and other information services. The Programme is entirely self-financed, receiving no continuing University or Government funding.

The objectives of the RSP were formally established in its five-year Development Plan, 1987-92. They are:

1. To pioneer the multidisciplinary study of the causes and consequences of human displacement in its many aspects — political, legal, cultural, socio-economic, psychological and physiological.

2. To design its activities to feed into policy-making and aid practice. To this end, RSP secures the collaboration of practitioners, policy-makers and displaced people in the development of its research, information and education activities. In particular, the RSP emphasizes the need to involve displaced people themselves in all aspects of programmes that affect them.

3. To improve the quality of aid programme planning and evaluation, and of professional training.

4. To foster the development of similar programmes of research education and information, particularly in centres of learning in Third World host countries.

As these objectives show, the RSP is not only an academic research institute: it is also interested in practical, policy-oriented research, and in training which will effectively improve assistance policies and practice. RSP seeks to counter false stereotypes of refugee dependency and helplessness. Experience shows that labelling people as passive units of relief consumption, without reference to their actual needs, views and capacities, leads to inappropriate and wasteful assistance programmes. For the countries which host displaced populations, such policies mean that refugees become a burden, rather than a positive resource for development. For the refugees themselves, they mean enforced dependency.

Today, there are over 18 million recognised refugees and probably more than 20 million displaced people in ‘refugee-like’ situations. The world community is beginning to realise that the ‘refugee problem’ is not merely a temporary phenomenon, but endemic to today’s world
system. The RSP’s research activities emphasize the maxim that ‘refugees are not a problem; they are people with problems’.

RESEARCH

Research is carried out by research staff, Associates and Visiting Research Fellows. They represent a range of research disciplines, including anthropology, ecology, economics, geography, international relations, law, medicine, nutrition, psychology, and sociology. Geographical areas covered include Southern, Eastern and Northern Africa, South and South-East Asia, the Middle East, Europe and North America.

The link between RSP research and practical policy is exemplified in the work of the three staff researchers in the Programme. Current research by Dr Ken Wilson (Research Officer) is centred on the effects of war and displacement in Mozambique, and neighbouring countries affected by Mozambican refugees. The main themes of Dr Wilson’s research have been:

— the nature of the war in Mozambique; the processes and experience of violence, and how this generates social experience and displacement;
— livelihood strategies of refugees, as a basis for designing better aid interventions;
— the nature of refugee societies and their interaction with local host populations and the aid agencies;
— socio-religious movements and the experience of war and displacement;
— the process of repatriation and re-integration, including institutional as well as socio-economic dimensions; and
— the re-creation of society with peace, including its local and state centred dynamics in the interaction between social, economic and political processes.

In close collaboration with Mozambican government bodies, and with funding from several aid agencies, Dr Wilson will be undertaking extensive field work in Mozambique over 1991–92 on the above themes, with the focus upon the construction of peace.

Dr Nicholas Van Hear (HRH Crown Prince el Hassan bin Talal of Jordan Researcher) has been monitoring the fundamental shifts in the patterns of migration and displacement set in motion by the Gulf conflict. Dr Van Hear intends to incorporate his work on these developments into a wider study of mass expulsions and mass exoduses of migrants and ‘alien’ communities: such episodes have been under-researched in the past because they fall into a ‘grey area’ between migration and refugee studies, and many of the people involved do not fall under the mandate of any international organisation.

Dr Andrew Shacknove, a lawyer and political scientist who is Joyce Pearce Research Fellow at the RSP, is focusing his work on the collapse of the protection regime established by the UN Refugee Convention and developed over the past forty years. One concern is to identify new procedural and institutional arrangements to meet the changed needs of both refugees and governments regarding protection. Another is the recent changes in asylum procedures in Europe. Over the past year, Dr Shacknove has used his research to comment on proposed refugee legislation in a number of countries, leading to the proposals being halted, rescinded or modified to the benefit of refugees.

The Programme always seeks to involve in-country researchers in its research and engages in collaborative work with other institutions wherever appropriate. Currently, for example, the Director, Dr Barbara Harrell-Bond, and Dr Roger Zetter (RSP Research Associate and Editor of the Journal of Refugee Studies) are engaged in a major study of the role of NGOs in assistance to refugees in Southern Africa: this is a collaborative project with researchers from the
University of Zimbabwe and Chancellor College, Malawi.

The RSP Visitors' Programme enables academics and senior professionals concerned with refugees to undertake research using RSP's resource base. Among the topics pursued by Visiting Research Fellows in the past academic year have been:

- the concept of asylum in Islamic law;
- psychosocial aspects of repatriation in South Africa;
- a comparative study of resettlement programmes and policies in the UK and USA; and
- the internally displaced in the Eastern Province of Sri Lanka.

RSP's research strategy is informed by the annual meeting of the International Research Advisory Panel for Refugee Studies (IRAP), an RSP initiative now approaching its third year, and increasingly regarded as the main occasion for researchers in the field to discuss work in progress, the state of the art and future research directions. IRAP is attended by around 70 researchers, practitioners and policy-makers from throughout the world, and is intended as a 'think tank' affecting practice as well as the beginning of an international professional association for the multi-disciplinary study of forced migration. Throughout RSP's research efforts, the emphasis is on practical, policy oriented research which feeds into other aspects of the programme, such as practitioner training or public education.

TEACHING AND TRAINING

The RSP's teaching and training programmes are closely related to its research programme. Most Fellows and Associates participate in both, and research reports are used in practical training, as well as being presented in academic seminars. Practitioner training has been an important part of RSP's work since 1985, and a Course Training Officer was appointed in 1988. The Programme is committed to the view that people who work with refugees need specialist training, and those who are already experienced workers in the field require regular in-service training. This should be characterised by a multi-disciplinary content and an emphasis on the critical examination of the assumptions and theories which underlie humanitarian assistance, policy and protection.

The programme of courses is developed in response to a growing number of requests from agencies and host governments. The core course, an intensive four week Summer Programme, spans a number of disciplines and is designed for managerial staff involved in assistance, resettlement or development programmes for refugees and displaced people in countries of first asylum. It contains modules on International refugee law, Issues in the management and administration of refugee assistance, Psychosocial issues in forced migration, Refugees and international relations, and Socio-economic aspects of forced migration. In addition, shorter courses and specialist workshops for both researchers and practitioners are offered throughout the year: recent topics have included refugee health, international refugee law, and cross-cultural sensitivity.

The RSP Visitors' Programme invites Study and Research Fellows to pursue their investigations into questions of forced migration, through taught courses and supervised research. Within the Visitors' Programme, a core syllabus has been devised for Visiting Study Fellows and others. Taught throughout the University termtime at Master of Studies level, it is designed as essential background study for both future researchers and those who are working, or intend to work in refugee assistance. The idea of instituting a course which would provide a University qualification has been seriously considered by the Programme, and it has been concluded that
RSP teaching should continue as an in-service resource grounded in the concept of continuing education, and as basic preparation for researchers.

In addition to the Foundation course and short courses, the RSP sponsors a weekly seminar series on forced migration, in which papers are presented by a wide variety of experts in the refugee field, including agency workers, government officials and refugees themselves, as well as scholars. Open to the public and the media as well as RSP Fellows and members of the University, these seminars are very well attended.

INFORMATION SERVICES

The many information services operated by the RSP are based in both the Programme's research strengths and the contact with practitioners, policy makers and refugees embodied in its training and Fellowship programmes. Broadly, information services may be broken down into four categories: publication, documentation, public education and specialist information provision.

The RSP's publications include many books and articles by RSP staff, associates and fellows, some (such as the Directory of Current Research on Refugees and Other Forced Migrants, and Political Pawns — Refugees on the Thai-Kampuchean Border) published by the Programme, others (such as Imposing Aid: Emergency Assistance to Refugees, Refugees In the Age of Total War and Displaced Peoples and Refugee Studies: a Resource Guide) by major publishers. Articles have been contributed to many academic journals and other periodicals.

The Journal of Refugee Studies is published quarterly by Oxford University Press, and edited within RSP by Dr Roger Zetter. It has provided the first specific forum for multi-disciplinary academic discourse on involuntary migration. The editorial policy is to cover a wide range of different geographical locations and research methods, and to include material which provides a voice for practitioners and refugees.

The Refugee Participation Network newsletter links some 1,500 practitioners, refugees and researchers in 75 countries. It publishes practically-oriented articles written in an accessible style intended to stimulate debate, and is widely used as a teaching and training resource both within and outside the Programme. Apart from the Newsletter, RPN functions as a resource for members seeking access to information, literature in specific fields and contacts. The newsletter is free of charge and non-copyright protected, to encourage its duplication and re-use by members. Members have also taken the initiative to set up regional sub-networks in the Sudan, Kenya and Uganda.

The RSP's Documentation Centre is a unique library, housing around 10,000 items on forced migration issues, including much material unavailable elsewhere. The catalogue, through the HURIDOCS classification system, is linked to other organisations concerned with human rights and refugee issues, and is accessible internationally. An accessions list is issued on a monthly basis, and sent to a network of over 100 institutions. There is also an increasing demand for the production of selective bibliographical materials. An increasing focus is the acquisition of personal papers from former senior administrators and others concerned with refugee issues.

Central to the RSP's purposes is the organisation of major public symposia and other meetings on relevant issues. In 1991, a large symposium was held on the nutrition crisis among refugees, which focussed on nutrition-related disease and deaths among refugees held in camps and dependent on international food aid. Other public meetings this year have included workshops on the Pontian repatriation to Greece, the situation in East Timor, the
Kurdish refugee emergency and Mozambican refugees. The aim of these meetings is both to discuss significant research findings and to inform the media and public about important refugee issues.

In addition to its established information services, the RSP is receiving an increasing number of requests from various agencies for specialist advice and information. These include the Office of the United Nations High Commissioner for Refugees, UK voluntary and statutory agencies, and human rights organisations and other NGOs.

THE FUTURE

The RSP has grown rapidly in its short life, and is currently undergoing a period of consolidation. Future directions for the Programme will be built on its core activities of research, teaching and information in such a way as to strengthen the synergy between the varied activities carried out by RSP, deepen the links between the Programme and the international community of researchers and practitioners in the field of forced migration, and meet the challenges thrown up by the changing world refugee situation.

Mark Leopold
Refugee Studies Programme
University of Oxford
Queen Elizabeth House
21, St Giles
Oxford, OX1 3LA
UK

The Workshop had four main aims: to provide an international forum to discuss the possible implications of different reconstruction policies; to receive reports on recent experiences, developments and advances in reconstruction and to review interdisciplinary thinking on the subject; to explore reconstruction issues of particular research interest (settlement planning, outside intervention, local participation, socio-cultural and economic dimensions and environmental impacts); and to reach conclusions on ways of involving governments and international bodies in the development and application of sound policies to promote successful reconstruction. Moreover, the Workshop was planned with a wider aspiration in mind; namely, to make the reconstruction policies of governments more responsive to the needs of people, through encouraging a network of workshops to promote such policies, disseminate knowledge and monitor practice across the world. More than 40 delegates, from twenty countries, attended the Workshop and 25 papers were presented.

R.J. Green (Town Planner, Totnes, Devon) spoke about Britain's experience in reconstruction after the Second World War and drew a number of lessons which, he claimed, had international implications. Acknowledging remarkable achievements in physical reconstruction, education, health and housing in the two decades following the War, he nevertheless pointed out that many of Britain's post-war plans failed to achieve their long term aims. He suggested two ways in which resources could be made to fit future reconstruction needs. Firstly, at the international level, some proportion of national taxation could be devoted to a reconstruction fund, administered by the United Nations, to be made available for projects supported by individual governments. Secondly, at the local level, the development process should be seen as continuous and self-financing, so that land profits from one venture could be used to finance another, in a 'rolling' regional fund.

Professor Phil Haywood (School of Planning and Landscape, Queensland University of Technology, Brisbane) argued that 'in situations of very great shelter demand, it is appropriate to allow individuals to provide their own dwellings and for the public authorities to concentrate on basic services including drains, water, paving and power'. In providing such services, authorities should depend largely on local labour, thereby developing economically valuable skills. He stressed the need for genuine local participation: 'If the last 20 years have shown nothing else, they have proved that governments cannot transform societies by themselves: there is no alternative to thorough-going public involvement, and this will mean planners discovering what people want and working with them to help achieve it'.

A review of the rehabilitation, resettlement and reconstruction programmes implemented by the Nigerian Central and Local Governments after the Civil War (1960-70) was presented by Dr Adenrele Awotona (School of Architecture, Huddersfield Polytechnic). The Nigerian reconstruction objectives reflected the realisation that the war had 'only worsened an already defective economic structure'. These objectives included not only the rehabilitation of the war damaged areas but also the reconstruction of the economy as a whole. Dr Awotona concluded that 'the reconstruction plans were far from being comprehensive'. This was a well argued paper, based on a sound methodology, which deserves to be read by all reconstruction policy makers.

Although Saad Al-Zubaidi (Ministry of Housing and Construction, Baghdad) could not make it to York because of visa problems, a video film made under his supervision arrived in time to be seen by the participants, amongst whom it provoked strong disagreement. Some felt it was mainly propaganda, while others saw it as countering one-sided reporting by the Western media during the war. Whatever the rights and wrongs of this argument, the 35 minute film provided, for the first time, an accurate assess-
ment (by different Iraqi ministries) of damage caused by the bombing of Baghdad. This included damage to the infrastructure as well as to residential areas, hospitals, health services, education and the environment.

Dr Akbar Zargar (School of Architecture and Town Planning, Shahid Beheshti University, Tehran) presented a paper written by himself and a colleague from the same institution, Mohsen Poor, on the rebuilding of Khoramshahr City, southwestern Iran. During the eight-year war with Iraq, one third of the city was razed to the ground. Before the war it had enjoyed great importance as a port and was known for its rich palm plantations. The issue of its reconstruction, however, led to arguments about whether its continued existence was justified, other ports having been developed during the war. This case generated an interesting debate between those who believed that the city should be allowed the time to evolve, so that reconstruction plans could be evaluated and adapted accordingly, and those who felt that it should be demolished.

Dr Ali Parsa (Department of Estate Management, South Bank Polytechnic, London) discussed measures for utilising domestic and external capital to finance post-war reconstruction in the developing countries. He predicted that, because of recent political and economic events, most of the available international funds (including those from rich Arab states) would be directed towards the reconstruction of Eastern Europe rather than towards war-torn developing countries. There was thus an ever-growing need to maximise locally available resources.

Mary Roslin (School of Architectural Studies, University of Sheffield) focussed on community participation in settlement reconstruction. Based on the unhappy experience of building housing estates in Britain during the 1950s and 60s, she argued that 'Wherever housing stress exists, we are looking for a transformation, and the only important difference in this respect between many post-war situations and the UK experience of tackling inner-city neglect is the point at which the professional intervention is made'. Recognising that 'participation has to be tailor-made to each situation', she pointed out that people may not be used to expressing their views publicly and that war leaves psychological and emotional scars that could make it difficult for people to identify their future needs and participate in the bewildering and unfamiliar task of reconstruction.

The need for more appropriate need-assessment techniques in post-war situations was raised by Souheil El-Masri (University of Newcastle-upon-Tyne). He explained the methods he used to assess people's needs in the reconstruction of Al-Burjain village in Lebanon — including discussions with key figures, selected family case studies and a qualitative survey.

Soumyen Bandyopadhyay (School of Architecture and Building Engineering, University of Liverpool) presented a paper about a different type of war in Oman, '... a war of very distinctive properties, a war of development'. Acknowledging that great achievements had been made in the development of Oman over the past 25 years, he pointed out that there had also been a number of grave mistakes — in neighbourhood planning, the inappropriate application of building regulations and preconceived ideas about spacial planning and stylistic expressions. We have much to learn, he argued, from traditional settlements, in terms both of planning and architecture. Settlement reconstruction should not be a means simply of expressing government glory.

The issue of government interests versus people's needs was raised forcefully by Balvinder Singh (Guru Ramdass School of Planning, Guru Nanak Dev University, Amritsar). During the partition of India in 1947, communal riots had led to the walled city of Amritsar being burned down. Since 1951, 56 reconstruction projects had been carried out but, due to the lack of overall planning, each project had little or no relationship with its surrounding area. In 1988—89, a 30m area encircling the Golden Temple Complex was demolished, at a cost of £30 million, in the name of redevelopment but with a hidden political aim: the creation of a security zone. The people who opposed this demolition were never allowed to give public expression to their opposition, with the result that the city now suffers from a semi-destroyed heart.

Djamal Athari (an Iranian architect studying at the University of Paris X, Nanterre) spoke about the effect of revolutionary changes on post-war reconstruction in Iran. The total cost of
damage caused by the eight-year war with Iraq has been estimated at $1,000 billion, with 30 cities and more than 3000 villages having been affected. But, three years after the ceasefire, only 8 per cent of reconstruction work has been completed, while the lack of a local administrative structure remains a bitter fact, twelve years after the revolution. The government should pursue a 'bottom-up' approach to planning by encouraging the local power sharing (shora) that emerged after the revolution, not only in rural but also in urban areas. Mixed-use areas in traditional towns and cities should replace the imported zoning system so favoured by Western trained professionals.

Patrick Stanton (Association of Pioneer Rescue Officers, UK) brought the participants back to the bitter reality of war by describing his experience of dealing with Kurdish refugees in Iran. Although Iran hosted an estimated 1,200,000 refugees while Turkey hosted 500,000, a disproportionate amount of Western aid was sent to Turkey. Stanton’s main message was that intervention should be looked upon as a measure to prevent atrocities and to assist people to help themselves. He reminded us of the human costs of war as they affect not only refugees but also relief and rescue staff.

R. Iyagba, D. Langford and R. Fellows (University of Bath) discussed the role of multinational contractors in reconstruction work in the Middle East. Designers were problem solvers who had to solve cultural and environmental problems as well as technical ones. Local work methods, project organisation and the choice of the appropriate technology and materials — these were all related to the culture of the place and project managers could not achieve their goals if they did not recognise the cultural component in management.

Kazem Memarzia (Iranian engineer and doctoral student at the Institute of Advanced Architectural Studies, University of York (IoAAS)), spoke about the ‘reconstruction of human relations’. War, he said, is just another means of promoting the one-way flow of economic benefits from the poorer to the richer nations which is characteristic of present day international economic relations. The ‘New World Order’ should, ideally, be built on cooperation, mutual exchange and equality. In practice, the provision of direct military aid and of aid which is conditional on medium-term benefits to the donor nation is seen by the powerful countries as an expression of the interconnectedness of the modern world.

Sultan Barakat (IoAAS) put forward the notion of a ‘sub-culture of war’ which comes into existence when the threat of war begins to affect the life of the community and which brings to the surface pre-existing social problems. War as a cultural experience manifests itself in every aspect of the life of a community living at war: literature, poetry, songs, wall graffiti and the press. It is the responsibility of governments to be aware of these expressions in the interests of comprehensive, wide-ranging reconstruction planning, capable of meeting people’s grievances, releasing their energies and regenerating hope. It is therefore crucial for successful reconstruction to understand the exact nature of the sub-culture that has developed during the war.

This argument was largely supported and enlarged by Ross Gilhome’s (School of Architecture, South Bank Polytechnic, London, UK) paper on ‘popular culture and its use in expiating the past in post-war social reconstruction’. He emphasised the role of the Arts in preserving national and social identity during and after the war and in helping to identify and address social problems. He referred to a number of European and contemporary Latin American films and also to various poets, novelists and cartoonists whose work had conveyed powerful ideas and images during the two World Wars, the Vietnam war, the ‘dirty wars’ in Latin America and in Northern Ireland and the Falklands. He also mentioned memorials, not just physical structures but also the renaming of public spaces and streets, as a way of commemorating popular war heroes.

The theme of memorials was taken up by Iskra Penkova (Institute of National Monuments, Sofia, Bulgaria) who argued that architects have a role to play in preserving the memory of war as a reminder of the suffering of innocent people. She referred to a number of interesting architectural memorials in Europe and presented her own design for a memorial to the victims of chemical attacks on the city of Halabja in Iraq.

Hossam Mahdy (Egyptian architect and doctoral student at the Mackintosh School of Architecture, Glasgow) discussed the ‘post-war architectural conservation’ of historic buildings,
rather than of entire settlements and neighbourhoods. The physical conservation of architectural monuments was justified, despite desperate post-war economic conditions, because, as repositories of emotional, cultural and social values, they have a key role to play in the restoration of national pride.

Debora Vasquez-Velasquez (Guatemalan student at the School of Architecture, Leeds Polytechnic) spoke about the ‘forgotten’ wars that have left millions as refugees around the world. She drew a contrast between two regions, both ex-colonies of Spain: Central America, where there are 300,000 Guatemalian and Salvadorian refugees in Mexico, and the Western Sahara, where there are 165,000 Sahrawi refugees in southeastern Algeria. In Central America, despite rich natural resources, the refugees live in extremely poor conditions, dependent on short-term charity, while in the Western Sahara, despite the harsh environment, the Sahrawis have developed alternative means of settlement, relying on their own efforts but with the help of long-term development aid.

Sultan Barakat followed up this theme with a circulated paper on the ‘hidden’ war against the Palestinian population in the Israeli occupied territories. The Israeli authorities clearly understand the cultural and social value of a family house, since they have made it a daily practice to destroy the houses of whole families in reprisal for ‘offences’, whether committed by a person from that household or not. According to figures from the UNRWA office in Jerusalem, 615 houses have been demolished since the beginning of the Intifada in December 1987 up to May 1991. It is important to note the extent of physical damage, rather than simply human casualties, because of the cultural and social suffering that results from the loss of shelter and from the closure of educational and training institutions, youth and community centres, when 50 per cent of the population is under the age of fourteen.

Drs Koff and Chesnokova (Institute of Lithosphere, USSR Academy of Sciences) spoke about the possible effects of the Gulf War on the geo-systems of southern Iraq. Using Soviet and American satellite imagery and updated landscape maps, they identified various ways in which the war had caused a sharp increase in environmental vulnerability — such as military vehicle tracks, trenches, bombing and various kinds of contamination (such as radiation fields, thermal radiation, fires and chemical contamination). One striking observation made in the paper was that ‘... the bombing of Iraq caused land movements and aggravated the possibility of earthquakes in the southern states of the Soviet Union’.

The main conclusions and recommendations to emerge from the Workshop centred around three issues: (1) the preparation of a ‘Reconstruction Charter’, embodying principles discussed at the Second York Workshop in 1989; (2) the creation of a network of study centres, to be coordinated by the IoAAS and devoted to the collection and dissemination of information on the management and planning of post-war reconstruction; (3) the need to address issues of environmental sustainability at every stage of reconstruction work and long-term planning.

In order to advance these objectives, anyone sharing similar interests in settlement reconstruction is invited to contact Charles Cockburn or S. Barakat at the address below.

Sultan Barakat
Post-war Reconstruction and Development Unit (PRDU)
Institute of Advanced Architectural Studies
The King’s Manor,
University of York,
York, Y01 2EP

The Refugee Crisis: Geographical Perspectives on Forced Migration, King’s College, University of London, 18–20 September, 1991

This conference brought together an international audience, with twenty-two speakers from twelve countries. Most were geographers, but also present were social scientists from the related disciplines of economic history, sociology, political science and anthropology, working on broadly geographical topics. Eight sessions over three days covered the themes of refugees and geopolitics; the integration of refugees in the Third World, and in Europe; the experiences of refugees who repatriate, and of environmental refugees; refugee policy in the Third World; as well as three sessions dealing specifically with South East Asian refugees, and refugee flows in
the Middle East and Eastern Europe. The conference was organized by two study groups of the Institute of British Geographers, the Developing Areas Research Group (DARG) and the Population Geography Study Group (PGSG), and followed an earlier DARG conference this year which focused on disasters. Funding was provided by the Economic and Social Research Council (ESRC) and the Nuffield Foundation.

Perhaps the most striking feature of the conference was the eclectic nature of the contributions. Individual papers included detailed historical narratives of the genesis of certain refugee situations, as with contributions on the refugee problem of Armenia (Myklebost, Oslo), and recent population movements from Iraq and Kuwait (Van Hear, Oxford), as well as theoretically-inspired papers which delved into the causes of refugee movements (Ngolle Ngolle, Yaoundé), and so-called durable solutions (Koser, UCL). Within the wide-ranging discussion that ensued, a number of themes emerged on which there was extended debate throughout the formal proceedings of the conference. Two of these themes are highlighted in this report, although their selection represents, to a certain extent, the particular interests and perspective of the author. In addition, directions for future research were discussed, and these too are considered here.

Definitions

An overriding concern of many papers presented to the conference was the question of how to define a refugee, and this appears an appropriate place to start a review. In international law, the definition of the UN convention of 1951 (someone who has a well-founded fear of persecution on grounds of race, religion, nationality, membership of a particular social group or political opinion) is well known, although this legal definition was the subject of scrutiny by Cho (Canberra) in a paper on Southeast Asian refugees. However, whilst some speakers sought explicitly to extend the definition, to cover, for example, environmental refugees (Essuman-Johnson, Ghana), other papers included in the conference reflected the organizers’ desire to place refugee flows in context, as for example with presentations on the reception of the German ‘aussiedler’ in West Germany by Heller and Hofmann (Göttingen), and on repatriation by Simon (RHNC, London) and Preston (Warwick), and Koser.

Discussion throughout the conference centred on the purpose of definition. For example, in terms of the need for protection of refugees in their country of asylum, a tight definition of political refugees may be necessary to identify individuals in continuing danger. However, in many other respects, it was argued that legal definitions, as they are currently interpreted in international law, are inadequate. In particular, the interaction of different causes in generating involuntary migration, as for example in the simultaneous breakdown of political security and economic collapse in some countries of Africa and elsewhere, may make a distinction between ‘political’ and ‘economic’ migrants meaningless. This fact is implicitly recognised by many field agencies dealing with refugee flows. Several contributors and participants attacked Western nations’ records on tightening up definitions of refugees to avoid accepting asylum claims, and there were calls on academic and policy grounds to place the interests of refugees themselves uppermost. As well as the political side to this debate, in which there was general agreement that states should adopt a more lenient stance towards refugees, regardless of definitions, there was also an unresolved academic question as to where (and if) to draw a line between refugees and other migrants. Harrell-Bond (Oxford) warned against subsuming refugee studies within a wider category of ‘migration studies’, stressing the particular socio-economic and political situation of involuntary migrants. If nothing else, such a distinction helps to highlight the relative paucity of research on refugees vis-à-vis other migrants. Refugees are often politically powerless, and especially vulnerable to economic and social marginalization. However, other contributors pointed out the necessity in refugee research to draw on parallel studies of voluntary migration, so as to ensure that neither theoretical nor empirical work attempted to ‘re-invent the wheel’. Meanwhile, Robinson (Swansea), argued that useful insights could be sought in related disciplines, such as the field of ethnic relations.

Overall, important similarities between refugees and other migrants were discussed,
including the combinations of factors that lead to decisions to move; the occurrence of both individual and mass migrations; the fact that both immigrants and refugees generally plan for return to their home country; and the similar economic and political contexts into which refugees and other migrants move, where both marginalization and racism are common problems.

Geographical approaches to refugee studies

A second theme that permeated the conference was the significance, and uniqueness, of geographical approaches to refugee studies. Although the role of geography was rarely discussed explicitly, it was clear that whilst geographers had been assiduous in carrying out varied detailed studies of case examples of refugee migration, there had been relatively little development of either comparative research, or of a distinctive theoretical perspective. Indeed, many of the contributions appeared largely atheoretical, treating individual refugee situations themselves as unique events or occurrences.

To a certain extent, geographical work on refugees could be strengthened by drawing on the insights of other disciplines, in the manner outlined by Robinson above. Nonetheless, some distinctive areas also emerged in which geography could provide a lead. These include studies that focus, for example, on the role of place in generating and perpetuating conflicts that cause refugee flows; studies that focus on spatial aspects of refugee flows, such as the diffusion of disease (Prothero) or indeed new ideas and technologies; and studies which concentrate on people-environment interactions in forced migration, whether in terms of environmental factors causing or contributing to refugee movements, or in terms of the impact of migration on the environment in host regions.

The first of these issues, the role of place, received some discussion at the conference, and was explicitly referred to in the first day’s presentations on Palestine (Rowley, Sheffield) and Armenia (Myklebost). In both cases, conflicting claims to places as ‘homelands’ with specific ideological significance had helped to perpetuate violence and worsen the situation of substantial refugee populations. In contrast, however, discussion of a paper by Findlay (Glasgow) focused on the mistaken notion that refugees will inevitably wish to return to a place they regard as ‘home’ as soon as it is possible to do so. Findlay provided an incisive commentary on attempts by western nations to persuade Afghan refugees to return to their country of origin after Soviet withdrawal, even though many refugees regard it as unsafe, and certainly economically disastrous to do so.

Several papers presented at the conference took on board the second issue outlined above, namely the specifically spatial aspects of refugee migration. This was most prominent in a session on dispersal policies for refugees in Europe, in which the Swedish and Belgian experiences were outlined by Hammar (Stockholm) and Norro (Leuven) respectively. In both cases, it was clear that the policy of dispersal of refugees to smaller towns was motivated not by the needs of refugees themselves, but by a combination of dubious social theory and administrative preference. In neither case had secondary migration, back to the major cities, been avoided. Other contributions to consider specifically spatial issues included Prothero’s paper on the spread of disease amongst populations forced to migrate; a paper by Kliot (Haifa) on locational factors which influence the security and level of integration of refugees in host societies; and a paper by Kocharjan et al. (Moscow) which focused on the distribution of different ethnic populations in the Eastern European and Central Asian republics, and prospects for inter-group violence and subsequent refugee movements after the break-up of the Soviet state.

A third area of geographical enquiry, that of people-environment interactions, was touched on directly by only one speaker, Essuman-Johnson who, ironically, is not a geographer, but a political scientist. Along with a submitted paper on refugees from riverine hazards in Bangladesh (Haque, Brandon, who was unable to attend), this contribution stimulated some discussion of an area in which geographers must surely be active in the future. Essuman-Johnson reminded the audience that even ‘natural’ disasters such as the Sahel drought can be linked to political ‘causes’, whilst research questions concerning the integration, in this case, of people moving from Burkina Faso into Ghana, directly parallel those of classic refugee situations.

The conference was not restricted, however,
by the search for a distinctive geographical approach to refugee studies, and indeed, a number of papers demonstrated both the influence of subjects outside geography on geographical work on refugees, and the need for further interdisciplinary collaboration. An excellent example was provided by Monzel (Syracuse) in her paper on a Hmong refugee community in the US, which drew on anthropological techniques of participant observation and depth interviews to portray the experience of three Hmong women. Monzel's analysis sought to understand the women's experience through the concepts of powerlessness and marginality.

Similarly, a paper by Farmer (Waikato) drew on sociological theories of assimilation and ethnic resilience to examine the integration of Southeast Asian refugees in New Zealand, whilst Bascom (East Carolina) and Daley (Oxford) both adopted a political economic approach to analyse refugee integration in the Sudan and Tanzania respectively.

Ways forward for research on refugees

A number of the presentations represented reports of on-going research, and in this sense, certainly, the future interest of geographers in the field of refugee studies seems assured. Several delegates stressed the paucity of reliable data on refugees, which sets the topic apart from many other areas of migration research. The collection of further baseline empirical data on particular refugee situations would appear to remain a major task not only of geography, but also of other social science disciplines. Nonetheless, other speakers pointed out that international organizations and government departments dealing with refugees are becoming increasingly adept at collecting statistics on refugees, but that this is tailored only to their particular practical (or political) requirements, reducing its academic value. In this sense, what is needed is more independent research, based on sound methodological and theoretical principles, to help explain the causes and consequences of refugee migration, rather than simply documenting migratory patterns.

Several key areas were identified in which research effort might be concentrated, including:

— development of longitudinal studies of refugee populations, to replace the 'snap-shot' approach of much existing work;
— establishment of a sounder theoretical basis for refugee studies, building on existing work in the fields of migration and ethnic relations;
— studies which seek to understand the refugee experience as a whole, implying both a plural methodological approach to research, and extension of refugee research to cover the complex area of repatriation;
— greater independence from governments and field agencies, to produce research which whilst not divorced from practical concerns, will nonetheless take a broader historical and contextual view of refugee situations; and
— development, particularly by geographers, of international comparative research.

Naturally, such prescriptions were not, and could not be to everyone's taste. Nonetheless, with conflicts changing shape but continuing in intensity in Africa, the Middle East, Southeast Asia, and Central America, and growing insecurity in Eastern Europe and Central Asia, it is clear that the presence of large numbers of refugees in the world is a phenomenon that the world's academics, as well as its politicians, must come to terms with. The pattern of geographers' interest in this important topic remains to be seen.

Richard Black
Department of Geography
King's College
University of London
London WC2R 2LS
**BOOK REVIEWS**


This book focuses on 'threat' — defined as actual or potential disruption of the normal functioning of technical, ecological or social systems — rather than on 'risk', with that term's implications of objectively quantifiable hazards; the environment referred to is essentially the social one, rather than the exclusively ecological one. Cases considered include seat-belt legislation; herbicide and animal growth-hormone safety; control of biotechnology; and, almost inevitably, radiation hazard and other problems associated with nuclear energy. There is also some overlap of cases studied and of the discussions of the underlying basic issues, but the effect is that of listening into a discussion rather than of duplication.

The contributions develop a number of important themes relating to the management of threats — seen here as increasingly generated by the very technologies which diminish natural hazards. The most significant of these is the inadequacy of now-classic operations research approaches to risk assessment, arising from **legitimately** different sets of beliefs about the origins and controllability of hazards. Other sub-themes include the counter-productiveness of the technocrats' model of the public as emotional and technically illiterate; the problems of working with poor quality statistical data; the ultimate intractability of many statistical problems (anyone with experience of time series analysis will echo this); and the inappropriate extensions of models of responsibility from criminal law to the public management of threat.

Together they form a very useful survey of one social science's perspective of a very important topic and certainly deserve a place on the shelves of anyone researching in this area. Unfortunately, it is only a single social science perspective: essentially that of the sociologist, the person who believes his or her theoretical framework must be adequate to the interpretation of the topic. It would have been useful to have had more of the anthropological perspective as well: the view that insider 'native language' accounts of how those inside the problem see it may provide significant alternative frameworks. (The one specifically anthropological contribution clings valiantly to the tail-end of the book.) And it does preach to the converted: this format will not convince a single engineer or economist that they need to adopt other, additional perspectives: other sociologists may not need to be shocked into the realisation that different groups 'construct reality' in different ways, but to the engineer, the very phrase is a self-contradiction. Perhaps an eye- (and mind-) opening introduction along these lines would have greatly widened the appeal and impact of what remains a very sound offering.

**Peter Smith**
University of Manchester


This is the fifth in a series of development guidelines published by Oxfam. Each of the previous books provided a summary of experience in the field of evaluation, with accompanying guidelines for practitioners. In contrast, this volume is more speculative and focusses on the philosophy behind the evaluation of social development projects, concentrating on how the poor can be empowered by participation in evaluation.

The book stems from a conference held at the Centre for Development Studies, Swansea in 1989, the purpose of which was to '... structure, describe, and detail an appropriate approach, framework and methodology for the evaluation of social development' (p. 37). This was an ambitious programme and one the volume does not, by its own admission, come close to fulfilling. However, the application of ideas of participation to evaluation is theoretically useful, for
if projects are of a participatory nature then it makes sense that their evaluation should be also, as participatory development presumably should not be switched on and off at the donors’ requirement. But as the editors make clear, how participatory evaluation can be operationalized is little understood. One of the purposes of the volume was therefore to inspire further empirical research in this area.

The Introduction gives a concise summary of the book’s contents and those pressed for time may want to stop there. The rest of the book is divided into five main sections. First, comes a somewhat rambling introductory essay on the meaning of social development by David Marsden, followed by a concise essay by Peter Oakley presenting a conceptual framework for the qualitative evaluation of social development. The following four sections consist of thematic papers on different evaluation themes, followed by a review of workshop papers and discussion. The themes chosen were: qualitative dimensions of social development evaluation (SDE); methodology of SDE; partnership in SDE; and the evaluator in SDE.

Common to all participants was a criticism of the narrowness and inappropriateness for SDE of economic methods of evaluation such as cost benefit analysis, linked to criticism of the control of knowledge and power by donors. As such, the volume fits with attempts (insufficiently acknowledged by the authors of this book) made in various disciplines, including sociology, history and geography, to oppose analysis that reduces people to ‘economic man’, from which much work on participation has taken its direction.

The conference participants were more proficient at criticizing narrow economic methods of evaluation than providing suggestions for non-economic analysis. Essentially, the book is concerned with questions that have caused perennial difficulties for social scientists: how is it possible to ‘measure’ social change, raised consciousness, or human happiness? What techniques are available to demonstrate that a poor person has become a fully integrated individual as the result of a development project? Several times in the book the point is made that a mesh of the qualitative and quantitative is necessary for such analysis, but a theoretical and methodological framework for such a mesh has remained elusive in the social sciences, and it is not surprising that the conference could not advance understanding of this problem.

Despite its wordiness and repetition, the book is a useful tentative first step towards establishing a framework for participatory evaluation. Those involved with evaluation may want to experiment with ways in which the SDE theory outlined can be put into practice, and investigate if poor people are interested in taking part in evaluations (a point taken for granted in the book).

Tony Beck
University of British Columbia


The editors of this book of essays begin their introduction with a disarming confession. There was no reason to suppose that eleven friends and admirers of Robert Gardiner, given a free choice of subject, would produce a comprehensive analysis of sub-Saharan Africa’s economic problems. The editors go on to claim, though, that their range and pertinence is ‘greater than prior expectation would expect’.

Expectations are tricky things. It is enough to say that the editors assembled an interesting group of contributors, who have written much that is worth reading. If I have a general criticism, it is that the contributors should have avoided the temptation to make use of the most recent events, at the time of writing, to illustrate their arguments. The inevitable delays in publication render such comment out of date very quickly, and occasionally give an air of ephemeral journalism to a set of papers that on the whole take an admirably historical and long term look at events in Africa.

Among the most interesting papers are the three on Ghana, all written with the authority of those who are summarising a considerable depth of knowledge in a fairly short paper. Both Joe Abbey, one of the key figures in the recovery programme in Ghana, and John Toye accept the basic orthodoxy of the programme, but are also
realistic about some of its problems and its limitations. The dilemmas they highlight include:
that government needs both to increase govern-
ment pay and reduce its deficits; that credit must
be constrained but producers need large
increases in credit for working capital needs
sharply increased by devaluation and the ending
of price controls. The implications are that other
forms of government spending, and tax
revenues, must be adjusted even more than
would otherwise be the case, and that govern-
ment needs to run a surplus not just to cut a
deficit. Failure to realise these arguments must
surely be a factor in the abandonment of other
programmes. Moreover, the capacity of banks to
respond to changed circumstances is not just a
matter of credit aggregates: the large changes in
relative prices caused large shifts in the profit-
ability of different firms. It was not easy for the
banks, virtually the only source of credit, to
distinguish which was which, while also coping
with the bad debts created. As so often,
economic advice has little to say about non-
marginal price changes. Mike Faber's paper on
the renegotiation of finances of the Volta River
project is at the same time readable and wonder-
fully clear about the main issues, the negoti-
ating position and objectives of each party, and the
reasonably satisfactory outcome.

The papers by Reg Green and Peter Robson
on economic integration, one of Gardiner's long-
standing activities, are as enthusiastic as ever
about the benefits, as well as being realistic about
the failures to date (although Green's setting up
of SADCC as a relative success seems a bid odd,
since it is not a trading arrangement — the trad-
ing of Botswana, for example, is mainly
influenced by the Southern African Customs
Union and the free trade agreement with
Zimbabwe, while SADCC figures hardly at all in
the discussion of economic policy in
Gaborone, in the reviewer's experience). The
benefits of economic integration are genuine
enough; but the case for large scale industrial
investments planned to serve a given area
behind protective barriers (even if a common
external tariff in a common trading area) has
surely been destroyed by repeated unsuccessful
experiments. A larger market, maybe, but so as
to be able to have several competing companies,
with large scale local monopolies only if they
compete in international markets. These papers
are complemented by a realistic assessment by
Teshome Mulat that intra-African trade will not
provide a boost to growth in the foreseeable
future (although some recovery may result from
the trade liberalisations which are part of
structural adjustment programmes, limited by
their dependence on tied aid).

Space does not allow much comment on
the other papers: Hans Singer is as lucid as ever on
the right ways to provide food aid; and James
Pickett provides some interesting comparative
statistics on the low income countries in Africa
and their prospects. It is disappointing though
that he dismisses Botswana's extraordinary
success (8.8 per cent growth in GNP per capita
for 20 years) with the words 'mineral rich'. Other
mineral rich countries have not enjoyed 20 years
of 10 per cent per annum growth in formal sector
employment and rapidly rising manufactured
exports. Maybe Africa has something to learn
from its few successes, however small and lucky.

Charles Harvey
Institute of Development Studies, Sussex University

Disasters and Disaster Stress, by A.J.W. Taylor.
Stress in Modern Society, No. 10, AMS

Emergency services and health care workers will
find this a useful introduction to the literature
and current thinking in disaster practice.
Professor Taylor introduces information on stress
in the community and amongst various helping
groups which could assist professionals and
voluntary organisations.

Disaster stress is presented as a 'trinity' of
adversity: mental stressors, health stressors and
environmental stressors. In the classification
of potential victims there is a broadening of groups
who have potential problems from the victims
and onlookers and their families to people who
react by providing inappropriate aid (perhaps a
wider group than would be expected) and people
who are uninvolved but identify with the
incident.

The material covers the literature on disasters
and presents the field of behavioural science in
perspective. It is evident that there is nothing new in disasters, either in the behaviour of victims or response patterns. Perhaps behavioural scientists will use the information in the book to review their practices and produce services which are relevant to the psychological needs of the affected populations.

Sally Leivesley
Brisbane, Australia
TYPHOON RESISTANT SHELTER IN THE PHILIPPINES

International Study Visit 4-9 May 1992

The Core Shelter Project is an outstanding housing project in the Philippines, which provides typhoon resistant homes for low income families. These homes are easily constructed using local materials and self-help and are capable of withstanding typhoons of up to 180 kph. 16,000 homes have been built to date, providing homes for the poorest of the poor in the Philippines. Previously these people's houses had been destroyed annually by typhoons.

Emphasis is placed upon developing and promoting the self-reliance of the people, with teams of 5-6 families working together to construct their own houses.

The project has been instigated by the Department of Social Welfare and Development of the Republic of the Philippines, with technical advice being given by the Asian Disaster Preparedness Centre of Bangkok. Technical assistance is provided for all families and extension and upgrading of the Core Shelters is encouraged.

With the provision of a permanent dwelling, families have the time, resources and incentive to undertake income generating projects and vegetable and herb gardening.

The provision of a Core Shelter House therefore provides more than simply a home, it restores a sense of dignity, a spirit of self-help and self-reliance and brings an all round improvement in the quality of people's lives.

The purpose of the study visit is to obtain an in-depth understanding of the project. Intensive site visits will form a major part of the study visit, providing an opportunity not only to see the houses but to talk to the people who live in them and the technical personnel who advise and train the self-builders.

For further details and application forms please contact

Mrs Diane Diacon
Building and Social Housing Foundation
Memorial Square
Coalville
Leicestershire
LE6 4EU
United Kingdom

Tel: 0530 510444
Fax: 0530 510332
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