EVIDENCE-BASED DECISION-MAKING

AND

MANAGERIAL CHAOS

IN

POPULATION DISPLACEMENT EMERGENCIES

A Case Study of Rohingya Refugees in Bangladesh 1992-93

A Thesis submitted in accordance with the requirements of the University of Liverpool for the Degree of Doctor of Philosophy by

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ABSTRACT

EVIDENCE-BASED DECISION-MAKING AND MANAGERIAL CHAOS IN POPULATION DISPLACEMENT EMERGENCIES

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by Patricia Muriel Diskett, August 1997

The aim of the thesis is to explore (from a management perspective), the role, potential and limitations of evidence-based decision-making in an acute population displacement emergency. Using an epidemiological approach, I evaluate its effectiveness in reducing and controlling mortality, malnutrition and disease outbreaks. Influences on the approach, blocks and facilitating factors are also identified. The difficulties associated with using a rational approach in a chaotic setting are confronted. The literature review (Chapter 1) draws on lessons learnt from selected previous emergencies and identifies opportunities and problem areas.

This case study describes and analyzes the first year of an emergency relief programme for 250,000 Rohingya refugees in Bangladesh. The research is based on primary data collected using three main methods and verified through triangulation. These methods are participant observation, action research and epidemiological methods. Data are drawn from 20 refugee camps, 16 NGOs, selected UN agencies and government departments. The methods and context of the study are described in Chapters 2 and 3 respectively.

The emergency in Bangladesh is described from different viewpoints in order to analyze the chaotic conditions under which the epidemiological approach was tested. Models are developed showing emergency phases from four perspectives. The demographic and epidemiological paradigms are discussed in Chapter 4, while the political and managerial viewpoints are analyzed in Chapter 5.

Similar to other emergencies, a sequence of events and trends can be identified. In the models these are shown as clear phases in the relief programme. Unlike some other emergencies, a number of the phases described occur concurrently rather than sequentially. For example, repatriation is an issue during the arrival (acute emergency) phase and acute crises occur in an apparently stable (continuation) phase.

The relationships between crude mortality rates, malnutrition rates, disease outbreaks and the various factors affecting decisions, are examined in Chapter 6. When using an epidemiological approach, a number of limitations are noted. Rapid decisions need to be made during the acute emergency phase, but the data needed for decision-making are of poor quality and information is not available in a timely way. When useable information is available, political and organisational factors inhibit rational decision-making. These factors can have a negative effect on the health and nutritional status of the refugees. Political influences on decision-making are particularly strong. At times, political priorities take precedence over epidemiological evidence.

Evidence-based decision-making can be used effectively by emergency managers to influence change. However managers and relief workers frequently lack the training and skills which are necessary to fully utilise such an approach. An analysis of political events, organisational factors and managerial chaos is of benefit (in support of evidence-based decision-making), as it facilitates a better understanding of constraints and opportunities (Chapter 7). Areas which require further research are summarised in Chapter 8.

DEDICATION

This thesis is dedicated to Liz and Lily Barnett,

without whose support, I would have given up long ago and Professor Ken Newell (deceased), for his encouragement and inspiration at the beginning.

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GLOSSARY

Child Mortality Rate

The proportion of children under five years who die from any cause during a specified time period. The under [<] 5 years mortality rate is calculated as follows: No of deaths during the week in children < 5 years divided by 7, gives the average number of deaths per day. Divide this figure by the average < 5 years population and multiply by 10,000. This will give a rate expressed as < 5 years deaths per 10,000 per day averaged over one week.

The benchmarks for mortality in children less than five years old [< 5yrs] are roughly double the CMRs (see below), that is a rate greater than 2/10,000/day signifies a very serious situation and greater than 4/10,000/day, the emergency is out of control (Hakewill and Moren, 1991).

Crude Mortality Rate

The proportion of the population who die from any cause during a specified time period. The Crude Mortality Rate [CMR] is calculated as follows: No of deaths during the week in the population divided by 7, gives the average number of deaths per day. Divide this figure by the average population and multiply by 10,000. This will give a rate expressed as deaths per 10,000 per day, averaged over one week.

A crude mortality rate [CMR] of < 0.5/10,000/day is considered normal in many developing countries. A relief programme under control has a CMR of <1/10,000/day. A CMR greater than 1/10,000/day signifies a very serious situation and greater than 2/10,000/day is an emergency out of control.

Disaster

A precipitating event, emergency or ecological disruption, which results in the increased vulnerability of the affected communities, **and leads to excess mortality and morbidity**. The community does not have the capacity to cope (either in the short term or foreseeable future) and needs **appropriate** external assistance.

Emergency

A sudden state of danger which may or may not develop into a disaster

Epidemiological Approach	Collecting epidemiological data on a variety of health problems and risk factors and using it in order to assess priorities, identify changing health needs, investigate problems and influence change
Hazard	A potentially damaging phenomena which affects a particular zone. The magnitude of the phenomenon, the probability of its occurrence and the extent of its impact can vary.
Humanitarian Emergency	*"A situation in which large numbers of people are dependant on humanitarian assistance - especially food, water, medical care and shelter - from sources external to their own society in order to avoid serious malnutrition or death; and/or large numbers of people are in need of physical protection in order to have access to subsistence or external assistance"* (US Mission to the UN, 1996 p1)
Internally Displaced Person	Someone who is displaced from his/her own home but remains within the boundaries of their own country. As such, s/he is controlled by the laws, policies and politics of that country and has no internationally recognised status and thus no rights of "protection".
Malnutrition Rate	The proportion of children over 6 months and < 5 years who are malnourished at a given point in time. Malnutrition is defined using a weight for height index as: children greater than [>] than 80 % standard weight for height = acceptable; < 80 % standard weight for height = moderately malnourished and < 70 % = severely malnourished. In emergencies a malnutrition rate is considered to be within normal limits when less than 10% of the children (6 months to < 5 years) have a weight for height index [WT/HT] of < 80% and/or oedema. A malnutrition rate of 10 - 20% indicates a serious situation whereas greater than 20% is very serious and out of control (UNHCR, 1983; OXFAM, 1984; MSF, 1995).
Refugee	"Any person, who owing to a well founded fear of persecution for reasons of race, nationality, religion, member of a particular social group or political opinion is outside of the country of his/her nationality who is unable, or owing to such fear, is unwilling to avail himself/ herself of the protection of that country....."

ABBREVIATIONS

ACC/SCN	Administrative Committee on Coordination/Sub Committee on Nutrition
ADB	Asian Development Bank
AMDA	Association of Medical Doctors of Asia
ANC	Ante Natal Care
BDRCS	Bangladesh Red Crescent Society
c	circa
CDC	Centre for Disease Control, Atlanta Georgia
CHW	Community Health Worker
CMHM	Christian Memorial Hospital, Malamghat
CMR	Crude Mortality Rate
COB	Church of Bangladesh
COIC	Camp Officer in Charge
CU	Concern Universal
DPHE	Department of Public Health Engineering
DP(s)	Displaced Person(s)
EC	European Community
EDTC	Emergency Diarrhoea Treatment Centre (only to be activated in the event of an epidemic as opposed to ORS/C which operated all the time)
EPI	Expanded Programme of Immunisation
EPIDAT	Epidemiological data
EU	European Union
Fcom	Forestry Commission
FP	Family Planning
FNMC	Food and Nutrition Management Committee
GK	Gonoshasthya Kendra
GOB	Government of Bangladesh
GOM	Government of Myanmar
HAP	Health Action Plan
HIS(s)	Health Information System(s)
HKI	Helen Keller International
HNMC	Health and Nutrition Management Committee
HT	Height
IDA	International Development Association (a part of the World Bank [WB])

IDP	Internally Displaced Person/People
IFRCS	International Federation of Red Cross and Red Crescent Societies
IIRO	International Islamic Relief Organisation
IPD	In-Patient Department (small hospital facility of about 8 beds)
IPHN	Institute of Public Health and Nutrition, Dhaka, Bangladesh
IR/UK	Islamic Relief/UK
ISRA/P	Islamic Solidarity Relief Association/Pakistan
ISRA/S	Islamic Solidarity Relief Association/Sudan
J	Journal
JEEA	Joint Evaluation of Emergency Assistance to Rwanda
Kcals	Kilo Calories
LB	Log Book
LSTM	Liverpool School of Tropical Medicine
MCH	Maternal and Child Health
MOD	Ministry of Defence
MOFA	Ministry of Foreign Affairs
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
MOR	Ministry of Relief
MMWR	Morbidity and Mortality Weekly Report
MRG	Minority Rights Group
MSF	Medecins Sans Frontiers
MSF/F	MSF/France
MSF/H	MSF/Holland
MUAC	Mid Upper Arm Circumference
NAP	Nutrition Action Plan
NGO	Non-Government Organisation
OAU	Organisation of African Unity
ODA	Overseas Development Administration, London, UK.
ODI	Overseas Development Institute, London, UK
OPD	Out Patients Department (basic curative care clinics)
ORS	Oral Rehydration Salts
ORS/C	ORS Centre (or clinic)
OXFAM	Oxford Committee for Famine Relief, Oxford, UK
PDE(s)	Population Displacement Emergencies(s)
PHC	Primary Health Care
POE	Panel of Experts (meeting in Dhaka 29.6.92)
PTSS	Programme and Technical Support Services, UNHCR, Geneva
RIH	Rabita (Islamic) Hospital

RRRC	Relief Refugee and Repatriation Commissioner
RRR/CCC	RRRC Coordinating Committee
SCF/UK	Save the Children Fund, United Kingdom
SFC	Supplementary Feeding Centre
SFP	Supplementary Feeding Programme
Sq km(s)	Square Kilometre(s)
Surv	Nutrition Surveys
TB	Tuberculosis
TBA	Traditional Birth Attendants
TBCP	TB Control Programme
TDH/N	Terre Des Hommes/Netherlands
TFC	Therapeutic Feeding Centre
TFP	Therapeutic Feeding Programme
UK	United Kingdom of Great Britain and Northern Ireland
UN	United Nations
UNICEF	United Nations International Children Emergency Fund
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNRWA	United Nations Relief and Works Agency
US	United States (of America)
USA	United States of America
USAID	United States Administration for International Development
WB	World Bank
WC	World Concern
WFP	World Food Programme
WHIB	Weekly Health Information Bulletin
WHO	World Health Organisation
WSC	Water and Sanitation Committee
WT	Weight
WT/HT	Weight for Height (Index)
WW 1	The First World War (1914-18)
WW 2	The Second World War (1939-45)
<	Less than
>	More than
< 5 yrs	Less than 5 years old
%	Percentage

INTRODUCTION

Evidence-Based Decision-Making and Managerial Chaos in Population Displacement Emergencies

A Case Study of Rohingya Regugees in Bangladesh 1992-1993

Evidence-Based Decision-Making and Managerial Chaos in Population Displacement Emergencies

A Case Study of Rohingya Refugees in Bangladesh

1992-1993

Introduction

During 12 years of working with OXFAM (a British Non-Government Organisation [NGO]), I was involved in many different disaster relief programmes, often assisting large numbers of people who had been forcibly displaced from their homes. Over the years, it became apparent that while theoretical knowledge regarding the health care of displaced populations [DPs] had increased dramatically, death rates in some emergencies often remained unacceptably high - despite the presence of relief agencies.

The reasons for these apparent relief failures are complex, but in some instances it has been observed in the literature (Editorial, *The Lancet*, 1990) that there was a failure to use an epidemiological approach when planning rational relief responses. However my own observations led me to believe that, while this view may be valid, it was too simplistic. If decision-making was not evidence-based then a greater understanding of the limitations of an epidemiological approach, and the factors facilitating or constraining it, would be necessary in order to improve evidence-based decision-making within the context of international disaster relief.

In addition, health risk factors in refugee camps were often assessed primarily from a technical viewpoint (such as water supply, nutrition status, access to health care). Yet other factors were also very relevant, including political will to assist, national capacity to respond, finance available, skills/experience and capacity of relief agencies and staff. The importance of these issues was often underestimated in recent epidemiological studies, especially during the acute, often confused, phase of emergencies (the first four months) when most deaths are known to occur (Toole and Waldman, 1988 and 1990).

In short, the literature seemed to confirm my own observations, that despite increasing theoretical and epidemiological knowledge of emergencies in the last ten years, there was still a large gap between theory (recognised sound policies) and practice. I was therefore interested to explore the role and limitations of an epidemiological or evidence-based approach in this context.

In the literature, it is often assumed that data collection leads to rational data use which will in turn help to formulate policy and influence implementation and vice versa (policy formulation leads to identification of information needs for decision-making and monitoring purposes). However in practice we know that this process is not always rational, logical or sequential. The challenge then is to test out evidence-based decision-making from a management perspective. The intention is to apply a rational science in a chaotic emergency setting, in order to influence outcomes and to study the feasibility and effectiveness of such an approach for future emergencies.

To try to gain a clearer understanding of the dynamics of relief operations, it seemed useful to study one large operation in depth, rather than looking at several perhaps more superficially, or analyzing previous relief operations. A retrospective study was not considered feasible due to the sensitivity of the information needed and the type of data required. Where evaluations of relief operations have been attempted, often by international aid agencies reviewing their own performance, this information has usually remained confidential to the agency concerned. It is also likely to be biased[1] and not verifiable (Motla, 1994). It was clear that the wide ranging (and sometimes confidential) information needed for such a study, could only be accessed through working within a large dynamic emergency relief programme, at a fairly senior level.

In selecting a relief programme for study several criteria were used:

* involvement would need to be from the very beginning of assistance in order to test this approach in the acute phase of an emergency
* a large number of refugees and relief agencies would be involved; the scale of the relief operation should be comparable with other recent emergencies so that lessons learnt may be useful for future similar events
* there needed to be a risk that high death rates could result allowing the impact of evidence-based decision-making to be assessed

[1] The agency often needs to assess its own performance in the best possible light in order not to discourage its donors and sponsors - it needs to show value for money. In addition, internal evaluations are often highly subjective, their scope is too narrow (focused on one particular element of the relief programme or are incomplete) and the quality questionable (can not be verified).

The ethics of carrying out research while refugees could be dying in large numbers can be questioned, although it is argued that lessons learned from this relief programme may benefit others at a later date. The necessary option would be to conduct operational research, developing public health policy through an epidemiological approach in order to influence outcomes. This would be "ethical" yet would still allow the epidemiological approach to be studied, perhaps with immediate benefits.

The ideal opportunity presented itself in February 1992. I was requested by the United Nations High Commissioner for Refugees [UNHCR] to participate in an assessment mission to Bangladesh. Rohingya Refugees from neighbouring Myanmar (Burma), were crossing into Bangladesh at a rate of 200 per day and 30,000 had already arrived. During the assessment mission it became clear that the refugee rate of influx was rapidly increasing and placing considerable strain on the meagre resources of the Government of Bangladesh [GOB]. Also predictions suggested that the refugee population might reach 250,000 - a major emergency. UNHCR, faced with a rapidly deteriorating situation, asked me to continue in Bangladesh in a coordination/technical advisory role. This thesis is based on the detailed observations and analysis of data collected during "One year in the life of a UNHCR Health Coordinator".

The literature review (Chapter 1), looks at lessons learned and evidence accumulated from selective emergencies and relief programmes. Study aims, the hypothesis, objectives and methodology are described and discussed in Chapter 2. Chapter 3 describes the context in Bangladesh in which the study took place.

The results of the study are presented in Chapters 4-6. In Chapters 4 and 5, the disordered emergency environment in which the study took place is described and analyzed from different viewpoints (and paradigms). Alternative models of emergencies are developed. Chapter 4 describes what happened from an epidemiological viewpoint. It contains demographic and epidemiological data covering a 1 year period and includes a brief description of the Health Information System [HIS]. In Chapter 5, political and managerial chaos are analyzed and themes emerging from both Chapters are outlined and summarised. The use of the epidemiological approach and evidence-based decision-making, to influence change in the context described, is assessed in Chapter 6.

Chapter 7 discusses major influences on the epidemiological approach and assesses the implications of the findings. The limitations of the epidemiological model are confronted. Complementary (political and organisational) models, are introduced leading to a politicised epidemiology model of forced displacement. A short concluding Chapter (8), asks the question "What next?". It critiques this case study and reviews lessons learned which will have relevance for future studies and other emergencies. Future research needs are also identified.

CHAPTER 1

Population Displacement Emergencies

[PDEs]

and the

Epidemiological Approach:

A Review of the Literature

CHAPTER 1

Population Displacement Emergencies [PDEs] and the Epidemiological Approach: A Review of the Literature

"The Disaster! What is the Disaster?
Would that you knew what the disaster is!"
The Koran, 101:1

1.0 The Scope of this Review

The purpose of this review is to place this study in the context of the international discourse on emergency relief. It examines the role of the epidemiological approach in PDEs, drawing on lessons learned from selected earlier emergencies in order to identify key issues relating to displaced populations and public health. It also focuses on managerial chaos, organisational problems and the political dimension, as they relate to the role and limitations of the epidemiological approach.

Section 1.1 of this review identifies the scale of PDEs and provides a background. Section 1.2 looks briefly at a recent history of disaster relief and the emergence of the epidemiological approach - which is defined in section 1.3. Section 1.4 explores the ecology of disasters and humanitarian emergencies in order to provide a framework in which the epidemiological approach is tried. Section 1.5 confirms technical priorities, based on epidemiological reviews of earlier relief programmes.

The chaotic nature of emergencies and the dynamics of major relief responses are analyzed in section 1.6, drawing out themes to be explored in the study. Section 1.7 draws links between the epidemiological approach, evidence-based decision-making and health information systems [HISs]. In section 1.8, the epidemiological approach, key issues and concerns are briefly summarised.

1.1 PDEs: The Scale of the Problem

There are between 13.3 - 15.3 million refugees in the world today, of which more than half live in Africa, the world's poorest continent (United Nations High Commissioner for Refugees [UNHCR], 1996; International Federation of Red Cross and Red Crescent Societies [IFRCS], 1996)[2]. In addition, between 21.6 million (IFRCS, 1996) and 30 million people (UNHCR, 1996)[3] are displaced from their homes or under stress, but not afforded refugee status; due to conflict, political violence, famine and to a lesser extent, natural disasters (Ahlstrom, 1991; IFRCS, 1996). It is estimated that, in total, 41.5 million displaced people globally depend on humanitarian assistance for their survival (United States [US] Mission to the United Nations, 1996 p1).

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[2] In 1993, there were roughly 18.5 million refugees (UNHCR, 1993). Following the crisis in Rwanda which resulted in a mass exodus of refugees to neighbouring countries in July 1994, and unrelated events elsewhere, more recent estimates suggest that this figure increased to c.23 million (1994/5) and then declined in 1995/6 to 15.3 million (IFRCS, 1996), following several repatriations in different countries. The situation changes almost daily and the status of displaced persons is often disputed (are they refugees or economic migrants?). The larger figure of 15.3 million also includes returnees, who, although technically no longer refugees, still depend on international aid. Reliable, accurate, up-to-date figures are hard to obtain and those available are the subject of controversy.

[3] UNHCR estimated that 24 million people were internally displaced from their homes in December 1992 (UNHCR, 1993) and by 1996 had increased this estimate to 30 million (UNHCR, 1996). IFRCS uses a lower figure (IFRCS, 1996). Differences in figures appear to be due to differing definitions concerning who is a displaced person. Figures are based on best estimates rather than accurate counts, often due to lack of access to disputed territories. The real figures are not known with any reliability.

Refugee status can be claimed by:

> *"Any person, who owing to a well founded fear of persecution for reasons of race, nationality, religion, member of a particular social group or political opinion is outside of the country of his/her nationality who is unable, or owing to such fear, is unwilling to avail himself/ herself of the protection of that country"* (United Nations [UN] Convention, 1951 and UN Protocol, 1967).

A refugee, then, is someone who has crossed an international frontier and is entitled to "protection" under the UN Protocol. The Organisation of African Unity [OAU] Convention (1969), agreed that no person could be forcibly repatriated, and the definition was extended to cover those fleeing from civil disturbances or violence. Not all countries are signatories to these two agreements eg Bangladesh, India and Burma have not signed (US Committee for Refugees, 1996 Annex 2).

By contrast, an internally displaced person [IDP], is someone who is displaced from his/her own home but remains within the boundaries of their own country. As such, s/he is controlled by the laws, policies and politics of that country and has no internationally recognised status and thus no rights of "protection". For practical purposes, in this review, refugees and IDPs are referred to collectively as Displaced Persons [DPs], although distinctions are made when differences between the two groups are evident.

It is no coincidence that those countries most prone to disasters are often the poorest and least able to cope without external assistance (Guha-Sapir and Lechat, 1986; Guha-Sapir, 1991). The deteriorating international economic situation (related to the debt crisis faced by some countries) and increasing militarism has

various implications (Zwi and Ugalde, 1991; Duffield, 1996; de Waal, 1996). Many poor countries find themselves in a position of having to make cut-backs or place restrictions on public expenditure. Health and education services are often hardest hit (Abel-Smith, 1991). In such situations, the priority of governments is usually simply to try to maintain the services at their present level. As a result, emergency preparedness activities and responses inevitably become a low priority on the political agenda in terms of resource allocation. There seems to be an increasing reliance on the international aid system. The combination of weakened national infrastructures, limited access to finances and few resources, means that many poor countries are now even less able to cope with emergencies, than they were in the early 1980s (IFRCS, 1997 p7). Unfortunately, this is happening at a time when:

* Increasing numbers of people are being displaced in Europe, the former Soviet Union, Asia and Central Africa as a result of concatenated conflicts and/or periodic droughts or food crises (see Zolberg *et al*, 1986 and 1989 p272 and Annex 1/A).

* The international aid system is being increasingly constrained by international politics and the economic interests of Western donor countries, which are coping with a recession at home and turning towards the new markets and opportunities opening up in Eastern Europe, the former Soviet Union and China (Annex 1/B).

* The number of international non-government organisations [NGOs] is rapidly increasing as is competition between them (for limited funds). This competition arguably does not necessarily improve the quality of the international relief response, which often remains questionable and unaccountable (Joint Evaluation of Emergency Assistance to Rwanda Synthesis Report [JEEA], 1996 p32).

The 1990s have been designated by the World Health Organisation [WHO] as the Decade of Disaster Mitigation, yet increasingly look like becoming the decade of the displaced. The number of persons in need of humanitarian assistance has increased by almost 60% in the last ten years (US Mission to the UN, 1996 p1). Because of the deteriorating political and economic situation in many poor countries, and current international politics and trends, the number of DPs is likely to increase rather than decrease in the next decade. Population Displacement Emergencies [PDEs] are a rapidly growing problem and therefore deserve more attention.

1.2 Problems and Solutions: A Brief History of International Emergency Relief and the Emergence of an Epidemiological Approach

Population movements and forced displacements are an integral feature of human history and are documented in both the Bible and the Koran. While the Red Cross can trace its origins to the battlefields of Solferino in 1859 (Dick and Tailhades, 1991), only during relatively recent times have international relief activities been

undertaken to assist distressed populations. In consequence most of the literature regarding PDEs dates from the First and Second World Wars, which led to the forced displacement of large numbers of destitute people, a situation that the wealthier European neighbouring nations were unable to ignore (UNHCR, 1993 p14).

Prior to World War 1 [WW1], international relief agencies were few and far between. Relief, particularly in Africa and Asia, was carried out by colonial powers or by missionaries (Good, 1991) and rooted in the concept of charity (Gladstone, 1983). Post World War II [WW2], most relief was channelled through Red Cross groups, but this period also witnessed the development and expansion of international agencies and NGOs with a relief capacity. Save the Children Fund [SCF/UK] for example was founded in 1919 and the Oxford Committee for Famine Relief [OXFAM] in 1942 (Cassels and Diskett, 1992; Moussalli, 1991; Fowler, 1991). The late 1940s and early 1950s saw the creation of different UN bodies with special roles in disaster relief. The United Nations Relief and Works Agency [UNRWA] was formed in 1949 and the United Nations High Commissioner for Refugees [UNHCR] in 1950 (Moussalli, 1991).

As early as 1951, when studying the effects of famines in India, Passmore recognised the need to use acute mortality data for both disaster preparedness and mitigation (Passmore, 1951). However the use of epidemiology[4] in disasters has

[4] The use of epidemiological methods for the analysis of disease patterns, problem solving and identification of priorities

been traced to the late 1960s and the Biafra emergency relief operations (Seaman, 1984 p1). Relief items were in short supply so hard decisions had to be made over who got what. At that time, epidemiological surveys were used to identify specific vulnerable groups, usually the malnourished (see for example Arnhold, 1969; Aall, 1970; Davis, 1971). As Lechat, and more recently Seaman, observed, the use of epidemiology in disasters is a relatively new field and progress has been sporadic (Lechat, 1976; Seaman, 1984 p2).

The 1970s saw much interest and research into causes and effects of food shortages (Greene, 1974; Aall and Helsing, 1976; Rivers *et al*, 1976; Murray *et al*, 1976) and attention to the health impact of natural disasters (Sommer and Mosley, 1972; Spencer *et al*, 1977; Romero *et al*, 1978). However during the 1980s international interest shifted towards refugees and persons displaced into camps (Glass *et al*, 1980; Simmonds, 1980; Dick and Simmonds, 1983; Toole and Waldman, 1988 and 1990). More recently still the focus has been on the health problems of internally displaced persons (Halbert *et al*, 1988; Diskett, 1988; El Amin *et al*, 1989; Lundgren and Lang, 1989), as relief agencies attempt to take emergency assistance programmes into disputed areas and war zones. Since 1991 this has occurred most notably in Eastern Europe, the former Yugoslavia and the former Soviet Union (US Mission to the UN, 1996).

Academic (and epidemiological) interest appears to have followed the major emergencies of the time. This suggests, not surprisingly, that refugee studies are generally reactive rather than proactive, and retrospective rather than prospective.

1.3 What Constitutes an Epidemiological Approach in Emergencies?

The literature is fairly clear on what constitutes an epidemiological approach in emergencies. Seaman (1981) identified several elements of such an approach. He was very specific regarding the need for early recognition and control of selected communicable diseases, and also acknowledged the importance of collecting mortality data. He recognised that health data is needed to allow services to be adjusted to meet changing needs. Observations from other authors at about the same time, were in general agreement (Taylor and Cuny, 1979; Glass *et al*, 1980; Shears, 1983/b; Simmonds *et al*, 1983 p72).

This consensus appears to have developed partly because of increasing recognition during the 1970s that common relief responses did not always adequately meet the health needs of disaster affected populations, as shown by frequent reports in the literature of high mortality rates, despite the presence of relief agencies (Aall, 1970; Hickman, 1971; Seaman, 1972; de Ville de Goyet and Lechat, 1977; Belete *et al*, 1977; Aall, 1979).

The crude mortality rates [CMRs] used in these and other reports were either based on passive surveillance at clinics or hospitals (eg Spencer *et al*, 1977; Dietz *et al*, 1990), which was likely to underestimate mortality as many deaths take place away from health facilities (Toole and Waldman, 1990; Shears, 1991), or were little more than anecdotal or best "guestimates" based on projections (eg Aall, 1979). Mortality data were rarely actively collected, confirming Toole and

Waldman's view that reliable epidemiological data were in short supply but that there was potential and a need for improved data collection and use (Toole and Waldman, 1990).

Dick and Simmonds (1983), in a review of different disasters in the 1970s, confirmed that epidemiological data are needed to plan, implement, establish surveillance, monitor and evaluate emergency relief programmes. In other words, to follow an epidemiological approach means:

> to collect epidemiological data on a variety of health problems and risk factors in order to identify priorities, adapt the relief programme to meet changing health needs and to influence change (adapted from Seaman, 1981; Dick and Simmonds, 1983).

The importance of learning from experience was also recognised and it continues to be a priority in order to influence (and benefit) current and future relief programmes and preparedness activities (Seaman, 1984 p140; Lechat, 1993; Noji, 1995). However, while there was general agreement in the literature, regarding the potential utility of such an approach, in the early 1980s there was little guidance for the uninitiated (such as relatively inexperienced relief workers) on how to use this approach under acute emergency conditions. In fact Dick and Simmonds (1983) identified an urgent need to design and test out standard systems of epidemiological data collection and protocols for field workers.

Despite this lack of guidance, by the late 1980s, several major retrospective epidemiological studies and reviews of a variety of relief operations had been carried out by experienced relief workers and epidemiologists (Shears *et al*, 1987; Shears and Lusty, 1987; Toole and Waldman, 1988; and Toole *et al*, 1988). The common causes of death and ill health of DPs were clearly identified (Toole and Waldman, 1990 - see also section 1.5) and confirmed earlier findings (McFie and Yarom, 1962; Glass *et al*, 1980; Seaman, 1981). As a direct result a number of technical interventions were proposed, designed to address specific recurrent problems and "*to help them* (the displaced), *survive the acute phase of their displacement*" (Toole and Waldman, 1990 p3300). These were:-

i) the provision of adequate food rations

ii) the provision of sufficient quantities of clean water

iii) communicable disease control eg measles immunisation

iv) the provision of basic curative care services

v) the establishment and use of a dynamic health information and surveillance system (Toole and Waldman, 1990 p3300)

While the importance and potential of epidemiological activity was confirmed (see point v), it appears to have been given the status of a technical intervention in its own right, thus raising its profile considerably. Consequently, by the early 1990s, the collection and use of epidemiological data was firmly established as the highest priority activity, ahead of the other technical interventions mentioned earlier (Toole and Malkki, 1992 p26). This leads us to ask two important questions:

* Does epidemiological activity constitute an approach or an intervention?

* If it is the latter, does it have an effect?

Certainly, the definitions suggested by Seaman (1981) and Dick and Simmonds (1983), seem to support the view that an epidemiological approach involves more than simply carrying out some epidemiological activities (data collection, observation and analysis). It includes actively seeking out data and acting on the receipt of that epidemiological information to influence change. It is a way of thinking and working to affect, amongst other things, aid agency and/or government behaviour in setting relief priorities. Most epidemiologists support that view, but by listing epidemiological activities alongside other technical interventions (eg measles immunisation), Toole and Waldman (1990 p3300) and Toole and Malkki (1992 p26) inadvertently imply that epidemiological activities constitute an intervention in their own right, or more accurately a technical fix, ie one activity (alongside others) used to reduce mortality rates. This appears to have led to confusion in the disaster literature concerning what constitutes an approach versus programme components or interventions.

Implementing interventions (eg measles immunisation or food distributions) does not automatically mean that an appropriate approach is followed (eg ensuring refugee participation), any more than setting up epidemiological data collection systems ensures that the data is of reasonable quality and is used effectively to influence change, ie that an epidemiological approach is followed.

As a result, the difficulties associated with applying a rational science in a confused or chaotic environment have been underestimated. In short, there is confusion in the refugee literature which appears to reflect the differing perspectives of experienced aid workers and epidemiologists. The former recognise the need for decision-making and planning based on hard data, yet few international relief workers or national staff have had relevant or appropriate training (Buist, 1980; Jelliffe and Jelliffe, 1981; Guha-Sapir, 1991). Epidemiologists, meanwhile, are promoting epidemiological activities as a means of controlling mortality, but this is based on two assumptions: that decision-making is rational[5], and that relief workers have the capacity to carry out these activities, which may not be the case.

Toole and Waldman acknowledge (1990) that relief strategies need to change in order to implement the technical priorities listed earlier and mention the need for political good-will, community support, more appropriate assistance based on clearly defined needs and enhanced technical support. Burkholder and Toole later state that:

> *"In the last 5 years, relief organisations have recognised the importance of a standard Health Information System [HIS]....epidemiologists now routinely establish basic mortality and morbidity surveillance"*(Burkholder and Toole, 1995 p1013-1014)

...but they do not discuss the relationship (if any) of such systems to aid workers, decisions or decision makers. In addition, the role of epidemiologists is not

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[5] Toole and Waldman mention that host governments have occasionally obstructed the use of data because they are wary of the political implications of that data (Toole and Waldman, 1990 p603) but no examples are cited and supporting evidence is lacking.

clearly defined as they are often not the decision makers. Burkholder and Toole (1995) neither make the constraints of the international relief system explicit nor acknowledge the skill required to use rational information effectively to influence change.

However they do acknowledge that *"the political, environmental, cultural economic and public health context make each emergency unique"* (Burkholder and Toole, 1995 p1015).

Both groups (experienced aid workers and epidemiologists) have been very successful in raising the profile, and identifying the potential utility, of epidemiological data and the epidemiological approach. However the latter group, in the early 1990s at least, appears to have assumed that the technical solution (conducting epidemiological activities and setting up surveillance systems) was synonymous with following an epidemiological approach[6].

This misapprehension seems to have been partially recognised. In 1993, the same leading epidemiologists and researchers in this field acknowledged that:

> *"Since the 1980s, there has been an increased recognition amongst major relief agencies of the importance of certain public health programmes...the collection of health information has improved"* (Toole and Waldman, 1993 p603) ie some epidemiological activity was taking place.

[6] A possible explanation might be that those collecting the data are often not the decision makers, therefore there is a separation between data collection and data use.

However, the status of the epidemiological approach, as defined earlier, was less clear cut for the authors admitted in the same key article that:

> *"too often key decision makers fail to respond in a timely fashion to health information generated by field workers and.....an enduring problem is the failure to detect and adequately respond to sudden unexpected changes in the health situation of refugee and internally displaced persons"* (Toole and Waldman, 1993 p603-604)

Hence, while epidemiological activities were now undertaken, there was a simultaneous failure to take decisions or implement and adapt programmes on the basis of the information collected. So we are left with a contradiction. On the one hand epidemiological activities are taking place, data are being collected and the potential utility of epidemiological information is recognised; while on the other hand it is not being fully utilised, or more accurately, an epidemiological approach is not always followed through. Why is this the case?

* Is there a problem with the data collection, data analysis or the subsequent activities based on the data?

* Are there other factors which prevent the rational use of data? Would an analysis of these factors help to enhance understanding of the chaotic emergency context and help relief workers to identify opportunities to improve both data use and outcomes?

* Can data use be improved? Is the epidemiological approach feasible under acute emergency conditions or have the constraints been underestimated ?

These questions are key to this thesis, which tests out the epidemiological approach and evidence-based decision-making, hence these issues are explored further and reoccur in subsequent sections.

1.4 Definitions and Classifications of Disasters and Humanitarian Emergencies

In order to assess the utility and limitations of the epidemiological approach in emergencies, it is important to understand the context and provide a framework in which it is to be tested out. There are many emergencies[7] in the world every day, of which only a small percentage can be referred to as disasters. What then is a disaster and what constitutes an humanitarian emergency?

There are various definitions and interpretations of a disaster, ranging from:

> *"An ecological disruption which, either by its very occurrence or its magnitude, the community affected is unable to cope, and needs to call on external assistance"* ie the biological and geographical definition (de Ville de Goyet and Lechat, 1976 p152)

> *"Sudden or great misfortune, complete failure or calamity (adversity, deep distress)"* (Concise Oxford Dictionary)

> *"A serious disruption of the functioning of a society, causing widespread human, material or environmental losses which exceed the capacity of the affected society to cope using only its own resources"* ie the disaster managers' view (United Nations Development Programme [UNDP], 1992 p4)

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[7] "Emergency" = sudden state of danger (The Concise Oxford Dictionary, 1978)

> *"People become more vulnerable and the things to which they are vulnerable increase. Their capacity to respond is reduced"* ie the social development interpretation (adapted from Dick and Parry, 1991 p2)

The range of interpretations reflects the differing views and ideas of geographers, health professionals, managers and social scientists. The last definition attempts to move away from the "fire brigade" (short term, crisis dominated) approach of the early seventies towards a more development based (longer term, primary health care [PHC]) approach to disaster relief. This view emerged in the mid 1970s (Lechat, 1976) and early 1980s (Simmonds, 1980; Shears, 1983/a; Shears, 1983/b; Dick and Simmonds, 1983; Simmonds *et al*, 1983; Dick and Simmonds, 1985) and remains relevant today. The assumption behind these definitions, that the disaster event will lead to excess morbidity and mortality, remains constant although not always explicit. In addition, the suggestion is that of a sudden problem or occurrence which can rapidly be resolved. This is often not the case.

The above definitions are not satisfactory in either scope or scale (being either too restricting or too wide), but are enhanced by several papers, which suggest that there is a precipitating event followed by both primary effects of disasters (relating to the event) and secondary effects (relating to the aftermath or perhaps caused by the relief effort itself) (Western, 1976; Logue *et al*, 1981; Tailhades and Toole, 1991).

From a public health point of view, a more complete definition might be:

> A precipitating event, emergency or ecological disruption, which results in the increased vulnerability of the affected communities, **and leads to excess mortality and morbidity.** The community does not have the capacity to cope (either in the short term or foreseeable future) and needs **appropriate** external assistance in order to survive and recover.

While much has been written about disasters, several authors observed that information is often fragmented or incomplete, as the different disciplines (engineering, meteorology, health etc) have tended to overspecialize or concentrate on a specific disaster type. Hence disaster studies have yet to acquire their own cohesive identity (Western, 1972; Alexander 1991).

Several different classifications of disaster types have been developed (Table 1.1).

Table 1.1 Classifications of disaster

Classification	Description	References
Origins	**Natural:** eg floods, cyclones, landslides, drought etc **Man made:** eg repression or civil war	Lechat, 1976
Spacial zones	**High impact:** severely affected (or at the epicentre) **Marginal impact:** moderately to marginally affected **Filtration zones:** peripherally affected NB: Zones may involve single or multiple impact areas as in conflict zones of varying intensity	de Ville de Goyet and Lechat, 1976
Speed of onset and effects	**Rapid onset:** eg earthquakes, outbreak of hostilities **Slow onset:** eg famine, increasing insecurity NB: The event itself may also be of long or short duration and may have both primary effects (as a direct result of the event) or secondary effects (related to the aftermath and/or relief effort)	Lechat, 1979 Western, 1976 Logue *et al*, 1981 Tailhades and Toole, 1991
Scale and severity	**Large scale:** - large numbers affected, injured, dead **Small scale:** - few involved **Severe:** - many killed **Mild:** - a few injured	Guha-Sapir and Lechat, 1986
Sequence of events	**1. Normal situation** followed by **2. Warning phase** (if it exists) leading to **3. Disaster impact or event** which may result in **4. Migration and displacement phase** leading to **5. Arrival in relief centres** 5/A Acute relief phase 5/B Maintenance phase **6. Rehabilitation phase** which may include 6/A Return home or 6/B Resettlement or 6/C Emigration or 6/D Permanent camps	adapted from de Ville de Goyet and Lechat, 1976; Logue *et al*, 1981; Shears, 1983/a

These classifications are not mutually exclusive yet they are neither as specific nor as comprehensive as they initially appear. Famines, for example, would seem to be natural disasters (drought related). Yet a closer analysis shows that most are caused by a combination of factors including the use of marginal land for farming, changing weather patterns, economic factors, national and international policies/ politics (Sen, 1981; Dreze and Sen, 1989; De Waal, 1989). Hence many would argue that famines are at least partly, if not exclusively, man-made.

In addition, scale or severity may not be easy to measure. The number of deaths caused by a disaster may indicate its severity but is a poor indicator of the scale of health needs of the survivors (de Ville de Goyet and Lechat, 1976), as the survivors can sometimes emerge relatively unscathed from a disaster event which kills many people.

More recently, the dimensions of social preparedness and vulnerability have also been shown to be critical factors (Guha-Sapir and Lechat, 1986; Maskrey, 1989; Meyer, 1991). Not all events, emergencies or hazards[8] result in a disaster per se, hence disasters, as well as indicative of hazards or precipitating events, may also reflect socio-economic processes, political structures and policies (Maskrey, 1989). An alternative political economy approach to disasters has been developed which takes into account the social, economic and political factors which influence vulnerability, where: risk = vulnerability + hazard or event (Maskrey, 1989 p1).

Rich and poor communities are often affected differently and the impact on individual members of that community also varies according to their vulnerability (Guha-Sapir, 1991). Hence vulnerability, access to services and level of social preparedness are critical factors, which will determine the health consequences of the disaster but are only hinted at in the definitions of disasters.

[8] A "Hazard" is a potentially damaging phenomena which affects a particular zone or area

Not all population displacements are "disastrous" just as not all disasters will lead to population displacements and migration, but some clearly might, such as war[9], famine, political violence (including genocide) and repression. The changing face of conflict and modern advances in weapon technology mean that civilians are more likely to be involved. A Tanzanian proverb illustrates this neatly:

"when elephants fight, it is the grass which gets trampled"

The combination of an increase in conflict affecting civilian populations, together with government repression and economic-related emergencies in the early 1990s has resulted in the emergence of the concept of a humanitarian emergency, namely:

> *"A situation in which large numbers of people are dependant on humanitarian assistance[10] - especially food, water, medical care and shelter - from sources external to their own society in order to avoid serious malnutrition or death; and/or large numbers of people are in need of physical protection in order to have access to subsistence or external assistance"* (US Mission to the UN, 1996 p1)

In this review we are concerned with a specific form of humanitarian emergency: forced population displacements. Because of the limitations of the various definitions and classifications already discussed, a combination of the different

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[9] Approximately 300 wars have occurred since 1945, most resulting in population displacements, yet few studies have critically examined war in the context of disaster studies (Meyers, 1991). Nearly all of these conflicts have been civil wars with a few notable exceptions, eg the Gulf War and the Falklands War (Agerbak, 1991). Human rights abuses have been a main feature especially in those wars involving social revolutions (Zolberg *et al*, 1986; Dodge, 1985). 1989 was the first year for 31 years in which no new war had started (Sivard, 1990).

[10] Although the bulk of humanitarian assistance is in the form of food aid, such assistance also includes other essential life support interventions such as medical care, sanitation, water, shelter, seeds, farm equipment and assistance with anti-personnel mine clearance etc. The term humanitarian emergency does not include situations in poor countries where there is a chronic need for development or food aid.

dominant classifications and terms is used in this study to provide a framework for analyzing PDEs and assessing health priorities.

1.5 Public Health Problems and Priorities

From the above analysis it is clear that the impact of disasters on the health and nutrition status of those displaced, is determined by the type of disaster, speed of onset and scale. The impact is also influenced by environmental factors including level of preparedness, political will to respond, the vulnerability of the population to the event and their capacity to cope. In addition, it has been observed that health problems often start before people arrive in camps (see 1.5.1) (Passmore, 1951). These problems are then compounded by the situation in the relief camps themselves (section 1.5.2) (Dick, 1984). An understanding of those problems may help with the prediction of likely relief needs.

1.5.1 Population displacements, migration and health

Analysis of the migratory phase of PDEs in the epidemiological literature appears weak, partly due to lack of access to the area (Editorial, *The Lancet*, 1990) but also because it is often assumed that displacement is one clear-cut temporary event. While this may be true in some instances, it is misleading in others (Prothero, 1977). There may, for example, be frequent population movements resulting in circulation and "entrapment", as the displaced try to escape a conflict

zone[11] (Wessen, 1971; Kunz 1973; Prothero 1977 and 1984). Kunz (1973) has developed kinetic models of displacement which allow some predictions to be made of the demographic characteristics of the population (eg war often results in an absence of males amongst the displaced). These models are potentially useful in helping to predict likely relief needs and vulnerable groups.

It has been illustrated that length (duration) and type of displacement can be directly related to health and nutrition status on arrival in relief centres (Shears, 1983/a and Shears 1985). The displacement period and/or migration through different ecological zones, has been shown to give rise to specific problems such as:

* Exposure to new vectors or new/increased exposure in a non-immune population (Bruce-Chwatt, 1968; Wessen, 1971; Shears and Lusty, 1987). Examples include Cambodians in Thailand (malaria) (Prothero, 1994), Ethiopians in Sudan (malaria) (Shears *et al*, 1987), leishmaniasis (Sudan) (Perera *et al*, 1989), and onchocerciasis and trypanosomiasis in central Ethiopia (Kloos, 1990).

* Increased prevalence of the common endemic diseases such as measles, acute lower respiratory tract infections [ALRIs], malaria and diarrhoea (Prothero, 1994).

[11] The displaced may become trapped in an enclave or they frequently move around within a disputed region to avoid fighting, without leaving the immediate area (or being able to leave) and without reaching a place of safety.

* Lack of access to resources (water, health care, drugs, immunisations) leading to death from injuries or illnesses due to lack of care, which results in increased mortality in the elderly, disabled and young (Prothero, 1977; Shears, 1983/c; Shears and Lusty, 1987; Toole *et al*, 1993).

* Increased risk of malnutrition both as a cause and an effect of migration. For example an increasing food or economic crisis leads to malnutrition and can result in the need to migrate to seek food security or assistance (Autier *et al*, 1989), or conversely those displaced by war, for example, have been cut off from their normal survival strategies and receive no assistance, hence malnutrition rates rise (Shears, 1983/a).

* A breakdown of disease control programmes eg malaria control, measles immunisation programmes, trypanosomiasis and leishmaniasis control (Prothero, 1984) and a general breakdown of infrastructures eg broken water pumps, shortages of drugs, a lack of fertiliser or seeds.

Mobility (through forced migration or displacement) leads to an increased risk of death. Those most vulnerable are often forced to move first. Moving then increases their exposure to common communicable diseases as they move through new vectors. Lack of access to services (and treatment) then contributes towards increased disease transmission (Autier *et al*, 1989; De Waal, 1989 p173-174; Lindtjorn, 1990; Prothero, 1994). The health status of forced migrants is clearly different from that of non-migrants (Bentham, 1988; Lindtjorn, 1990).

Using an epidemiological risk assessment approach it is theoretically possible to make some predictions about the likely health effects of specific displacements, which can then be used to plan health interventions for new arrivals. However this has to be balanced against problems of access to the area, difficulties of data collection, and the weakness of national or local statistics (Shears, 1991). Usable baseline data may simply not exist, especially if the area concerned has been under dispute for some time. This is important as it has been noted that population movements can also lead to the introduction of new diseases or changes in disease transmission and epidemiology of the host country (Dick, 1985; Shears, 1991). However some predictions of relief needs and priorities should be possible, if the recent history of the crisis and displacement period is known.

1.5.2 Relief camps and public health

Relief camps have been described as some of the most pathogenic environments imaginable (Dick, 1984). It has been shown in many instances that refugees arrive in camps in a reasonably good state of health, but then malnutrition and mortality rates rise (Hickman, 1971; Aall, 1979; Shears *et al*, 1987; Malfait *et al*, 1991; Toole, 1991).

While the theoretical knowledge about emergencies and displaced populations has improved dramatically in the last 20 years, the same health and nutrition problems continue to be reported in the literature with alarming regularity. Beri-beri was reported during the Second World War amidst Somalis dependent on army rations

(Charters, 1943). More recently pellagra was reported among refugees in Malawi (Malfait *et al*, 1991; Centre for Disease Control [CDC], 1991/a). Scurvy occurred in Somalia (Magan *et al*, 1982; Desenclos *et al*, 1989), Ethiopia (CDC, 1989) and Sudan (Toole, 1992) and vitamin B2 deficiency was noted in refugees in Bangladesh (Moren, 1995) for similar reasons, namely a total dependency on food rations lacking in essential micronutrients.

Other examples include measles epidemics, which were responsible for the high death rates affecting large numbers of refugee children in Biafra (Jelliffe, 1968), Bangladesh (Aall, 1979), Sudan (Shears *et al*, 1987) and still more recently in Somalia (Moore *et al*, 1993) and among Mozambican refugees in Zimbabwe and Malawi (UNHCR *et al*, 1993/a). In the latter camps, diarrhoea, malnutrition and measles accounted for 75% of all reported deaths when the crude mortality rate rose to 8.3/10,000/day[12].

At the same time, it is depressing to note that mortality rates in refugee populations have been up to 60 times higher than those documented for host populations (Toole and Waldman, 1990). There is little reliable information available for internally displaced people, but several reports suggest that the health situation may be even worse (Lundgren and Lang, 1989; Diskett, 1988). The main causes of death and ill health are not in dispute and include malnutrition, acute communicable diseases (specifically acute lower respiratory tract infection [ALRI], diarrhoeal disease, measles and malaria) and to a lesser extent, injuries

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[12] A rate of up to 0.5/10,000/day is considered normal in many developing countries (Hakewill and Moren, 1991).

(Toole and Waldman, 1990 and 1993; Shears, 1991). These are either preventable or amenable to early treatment.

While the relationship between under-nutrition, increased risk of death and/or high mortality rates is widely recognised (Scrimshaw, 1970; Geefhuysen *et al*, 1971; Bengoa and Beaton, 1976; Toole *et al*, 1988; Pelletier *et al*, 1995), a cause and effect relationship in PDEs is not clear. Does infection lead to malnutrition, which contributes to an increase in mortality? Or do food crises and malnutrition lead to a greater susceptibility to infection and increased risk of mortality? Recent studies (Toole *et al*, 1988; Toole and Waldman, 1990), while providing high quality information, are not very helpful in answering this question as the relative importance of other variables (such as the availability of resources including food, environmental risk factors or the skills of NGO staff) was not fully considered.

An analysis of available evidence suggests that the relationship between mortality and infection is specific to the location and community concerned (Tompkins and Watson, 1989 p32), but a lack of clarity in key technical areas such as this can lead to difficulties in determining relief priorities (eg infection control and sanitation programmes versus feeding centres).

However, despite ambiguities, some improvements in relief responses have recently been acknowledged:

> *"since the 1980s .... the provision of health care has generally improved"....* but note that.. *"there remains a gap between recognition of the problem (measles) and the prompt implementation of effective immunisation programmes"* (Toole and Waldman, 1993 p603)

Note also that as recently as 1994/5:

> *"In Goma (Zaire) CMRs were almost 60 times higher than baseline rates*[13] *(<2/1,000/month)"* and.... *"the duration of the acute emergency phase can be shortened by timely public health interventions"* (Burkholder and Toole, 1995 p1012 and p1015).

These statements suggest that problems of prioritisation and implementation still persist. While these experiences are now well documented, the frequency with which they continue to be reported confirms that there is a failure to translate substantial technical knowledge into more appropriate and effective actions or responses. This gap is clearly not due to a lack of technical knowledge (except perhaps in a few clearly defined areas such as the relationship between malnutrition and infection), but rather a lack of "know how"[14], a comment also made in 1984 but still apparently valid (Simmonds, 1984). This is explored further in the context of managerial and political chaos (section 1.6).

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[13] CMRs of 25-30/10,000/day were reported at the peak of a cholera epidemic, but were brought under control quickly (Goma Epidemiology Group, 1994). However note the almost unprecedented scale of the emergency. Up to 1 million refugees arrived in Zaire in the space of four days (Dualeh, 1995), to an area where cholera was endemic and where there was virtually no viable local infrastructure. Experienced epidemiologists argue that high mortality rates were inevitable and unavoidable (Roberts and Toole, 1995; Blok and Sondorp, 1994). The relief operation in fact was credited with avoiding even higher CMRs than those recorded. However this is disputed, as others argue that the epidemic started its natural decline (due to population exposure and subsequent immunity) before the relief programme was fully operational and before the target of delivering 5 litres per person/day of potable water was achieved (Joint Evaluation of Emergency Assistance to Rwanda [JEEA] Study 3 1996 p69-70).

[14] There is a lack of "know how" in the sense that relief workers lack the skills needed in order to apply or convert technical knowledge into appropriate action in difficult, often confused and chaotic emergency environments.

Using evidence from epidemiological studies, a number of technical solutions have been proposed (see Table 1.2). These are designed to address these specific recurrent public health problems and to help the displaced survive the acute phase of their displacement. They focus on improving mortality rates rather than looking at the quality of life (Toole and Malkki, 1992 p26-27).

Table 1.2 Priority interventions in population displacement emergencies

Rapid public health assessments
* to identify the scale of the problem
* assess health and nutrition status of the displaced on arrival in a relief centre
* assess epidemiology of area of origin and area of arrival in order to determine the major health and nutritional needs (current and projected)
* identify resources and response capacity available nationally and internationally

Health information systems
* mortality surveillance
* nutritional surveillance
* surveillance for diseases of public health importance

Food and nutrition programmes
* early warning and food security for vulnerable populations
* general food rations and food basket monitoring
* identification of vulnerable groups and selective preventive programmes when appropriate
* rehabilitation of the malnourished

Environmental health activities
* water and sanitation programmes
* vector control - especially malaria
* shelter improvements, issue of blankets
* distributions of relief items such as jerry cans, soap
* camp planning, drainage, measures to avoid crowding etc
* community mobilisation for key activities

Diarrhoeal disease control
* water and sanitation programmes
* oral rehydration therapy
* community hygiene education
* cholera preparedness

Control of vaccine preventable diseases
* measles immunisation immediately, possibly linked to vitamin A capsule distribution (this is controversial)
* other expanded programme of immunisation [EPI] antigens later, when the acute emergency subsides
* identification of sources of meningitis and other vaccines depending on the local epidemiology

Basic curative care linked to preventive activities
* emphasis on the special needs of women and children and mother and child health [MCH] programmes
* establishment of a referral system
* development of an essential drugs list, case definitions and standard treatment guidelines (especially for diarrhoea, malaria and ALRI in the acute phase and tuberculosis [TB] if the emergency looks like being protracted)
* selection, training and deployment of community health workers [CHWs] and/or traditional birth attendants [TBAs] for preventive, screening and health promotion activities

Epidemic investigations and disease control
* preparing contingency plans and stocks
* confirming the outbreak
* conducting the investigation
* identifying those at risk
* planning and implementing control measures

The emphasis of such solutions is on preventing problems, but also on rapidly identifying and controlling those problems which do arise. Note however that **relative** priorities will be specific to the location and event, confirming the need for an epidemiological approach in determining this relationship locally.

While there is a strong focus in the recent literature on the acute emergency phase and on technical interventions, somewhat less attention is given to the transition to long term maintenance, chronic situations (Desenclos *et al*, 1990) or the types of approaches used to implement activities in camps. It is however acknowledged that disease profiles change over time as micronutrient deficiencies emerge (Toole, 1992) as well as more chronic problems such as TB and scabies (Seaman, 1972; Toole and Waldman, 1990), which are related to crowding, poor public hygiene and a deteriorating environment.

There are very few recent comments on the relevance of a community development approach or the PHC approach in emergencies. Dyke (1991), describes a number of interventions with DPs in southern Sudan, and the approach (through community cooperation) was mentioned. Even fewer papers rigorously assess the relative merits of different approaches in refugee camps (such as those mentioned above as well as an integrated, community based, or public health approach). Evaluations which use both epidemiological and qualitative data to measure the impact of these different approaches on health status are rare.

A notable exception is the recent Joint (Multi-Donor) Evaluation of Emergency Assistance to Rwanda (JEEA, 1996), which retrospectively highlighted many important lessons and drew on both qualitative and quantitative data. Even that major evaluation, however, was unable to reliably assess the effectiveness of different approaches. This failure was attributed to the scale and complexity of the operations to be evaluated, a lack of verifiable information from some NGOs and lack of comparability of data (JEEA Study 3, 1996 p21, 22 and 152). Nevertheless, despite its limitations, this is the largest, most complex and comprehensive study that has been attempted to date. It is therefore used extensively in subsequent sections of this review.

This apparent gap in the literature (concerning approaches and their effectiveness) may have arisen because current discussions are led by epidemiologists (see for example Burkholder and Toole, 1995; Toole and Waldman, 1993 or Noji, 1992), or perhaps because it is assumed that the lessons learned in the early 1980s are still widely acknowledged and accepted. Whatever the reason, current recommendations are based on quantitative rather than qualitative data and are targeted at reducing mortality. Issues of management, affordability, sustainability and quality of life receive less attention.

1.6 Managerial and Political Chaos: The Epidemiological Approach and Public Health

The literature identifies that an epidemiological approach is potentially life saving in PDEs and that interventions and priorities based on evidence will result in better health outcomes for the affected population than interventions which are not based on this approach. There is a consensus in the literature concerning priority public health interventions in acute PDEs. There is, however, confusion about the relative priority of the different interventions and the status of the epidemiological approach; as while data collection is occurring, it does not always appear to lead to a more effective response to PDEs by the relief agencies.

There is agreement in the literature that emergencies are, by their very nature, confused and chaotic (Jelliffe and Jelliffe, 1981; Burkholder and Toole, 1995) and chaos is often used as an apology for relief failures. The manifestations of chaos in the relief context are identified briefly here in order to confirm when the epidemiological approach was or was not used and to identify what the limitations imposed on such an approach might be.

The role of epidemiological data (1.6.1) and demographic data (1.6.2) is discussed as are issues of coordination (1.6.3), the political environment (1.6.4) and the role of aid workers (1.6.5). A brief summary is located in 1.6.6. Themes emerge which are developed later in this thesis.

1.6.1 Epidemiological data use and appropriate responses

Some authors claim to have used epidemiological data in their work. Steketee and Mulholland (1982) used a combination of survey and clinic based data in eastern Sudan. They observed that basic public health related problems (poor shelter and sanitation, inadequate water supplies etc) persisted over a nine month period despite the relief effort and UNHCR support. The reasons were not specified. Reporting on a programme in southern Sudan, Dyke (1991) stated that problems were identified (a measles outbreak) and programmes were implemented but he did not report on the role of health information in decision-making nor was the impact of the public health programme described.

In Guinea (Hirnschall, 1991) identified low measles immunisation coverage in Liberian refugees, no mortality surveillance and an absence of nutritional data. He stated that, as there was no staff training, health needs were not met and the epidemiological approach was being used by neither the MOH nor, surprisingly, by the internationally experienced NGO (Medecins San Frontiers/France [MSF/F]). In the Philippines epidemiological surveillance failed to prevent deaths from measles. A total of 349 deaths were recorded in 12 weeks in a small population although the epidemic was detected via the HIS (Surmeida *et al*, 1992).

Differences were observed in mortality rates between camps in Honduras; it is not clear if the programme was modified as a result of this finding. A measles outbreak also occurred despite a measles immunisation programme (Desenclos *et*

al, 1990). The role of epidemiological data in decision-making was not made explicit. As this study seemed to consist of retrospective data analysis it appears that some of this information may not have been available at the crucial time.

In other instances, epidemiological data from internally displaced Kurds inside Iraq showed high rates of diarrhoea and suggested that water and sanitation were major problems. However the response described is mainly clinical (Pecoul and Malfait, 1991; Yip *et al*, 1993) and it was acknowledged that the resources made available by the international community were not effectively used to respond to the basic needs in the camps. The reason was not made explicit.

These repeated failures to respond in a timely and appropriate way to epidemiological data, lead us to question the unspecified underlying reasons. Questions also arise concerning the ethics of surveillance when appropriate action cannot be guaranteed. Ethics are similarly of concern when carrying out research in PDEs and are considered in Chapter 2 (methodology) of this thesis.

1.6.2 Demographic data and appropriate responses?

Accurate demographic data are required to facilitate the calculation of rates, to plan interventions and allocate resources (Simmonds *et al*, 1983; Mears and Chowdhury, 1994) yet such data may not be easy to obtain. Most PDEs are dynamic. Frequent population movements and changes are not always recorded.

Figures may be inflated by refugees or governments, for political reasons or to attract more aid, as was noted amongst Somalis in Ethiopia (Toole and Waldman, 1988; CDC, 1988), or simply because the speed, scale and complexity of the influx makes registration difficult. In northern Iraq, a random survey estimated the displaced population to be c 70,000 whilst a figure of 128,000 was provided by the authorities (Pecoul and Malfait, 1991). In Goma (Zaire) approximately 850,000 refugees arrived within a four day period. In the ensuing chaos, both in Goma and in Tanzania (which in 1994 was also severely affected), the number of refugees from Rwanda was inflated by as much as 40% (JEEA Study 3, 1996 p105) and a census was delayed (for logistical and political reasons).

Numbers may also be underestimated. A study from Pakistan concluded that the Afghan refugee population was underestimated by at least 10% ie 250,000 were not included in official planning figures (Yusuf, 1990). In Zambia, Angolan refugees failed to register, preferring to establish themselves outside official government camps (Hansen, 1979), attempting to integrate into local communities.

Accurate demographic data are a prerequisite when using an epidemiological approach, yet there are clearly many reasons why such data may not be available. The problems are well documented and demographic confusion is common, especially in the acute arrival phase of the emergency.

1.6.3 Coordination, stakeholders and public health responses

In the early 1980s coordination failures were attributed to a profusion of agencies, which were often in conflict and competition with each other rather than cooperating (Dick and Simmonds, 1983; Taylor, 1986). Little seems to have changed since then except the scale and complexity of relief programmes, which has increased dramatically.

Reporting on the relief programme with displaced Kurds inside Iraq during the immediate aftermath of the 1991 Gulf War, Waldman and colleagues (Waldman *et al*, 1991; CDC, 1991/b) noted a lack of coordination and a failure of any agency to enforce the implementation of key relief programme activities (note that UNHCR was absent as this relief operation was outside its mandate). They observed that NGOs often had independent policies and a curative bias rather than a public health perspective. This was despite the availability of epidemiological data showing un-met public health needs. Public health programmes were eventually implemented but only after considerable delays. It appears that a complicating factor was the poorly defined role of the military, although the full implications of this are not clear. Until recently, the relationship between the military, security and relief has been neglected in academic literature (Gordenker and Weiss, 1989) although now some views are emerging (Slim, 1996/a; Stockton, 1997; Pilkington, 1997; IFRCS, 1997 p23-34).

In the context of the Goma relief programme, it was noted that *"military deployments depend on political decisions"* (Goma Epidemiology Group, 1995 p343), meaning that they may not easily be integrated into either preparedness, training or a coordinated response.

The recent Rwanda evaluation [JEEA Study 3, 1996 p154] identified similar problems to those experienced in Iraq, but on a larger scale. Approximately 250 NGOs were involved in the Rwanda emergency response at different times, with approximately 100 in Goma at the height of the cholera epidemic (July 1994) and 180 inside Rwanda at the end of 1994. In contrast there were only 20 NGOs operational inside Tanzania, due to the tight controls and criteria imposed by the authorities (JEEA Study 3, 1996 p122 and p151). Interestingly media coverage also focused on Goma rather than Tanzania. Coordination appears to have been more straight forward in Tanzania as fewer stakeholders were involved.

Most NGOs arrived inside Rwanda at a time when the capacity of the Ministry of Relief [MOR] to control and coordinate was very limited (JEEA Study 3, p152). In Goma, some NGOs declined to coordinate. For example, Care Deutschland flew in 200 inexperienced and untrained volunteers every two weeks from Germany. The organisation took the decision to operate independently, creating "havoc" (Tuffs, 1995; JEEA Study 3, 1996 p154). Other NGOs, through their actions, were accused of discrediting and undermining the relief effort (JEEA Study 3, 1996 p153). The same study also confirmed that some NGOs in Goma (c 20) were receiving funds from UNHCR, however the vast majority (60-80)

were not. UNHCR therefore had no financial control or influence over the latter group and no method of enforcing coordination, unless the organisations agreed of their own volition. If they refused to cooperate, UNHCR was powerless to make them (JEEA Study 3, 1996 p155).

The scale of these recent relief programmes clearly presented a major challenge in terms of coordination, and problems were inevitable. Direct consequences include a lack of standardisation of data collection methods (for mortality, morbidity and nutritional data), a lack of consistency between agencies and variable data quality (JEEA Study 3, 1996 p153). As a result, comparisons between camps and agencies, assessments of impact and aid agency performance were impossible, especially in certain geographical areas where information was exceptionally weak or non-existent.

1.6.4 The political environment, the aid industry and managerial chaos

Hickman (1971) was one of the first to make the link between the absence of expatriate relief workers and a lack of international aid money (Hickman, 1971). Bold headlines (starvation and death), combined with the presence of international aid workers, are powerful fund raisers as the agencies involved in relief to Kampuchea discovered (Stephenson, 1980).

Henderson and Biellick (1983) observed that an absence of journalists meant that very little money or aid was given to Ethiopia, by the international community,

leading to a reduced response. In neighbouring Somalia, the crisis was well publicised and Somalia received considerable Western aid. CDC took this observation a stage further (CDC; 1991/c) and suggested that in Guinea (Liberian refugees), a lack of media coverage on public health issues meant there was very little aid, few NGOs or interventions and as a result, a paucity of epidemiological data. Data are needed to argue for increased financial assistance from donors, yet lack of funding means there are unlikely to be interventions or an aid agency presence and therefore no data to support arguments for assistance; an interesting paradox.

The role of donors is therefore very pertinent, as additional funding is invariably needed in order to operate major emergency response programmes. Several authors have commented on the "hidden" and overt political agendas of donors and governments that have influenced relief programmes. It seems that many bi-lateral donors also fear being trapped into long term commitments (Loescher and Monahan, 1990 p77).

Gill (1986) and Pilger (1986 p356), expose the role that Western political interests played in the Ethiopian famine (1983-85). An adequate relief response was delayed despite early warning data in the preceding 18 months. It is no coincidence that Ethiopia had a Marxist (and potentially hostile) government. Not surprisingly, the USA blamed the famine on the intransigence of the Ethiopian government, rather than its own tardiness of response (Tinker *et al*, 1990).

Hanlon (1991 p1-8), refers to aid in Mozambique as *"recolonisation"*, as donors pursued their own agendas rather than those priorities identified by the country. The Western relief programme for Kurdish refugees has also been questioned (Seaman, 1991). Mortality was high because refugees were confined to high, cold, exposed and steeply sloping mountains without adequate shelter, water, sanitation or food. We can speculate why this occurred. Turkey was unwilling to allow the refugees to descend and enter Turkish territory. Turkey is a member of NATO and was a much needed and valued ally in the Gulf War. Western governments were therefore unlikely to argue against Turkey's stance, regardless of the health status of the refugees. Political alliances took precedence over epidemiological evidence.

As they create the legal and political framework (where it exists), in which aid agencies must operate (Brodhead and O'Malley, 1989), national governments are also implicated in some apparent relief shortcomings. In Rwanda, in 1994, the controlling forces would not allow nutrition surveys at the height of the emergency. The reason was not specified (JEEA Study 3, 1996 p93). It appears that there was little evidence to suggest nutritional problems existed and one can only speculate that there was some concern that aid might be reduced if surveys confirmed this impression. Epidemiological information then, is potentially very powerful in influencing a withdrawal or increase in aid. Its collection and use may be discouraged if the information does not support the interests of powerful stakeholders.

In addition to the problems associated with major donors and governments, there is a lack of clarity concerning the mandates of different UN agencies (Dahrendorf, 1991; Lee *et al*, 1995). It is not always clear who is responsible for what, leading to duplication, gaps and a failure for any one agency to take responsibility or be called to account. UN agency management and logistics failures, coupled with failures to respond to information (often for political reasons), have been documented as leading to a loss of lives (Aall, 1979). More recently a similar scenario in south-eastern Zaire was accurately described as a *"management imbroglio"* (Hilderbrand, 1991 p1). Hancock (1989), also exposed many problems related to international aid globally, including inefficiency and corruption within the UN system.

The NGO scene is hardly less fraught. It has been frequently observed that agencies are not always working towards the same goals (Dick and Simmonds, 1985). As two aid workers put it *"we compete (for funds and) for programmes. Donors will put their money where they think it will do most good. NGOs must either compete or go under"* (IFRCS Staff member reported in Dodd, 1991 p39) and *" (as an agency).... we have to be there or die"* (an aid worker comment on Goma reported in JEEA Study 3, 1996 p151). NGOs need emergencies both to justify their continuing existence and to bring in much needed funds to cover overheads. Their public profile is very important for obvious business reasons.

The sudden unplanned and uncoordinated influx of NGOs associated with high profile emergencies has been described as *"a symptom of world panic and guilt as*

a result of seeing the starving on television" (Shepherd, 1988 p56). It is hardly surprising then that authors frequently lament that responses are rarely rational or based on objective assessments of need (Lechat, 1976; Editorial, *The Lancet*, 1990, Shears, 1991).

This increased competition for funds and public profile results in false claims of achievement. An American group claimed that its intervention stopped the cholera epidemic in Goma. This was blatantly untrue and not supported by epidemiological data, yet the claim was backed by the US Government for its own political ends at home (JEEA Study 3, 1996 p154), presumably to show Americans saving lives abroad. In practical terms, many agencies have limited disaster relief experience, send the wrong commodities, or commit themselves far beyond their capacity to perform (Hingson, 1981).

Many NGOs are slow to change (de Waal, 1988) and have limited institutional memories, so that lessons learnt from one emergency may not necessarily be passed on or transferred (Foster, 1987). Those agencies with indigenous roots (a long history of working in the country prior to the emergency) seemed to be the most effective (Rhode and Gardener, 1973). Korten (1986 and 1990) identified three generations of aid agencies and developed typologies according to their degree of expertise, experience and evolution. Other organisational analyses exist (Handy, 1976 and 1990; Cassels and Diskett, 1990; Fowler, 1991; Sogge (ed), 1996). However their potential utility in predicting aid agency capacity or

performance, or for managing aid agency behaviour in emergencies, has yet to be tested out but is worthy of research.

1.6.5 The relief workers, training and NGO performance

It appears that relief workers are often caught up in competing priorities while determining relief needs. MacAskill, (1982) was under considerable pressure to devote her time to clinical rather than much needed public health work, especially measles immunisation, in the face of an epidemic. Similar observations have been made in relation to development priorities (Downing, 1989), particularly because expatriates may not be familiar with community development ideas and have to juggle between relief and development needs. Aid workers, with less experience than national staff, have often been recruited (Morris, 1991) and may hold positions of greater authority (ie they control the budgets).

In Iraq, international relief personnel were not trained in survey techniques (Toole, 1991) and in Somalia, Iraq and Goma most international staff were on very short-term contracts and often had no language skills (JEEA Study 3, 1996 p154). In southern Sudan it was also noted that relief workers were often poorly trained and only stayed for a very short term (Dyke, 1991).

A geographical patchiness of epidemiological data was a major problem during the Rwanda crisis and was directly related to the availability of skilled staff. High quality data were obtained in Goma because skilled experienced epidemiologists

from CDC and Epicentre[15] were present. Elsewhere in the region the only useful data to emerge was collected by MSF with Epicentre support. In short, data collection only occurred when experienced epidemiologists were deployed to support aid workers (JEEA Study 3, 1996 p68).

Even when data existed, responses were not always appropriate. Operation Blessing (an American Christian group) was one of the many NGOs operating in Goma in 1994. It was reported, initially at least, to have carried out inappropriate, potentially dangerous health practices (JEEA Study 3, 1996 p74). Why did this occur? Data are incomplete, but it appears that a significant number of NGOs involved in the Rwanda crisis either had not worked in Africa before or had no emergency experience. Some were newly formed specifically for that emergency. Approximately 60 out of 180 NGOs left the region after the acute emergency. Interestingly, their exodus coincided with the departure of the television networks (JEEA Study 3, 1996 p151). The majority which remained operated small projects (such as the support of one health post only) leading to duplication in some areas, gaps in others and an inefficient use of resources (JEEA, Study 3 1996 p152).

It was noted, also in Goma, that many internationally recruited staff had a centralised, clinical approach which resulted in poor or absent outreach programmes (Siddique *et al*, 1995), when epidemiological data argued for a

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[15] Epicentre is an organisation which was founded by MSF/F, to provide epidemiological support to MSF relief programmes. It is based in Paris and many of the staff are former members of the international MSF organisation.

decentralised system to reach those most in need. The effectiveness of individual NGOs and their staff was questioned in the evaluation (JEEA) but epidemiological information was generally not available to assess their impact (if any) on public health and mortality. Comments on NGO performance were purely observational and based on the judgement of experienced evaluators.

Despite the negative reports above, it is also clear that there are a number of very experienced, skilled and effective international relief organisations operating (JEEA Synthesis Report, 1996 p31). For many less well organised groups, though, a lack of technical knowledge, poor training and a weak organisational capacity inhibits data collection, interpretation and analysis. A lack of experience also inhibits data use in a highly politicised environment.

1.6.6 Managerial chaos and the epidemiological approach: A summary

Reasons for the apparent relief failures, and the associated failure to use an epidemiological approach, are identified above. They are complex and multiple. Reasons include a lack of appreciation of the benefits of an epidemiological approach (Shears, 1991), a lack of knowledge and inadequate training (Guha-Sapir, 1991; McNair, 1995; Slim, 1996/b), poor coordination and no standardisation (JEEA Study 3, 1996) and/or lack of political will (Guha-Sapir, 1991; Shears, 1991; Seaman, 1991). The manifestations of these failures include a poor initial assessment of the situation and a lack of appreciation of relative priorities. Unfortunately, it appears that responses to emergencies still often

follow on from media attention (Harrison and Palmer, 1986) and are not always appropriate to local situations.

Mortality rates are often unacceptably high, but it is not always clear whether, within one emergency, all camps or just some camps are affected, as comprehensive data are often lacking. Desenclos *et al* (1990) and Toole and Waldman (1990) suggest that some of the differences between camps may be related to the speed and efficiency with which the relief operation gets underway (thus as NGOs are the main providers of relief, their performance is crucial). Crude mortality rates appear to rise when there is a new influx of DPs, and when the relief response is inadequate or slow. It has been shown that the steepness of the rise, the peak reached and duration of the crisis, can reflect organisational and operational responses and resources available ie the quality of the response (Toole and Waldman, 1988 and 1990).

The role of refugees is not discussed here as, in the context of the epidemiological approach and decision-making, their role is not clear. While community participation is endorsed as an approach, in many situations the refugees are relatively powerless (Harrell-Bond, 1986). It appears that, superficially at least, their main involvement may be through exerting negative power such as a refusal to be counted or to report deaths.

While many epidemiological reports show an inadequate relief response (Toole and Waldman, 1993) few studies give well researched reasons for these failures,

although some possible explanations are offered. The root causes (eg competing political priorities) and the impact of agency activities on the health of the displaced, are less well researched and may appear as a by-product of investigations into related areas; for example, see the series of evaluations of the Rwanda crisis 1994 (JEEA, [5 separate reports] 1996) or many of the articles by Toole and colleagues (1988-96). Prospective primary research is rarely conducted into the operational aspects (how to do/not do it) of relief programmes (Toole and Waldman, 1993), possibly because of the difficulties associated with conducting this type of operational research under unpredictable emergency conditions.

1.7 Epidemiology, Evidence and Data

This section assesses the feasibility of data collection under emergency conditions. As noted earlier, the epidemiological approach is about collecting epidemiological information which can be used to influence change. Epidemiology (the science) is concerned with the study of the distribution (descriptive epidemiology) and determinants (analytical epidemiology) of disease prevalence in humans (MacMahon *et al*, 1960 p3) and its application in the prevention and control of health problems and diseases (Vaughan and Morrow, 1989 p159).

The current interest in evidence-based decision-making has its origins in epidemiology, where observation and analysis lead to a solution or proposal to remove the cause of the problem (such as the early epidemic mapping which led to the identification of the Broad Street pump as a source of a cholera epidemic and

resulted in control measures being implemented) (MacMahon *et al*, 1960 p5). The epidemiological approach in this context, which is used to effect change, is synonymous with evidence-based decision-making.

However because of the chaotic emergency context described earlier in this review, and the difficulties associated with collecting data in such an environment, the evidence used is often not of sufficient rigour and therefore can be challenged. In fact, although many epidemiological studies have been carried out, the health information and surveillance systems which generated the epidemiological information have rarely been evaluated under acute emergency conditions (IFRCS, 1997 p57). The quality of the data used in at least some of those studies is open to debate. Prothero (1994) also identified other problems such as the lack of comparability of data and a lack of longitudinal follow up.

In summary, the links between epidemiological information, decision-making and response have rarely been rigorously researched and reports are often anecdotal. Anecdotal information may help to formulate further research, but if the anecdotal data seem unsustainable or unverifiable, then there is a need to do other studies to challenge or refute them. Based on the above analysis, thorough research is therefore needed, but there are many obvious constraints which can hinder rapid, accurate data collection in acute emergencies.

The potential and limitations of selected epidemiological methods are briefly discussed here. Section 1.7.1 examines the links between epidemiological and

qualitative data. Rapid assessment methodologies are reviewed in 1.7.2, while 1.7.3 examines emergency health information and surveillance systems.

1.7.1 Epidemiological information and qualitative data

It has often been stated in the literature that relief responses are rarely based on a sound epidemiological approach (Lechat, 1976; Editorial, *The Lancet*, 1990). While this may indeed be the case, it is also clear that epidemiology alone is an insufficient guarantee of a satisfactory relief response. As we saw in earlier sections, many other factors also have to be taken into account.

MacMahon *et al* acknowledged that the contributions of other disciplines to epidemiological methods, are essential (specifically clinical medicine, pathology and biostatistics) since the *"methods of epidemiology are predominantly observational"* (MacMahon *et al*, 1960 p10). Using the same arguments it is reasonable to suggest that other disciplines, such as anthropology, social or political sciences, could also usefully contribute to the development and use of epidemiological methods. In fact Craig *et al* (1986 p13-15) argue convincingly from an anthropological standpoint, that quantitative and qualitative research complement each other. Prothero (1994) also argues, in the context of PDEs, that epidemiology requires increased contribution from the social sciences, especially anthropology. This is particularly pertinent when analyzing complex relief programmes.

Many convincing claims have been made about the utility of the epidemiological approach (Glass *et al*, 1980; Elias *et al*, 1990), but that approach has rarely been objectively evaluated under acute emergency conditions. Qualitative data can be used to explain certain epidemiological findings or identify implementation strategies (Craig *et al*, 1986). It is therefore pertinent to use both epidemiological evidence and qualitative data collection methods in the course of this study to explore the potential and limitations of an epidemiological or evidence-based approach.

1.7.2 Rapid assessment methods in emergencies

While the importance of a thorough rapid assessment is recognised, methods of rapid assessment for DPs are not clearly defined in the literature (see for example Tailhades and Toole, 1991; Toole and Malkki, 1992 p28-35; Malilay, Flanders and Brogan, 1996), although a variety of information checklists and suggested indicators exist. Examples include those developed by OXFAM (Shears, 1983/b; Mears and Chowdhury, 1994) and UNHCR (UNHCR, 1991).

The methods used for rapid assessment seem to be variants of those used in development settings (Guha-Sapir, 1991). They vary according to the skills and biases of the assessor and interests of the potential donors. If an assessment is carried out by an epidemiologist, for example, then while it provides useful epidemiological data, it does not always provide an analysis of the capacity of the DPs, the MOH or NGOs to cope (for example Brown *et al*, 1992). The value of

using a combination of data collection methods for assessments has been described (Laffrey *et al*, 1989) but has not been frequently recorded in the refugee health literature.

Information on the methods used for assessments, and on biases which may occur in the methodology, is rarely provided in assessment reports. As a result, several authors conclude that there is still a tendency to produce health relief based on rumour rather than on reliable facts (Guha-Sapir, 1991; Keen and Ryle, 1996).

WHO and CDC developed a methodology for rapid assessment in emergencies but it remains the subject of some controversy. The aim is to collect a variety of information in a relatively short time period (WHO, 1990/a p7-9). Guidance on how to carry out this methodology in practice is lacking and the methodology is not clearly explained (WHO, 1990 p14-15; WHO, 1990/b p3-4). Some epidemiologists and nutritionists also question the small sample sizes that are suggested by WHO and they are concerned about the validity of nutritional surveys involving only 50 families (MacFarlane, personal communication, 1997[16]).

Assessments are often more reactive than anticipatory and may be delayed (Rahman and Bennish, 1993). It takes time and skill to gather and use appropriate information. There is a direct trade-off between precision of data and the time needed to collect them (Margoluis *et al*, 1989) and information is often not

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standardised (Brown, 1977; Boss *et al*, 1994; JEEA Study 3, 1996 p152). In addition, there is frequently a separation between the initial assessment (data collection, analysis, report writing, making recommendations), which may be done by consultants or experts and actual implementation (carried out by government departments and aid agencies). Because of pressing humanitarian needs, implementation often starts before the assessment is completed so that some recommendations may then be considered outdated, irrelevant or simply ignored.

A rapid needs assessment took place within three days of Hurricane Andrew (Florida). Results were available within 24 hours of starting the assessment and were used for determining relief priorities (Hlady *et al*, 1994). A number of problems emerged later. Data from different data collection systems (in this case the civilian and military systems) had to be analyzed separately because different case definitions were used. Morbidity rates could not be calculated because the size of the population was not known and no baseline information was available for comparisons (IFRCS, 1997 p57).

In summary, no widely accepted standard methods or indicators exist to rapidly determine the needs of DPs and affected communities. There is a need, in the context of PDEs to develop standardised rapid assessment methodologies which combine both epidemiological information and qualitative data (such as assessments of resources available, capacity to cope etc). Such methods should be simple to use, timely, feasible under adverse field conditions and useful (IFRCS, 1997 p58). Relief workers then need to be trained in their use.

1.7.3 Emergency health information and surveillance systems [HIS]

Emergency and post-disaster health information needs are comprehensively defined in the literature (de Ville de Goyet, 1979; Western, 1982; Seaman, 1984; Blake, 1986; Shears and Lusty, 1987; Toole and Malkki, 1992 and Moren, 1995).

Information needs are summarised in Table 1.3 (adapted from Hakewill and Moren, 1991; Toole and Malkki, 1992 p35-43: and Moren, 1995):

Table 1.3: Health information needs in emergencies

Type of Information	Indicators
Mortality data	daily crude mortality rates/10,000/day daily child mortality rates/10,000/day (0-<5 years) cause specific mortality rates proportional mortality for different causes (age/sex specific)
Morbidity data	disease prevalence rates/10,000/week (all ages) disease prevalence rates/10,000/week (0-<5 years) proportional morbidity for different causes (age/sex specific)
Nutritional data	malnutrition rates (using mid upper arm circumference [MUAC] measurements or weight for height indices). Differentiate between new arrivals, DPs and settled populations.
Vital sectors and risk factors	food and cooking fuel availability water and sanitation provision availability and distribution of relief items (shelter, blankets, jerry cans)
Service provision	immunisations and coverage feeding centre attendance (related to malnutrition rates) numbers of out patients treated, clinics held (type), attendance rates etc other public health activites undertaken

It is easy to summarise needs. It is more difficult to suggest accurate and reliable methods of collecting data in the context described. There is very little guidance in the literature concerning how to set up and manage a reliable health information system [HIS] under emergency conditions although some steps to be followed have been suggested (Toole and Malkki, 1992 p41). As noted above, emergency HISs

are rarely formally evaluated, so there appear to be few opportunities for learning from experience, although some problems have been documented.

As we saw earlier, there are persistent problems associated with trying to obtain accurate demographic data, making the calculation of rates questionable (section 1.6.2), although mortality and morbidity rates have been identified as useful for decision makers (Table 1.3). Good quality demographic data are therefore a prerequisite when using an evidence-based approach.

It has been noted that mortality is often under-reported at clinics (Toole and Waldman, 1990; Moore *et al*, 1993) as most deaths occur at home. The degree of under-reporting has not been specified. Mortality data collection systems therefore need to actively seek out deaths (active surveillance) and should not depend solely on clinic or hospital based data (passive surveillance) (Hakewill and Moren, 1991). Several alternative data collection methods have been suggested, including counting graves or surveillance through home visits, but an evaluation of methods and clearer guidance are needed.

Nutritional surveillance systems have been described in the context of famine early warning as well as in the context of refugee camps and many publications exist (such as MSF, 1995; Young, 1992; Young and Jaspars, 1995). Yet despite the existence of guidelines, problems still exist and are associated with a lack of standardisation of data collection, poor sampling methods and delays in data analysis (Shoham, 1987; Young and Jaspars, 1995 p39; JEEA Study 3, 1996

p152). In addition it has been noted that high mortality rates can mask a declining nutritional status as the most malnourished die (Nieburg *et al*, 1987). Therefore malnutrition and mortality rates are both needed for purposes of data verification.

Increased morbidity has been reported following emergencies. It is frequently not clear if this is a real increase in disease prevalence or is due to increased access to health care and increased reporting (Malilay *et al*, 1996). New morbidity reporting systems may be needed, which are distinct from the normal system operated by the Ministry of Health [MOH], as those designed to deal with development situations may not provide relevant and timely information in emergencies (Woodruff *et al*, 1990). Systems should allow for differentiation between various ethnic and social groups, new arrivals, DPs and settled populations to facilitate the identification of vulnerable groups. They should also focus on communicable diseases of major public health importance, such as those referred to in section 1.5 (Hakewill and Moren, 1991).

It has been noted that computerised systems offer the possibility of more rapid data analysis (Babille *et al*, 1994) but prototypes of appropriate and efficient emergency HISs do not yet exist, although some guidance can be drawn from the extensive development literature (such as Stinson, 1983; Graham, 1986; Opit, 1987; Sandiford *et al*, 1992; Sepulveda *et al*, 1992; Wetherall *et al*, 1992; Declich and Carter, 1994). See also Annex 2 which discusses the key attributes of HISs in the context of evaluation.

In summary, urgent guidance is needed concerning how to design, establish, operate and manage HISs under acute emergency conditions.

1.8 The Epidemiological Approach: Key Issues and Concerns

This section briefly summarises the main lessons arising from this review.

1.8.1 Context and complexity of PDEs and public health priorities

Most modern PDEs are man-made (due to conflict and repression) but are often complicated by so called "natural" events (such as droughts, cyclones, floods and epidemics). They are the visible manifestation of many factors including direct security threats (threat of death or fear of persecution), a lack of access to essential services (health care, water, education and secure homes) and/or shortages of commodities (food, water, drugs), adverse government policies (political and economic), and a desire to seek assistance in order to protect lives and livelihoods (ie push and pull factors).

Displaced persons often (but not always) arrive in relief camps with a compromised health and nutritional status. Many of these problems can be predicted (Shears and Lusty, 1987; Prothero, 1994). It is clear from the literature that displaced persons have a greater risk of malnutrition, health crises and death than indigenous (non-displaced) populations (Toole and Waldman, 1990; Lindtjorn, 1989; De Waal, 1989). The scale of mortality and morbidity has

increased dramatically in the last ten decades, as each event kills more people (Guha-Sapir and Lechat, 1986. Guha-Sapir, 1991).

Health needs change over time and priorities also change although, some risks remain constant (Toole and Waldman, 1990). There is now a consensus concerning priority interventions (Toole and Malkki, 1992).

1.8.2 Chaos and the international relief system

The relief response itself is highly complex with many competing stakeholders, conflicting priorities and diverse (national and international) interests. The host government may be a reluctant participant rather than a leading light. There may also be conflict between host government policies and donor, aid agency or refugee desires.

International refugee assistance programmes and NGOs are a growth industry yet staff often remain ill-prepared, badly trained and poorly supported (MacNair, 1995). Organisations may have poor institutional memories and limited accountability (Jok, 1996). In short, international aid is highly politicized and competitive but not always professional (Goyens *et al*, 1996; De Waal, 1996).

1.8.3 The epidemiological approach and evidence-based decision-making

An epidemiological approach has the potential to improve mortality rates and the health situation of DPs. It should include the establishment of both active and passive surveillance systems to assist with the prediction and detection of specific preventable public health problems. Systems should also be sensitive enough to detect acute communicable disease outbreaks which have the potential to spread rapidly in a crowded camp environment (Toole and Malkki, 1992). In the longer term, monitoring of nutrition and micronutrient deficiencies is also important (Toole, 1992) as is monitoring and evaluating the effectiveness of different interventions and the emergence of chronic diseases such as TB and scabies (Toole and Waldman, 1990).

The potential of the epidemiological approach is clear but its limitations are not yet clearly defined in the literature, as while epidemiological activities are being undertaken, an epidemiological approach is not always followed, resulting in failures to respond to changing health needs (Toole and Waldman, 1993).

Relief workers need clear guidance concerning standard methodologies for rapid assessments. They also need training related to establishing and managing HIS and surveillance systems in emergencies. However, perhaps the biggest challenge for relief workers lies in improving data use (and evidence-based decision-making) in an environment where health may not be everyone's main priority and where there are many hidden agendas and competing political priorities.

1.8.4 Conclusions

Coordination is clearly a key issue when discussing data collection and use. It will have direct bearing on such issues as standardisation of data, comparability, quality and variability. Recent efforts to improve international coordination generally and programme quality specifically include a voluntary NGO Code of Practice (IFRCS, 1994), but no mechanism exists for policing or enforcing this. The JEEA (1996) calls for more controls on NGOs, and suggests that they should have to meet minimum standards in order to operate. It is difficult to see how this could be effectively implemented internationally in the current political and economic climate, which actively encourages free market competition (Stockton, 1996). Therefore it is highly likely that many of the problems described above will continue to persist in some shape or form in the foreseeable future.

The epidemiological approach and evidence-based decision-making needs to be tested out more rigorously in the emergency context described. The aim is to confirm its effectiveness, define limitations (if any) and to assess if can be adapted (when necessary) to cope with the political realities and organisational influences noted in many PDEs, ie to evaluate what facilitates or limits the use of a rational science in a confused or chaotic environment.

The challenge then for this research project, is to collect epidemiological data and use the data convincingly, from a management perspective, to influence change in a chaotic environment, where there are a number of competing priorities. The

aim is to minimise mortality, malnutrition and morbidity in a selected displaced population. A closer analysis of stumbling blocks and successes, through prospective operational research, may give some clues as to how information use can be improved in this imperfect world.

1.8.5 Postscript

There clearly have been many failures of the international aid system over the years. Following the Peru earthquake in the early 1970s, it was observed that:

> *"we stagger from pillar to post, unprepared for disaster; gloriously eager to put it right; hopelessly frustrated by our inability to do this instantaneously and hideously ready to apportion blame"* (Rennie, 1970 p704)

While there have been some major achievements and advances in technical knowledge since then, the hoped for progress in relief responses has not been made - indicating that, despite considerable advances in knowledge, problems persist. As Seaman recently noted *"if we really wanted to make the international aid system work we could"* (Seaman, 1991 p2).

Perhaps a clearer understanding of an epidemiological approach, and subsequent improvements in the collection and use of data for decision-making, is one step in that direction.

CHAPTER 2

How to Approach the Problem?

Chapter 2

How to approach the problem?

"In every crisis there is danger, in every crisis there is opportunity"
Old Chinese Proverb

2.0 Operational Research in an Emergency Environment: Is it Feasible?

The literature review (Chapter 1) describes some of the many problems common to different relief programmes. It identifies a need for systematic operational research, which tests out the epidemiological approach and evidence-based decision-making. However it also recognises that emergencies, by definition, are extremely complex, chaotic environments.

This chapter describes the use of a rational methodological approach in a chaotic environment. It explains how the methodology is intended to minimise some of these inherent difficulties. Several fundamental questions, concerning the viability of the study, are addressed in this Chapter, particularly:

* Is it realistic to attempt operational research during the acute phase of a major emergency?
* Is it ethical?

* Will it be possible to draw any meaningful conclusions from such a disordered scenario?

The study questions and hypothesis are clarified in section 2.1. Study concepts are explained in 2.2, while 2.3 describes the methodology. Data requirements and collection methods/tools are located in section 2.4 and data analysis in 2.5. The research programme is summarised in 2.6. Section 2.7 critically appraises the methodology, while section 2.8 assesses the reliability, validity and replicability of the results. A brief summary is located in section 2.9.

2.1 Study Questions

Epidemiologists have convincingly described the advantages of using an epidemiological approach to identify and define priorities in emergencies (Glass *et al*, 1980; Toole and Waldman, 1988, 1990 and 1993). The limitations of such an approach are less well defined. I was interested to explore the role, potential utility and limitations of an epidemiological approach for evidence-based decision-making during the acute phase of a large chaotic emergency. Relief workers, whilst having some epidemiological knowledge, are not usually trained epidemiologists. I am therefore not conducting this study from an epidemiological point of view (I am not an epidemiologist), but from the perspective of an experienced relief worker in a management role. This is therefore primarily a qualitative study.

As a relief worker, my main concerns are to avoid unnecessary deaths, relieve suffering and to assist with capacity building (of local structures, organisations, refugee groups etc). The study questions are therefore framed around the typical concerns and priorities of a relief worker who has a desire to influence change in order to benefit the health status of the displaced. The study aim (2.1.1), hypothesis (2.1.2) and objectives (2.1.3) are described below.

2.1.1 Study aim

The aim of the study is to answer one main question:

* What are the role, potential and limitations of an epidemiological approach and evidence-based decision-making, in reducing and controlling mortality, malnutrition and disease outbreaks in an acute emergency?

The intention is to use the approach in a chaotic environment, where refugee health may not always be everyone's top priority, test it, analyze factors influencing it and monitor its effectiveness. The literature review identified some problems which have to be considered and noted the failure of key decision makers to respond in a timely fashion to health information generated by field workers (Toole and Waldman, 1993). The epidemiological approach, therefore, must itself be evaluated within the political and managerial context. This leads to a series of questions and related sub-questions. The first two questions arise directly:

* Is an epidemiological approach feasible under acute emergency conditions by an experienced relief worker? ie what is the environment in which it is tested and is it "do-able" under the usual relief conditions by a relief worker who is not a trained epidemiologist? How easy is it and what are the factors which influence evidence-based decision-making?

* Can an epidemiological approach help to reduce mortality rates and avoid some of the commonly found problems? What is its potential and does it work?

In order to throw some light on earlier apparent failures, a sub-theme is:

* How can relief workers acquire reliable epidemiological data in the midst of an emergency relief operation? ie are there problems which relate to the selection, relevance or quality of the data?

This last question is of secondary interest as relief workers and managers often have to use the data available to them, regardless of quality. It is however considered briefly (as problems of data quality may affect the quality of decision-making).

2.1.2 Hypothesis

The collection and use of epidemiological data is central to the epidemiological approach. In the literature, several categories of data have been identified as being particularly useful. These include data concerning crude mortality rates, malnutrition rates and disease outbreaks (Toole and Malkki, 1992 and section 1.7.3). The hypothesis to be tested is:

> In the chaotic phase of emergencies, the rational use of valid information about mortality, nutrition and disease outbreaks (as a management tool) will result in a better health outcome for displaced populations than interventions which are not evidence-based. An epidemiological approach will help to identify interventions which can control mortality and malnutrition rates and hold them at acceptable levels (see 2.2 for study definitions).

In a chaotic emergency setting, it will be difficult, because of many confounding variables, to know the exact impact of decisions based on epidemiological evidence, although rough comparisons can be made with earlier emergencies. However if we could generate a better understanding of the many influencing variables (which are likely to be political, organisational, managerial or related to demographic changes), or perhaps develop a strategy for controlling/allowing for them, it is possible that better health outcomes may result in future PDEs when this strategy is used.

When testing the hypothesis we need to understand the context (which is likely to be both confused and dynamic) and identify trends. The behaviour of stakeholders and the forces driving them also need to be explored. The various inter-relationships (of the different stakeholders), which often overlap horizontally and have a variety of agendas intersecting vertically, need to be defined.

2.1.3 Objectives

Based on the above analysis, the objectives therefore are to:

* Describe the nature of chaos in acute emergencies from different viewpoints eg demographic chaos, health and nutrition status (Chapter 4), political and management chaos (Chapter 5)

* Briefly assess the quality of the health and nutrition data used for decision-making (Chapter 4 and Annex 2)

* Demonstrate the relationship between crude mortality rates, malnutrition rates, disease outbreaks and the various influences and themes affecting decisions (Chapter 6)

* Discuss how an analysis of political events, organisational factors and managerial chaos adds a vital piece of information which appears to be related to/influence decisions and mortality (Chapter 7)

* Suggest other areas worthy of further research (Chapter 8).

2.1.4 Anticipated outcomes

The general intention is to ask if the present chaotic relief situation can be managed or improved and, if so, how? Given the apparent simplicity of current models of emergencies and the shortcomings of relief programmes described in the literature, it is anticipated that a more complex, politicised model is likely to emerge.

2.2 Study Definitions

Some definitions are used throughout the research. First there is the intention to use an epidemiological approach (2.2.1). Second, there is the expectation that by using an epidemiological approach, mortality and malnutrition rates in the refugee camps will remain within acceptable levels. What then is an acceptable rate (2.2.2)? Finally, it is important to compare what is happening (observed) with what should be happening (the ideal, as defined in the literature and from personal experience). What is the ideal that should be aimed for and how will we know if we get there (2.2.3)?

2.2.1 An epidemiological approach

The current interest in the literature in evidence-based decision-making has origin in epidemiology. The epidemiological approach which is used to effect change, is synonymous with evidence-based decision-making (see 1.7). Several characteristics of such an approach were identified in the literature (section 1.3), such as:

> to collect epidemiological data and use them in different functional ways; to identify priorities, to adapt the relief programme to meet changing needs and learn from these experiences, ie to influence change (adapted from Dick and Simmonds, 1983)

For the purposes of this study, an epidemiological approach is defined as:

> collecting data on a variety of health problems and risk factors and using it in order to assess priorities, identify changing health needs, investigate problems and influence change

2.2.2 Acceptable mortality rates and malnutrition rates

A crude mortality rate [CMR] of less than [<] 0.5/10,000/day is considered normal in many developing countries. A relief programme under control has a CMR of <1/10,000/day. A CMR greater than 1/10,000/day signifies a very serious situation and greater than 2/10,000/day is an emergency out of control.

The benchmarks for mortality in children less than five years old [< 5yrs] are roughly double the CMRs, that is a rate greater than 2/10,000/day signifies a very serious situation and greater than 4/10,000/day, the emergency is out of control (Hakewill and Moren, 1991).

Malnutrition rates are more difficult to define due to seasonal factors and other confounding variables. However, generally in emergencies a malnutrition rate is considered to be within normal limits when less than 10% of the children (6 months to 5 years) have a weight for height index [WT/HT] of <80% and/or oedema. A malnutrition rate of 10-20% indicates a serious situation whereas greater than [>] 20% is very serious and out of control (UNHCR, 1983; OXFAM, 1984; MSF, 1995).

2.2.3 Defining what should be happening

A number of persistent health and nutrition problems are described in the literature and a number of technical solutions are proposed (section 1.5). However, some problems arise that are location specific. While the majority of health needs can be predicted, with a fairly high degree of certainty, others only become clear following a rapid assessment and thorough surveillance. Therefore it is important in the field, to try to gain a consensus from the key actors, regarding priority interventions and a strategy for implementation.

The aim is to develop health and nutrition action plans, which can be modified according to changing needs in Bangladesh. These action plans can be developed locally at district level (through a Health and Nutrition Management Committee [HNMC] - see section 2.4.3) but they need the full support of the MOH (both the Director of Primary Health Care and the Minister of Health), the UNHCR and NGOs. The aims of the relief programme and action plans which evolved are included in Annex 3.

The action plans provide the base-line against which progress is measured and the effectiveness of the epidemiological approach is tested out, first through the development of the plans (via a rapid assessment and identification of needs), second in monitoring implementation and finally by influencing change.

2.3 Methodology

In developing a methodology there were numerous challenges. These included:

* ensuring the quality of data collected under adverse emergency conditions
* minimising bias (especially personal biases)
* using rational methodologies in a chaotic environment
* mixing and matching data in order to be able to draw (and validate) meaningful conclusions
* identifying or exposing the hidden agendas of others.

The methodology is justified (2.3.1) and described (2.3.2).

2.3.1 Justification

Previous studies of PDEs have either had an epidemiological focus (eg Toole and Waldman, 1988 and 1990) or have taken a case study (descriptive or analytical) approach (eg Harrell-Bond, 1986). The former is rational and positivist, looking to explain true meanings. In contrast, the latter is endeavouring to draw out meanings and lessons by describing a "story" in relation to other events. They reflect two different ways of seeing the world; through the eyes of positivists or relativists, and as such, they do not always agree on the best way forward. However when used in combination, it is increasingly recognised that these views are complementary (see 1.7.1). In addition, Schon observed that:

> *"Depending on our disciplinary backgrounds, organisational roles, past histories, interests, and political/economic perspectives, we frame problematic situations in different ways. A nutritionist for example may convert a vague worry about malnutrition... into the problem of selecting an optimal diet. But an agronomist may frame the problem in terms of food production; an epidemiologist in terms of the diseases which increase the demand for nutrients.... etc"* (Schon, 1987 p4-5)

Hence professional identities and political/economic perspectives will determine how a problematic situation is seen and named or framed. Schon goes on to say that debates often involve conflicting frames. Attempts at conflict resolution usually lead back to "*appeals to the data*" (Schon, 1987 p5). This rarely succeeds as those who hold conflicting views will pay attention to different facts and interpret them according to their own "frame" or perspective. Schon asserts that problem (or conflict) solving is best achieved by naming and framing the problem so that it is converted to a well formed problem. Solving it then becomes possible, rather than debating technicalities.

Schon's observation is relevant to this study as, in order to test the hypothesis, the methodology needs to accommodate many different frames (eg those of managers, relief workers, epidemiologists) and incorporate various views (positivist and relativist) as well as cope with the disordered environment. There is clearly a risk of ending up with a series of contested and possibly unverifiable views.

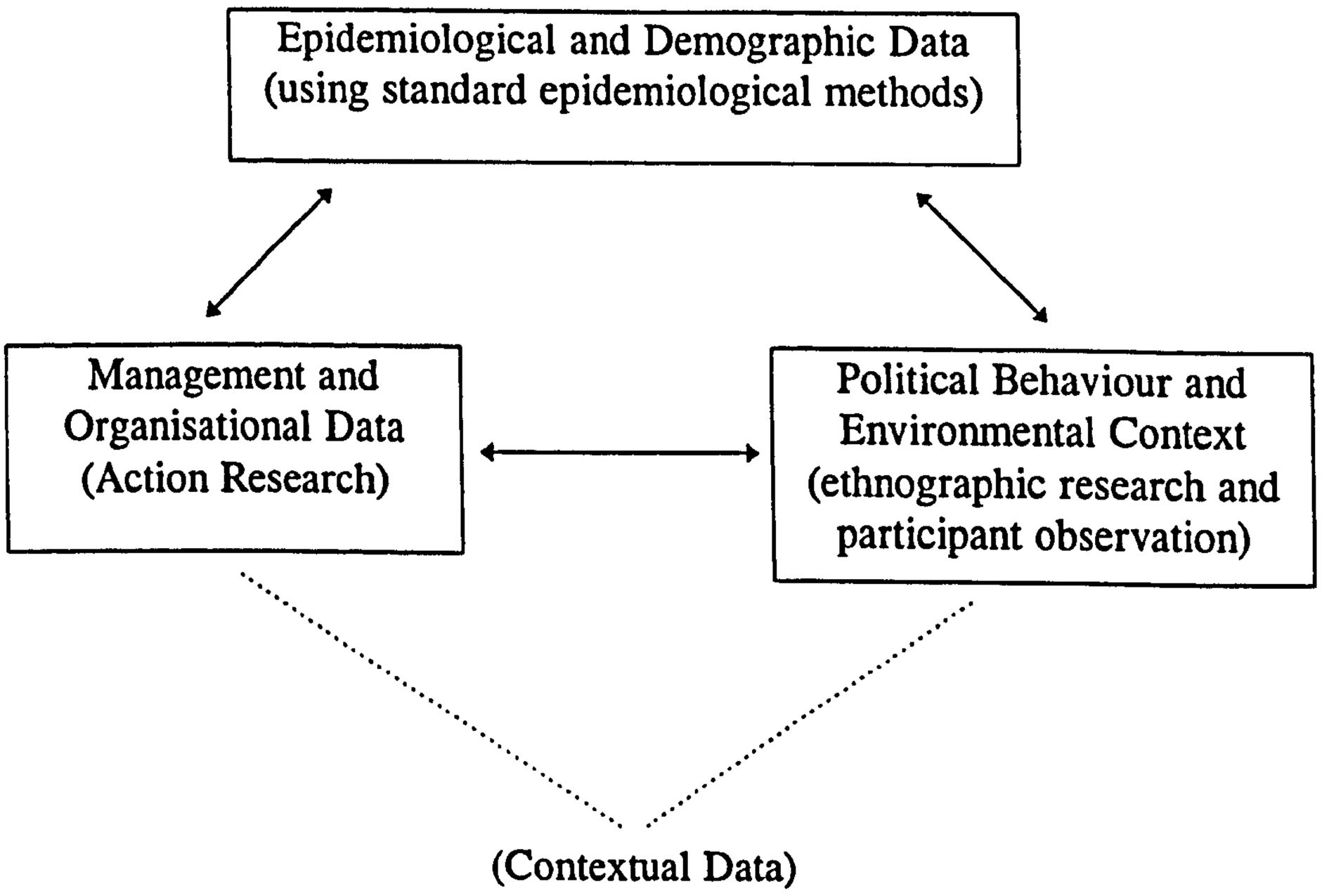
Very few researchers have attempted to combine both the positivist and relativist approaches in a rigorous way under emergency conditions although there are a few notable exceptions (see De Waal, 1989). In the emergency context, it is pragmatic to use both simultaneously, which is what I did during the course of this research.

2.3.2 Methodology (description)

I needed to collect quantitative evidence (epidemiological and demographic data) as well as specifying influences and decisions which have their roots in management, organisational and political behaviours (qualitative and anthropological information). I also needed contextual (mainly qualitative) information to describe the confused and chaotic conditions under which the study took place. These latter behaviours and conditions often work against the rational aim of an epidemiological approach, which is intended to improve the health of the population through evidence-based decision-making. They also often inhibit or limit attempts to collect good quality data.

The methodology therefore involves the triangulation of three categories of data collected using different standard methods (Figure 2.1). The intention is to draw linkages, where they exist, and to bring together themes through triangulation by using different frames and paradigms to look at the same circumstances. This approach is commonly used in rapid appraisal in the development context. Data requirements and collection methods are discussed below (2.4). The process of triangulation and data analysis is discussed in more detail in section 2.5.

Figure 2.1 Methods and Triangulation



2.4 Data Requirements and Data Collection Methods

This section explains data requirements (2.4.1), data collection methods (2.4.2-2.4.5), data selection (2.4.6) and data collection tools (2.4.7).

2.4.1 Data requirements

Data needs fell into the three broad categories summarised in Figure 2.1. The objectives (2.1.3) were expanded to generate a series of questions, leading to clarification of data needs across the data sets. These are summarised in Table 2.1.

Qualitative and quantitative data were needed from a wide variety of sources (both formal and informal) as the study had to cover a wide range of subjects. The data needed to provide an overview of the whole situation but also had to be sensitive enough to allow comparisons between different camps and organisations. Insights into the different levels of decision-making were also needed, examining data use at each level (including camp, district, national and international levels).

Table 2.1 Summary of data needs

Questions to be Answered	Information Needed
What is the context at the start of the current emergency?	political economy and geography of host country recent history of the emergency local emergency preparedness and response capacity local and national infrastructure relevant to the study international Aid System operating in Bangladesh identification of key actors refugee health and nutrition needs throughout the year management and coordination structures in place
What is the quality of the epidemiological data generated?	brief description of the HIS evaluation of the HIS (data quality) rapid assessment: method, results and validity health and nutritional surveillance: methods, results, limitations and achievements of the HIS and nutritional surveillance
How is epidemiological data used at different stages of the crisis?	one years worth of health and nutrition information identification of data use and non-use influences on data use/non use (need to know variety and categories) insights into different data sets and functions; ie data use/non-use in assessment, use of mortality and malnutrition rates and disease outbreaks misuses and abuses of data and related factors
What is happening from a managerial and organisational viewpoint during the course of the year? What is changing and who is changing it? Does it matter?	identify epidemiological priorities and develop action plans identify implementers and non-implementers and constraints describe aid agency activities identify decision makers and other stakeholders, assess their relative importance and relationships, define the role of aid agencies identify constraints to rational decision-making locate available resources and assess if matched to refugee health needs use descriptions: the reality of events observed measured against the "ideal"
What is happening from a political perspective? What is changing politically and why? Does it matter?	relevant political events and their influences political environment, government policies and approaches politicisation of aid, aid agencies and key actors changing relationships between actors eg refugees, aid agencies and government during key political events
How does what is happening in Bangladesh compare with what should "ideally" (theoretically) be happening?	literature of lessons learned, reports from experts, own experience identification of stages and themes in the relief programme (for comparisons) comparison of health needs with policies, and health data with interventions and activities
What is needed to facilitate or improve the epidemiological approach?	analysis of influencing factors specify the discordance between theory and practice and the influence of political factors develop models of managerial chaos, political influences and aid agency behaviour
Are changes feasible/desirable?	social, political and cultural understanding cost considerations consent of key actors, authorization and validation

2.4.2 Epidemiological and demographic data collection methods

Epidemiological health and nutrition data were collected using standard epidemiological methods. These included:

* setting up and managing a computerised HIS (4.3.1)
* rapid assessments (6.1)
* nutritional surveys using systematic random sampling (4.4)
* surveillance of disease outbreaks (4.5 and 6.4)
* problem solving through action research (see section 2.4.3) with the HNMC in Cox's Bazar

Demographic data were collected from a variety of sources:

* GOB daily reports (of registered refugees in camps)
* UNHCR reports of new arrivals
* MOH statistics
* Numbers registered for food distributions by the Bangladesh Red Crescent Society [BDRCS]

The data from different sources were cross checked and generally the GOB official figures were used (see section 4.1).

A qualitative assessment of the HIS was carried out through (see Annex 2):

* spot checks on different stages within the system
* participant observation and informal discussions
* comparisons between aid agency and MOH reports
* comparisons of survey data, Weekly Health Information Bulletins [WHIB] and management data
* comparisons of active and passive mortality surveillance (Figure 4.6)

Most of the epidemiological data [EPIDAT] should have been collected routinely anyway. Because of my research interest, data collection was more rigorous and systematic than is usual under acute emergency conditions. The data were collected by key actors, including myself, MOH and aid agency staff. The HIS was developed with the assistance of epidemiologists from the Centre for Disease Control, Atlanta, USA [CDC]. The latter were seconded to UNHCR at my request in support of the MOH (see section 4.3 and Annex 2).

Because of my heavy workload as UNHCR Health Coordinator, a field assistant was appointed by UNHCR, primarily to operate the computerised HIS. He was also able to assist in areas where my work and research interests overlapped. The MOH also appointed a medical officer to assist (and be trained) in epidemiological data handling and use. As a result, the epidemiological data could be rapidly analyzed and used arguably more effectively than in other relief programmes which were not involved in research. This could constitute a bias, however it was

also a fair test of the uses and limitations of such data as one could expect greater problems in less well motivated or supervised programmes. The findings should be interpreted in this light.

2.4.3 Action research (management and organisational data)

In order to generate and collect data concerning management decisions and organisational behaviour, a problem solving approach was adopted, drawn from the action research literature (see Figure 2.2). This approach was needed to help structure both the enquiries and the analysis. In this study, action research is characterised as:

> *"a type of policy research where the policy problem is so pressing that solutions need to be found rapidly"* (Open University, 1979 p14)

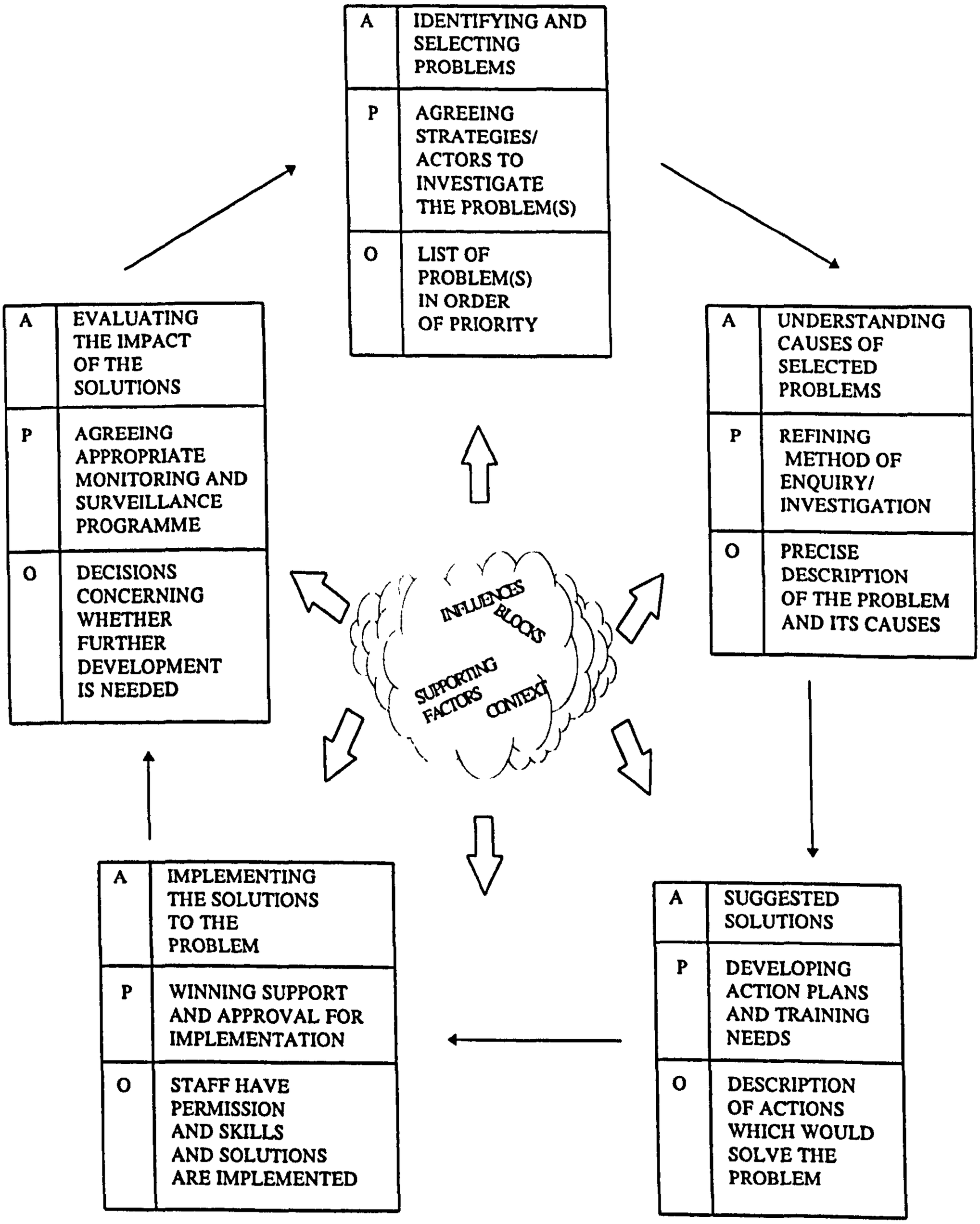
The policy orientated research referred to in the above statement was identified as:

> *"starting from a policy issue or problem: the urge to enquire stems from the desire to achieve values in addition to the aim of increasing knowledge (ie to understand influences on policy but also to improve the health status of the study population"* (Open University, 1979 p13)

This definition fits closely with my intention: to conduct research but also influence change and monitor outcomes. To do this, I needed to encourage the development of action plans, based on epidemiological evidence, to permit progress to be measured. This required the full participation of key actors. Effective coordination is also a key ingredient towards running a successful relief programme. These two requirements neatly coincided but how could they be achieved?

Figure 2.2 Action research methodology

A = ACTIVITY
P = PROCESS
O = OUTCOME



(adapted from Barnett and Abbatt, 1988 p3)

Action research was carried out in Bangladesh in the refugee affected areas. With the support of the MOH and the Relief Commissioner, a Health and Nutrition Management Committee [HNMC] was established locally to coordinate relief activities. The HNMC consisted of myself (as secretary initially), the Civil Surgeon (as the Chair)[17], his MOH colleagues and two representatives from each aid agency, usually a medical coordinator and a manager. The HNMC met weekly, minutes were taken and a weekly report was given to the Relief Commissioner at his general relief coordination meetings. The HNMC eventually became a sub-committee of the main relief coordination meetings, alongside other sub-committees in Food Management, Water and Sanitation, Shelter and Security.

Weekly epidemiological reports were discussed at the HNMC meetings. Agency progress reports were also fed back to the group. Problems were analyzed and new priorities were agreed. The HNMC was the medium through which most of the action research was carried out and through which action plans were developed. It provided useful information and insights into agency behaviour.

During the course of the study, this model (Figure 2.2) was used to tackle specific problems as they arose, ie investigating problems identified by the epidemiological data through the HNMC such as a measles outbreak or poor attendance at feeding centres. The process followed was essentially circular but it was very important throughout to continually compare the reality of what was happening (as observed

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[17] The post of a Civil Surgeon is very similar to that of a District Medical Officer in other countries. The Civil Surgeon however is not necessarily a doctor, but many have a degree or qualification in Public Health.

by myself and/or stated by others) with the ideal (as identified in the literature review, from observations of experts and personal experience). There were continual comparisons between "thinking" (the ideal) and "practice" (the reality observed).

According to the literature (Barnett and Abbatt, 1988 p6), action research has a greater chance of success in problem solving at district level if there is practical support to districts using the approach and committed and motivated individuals at district level. Practical (financial and technical) support was provided by UNHCR and the GOB. The role and contributions of the individuals participating in the HNMC was therefore of crucial importance in this study.

2.4.4 Ethnographic research/participant observation

Information on the changing political and environmental context was also required. This was collected via participant observation (an ethnographic approach) and discussions with key informants.

Participant observation, commonly used in the fields of anthropology and social science, has been defined as a method in which the researcher:

> *"shares as intimately as possible in the life and activities of those s/he is studying"* (Denzin, 1970 p187).

This ethnographic style of research is usually laborious and time consuming as the researcher is required to take on two roles (researcher and participant/job holder),

which puts some limits on data collection and usually only one setting (or case study) is described.

I needed to be a participant observer in order to gain access to a wide variety of information, some of which could be very sensitive (relating to the behaviour of individuals or political influences, for example). The only way of gaining access to such information was to work within the relief system at a fairly senior level (as UNHCR Health Coordinator). This position also allowed interviews and discussions with key informants on a daily basis, as part of my normal work.

Data collection continued throughout the year, often using several methods and data sources simultaneously. Participant observation was used continually throughout the year and was the most important data collection method.

There are potential conflicts of interest and biases, especially when the researcher is both a participant observer and an engaged actor. These issues are critically appraised in section 2.7.

2.4.5 Secondary data collection

In addition to the primary data collection methods discussed above, considerable background and contextual information was also needed. This was obtained mainly through gathering documentary evidence from literature searches, aid

agency and donor reports, minutes of coordination meetings and newspaper articles.

2.4.6 Data selection

Priorities, concerning health information needs in support of decision-making, are defined in the literature (1.7). These are rapid assessment data, mortality and malnutrition rates and data concerning communicable disease outbreaks. Thus I concentrated on the collection and use of these epidemiological data sets. Qualitative data were collected which related to or impinged on these themes. Data were categorised according to type, source and importance (Table 2.2).

It was essential to prioritise and restrict data collection in each study field (epidemiological, action research, ethnographic) in order to make the research possible given the demanding nature of the job and the labour-intensive nature of the research style. It was difficult to be too selective in the early stages because of the risk of excluding something which might later be shown to be of great significance. To solve this problem, the aim was to collect wide-ranging data during the first three months. Thereafter this could be narrowed down as important issues and themes, upon which to concentrate, were identified. This is a reflection of the "heuristic[18]" nature of the research.

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[18] The research is both "heuristic" (subject to continuous redefinition as the researcher's knowledge of the programme and its outcomes increases) and "holistic" in that the programme or problem is seen as a whole, in context and is understood and analyzed from different perspectives.

Table 2.2 Data selection

Category	Type of Information Needed	Likely Sources	Why Needed?	Importance
Context	history and recent background, political environment, geographic context and seasonal influences, resources available locally, local and national infrastructure, additional resources needed, additional resources available as a result of the emergency, level of health care in study area for both the refugees and indigenous population, a recent history of health and nutrition status of the refugees, aims and objectives of the relief programme (including a health action plan [HAP] and nutrition action plan [NAP]	newspaper reports, government departments, (MOR, MOH etc) UNHCR archives, historical documents and relevant literature UNHCR programme staff, MOH health facilities, other agency reports, key informants the HNMC in Cox's Bazar (minutes of meetings and documents)	to assess the relative priorities and the process of policy development in the context of Bangladesh and the relief system (a holistic approach)	useful in order to maintain a perspective and a degree of objectivity as well as to facilitate interpretation and understanding of key events
Actors, coordination, communication	identification of stakeholders and decision makers; their aims, objectives and hidden agendas. Mechanisms for coordination. Lines of communication and control	UNHCR funding reports, official correspondence, NGO reports and annual reviews, observation of activities and stakeholders, minutes of meetings, key informants ad hoc reports	to assess the influence of different actors (overt and hidden) on policy formulation and implementation a total of 16 NGOs and 5 UN agencies are involved as well as governmental departments, a quasi-governmenta l organisation and the refugees	essential, to gain an understanding of the aims and objectives of the actors and to identify areas of potential conflict and agreement important also to compare agency statements with observed practice and impact (if any) on policies

Category	Type of Information Needed	Likely Sources	Why Needed?	Importance
Identification of key events, decisions and influences	identification of key policies important events, decisions and factors affecting them (stated and observed)	minutes of meetings, observation (daily log book and diary), key informants and anecdotal reports, agency statements, reports and evaluations, official correspondence	to identify different types of influences which may be internal or external to the relief programme and to begin to assess their relative importance	potentially interesting as the significance of some events would only become apparent in hindsight
Health and nutrition status in the refugee camps	health and nutrition status on arrival, weekly (passive) mortality and morbidity reports, active mortality surveillance, nutrition surveys and screening, disease outbreak investigations, assessment of HIS and data quality.	rapid assessment data, health information and nutritional surveillance system, agency reports, camp health registers and patient retained records, specific investigation reports, evaluation reports	to assess the role and limitations of epidemiological data and its influence in policy development and implementation. it needs to be linked to daily events (in the Log Book) and could be used to identify additional health risk factors	potentially interesting, to allow the utility, role, value and reliability of the epidemiological data to be assessed
Health and nutrition services inside and outside of the camps	weekly and monthly health service statistics, feeding programme reports, NGO reports, HNMC minutes, investigations of problems (quality control reports)	NGO and MOH health service reports and evaluations, observation of activities, semi structured interviews with stakeholders, refugee informants	to assess the impact of some influences on policy and implementation (linked to epidemiological information)	potentially interesting, to assess the range and quality of services provided and influences on the implementation process

A total of 16 NGOs and five UN agencies were involved at different times in public health aspects of the relief programme. Originally epidemiological data were collected from all 20 camps and qualitative data were obtained from all operating agencies. More rigorous and focused data collection occurred later (after 2-3 months) when certain patterns had emerged and themes were identified (see Chapters 4 & 5).

Table 2.3 Examples of types of organisation (actors) included in the study

Type of Agency	Type of NGO		Donors		Government and Quasi-Governmental
	National	International	Multi-lateral [UN]	Bi-lateral	
Agency name	Gonoshasthya Kendra [GK], Church of Bangladesh [COB]	Medecins San Frontiers/Holland [MSF/H], MSF/F, OXFAM, SCF/UK, Concern, CARE, International Islamic Relief Organisation [IIRO]	UNHCR WHO WFP UNICEF	USAID, European Union [EU], Overseas Development Adminis-tration [ODA]	Bangladesh Red Crescent Society [BDRCS], MOH, Ministry of Home Affairs [MOHA], Ministry of Relief [MOR]

2.4.7 Data collection tools

Some data collection tools were used consistently throughout the year and others intermittently:

A: Tools used consistently

I continually carried a log book with me, to record meetings, discussions, observations and comments on the daily life, activities and experiences of a UNHCR Health Coordinator. A formal diary was not possible due to the heavy

work load. A log book allows cryptic comments/notes to be recorded which could be assessed later (in private). The log book entries are referred to by date eg LB: 2/10/92 (entry in Log Book on October 2 1992).

A diary (or journal) of appointments was kept to back up the data collected in the log books. References in the text are noted as eg J 23/10/92.

Epidemiological data were collected and analyzed on a regular basis, some weekly and some monthly. Such data can be identified by source and period covered:

* Weekly Health Information Bulletin [WHIB], number and date of issue
* Nutrition surveys reports (author and date)
* Programme reports (eg feeding programme report/camp/date)[19]

B: Tools used intermittently

Action research and disease outbreak investigations are recorded in the log book and are the subject of individual reports such as the Nutrition Action Plan [NAP], Progress Report (Diskett, 1992/b). Alternatively they are recorded in official UNHCR correspondence and memos (mem 12/10/92 translates to memo/date).

[19] Data were collected from all camps and agencies on a monthly basis and covered both the Supplementary (eg SFP/Oct 92) and Therapeutic Programme (eg TFC/Jan 1993).

2.5 Triangulation of Data and Data Analysis

Triangulation and data analysis is carried out in three stages:

Stage 1: Categorisation of data according to themes (2.5.1)

Stage 2: Cross-checking of data from different sources (2.5.2)

Stage 3: Comparisons of theory and the reality observed (2.5.3)

The reliability and validity of the results are discussed later in section 2.8.

2.5.1 Categorisation and checking of data (micro level)

The data obtained from different methods (epidemiological, action research, participant observation and secondary sources) were categorised and grouped under subject headings:

* camp locations and demographic information
* epidemiological data/health and nutrition status
* political events and influences
* managerial, organisational and coordination information as well as aid agency and MOH participation, activities and implementation

These subject headings also contain information concerning key actors and their actions or influences, including:

* decisions made concerning assessment data, mortality rates, malnutrition, disease outbreaks etc
* the variety of influences detected and sources
* emerging camp or location specific differences

Data were matched, compared and contrasted with information from a variety of sources (including minutes of meetings, NGO reports, key informants) to identify areas of concord and discord. When data are confirmed by several sources, subjects (such as the use of crude mortality rates) are used as small case studies (cameos) to illustrate findings.

2.5.2 Cross-checking of data and events (macro level)

The categories and subjects identified above are then cross checked with information from various sources and then confirmed by observation (log book), from documents or from epidemiological data. In this way, an overview of the whole situation is developed, drawing out main lessons and themes which are usually plotted against time/dates. Four annual calendars (February 1992 - February 1993) are developed from different viewpoints:

* demographic and environmental changes
* an epidemiological calendar
* a political calendar
* managerial and organisational perspectives

The four different data sets and calendars are then compared, drawing out trends and influences.

2.5.3 Comparing theory and practice

The "idea" (or rather normative account) of what should be happening was defined from the literature, personal experience, the views of the stakeholders working within the relief system and observers outside. Health and nutrition action plans were developed and used as a baseline for comparisons. The "ideal" was then compared with reality (as observed in the field), looking at areas of agreement and conflict. This was necessary in order to be able to monitor the effectiveness of the epidemiological approach and to allow conclusions to be drawn. Findings are presented in Chapters 4 to 7.

2.6 Research Plan

I was invited to join a UNHCR assessment mission to Bangladesh at short notice (approximately 12 hours), so data collection started before a full research plan had been developed. Data collection during the rapid assessment period (February - March 1992) was inevitably opportunistic rather than systematic, and the findings should be interpreted in this light. The full research plan was developed in April 1992, but was modified according to changing circumstances (see Table 2.4).

Table 2.4 Timetable of research

Month/Year	Activity	Process/Data Collection
February 1992 to March International assistance requested by GOB	UNHCR Assessment Mission in Bangladesh. Opportunistic data collection; log books started System for collection of epidemiological data negotiated with MOH and WHO	Checking the feasibility of research in Bangladesh, assessing likely access to information and cooperation. With the MOH, developing a HIS to cope with specific needs of refugee programme
End March to early April	In Liverpool and Geneva to obtain clearances and prepare research programme	Refining hypothesis and methodology
April to July 1992 Acute emergency phase	In Cox's Bazar and Dhaka (as UNHCR Health Coordinator), research continued and agencies/ actors (for detailed study) identified Emergency phase of relief programme, so health and nutrition action plans developed ie policy agreed for UN, MOH and NGO implementation	Operational research through participant observation, problem and actor identification Action research of specific problems eg measles immunisation Official establishment of the HIS and first round of nutrition surveys
August to December Maintenance and repatriation phase	Continued research but focused on specific themes and agencies Maintenance phase of emergency under way so more focus on monitoring policy implementation, surveillance of health and nutrition status and agency activities	Operational and action research with some preliminary data analysis eg, epidemiological data Nutritional screening exercise Refinements to HIS Second round of nutrition surveys completed
January 1993 to end February 1993 Maintenance phase and repatriation continue	Winding down of research activities, complete collection of secondary data in Cox's Bazar and Dhaka Review of health and nutrition status, services and programmes in the camps	Checking data requirements against data obtained and filling gaps where possible Preparing final report for UNHCR (dual role as also included preliminary analysis and use of data obtained initially for research purposes)

2.7 Methodological Issues and Concerns

A number of issues and concerns arise relating to the methodology. These are explored further below. Why, for example, choose Bangladesh as a study location

(2.7.1), and what ethical worries are there when conducting research at a time when displaced people could be dying in large numbers or when some of the motives behind the research could not be fully revealed for "political" reasons (2.7.2)? What about the apparent paradox of applying a rational science in a disordered emergency setting (2.7.3) - how is that dealt with? Is objectivity compromised when the researcher is also an engaged actor (2.7.4) or cannot communicate in the local dialect (2.7.5)?

2.7.1 Why do this type of study in Bangladesh?

A clear understanding of the dynamics of a major relief operation was essential in order to provide a context in which the epidemiological approach could be assessed. As noted earlier, it was therefore necessary to study one large operation in considerable depth, rather than looking at several perhaps more superficially. A retrospective study was not considered feasible due to the sensitivity of information and the need to verify it.

Where relief operations have been evaluated, often by international aid agencies reviewing their own performance, this information has usually remained confidential to the agency concerned and may not be accessible even to staff members within the organisation (Lusty, personal communication[20]). Also it is

[20] Dr Tim Lusty was Medical Advisor to OXFAM from 1979-1987 and is now an independent consultant. He used the specific example of an OXFAM evaluation of the Kampuchea relief programme, 1980.

often highly subjective[21], its scope too narrow and the quality questionable (ie not verifiable).

In addition, the type of information needed is generally neither available retrospectively nor is it reliable - it is rarely recorded in sufficient detail. Much would depend on the ability of individuals to recall why certain courses of action were or were not followed. Long recall periods have been shown to be problematic and the risk of personal bias high. It would be difficult, in retrospect to verify some of the data.

It became clear that the wide ranging (and often confidential) information needed for a prospective study, could only be accessed through working within an emergency relief programme at a fairly senior level. A suitable relief programme and work role needed to be identified.

The intention was to study the epidemiological approach during an acute emergency. The literature suggests that the acute phase usually occurs during the first few months of a relief response, up to a maximum of six months from date of onset. However some acute problems, such as epidemics (eg cholera in Somalia in 1991 or malnutrition in Sudan during 1987), have arisen later in the relief cycle. It was apparent then that a longer study period would be required, in order

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[21] The agency often needs to assess its own performance in the best possible light in order not to discourage its donors and sponsors; it needs to show value for money and is biased.

to validate any perceived benefits and to allow cross-checking of results. It was proposed to follow through a major relief operation for a complete calendar year.

In selecting a relief programme for study, several criteria were used:

* Involvement would need to be from the very beginning of assistance. There would need to be a high degree of opportunism as most PDEs occur with little warning and emergencies are often (but not exclusively) of sudden onset.

* The emergency would need to be large and confused or chaotic, with a number of relief agencies involved. It would also need to be accessible, probably for up to one year.

* In order to assess the utility of the epidemiological approach, there would need to be a wide range of health risk factors with a strong possibility that high death rates could result.

In trying to identify a suitable location during the latter part of 1991, several relief programmes were considered, mainly in Africa (eg Somali refugees in Kenya, internally displaced persons in Southern Sudan and Angola). None met the study criteria as either the relief operations were already under way (Kenya) or continuing access and security could not be guaranteed (Sudan and Angola).

The ideal opportunity presented itself in February 1992. I was requested by the United Nations High Commissioner for Refugees [UNHCR] to participate in an assessment mission to Bangladesh. Predictions suggested that the refugee population (Rohingya refugees from neighbouring Burma or rather Myanmar, as it is now known) might reach 250,000; a major emergency. UNHCR, faced with a rapidly deteriorating situation, asked me to continue in Bangladesh in a coordination/technical advisory role.

Bangladesh had one major unexpected advantage for the purposes of research. The GOB had hosted a similar population of refugees from Myanmar in 1978/9. At that time, the relief operation went disastrously wrong and some aspects of it were documented (Aall, 1979). That experience allowed some predictions of what could happen this time. It also provided some benchmarks against which comparisons could be made. The scale of the programme (250,000 refugees) could be seen as a constraint as it was a large[22] programme which was difficult to monitor effectively in all its aspects. However the complexity and scale brought it closer to some recent relief experiences in Africa, hence lessons learned in Bangladesh might be of relevance elsewhere (several experienced relief workers described it as *"an Africa-like situation in Asia"*). The complexity of the operation

[22] At the time a relief programme involving 250,000 refugees was considered large. However recent emergencies particularly in Africa have involved much greater numbers. In Goma (Zaire) in 1994 an estimated 800,000 refugees crossed the border from Rwanda in 3 days. In neighbouring Tanzania, one camp alone (Ngara/Benaco) contained over 250,000 refugees, claiming the status of the largest camp in the world. Current judgements about the scale of refugee movements pale into insignificance when compared to the events in Central Africa in 1994-96. Thus many emergencies that were considered significant have been retrospectively down-graded and as a result new refugees outflows involving smaller numbers seem to attract little attention (and little aid), although 10 years ago the situation was clearly different.

also meant that there was wealth of information available. This thesis is based on the data collected during "One year in the life of a UNHCR Health Coordinator".

2.7.2 Ethics

There were two main ethical concerns in carrying out this research. The first is a humanitarian concern, the second is more political.

The ethics of carrying out research in the absence of appropriate interventions while refugees could be dying in large numbers, could be questioned. The only option was to conduct operational or action research, using an epidemiological approach in order to identify problems and influence outcomes. This would be ethical yet still allow the epidemiological approach to be studied, perhaps with immediate benefits.

The political ethic was more difficult to address. In the overall context of the study, action research, using an ethnographic approach, was the chosen methodology. In practice, I immersed myself in the day-to-day problems of the programme but was also able to use an epidemiological approach as a part of my job. The accumulation of data, through field work using participant observation, is not restricted to any one data collection method, partly because it is now widely accepted that:

> *"what people do and say depends on the social context, and what they say and do are often radically different"* (Deutscher, 1973 p5).

It was highly likely that some actors would have agendas which, for social or political reasons, would remain concealed. If I was to fully understand the role and limitations of an epidemiological approach in a political environment, then some of these agendas would need to be revealed to me. By implication, I was not able to be completely open with some of my work colleagues or stakeholders as this might have hampered data collection, with the consequence that hidden agendas might not have been detected.

I also needed to avoid the possible alienation of stakeholders (who might feel threatened and thus withdraw their support). Many did see this study as being "high risk" as there is clearly a danger of washing "dirty linen in public". I decided to be transparent about my research role, but not necessarily about the details. Therefore, while many were aware of the general nature of the research and data being collected, they remained unaware of the specific details and some of the findings. The patience and trust of all those who participated was invaluable as without them, this study would not have happened.

The high degree of cooperation from UNHCR, MOH and NGOs was both unexpected and welcomed, hence access to information was greater than earlier envisaged. This was in part due to the work role which visibly, at least, took precedence over the research interest. However it was also due to the fact that, as in many other relief programmes, staff and people frequently change. Hence at times the only continuity in the programme was through my continuing presence.

By the time I left, I was the longest serving refugee programme expatriate in Cox's Bazar.

In fact, my status was more closely associated with my job and length of stay than with the research role. This guaranteed my continued involvement at most levels. As the field work covered a period of one year, and the job was extremely demanding, most colleagues soon forgot that I had another "(research) hat". I was, however, treading a tightrope, between a desire for transparency (necessary for conducting action research) and the need for discretion especially concerning sensitive, political issues. This awareness of risks arguably facilitated my work role by sensitising me to the need to use diplomacy at all times. In addition, my status as a consultant to UNHCR (and researcher), meant that I was (and still am) fairly independent of the UN system which enabled me to avoid many possible problems of UN bias or job insecurity - essential given the potential political sensitivity of the research.

In summary, the variety of data collection methods used, including participant observation and discussions with key informants, was intended to provide as many different insights as possible into the political, organisational and epidemiological environment. It was a deliberate attempt to identify, clarify and possibly expose hidden agendas: by cross-checking public and private statements and observing actions.

2.7.3 A rational approach in an irrational world?

In the literature (section 1.3), it has been suggested that relief responses are rarely based on a sound epidemiological approach. This reason has been used to explain the frequent reports of unacceptably high mortality rates in refugee camps and poor use of scarce resources. While this may indeed be the case, it is also clear that epidemiology alone is an insufficient guarantee of a satisfactory relief response. It is essentially a rational, logical and investigative science. In contrast, emergencies are described as confused or chaotic, where many illogical, seemingly irrational events occur. It was therefore anticipated that there would be difficulties in trying to use an epidemiological (rational) approach, in a disorderly setting.

Two key assumptions underpin this research. First, it is assumed that the aim of the relief programme is to minimise mortality and safeguard health and second, that there is interest in using an epidemiological approach to facilitate the development of acceptable standards of practice. While relief agencies and governments may overtly agree with the above statements, there is of course no guarantee that such understanding will lead to better or best practice as there may be competing covert agendas. Similarly, there is often an assumption in epidemiology that the identification of the distribution and determinants of diseases will lead to change. As was noted in the literature review, this is not always the case.

Therefore, in testing out the epidemiological approach, qualitative (observational) data were essential, to help provide rational explanations for seemingly irrational events. Qualitative data can offer a different perspective and throw light on epidemiological findings. Qualitative information can also help to identify opportunities and strategies for data use. This is extremely important in complex, chaotic emergencies. Epidemiological data, taken in isolation would only give part of the picture, hence the decision to have a combined epidemiological and anthropological approach which would also act as a safety net for verification of results, through cross-checking of information from a variety of sources.

2.7.4 Subjectivity and objectivity: combining the epidemiological and anthropological approach

From the beginning, I actively set out to analyze the dynamics of a major PDE. As noted earlier, such a detailed analysis could only be carried out by someone working within the relief system who had good access to information. The only feasible option open to me, was to undertake participant observation at the same time as testing out the epidemiological approach. One of the challenges in designing a methodology arose from the potential conflict between the dual roles of participant observer (researcher) and engaged actor. The methodology would need to take this into account to minimise biases.

While the post with UNHCR did ensure access to privileged information it also presented me with a set of problems and apparent contradictions. A UNHCR

Health Coordinator is potentially very influential in developing policy. S/he can also influence the behaviour of some relief agencies (and very possibly the MOH) as they may both depend upon UNHCR for funding. The coordinator's recommendations can influence the degree of an agency's involvement in the relief programme.

In contrast, participant observation is usually described in the literature as "*naturalistic*" (Denzin, 1970 p187) as the researcher studies groups and individuals in their natural setting and observes processes as they occur. S/he does not attempt to manipulate the programme or its purposes. My intention however was to influence the programme in order to achieve an acceptable health and nutrition status for the refugees. I intended to use an epidemiological approach, to test out its uses and limitations. Non-intervention was not acceptable on ethical grounds. In fact, as a UNHCR Health Coordinator, I deliberately set out to manipulate the relief programme. This leads to the question of whether, in an emergency setting, the dual roles of participant observer and engaged actor are compatible, or do they unduly bias the research?

As the role of a UNHCR Health Coordinator carries a similar job description in many different countries, it could be argued that the research is not compromised as I was merely fulfilling and simultaneously analyzing my work role. There are however several clear risks and limitations. I cannot objectively evaluate my own performance or influence as a Health Coordinator. My personal (research) interests could also bias my interpretation of the results and perhaps, even more

importantly, because of my research interest I am able to analyze some events as they occur and gain a greater understanding of processes (a heuristic approach) than perhaps a "regular" Health Coordinator. In short, my performance of work tasks may be different.

In reality, as it allowed a greater (heuristic) understanding of the programme, the research facilitated my UNHCR work which was my legitimate reason for being there.

As the aim of the research was to test out an epidemiological approach, it was highly likely that some of the relevant factors would relate to the role of UNHCR and its Health Coordinator (me), but that many factors clearly would not, as they would be outside my control, although not necessarily outside my sphere of influence. The utility of the epidemiological approach then can still be assessed and analyzed, but because of my dual role, the relative importance of different influences may be more difficult to measure.

The methodology was specifically designed to acknowledge this potential bias, allowing for cross-checks between the various data sources, incorporating the views of others and acknowledging the recommendations of experts in this field (arising mainly from the literature review). The precautions taken are discussed further in the context of data validation and analysis (section 2.8).

While biases were acknowledged and minimised, there was a major constraint in conducting this type of research under emergency conditions. It was, for example, very difficult to systematically collect wide ranging information during the rapid assessment, when there was a simultaneous urgent need to understand the work context, expand services, negotiate with government and coordinate NGOs, develop programmes and action plans and prepare budgets.

The first three month period is probably the most crucial time in a relief programme. If problems are not rapidly identified and solved, the whole future of the relief programme (and the refugees) can be jeopardised (Toole and Waldman, 1988). The competing demands for my time during this study help to illustrate three important points:

* Doing this type of research under emergency conditions is undoubtedly difficult and will inevitably have an impact on the quality of the data. This perhaps explains why this type of research is rarely done.

* A structured problem-solving approach (action research) is very useful in both the work and research roles.

* Considerable stamina is required by the researcher because of the labour-intensive nature of both the job and the methodology.

In reality, because of competing tasks and time constraints, the quality of the data was variable especially during the acute stage of the emergency. Despite their limitations, however, the rapid assessment data (6.1) are included as they provide valuable insights into the early days of a relief programme, which are rarely actively (prospectively) researched because of the constraints described above. Concerns about quality could constitute a major constraint to the use of such data, but on the other hand this also clearly illustrates both the problems of conducting research under emergency conditions and the difficulty of obtaining reliable epidemiological and qualitative information for rapid assessments and decision-making.

In fact cross-checking of the data with information from other sources was intended to minimise this problem and lessons were also learnt which may benefit others in similar circumstances.

2.7.5 Communications

The language barrier is an obvious potential constraint when conducting ethnographic research. This is not necessarily the case when coordinating relief organisations in Bangladesh, as the commonly used medium is English. There are undoubtedly also cultural constraints related to negotiating with a wide range of individuals from different cultures, backgrounds and language groups as NGOs have an international recruitment base.

There are considerable language constraints when working with some national organisations, government officials and of course refugees. This was partly overcome by the use of interpreters, (the researcher was conversant in neither Bengali nor the Rohingya dialect) and through UNHCR Field Assistants who often acted as advisors (in avoiding a cultural "faux pass") and also as translators. They also sometimes unintentionally provided an alternative (useful) viewpoint which can be seen as an advantage rather than a constraint.

2.8 How Accurate Are the Results?

When discussing the accuracy of results, three questions arise which are dealt with below.

2.8.1 Are they valid?[23]

The question arises *"to what extent are the findings valid"* or alternatively, *"to what extent is the answer correct?"* (Kirk and Miller, 1986 p20). Clearly the style of research used (ethnographic) opens up the risk of personal bias. However the process of triangulation was used in order to allow cross-checking of the data and improve the validity of the study:

[23] Validity = "The degree to which a measurement actually measures or detects what it is supposed to measure" (Vaughan and Morrow, 1989 p187).

* The methodology (using three different data collection methods and triangulation) was selected as a way of controlling and acknowledging biases.

* Selected key informants were questioned to verify that information and its interpretation were accurate.

* Information collected through the different methods was also cross checked with data from secondary sources (eg newspapers, minutes of meetings, reports etc).

2.8.2 Are the results reliable?[24]

Reliability, like validity, is concerned with the reduction of bias through the clear documentation of data collection procedures and processes. The intention of improving reliability is not necessarily to enable the study to be repeated with the same results. While this may be possible in laboratory settings, it is not possible in social or anthropological styles of research as the study is based on the participant observation of unique events, which may in themselves not be replicated. Nevertheless it is possible to ask *"to what extent would a different researcher arrive at the same findings?"* (Yin, 1989 p45).

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[24] Accuracy is defined as "the extent to which a measured value represents the true value of the variable that is being measured", (Vaughan and Morrow, 1989 p155) and reliable data is of sound and consistent quality (it is accurate and biases have been controlled or minimised.

As a standard epidemiological analysis was used for part of the study, this could be considered replicable (and checkable) because it conforms to the scientific model. However epidemiological data are only as reliable as the collection and quality control methods allow (see Chapter 4 and Annex 2). Ensuring reliability then is clearly a problem for the qualitative data but careful documentation and cross-checking of primary data was intended to minimise this.

2.8.3 Can the results be applied to other situations?

A combination of qualitative and quantitative methods were used to develop a descriptive and analytical case study of one major relief programme. So to what extent are the lessons learnt and the findings relevant to other PDEs elsewhere?

The methodology allowed structured comparisons between the idea of what should be happening and the reality observed in Bangladesh so that the research was conducted in the context of many years experience of different international relief programmes. The nature of the problems encountered in Bangladesh (with features common to other PDEs as described in the literature review), and the rigorous and holistic manner in which they were observed, described and analyzed means that the lessons and approaches should be relevant to other PDEs and emergencies elsewhere. While some of the findings are specific to this case study, analytical generalisations are possible. The models which are subsequently developed should also be useful in other similar settings.

2.9 Methodology: What Conclusions can be Drawn?

Conducting research of this nature during the emergency phase of a major relief programme is a high risk venture. The methodology and approach were designed to accommodate and mitigate some of these risks. This should be borne in mind when assessing the value of the results.

The chosen methodology combined an ethnographic approach with action research and epidemiological methods. The triangulation of different data sets, while not eliminating personal biases completely, acknowledged them and was intended to act as a control.

The variety of data collection methods used was a deliberate strategy. It was crucial, in order to illuminate the short-comings and potential of an epidemiological approach, to expose hidden agendas and to allow cross-checking of data from a variety of sources, to improve the reliability of the results.

In other words, despite its obvious limitations and risks, operational research is the only feasible option when investigating this type of problem, therefore the methodology was designed to allow for these factors.

CHAPTER 3

Welcome to Bangladesh

Chapter 3

Welcome to Bangladesh

"Once we had a country and we thought it fair
Look in the atlas and you'll find it there:
we cannot go there now my dear we cannot go there now".
Refugee Blues, W H Auden, 1939

3.0 Arrival in Bangladesh

Significant numbers of refugees started arriving in Bangladesh from Myanmar towards the end of 1991. Initially all emergency assistance was provided by the Government of Bangladesh [GOB] which at the same time discouraged international and NGO involvement. However by February 1992 a total of 30,000 refugees had arrived and the rate of arrival seemed to be increasing. The GOB therefore officially requested assistance from the UNHCR which immediately allocated $1 million from its own emergency funds.

The UNHCR needed to launch an international appeal to attract financing from donors in order to underwrite its operations. As part of this fund-raising process, detailed budgets and plans had to be prepared. I was requested, by UNHCR, to join a multidisciplinary assessment mission. My role was to assess the health and nutrition status of the refugees, recommend interventions and provide technical advice to both UNHCR and the GOB. I also aimed to assess the suitability of

Bangladesh as a research location. I arrived in Dhaka, the capital and met with other team members on 18 February 1992.

This chapter describes the context in which the study was carried out. It includes a brief introduction to the host country, Bangladesh (3.1), refugee affected areas (3.2) and health infrastructure (3.3). It considers the political implications (3.4) and the beginnings of the relief operation (3.5), leading to a summary of issues, problems and opportunities (3.6).

3.1 The Host Country and Relief Assistance

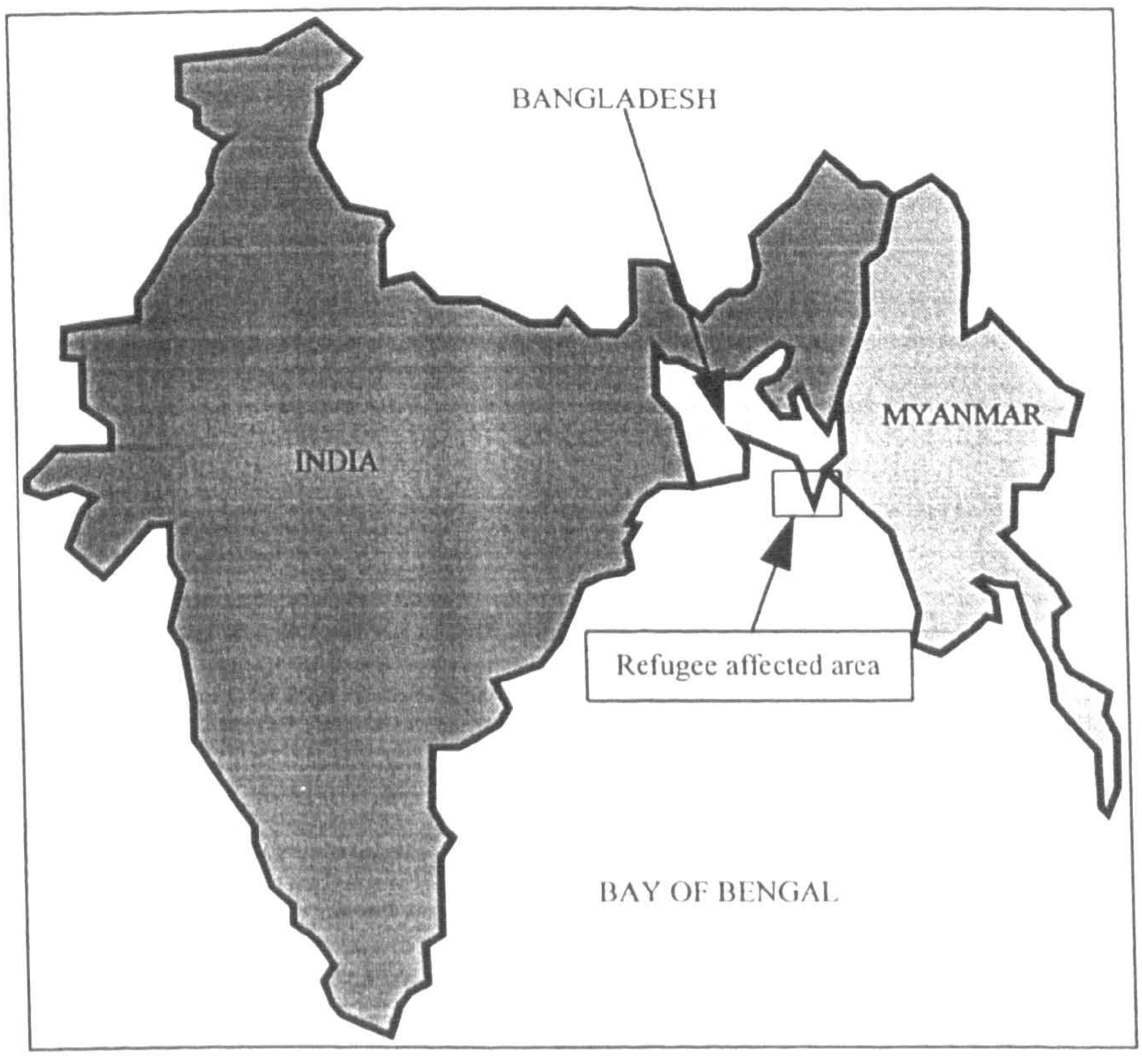
The geography (3.1.1), emergency preparedness (3.1.2) and operational partners (3.1.3) are discussed.

3.1.1 Geography, political economy and poverty

Bangladesh is a low lying country which consists mainly of the delta and flat alluvial flood plain of some of the worlds greatest rivers (Ganges/Padma, Brahmaputra/Jamuna[25] and the Meghna). Its land borders are almost completely encircled by India (see Figure 3.1). Its only hills are along the south eastern 280 kilometre border with Myanmar. The hills also extend northwards to the Chittagong Hill Tracts. To the south lies the Bay of Bengal with many small sand banks and inhabited islands that appear, disappear and reappear.

[25] The names of major rivers change as they cross the border from India to Bangladesh.

Figure 3.1 Map showing Bangladesh, India and Myanmar (Burma)



A great deal of the country is barely above sea level and during the monsoon (June to September) about 30% of the land is often submerged.

Bangladesh gained its independence in 1971 after a painful war of liberation. Its Fundamental Principles of State Policy include, amongst others, a commitment to democracy, human rights and improvements in public health. However, as has been noted elsewhere, democracy per se does not guarantee accountability or prosperity (Overseas Development Institute [ODI], 1992). In fact, Bangladesh is one of the poorest and most densely populated countries on earth, with an estimated population (1991) in excess of 111.5 million (Bureau of Statistics, 1993). Its land mass covers 147,500 square kilometres [sq km], which gives a population density of 755 per sq km, exceeded only by the urban areas of Singapore and perhaps Hong Kong. Its population density is similar, though, to other densely settled riverine or delta areas such as the Nile Basin.

The agricultural economy has been Bangladesh's main resource, employing 68% of the labour force, but average farm size has dropped to about 2.25 acres/farm and about 50% of the poor farmers are currently "landless"[26]. Unemployment is high. Employment opportunities, even for those who manage to receive an education, are very limited, with many looking for employment in the highly bureaucratic public sector. Others, mainly urban dwellers, are employed in the rapidly expanding manufacturing industries (clothes, jute products etc).

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[26] This figure includes three categories of landlessness; those with no land (type 1), those owning homestead land but no cultivated land (type 2) and those with homestead land but less than 0.5 acres for cultivation (type 3), all of whom need additional means of economic support (Bureau of Statistics, 1993). Landlessness has been attributed to rapid population growth, population pressure and a shortage of land suitable for human settlement.

Bangladesh has few natural resources and many of its inhabitants experience daily grinding poverty.

Despite industrial growth, and because of its extreme poverty, poor economic position and disaster proneness, Bangladesh relies heavily on international aid (estimated at 85% of its annual foreign income). Major international donors, in order of priority, include the Asian Development Bank [ADB], International Development Association [IDA], Japan, America (via USAID), the European Union [EU], the UN, Germany, Britain (via ODA), Canada and Saudi Arabia (Bureau of Statistics, 1993).

3.1.2 Expertise in disaster relief

Because of its geography, climate and location, Bangladesh is particularly prone to natural disasters, eg serious flooding following the monsoon (as occurred in 1990) or major cyclones emerging from the Bay of Bengal.

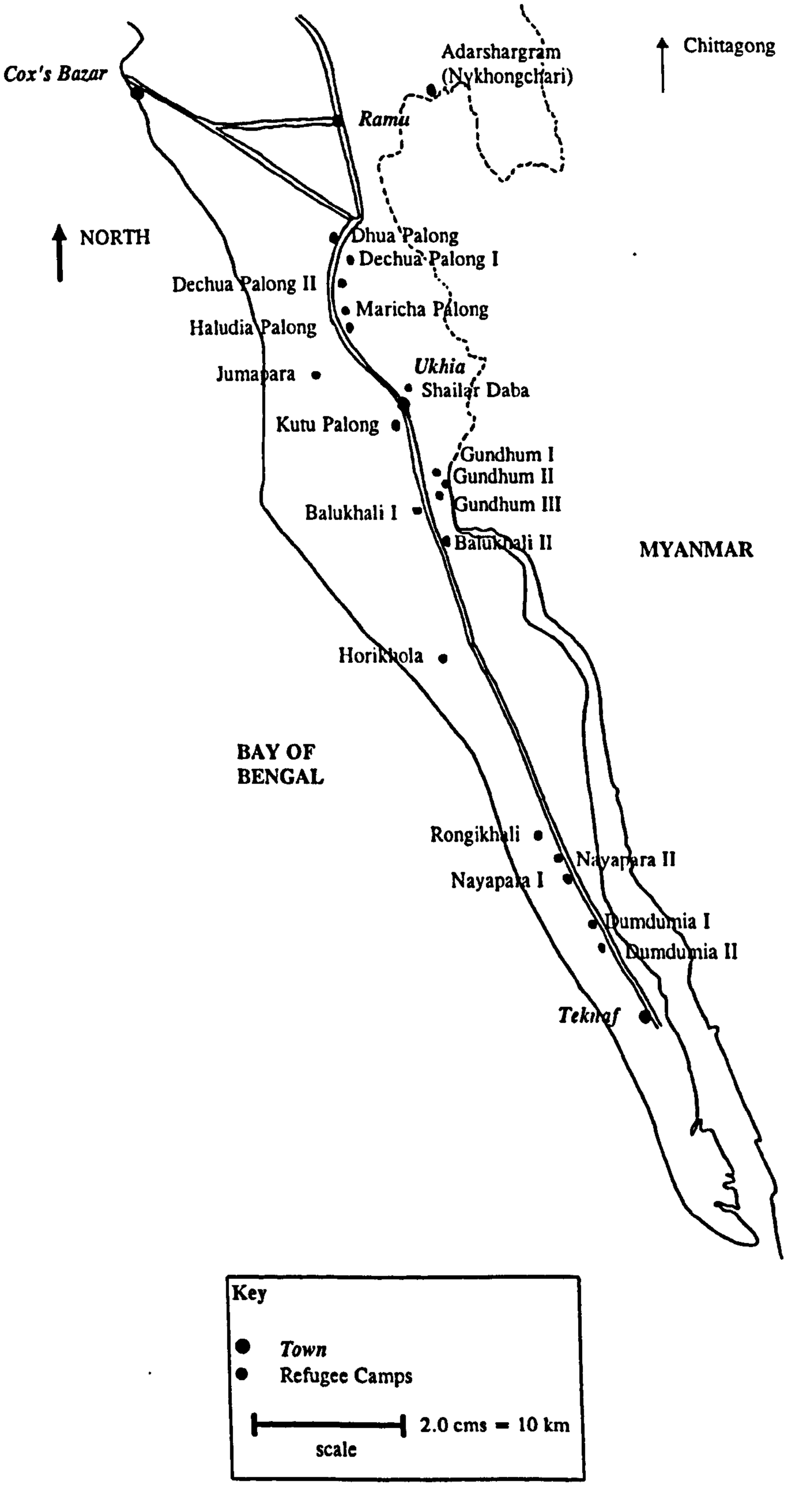
The area to the south east of the capital, Cox's Bazar District, in Chittagong Division (see Figure 3.2, p120), shares a border with neighbouring Myanmar. It was severely affected by a major cyclone in April 1991, resulting in roughly 50,000 deaths and 133,500 injuries during the immediate aftermath and the first three weeks after the cyclone hit (Verma, 1992; Akram, 1992)[27]. Both the

[27] It has been reported that 138,886 were killed by the cyclone. Cox's Bazar and the offshore islands were amongst the most severely affected. It has been estimated that 36% of all deaths (49,999) and 96.14 % of injuries (total 133,490) occurred in and around Cox's Bazar District (Verma, 1992).

monsoon flooding of 1990 and the cyclone of 1991 (which was accompanied by a tidal surge) caused great loss of life and severe disruption to the local and national economies from which, at the time of this study, the country had still to recover. Yet in early 1992, Cox's Bazar District was again facing an emergency, this time a major influx of refugees from Myanmar. Prior to the refugee influx, the GOB had acquired valuable experience in coping with natural disasters (Timm, 1991) and dealing with the vagaries of the international relief system. It recognised the need for strong (government led) coordination during acute emergencies.

A variety of government ministries and departments are involved in disaster preparedness, coordination and response activities. These include the Ministries of Relief [MOR], Health [MOH], Defence [MOD] and Home Affairs [MOHA], the Department of Public Health Engineering [DPHE] and occasionally, the Forestry Commission [FCom]). The MOR is usually delegated to coordinate relief activities and a Refugee Relief and Rehabilitation Commissioner [RRRC] is then appointed for each specific emergency.

Figure 3.2 Sketch map detailing refugee affected area, Cox's Bazar district



3.1.3 Partners in relief

In 1992 there were approximately 560 NGOs registered in Bangladesh, of which just over 100 were international organisations. It has been estimated that a further 14,000 voluntary groups existed (Hossain *et al*, 1992)[28]. It can be presumed that an unspecified number of Bangladeshi NGOs would have considerable experience in disaster relief operations.

However, the most recent disasters in Bangladesh had been of rapid onset (floods and cyclones) and their most visible effects (injuries, deaths, destruction of buildings, flooding) were rapidly controlled or disappeared after 8-12 weeks, with the result that the relief programme was scaled down or stopped (UNICEF, 1993 p31-46). As a consequence it appeared, in early 1992, that experience of maintaining a longer term relief response, beyond the immediate emergency period, was limited.

3.2. Physical Infrastructure and Security of the Affected Districts

From other studies of relief programmes it is evident that existing infrastructure, logistics, communications, coordination, access to supplies and security are major influences in determining the success or failure of a programme. The infrastructure is discussed here in the context of its ability to support a major relief programme.

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[28] The numbers of NGOs operating internationally are not reliably known.

3.2.1 Logistics and supplies

In Bangladesh the refugee affected districts (Cox's Bazar and Bandaraban) were 12 hours by road from the national capital, Dhaka. However these districts included the country's main tourist area - the beaches and islands of Cox's Bazar resort. Communication systems were therefore good and included radio, telephone and direct air links with the capital[29].

The port of Chittagong is less than four hours drive away from Cox's Bazar to the north, along a tarmac road that is passable most of the year except during the heaviest rains when it is prone to flooding. This facilitates the importation of essential supplies. However Chittagong is also a large commercial city (population c 1.5 million). Its relative proximity to Cox's Bazar opened up the possibility of local purchase of relief items (eg soap, drugs, food items, cloth etc), with hire trucks readily available from local commercial companies.

The tarmac road from Chittagong to Cox's Bazar continues south to the town of Teknaf. All refugee camps were easily accessible, ie within 30 minutes drive of the tarmac road and within three hours drive of Cox's Bazar town (see Figure 3.2). In summary, communications, roads, transport and access were fairly good, facilitating logistical operations.

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[29] Scheduled flights were operated three times per week from Cox's Bazar airstrip, by Bangladesh Biman, the national airline. Three or four flights per day were also operated from Chittagong International Airport, only four hours drive away.

3.2.2 Security

Like many other border areas, Cox's Bazar had a reputation for cross-border smuggling with a thriving black market in a variety of goods. As a tourist area, it also experienced seasonal fluctuations in population size which constituted a policing problem. Apart from casual (often seasonal) work related to tourism or smuggling, it had a typical rural economy based on rice cultivation, fishing and teak production. Because of the thriving black market, and the political situation inside Myanmar, security along the border was considered to be problematic. In addition, the district's reputation for smuggling and tourism led many aid agencies to perceive it as one of the less poor areas of the country and therefore less deserving of their assistance. This analysis however was not necessarily borne out by health and nutrition data (see 3.3 below).

3.3 Health Status and Health Infrastructure in the Affected Areas

As was noted in the literature review, displaced populations face considerable health risks. This section assesses the capacity of local health services to cope. It also briefly reviews the health status and health risks facing the host (Bangladeshi) population in the refugee affected districts. The intention is to provide a context within which the refugee assistance programme can be assessed.

3.3.1 Health and nutrition status in Cox's Bazar District

While Cox's Bazar is not the poorest district in the country, several reports have suggested that children there experience higher malnutrition rates than the national average; a symptom perhaps of relative poverty, under-employment, poor quality of and/or poor access to, health and education services. Possibly this is also symptomatic of its disaster proneness (1991 cyclone), which makes direct comparisons difficult[30].

The district is also recognised as having the highest prevalence of malaria in the country (both falciparum and vivax[31]) and has a very high rate of diarrhoea, which shows a seasonal fluctuation, being highest during the monsoon (August) and the post monsoon period (September/October)[32]. Both cholera and shigella dysentery were endemic. The measles immunisation coverage rate of approximately 56% was one of the lowest in the country[33]. It could be

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[30] the only data available is from the post-cyclone studies (August 1991). 1534 children (12-59 months) were surveyed in Mokeskhali, Chakaria and Kutubia Thanas (sub districts) of Cox's Bazar (non refugee affected). An average of 22.7% were found to have a MUAC of <12.5 cms (Mulder-Sibanda M *et al*, 1991). This compares unfavourably to an average of 10.9% for rural areas and 11.1% for urban slums (Bloem M *et al*, 1991). This difference could be explained in two ways:

- Cox's Bazar district was severely affected by the 1991 cyclone and the August data (Mulder- Sibanda M *et al*, 1991) reflects this.
- alternatively, the difference may simply reflect seasonal changes. The Bangladesh data (Bloem M *et al*, 1991) was collected in April (pre-cyclone) which was also the pre-monsoon period. Nutrition status has been shown to deteriorate during the monsoon (UNICEF, 1993) so the August data could simply reflect this deterioration.

Due to seasonal variations, differing survey methodologies and the difficulties of assessing the long term effects of the cyclone, it is difficult to make comparisons between local and refugee populations. We can only draw rough conclusions based on the limited data available.

[31] Source, Office of the Civil Surgeon, Cox's Bazar

[32] Epidemiological data suggest that malnutrition and diarrhoea rates could be expected to rise during the monsoon and that malaria rates would also rise (data provided by the Office of the Civil Surgeon, Cox's Bazar and UNICEF, 1993). A post-monsoon peak for diarrhoea (in October) has also been noted (CDC report, 1991).

[33] Information was provided by the Civil Surgeon of Cox's Bazar District, September 1992. He quoted a coverage rate of 56% (the national average at the time was 78%).

anticipated then that these problems, in the absence of suitable control programmes, could become major causes of increased morbidity and mortality in the refugee camps. At the same time, the presence of large numbers of refugees could arguably increase transmission rates, also adversely affecting the local population.

3.3.2 Health facilities in Cox's Bazar District

Cox's Bazar was elevated to district status relatively recently. This was reflected in its health infrastructure which appeared weak when compared to some other districts. The town was served by a Heath Complex (with inpatient facilities for up to 33 beds officially, but which usually contained (in 1992) nearer 60)[34] (see Figure 3.2). Other relevant Health Complexes, of similar size (33 beds - but with few staff, little functioning equipment and only a few patients) included those at Teknaf, Ukhiya, Naikhong Chari and Ramu (see Figure 3.2). These however had the potential, with some support, to act as referral centres for the refugee camps. They could provide emergency medical care and perform limited minor surgery (drainage of abscesses, setting of simple fractures, forceps deliveries, tubal ligation etc).

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[34] This Health Complex is being temporarily regraded as a district hospital pending the construction of a new hospital in the next few years

In addition, the Christian Memorial Hospital [CMH][35] at Malamghat and the Rabita (Islamic) Hospital [RIH][36] near Dhua Palong could perform blood transfusions, orthopaedic and obstetric surgery. Both hospitals made charges for services rendered, but functioned mainly due to continuing external donor support.

The MOH facilities were chronically afflicted with drug shortages. As a result they tended to issue private prescriptions, which were often beyond the ability of the poor to pay. Hence facilities were under-utilised by the local population[37]. Because of their low salaries, dedicated staff often had little choice but to operate an additional private practice.

Despite the presence of a variety of facilities, health care provision and coverage in the district remained poor with a focus on centralised curative care of questionable quality rather than preventive and outreach activities. As the health infrastructure suffered from chronic under-resourcing, manifested by drug, staff and equipment shortages, its capacity to respond to a major refugee influx in early 1992 was questionable.

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[35] An American evangelical mission hospital established by Dr Olsen in 1963 (Olsen, 1973) and still receiving financial support from donors in the USA.

[36] This hospital was set up by an Islamic organisation, Rabita al Islam, in 1978 during the previous refugee crisis. Its sole aim was to assist the Rohingya refugees but it then became involved in assisting the local population and remained after the refugees returned home in 1978/9. It receives some funding from Islamic sources ie Iran and Saudi Arabia.

[37] An analysis of data sheets at Ukhiya health centre, with the assistance of Dr Nasir, showed that the utilisation of the health complex by local villagers increased dramatically during the middle part of 1992. The main reason seemed to be that drugs were made freely available by UNHCR to government health complexes which benefitted the refugees as well as the local population. Previously, drug shortages discouraged villagers from attending as they only received a (costly) private prescription.

3.3.3 Health policies and practice, nationally and locally

While Bangladesh has a primary health care policy, in practice the services are vertically structured and target orientated, with separate departments responsible for curative health care/immunisation (the MOH) and maternal and child health (Department of Family Welfare). The Civil Surgeon was responsible for health services in the district but maternal and child health [MCH] and family planning [FP] services fell under the auspices of the Deputy Director of Family Welfare. This division of responsibility was also true of services provided in the refugee camps. Coordination between the two seemed minimal. They both reported their activities to Divisional Headquarters in Chittagong, but to different departments.

Any attempts to operate integrated services in refugee camps could, therefore, be expected to encounter some difficulties in relation to the vertical and separate nature of health services and policies in Bangladesh. The Civil Surgeon, with general responsibility for Health Services, would potentially be a very important actor in organising the acute emergency operation alongside the Relief Commissioner.

3.4 The Refugees

The history of the conflict inside Myanmar[38], leading to the current influx of refugees, is complex and long-standing. Problems can be traced back to the 1780s. In the literature, it has been observed that:

> *"Preventing, mitigating and resolving such* (complex) *conflicts, and the humanitarian crises which they provoke, therefore require far more than a technical, logistical fix."* (Macrae and Zwi, 1994 p22).

. The authors go on to state that such crises raise questions about international relations and require a deep political analysis. It can be argued that this relief operation in Bangladesh, at least in part, is a technical/logistical fix - a band aid covering some fundamental political differences and problems inside Myanmar. If the role of the international community in the conflict is considered, then complexity increases. It is clearly beyond the scope of this study to attempt to address such difficult political issues. However, in order to assess the role and limitations of the epidemiological approach, it is essential to gain some insights into the political environment in which relief agencies were operating. Therefore a short history of the refugee influx is outlined in order to give a better understanding of the political implications and context in which the relief programme operated.

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[38] Although the country is now known as Myanmar, the former name of Burma is still used particulary by opponents of the current government. In this thesis, the country is generally referred to as Myanmar but the name Burma is used when it is accurate to do so in the historical sense.

3.4.1 The Rohingyas and area of origin

Arakan State in neighbouring Myanmar is geographically isolated from the rest of the country and has closer natural links with Bangladesh. For many centuries, it was an independent kingdom which was absorbed into the Burman Kingdom in 1784. It officially became a part of Burma in 1937 following years of British rule when it was administered from East Bengal (now divided between India and Bangladesh).

The total population of Arakan state is not reliably known but is thought to be about 1.85 million[39]. It is predominantly Muslim (65%) and home to 70% of the Muslims living in Buddhist Myanmar. Historically the area has experienced problems. Muslim and Buddhist refugees have fled to East Bengal (now Bangladesh) on several occasions. There are records of Buddhist refugee camps in East Bengal in 1784[40] (Cuenod and Rasanayagam, 1978) and of Muslim camps in 1792 (UNHCR, 1978). Arakan has three groups of Muslims:

* those indigenous to the area who claim to trace their roots back for generations

* other Muslims who fled to Burma during the political upheavals that led to the establishment of the state of Bangladesh in 1971

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[39] There are no census figures for Arakan, or indeed for Myanmar (or Burma) since 1931. These figures are therefore based on 1969 estimates.

[40] Refugees numbered approximately 50,000.

* Indian subcontinent and Bangladesh nationals escaping land pressure and unemployment (many during the British Raj), who have often intermarried or had relatives living on the Burmese side of the border prior to its separation in 1937 (UNHCR, 1978)

The border between Arakan and Bangladesh is marked by the Naf river. There are strong trading links along and across the river. In time of trouble, those living along the river have traditionally moved from side to side, often being taken in by relatives. Ethnically, the Rohingyas of Arakan are different from the Buddhist majority (in Arakan, known as Moghs). Their language is closer to a dialect of Bangla (the national language of Bangladesh) ie the Chittagonian dialect which is spoken in the Hill Tracts. The Rohingyas claim to be descendants of Arab traders who settled in Arakan in the 12-13th centuries and intermarried with the local population. Their total numbers are not known.

3.4.2 The case of the Rohingyas in Myanmar (Burma)

For 30 years, the Burmese have experienced political repression and economic hardship under the control of a hardline military government intent on smothering and controlling internal dissent. Manifestations of its policies include the suppression and persecution of minorities as evidenced by the flood of refugees into neighbouring countries ie Bangladesh and Thailand. Over the last ten years, the latter has hosted Karen, Mons and Kareni refugees.

Bangladesh, for its part, has faced two separate influxes of Rohingya refugees, in 1978 and 1991/2. The earlier influx had its origins in 1977 when the Burmese authorities launched an operation known as Naga Min (dragon king), with spot checks on citizenship carried out in various localities within the country. These began in Arakan in February 1978. Many were arrested and accused of contravening the Immigration and National Registration Act[41]. The Burmese authorities claimed that many with citizenship documents had gained them illegally and were in fact foreign nationals and that those without documents were illegal Bengali (Bangladeshi and Indian) immigrants.

The outcome of operation Naga Min was manifested by a large exodus of Rohingyas (over 200,000) from Arakan into the south eastern corner of Bangladesh (Chittagong Division) during April/May of 1978 (see Figure 3.2). The refugees were mainly illiterate and poor farmers. They insisted they were Arakanese citizens and reported many atrocities including tearing up of identity cards, imprisonment, torture, rape and executions. There were claims that the Burmese authorities were carrying out genocide of the Rohingya Muslims.

The 1978 exodus into Bangladesh resulted in a major international relief programme. Refugees were given shelter by the GOB and accommodated in makeshift camps. Yet despite interventions, mortality and malnutrition rates

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[41] The Union Citizen Act of 1948 defined "indigenous" Burmese citizens as those who had settled prior to 1824, and their descendants. Those eligible could elect to take up their Burmese citizenship and were given until 1954 to do so. Because of low levels of literacy, poor communications and mistrust on both sides, it appears that many did not avail themselves of their legal rights or those who tried to were discouraged.

soared, partly due to a reduction in an already inadequate food ration and a measles epidemic - a major disaster (Aall, 1979).

The surviving refugees returned to Burma a year later, but only after considerable pressure from the Bangladeshi authorities. Tactics used by the GOB to persuade refugees to return to Burma included confiscation of identity cards, reduction of food rations followed by cessation of supplies, banning of marketing and firewood collection by refugees, intimidation and arrest of refugee leaders and finally closure of the camps (Lindquist, 1979). It appears that the international community, while witnessing this abuse of refugee rights, took no action, in order to avoid a confrontation with the Bangladesh authorities. Longer term donor interests in the country and inaction by individuals unwilling to jeopardize their UN careers, took precedence over the immediate need to assist refugees (Aall, 1979; Lindquist, 1979).

The GOB officials, on the other hand, were anxious to avoid being left as permanent hosts to a large group of refugees. Bangladesh was, after all, a poor country which had few natural resources and was under considerable land pressure from its own citizens. As a result of coercion, many of the refugees were forced to return to a home situation that arguably had not improved since their departure. This forced return (or more correctly, refoulement[42]) was to become one of the

[42] Refoulement is a French term for which there is no direct English translation. In law, refugees have the right of non-refoulement, which is the right not to be forced to return to a situation that has not changed.

many factors behind the most recent influx into Bangladesh which started in late 1991. For many Rohingyas it was their second refugee experience in 14 years.

3.5 The Beginning of a Relief Programme

Bangladesh, like many other host governments, found itself providing an emergency assistance programme before the international community became involved. This programme was aimed at providing shelter and essential services. The migration period is analyzed in order to gain a picture of possible health needs on arrival (3.5.1) and the beginning of the relief operation is described (3.5.2 - 3.5.4).

3.5.1 The migration

On leaving Myanmar, most refugees walked for several days (up to ten), and crossed the Naf river by boat[43], arriving at one of several crossing points where the GOB hastily set up registration centres near Teknaf and Adarshargram (see Figures 3.1 and 3.2). Between December 1991 (when the current influx started) and February 1992, the refugees were arriving in Bangladesh with very few resources. They were visibly shocked and many of the children were showing signs of both acute and chronic malnutrition (Diskett, 1992/a). This was attributed to recent infections coupled with lack of access to health care or immunisation in

[43] Boats were chartered by the refugees from both Bangladesh and Myanmar owners. Crossing times varied from two to six hours. Refugees were charged considerable sums for the crossing.

Myanmar, as well as intermittent confiscation of food supplies by the military during the last year. Later arrivals (April - July 1992) appeared to have made a more ordered departure as they were carrying with them some household belongings, and generally appeared to be better nourished.

Histories obtained from the refugees varied, and were remarkably similar to those documented in 1978. Typically an army camp was set up near a village, the men were reportedly taken for forced labour (building roads and military bunkers), not fed and regularly beaten if they were unable to work. Food was confiscated from the villages and young women were taken to the army barracks for prostitution.

In other villages, soldiers appeared irregularly and accused individuals of religious or spying activities, some refugees reported that their villages were then burned or their land confiscated and given to local groups (Moghs). Some individuals were taken by the soldiers and tortured, raped or killed in front of their relatives, or removed and not seen again. Using Zolberg's classification (Zolberg *et al*, 1989) most appeared to be "targets" and a small minority can be classed as "victims"[44]. The refugees who arrived in February were a traumatised, distressed population.

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[44] According to Zolberg (Zolberg, 1989 p29-31), a victim is some one who is not involved in any conflict but is an innocent bystander caught in the cross fire. A target in contrast is someone who is singled out or targeted simply because of their religion, ethnicity or political beliefs - regardless of whether or not they are considered to be activists.

3.5.2 Arrival, registration and refugee status

On arrival in Bangladesh, registration was carried out by the GOB at an entry point, for example Teknaf. Refugees were then referred to a designated camp reception area where they were either registered again and admitted or, if the camp was full, sent on to a third camp. There was some movement between camps as refugees rejoined other family members. Not all refugees de-registered when moving. It is not known what percentage were registered more than once although it seems that the numbers were generally small. The numbers unregistered (or afraid to register[45]) would appear to have more than compensated for any double registration.

3.5.3 The development of camps

On the narrow peninsula between the Bay of Bengal and the Naf River which marked the border with Myanmar, land was in short supply yet, this area received the majority of the refugees. The land was either privately owned (and intensively farmed) or belonged to the Forestry Commission - home to one of the few remaining forests in the country and a valuable natural resource (providing teak for export and domestic use). Camps were generally located on Forestry Commission land, cramped onto small hillocks. They appeared to be marooned

[45] Many were afraid to register or appear on any official list as they believed that they might later be targeted for repatriation. This fear was proven to be justified as in April 1992, the GOB started submitting lists of registered refugees to the authorities in Myanmar, asking them to be given clearance for repatriation (Table 5.1).

above the surrounding rice paddy fields and flood plains. The lack of available land soon proved to be a major constraint and a big political issue.

Refugees initially sheltered under small structures made from plastic sheeting (see Figure 3.3). The priority was to provide temporary shelter before the onset of the monsoon.

Figure 3.3 Arrivals staying in temporary shelters at Kutu Palong Camp, March 1992

Long sheds were then rapidly built as a more permanent housing solution (Figure 3.4). The sheds were constructed from bamboo and woven matting, often with either plastic sheeting, grass thatch or corrugated iron roofs and were divided into compartments (roughly 3 metres square).

Figure 3.4 Semi-permanent shelters at Gundhum II Camp, August 1992

The camps rapidly became very congested and overcrowded with internal living space falling in some instances to, an average of 1.4 sq metres per person[46], less than half the recommended area. Lack of space also inhibited attempts at latrine construction and the provision of washing facilities/water points.

3.5.4 Development of services within the camps

Health care in the camps was provided by MOH medical teams and NGOs (see Chapters 5 and 6) which were either international or national. Administration was the responsibility of the GOB, which appointed a Camp Officer in Charge [COIC], (usually a civil servant temporarily transferred from his/her regular post) and support staff. Local militia (Ansars) were drafted into the camps on grounds of security.

Basic infrastructure (housing, water points and latrines) was the responsibility of the GOB (and was delegated to the DPHE). Food was initially provided and distributed by both the GOB and the Bangladesh Red Crescent Society [BDRCS] until the WFP took over the responsibility for procurement and supply. However the land shortages and severe congestion in the camps could be expected to create problems associated with a rapidly deteriorating (often contaminated) environment,

[46] Average family size was estimated to be 5.6 (Brown *et al*, 1992) and families shared a metre square living space. UNHCR recommends an average internal living (sleeping) area of 3.5 square metres per person (UNHCR, 1983). External living space (for washing, recreation, social activities etc) also needs to be considered.

ie one which has the potential to facilitate the spread of communicable diseases and which is an extremely pathogenic environment[47].

3.6 A Summary of Key Issues

3.6.1 Politics

The refugees, while assisted in the short term, were not wanted in the longer term. The GOB was concerned that it could be left with a long term refugee problem. It wanted to avoid that scenario at all costs. The potential existed for organisations and individuals to become embroiled in local, national and international politics.

3.6.2 Policies and practice

Health policies existed yet were not fully implemented in Cox's Bazar district amongst the local population. While there was a high degree of disaster preparedness, this was geared entirely towards dealing with short term natural disasters (specifically floods and cyclones) rather than a longer term refugee crisis. There were few NGOs directly working in the district when the refugee crisis emerged.

[47] Dick (1984) has described refugee camps as being amongst the most pathogenic environments imaginable. The camps in Bangladesh confirmed this view.

3.6.3 Public health

The lessons noted in the literature review (Toole and Waldman, 1990)[48], coupled with local health service status, camp environment and local epidemiological data, suggest that refugee health and nutrition status could be expected to deteriorate during the coming months, ie the emergency phase (February onwards) and the monsoon period (from May).

3.6.4 Opportunities

The potential existed for the rapid implementation of an effective relief programme as important elements (generally good infrastructure[49], previous disaster relief experience, international financial support, strong government coordination, assistance of NG0s, good logistic support and excellent communications etc) were all in place ie some of the major ingredients of a successful relief programme were available from the start of the relief programme.

It is in this context that the epidemiological approach was tested out.

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[48] Toole and Waldman looked at histories and epidemiological data from other relief programmes which show that death rates are highest during the first four months of a relief programme (Toole and Waldman 1988 and 1990).

[49] Although note that health infrastructure in the district was relatively weak.

CHAPTER 4

Chaos:

Demographic Chaos and Health Status

Chapter 4

Chaos: Demographic Chaos and Health Status

"Time is like a river made up of the events which happen,
and its current is strong; no sooner does anything appear than it is swept away,
and another comes in its place and will be swept away too."
Meditations (IV.43), Marcus Aurelius Antoninus (121-180 AD)

4.0 What is the Nature of Chaos?

The early stages of a disaster or emergency response have often been described in the literature as "chaotic". The term is used almost apologetically, partly because chaos is often associated with increased loss of life. The suggestion that something is chaotic implies that it is both unpredictable and uncontrollable - and by inference, no one's fault or (perhaps more importantly) no one's responsibility. In the context of a need to improve relief responses, this view is not very helpful. It suggests that chaos, and an associated lack of accountability, will continue to be an unavoidable feature of most emergency relief responses for the foreseeable future. This view is supported in de Montaigne's essays, which appear to be a fairly early attempt to explain chaos and disorder:

> *"the conclusions that we seek to draw from the likeness of events are unreliable, because events are always unlike. There is no quality so universal in the appearance of things as their diversity and variety"*
> "Essays: on experience" (de Montaigne, 1580; translated by Cohen, 1958)

This suggests that there is little point in attempting to predict (and plan for) the unpredictable. The dictionary definition of chaos ("keios") is not very helpful either:

> *"complete disorder, utter confusion"* or *"the disordered formless matter supposed to have existed before the order of the universe"*
> (Concise Oxford Dictionary, 1990)

However a recent mathematical definition of chaos is more useful:

> *"lawless or random (stochastic) behaviour governed entirely by law (occurring in a deterministic system)"* (Stewart I, 1989 p17)

This definition has its origins in the work of early eighteenth century scientists.

When it is given an anthropological interpretation it becomes much more helpful in relation to this piece of work:

> *"Chaos doesn't mean not governed by rules. It does mean that the rules by which the universe is governed are only discernible after the event. This doesn't enable one to predict how other situations will develop - only to predict that other situations will be equally unpredictable"* (Prof Cyril Hellman, Brunel University[50])

This anthropological interpretation suggests that there is some overall pattern within which unpredictable (random) events happen, although we may be unaware of this pattern or unable to explain it. There may therefore be some room for manoeuvre in attempting to analyse chaotic events, to try to identify a pattern (or patterns) around a chaotic relief response. This is the preliminary step when trying to impose some degree of order on what appears to be a chaotic scenario.

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[50] Explanation from a seminar on anthropology and chaos, as reported in personal communication with Cathy Mears.

This analysis will not necessarily help to explain current observed chaos, nor help predict future (unpredictable) events. It may however show that some events are not as chaotic and unpredictable as we are led to believe; they are frequent occurrences that are simply hidden in the confusion. If this is true, then it may help, in hindsight, to provide a framework within which future relief responses can be analyzed and improved.

This anthropological interpretation of chaos is applied to the disorder observed during this study of Rohingya refugees in Bangladesh. The aim is twofold: to assess if the situation described was really as chaotic as first appeared, and secondly to attempt to impose some order on the chaos, in order to describe the context in which the epidemiological approach was assessed.

As discussed in the literature review, managing a relief programme in an acute emergency involves dealing with rapid, uncontrolled population movements and ad hoc relief activities by a variety of actors with hidden (often political) agendas. This and the next chapter (Chapter 5), together draw out individual chaotic episodes on a monthly basis from different viewpoints.

This chapter takes an epidemiological viewpoint and looks at demographic chaos, health and nutritional status. In Chapter 5 chaos is analyzed from a political and managerial perspective. In these chapters, the chaotic episodes are pulled together over the year to form linkages and themes. The disorder observed in Bangladesh is ordered and partially explained through the use of tables and figures.

For each theme (eg demographic chaos), a tabulated calendar shows changes on a monthly basis over one year. For ease of reading, these tables are presented in segments eg Table 4.1/A: January - July and Table 4.1/B: August - September. When the segments are joined together, stages and trends can be identified and are used to develop alternative models of emergencies from the different viewpoints. The linked tables can be viewed in Annex 4.

In this chapter, section 4.1 examines demographic chaos and 4.2 investigates health and nutritional status, providing an overview. Subsequent sections focus on data collection methods and mortality rates (4.3), nutrition data (4.4), and morbidity data (4.5). An epidemiological model is suggested in section 4.6.

The quality of epidemiological data was identified in section 2.1.1 as being of secondary interest in relation to the research study questions. Therefore a qualitative evaluation of the HIS (and the data used in this chapter) is included in Annex 2. Data used in the figures are located in Annex 5.

4.1 Demography and Chaos

Key events are described in Tables 4.1/A - C. From the tables, the year appears to fall into three phases: the arrival phase (4.1.1), a stabilisation phase (4.1.2) and a repatriation phase (4.1.3). A summary is located in section 4.1.4 and a model of demographic chaos is developed (4.1.5).

4.1.1 The arrival phase: January - July 1992

When I joined the UNHCR assessment mission in mid-February 1992, about 33,000 refugees were accommodated in five makeshift camps, scattered along the road between Cox's Bazar and Teknaf (Table 4.1/A). One to two hundred new refugees crossed the border per day but the rate soon escalated to 6,000 per day. The situation was both dynamic and unpredictable.

Within one month (by mid-March), the number of refugees had risen dramatically to almost 150,000, the number of camps had increased to nine (Figures 4.1 and 4.2)[51]. The rate of arrival (March - May) exceeded the capacity of the GOB and UNHCR to identify suitable sites for additional camps (Figures 4.2 and 4.3). It was estimated (Table 4.1/A, March) that several thousands of unregistered persons were living along the roadside, encamped on verges, spare scraps of land and on the road itself (Figure 4.3). The population appeared to stabilise in July at over 250,000 refugees.

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[51] Five camps were initially established. However as the rate of influx accelerated, new sites were identified and additional camps opened, ie often one to two new camps per week. Camps could not easily be planned because of land shortages, and high arrival rates. There continued to be a large backlog of refugees waiting by the roadside - which continued until the influx stopped in July. Even by December 1992, there were still some refugees in camps without adequate shelter (Figure 4.2).

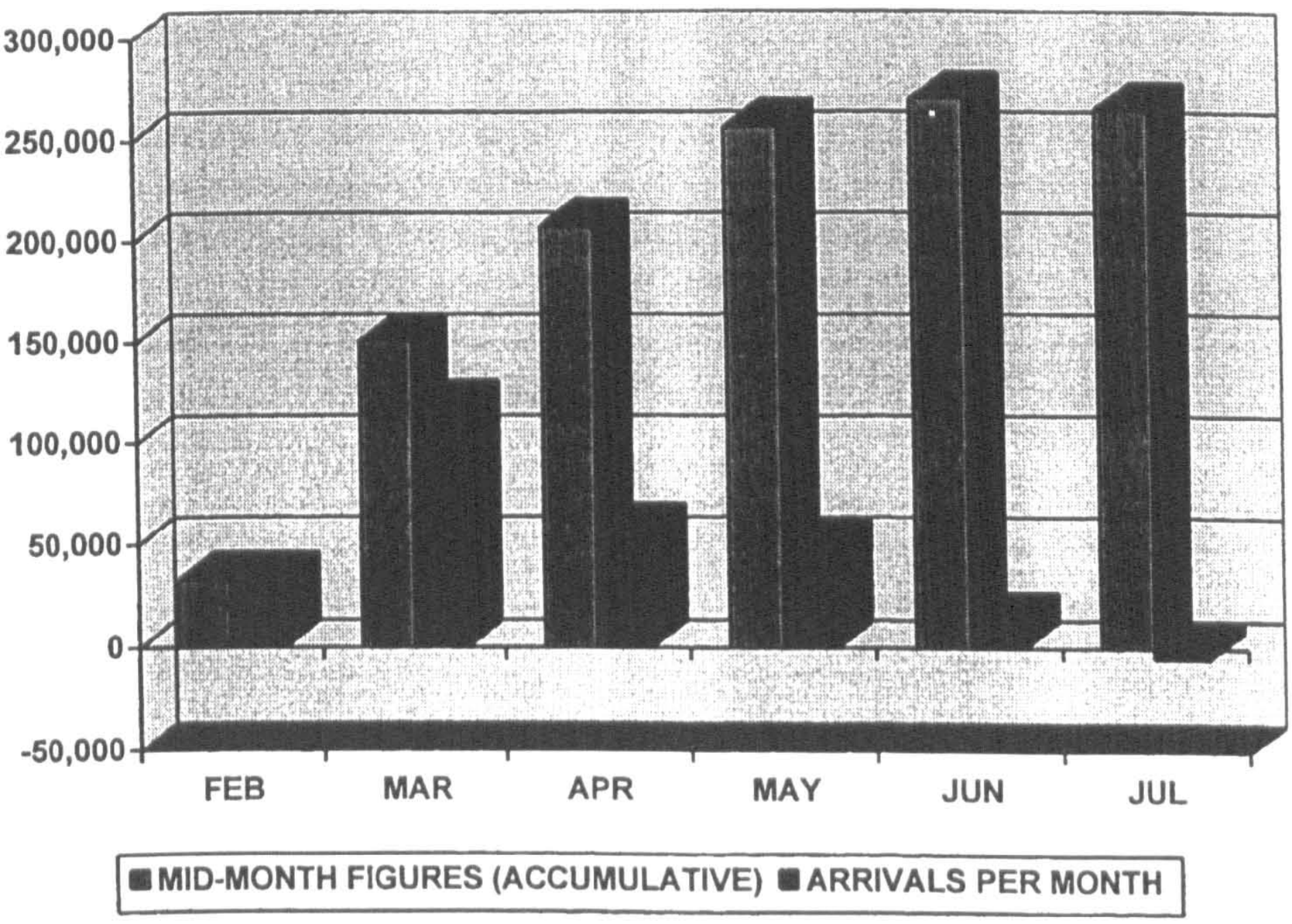
Table 4.1/A Demographic chaos: January - July 1992

Monthly summary population changes January - July 1992			
January 1992 GOB starts to register refugees for assistance	**February** 33,000 refugees are registered by mid-month (13/2) with 1-200 new arrivals per day but by end of month arrival rate escalates to 5-6,000/day. 5 camps are established (see Figure 4.2). UNHCR carries out a rapid assessment mission, including rapid population estimates based on surveys. Influx exceeds capacity of GOB to cope (Memo, 28/2)	**March** Influx reaches 100,000 on 9/3 and passes 150,000 by mid month (14/3). New camps are opened at Dumdumia 2 [DD2], Balukhali [BK1 & BK2]. Many un-registered refugees are observed sitting by the roadside waiting to be allocated camps, often moving spontaneously (Memo 8/3) or congregating around existing camps (Sitrep, 9/3 and Diskett, 3/92)	**April** Influx reaches 200,000 (12/4) and 12 camps are operating. UNHCR expert on registration visits and advises GOB on making improvements to the system (LB:17/4/92 and Ali 1992) as discrepancies noted between GOB statistics and BDRCS food distribution data
May Major cyclone alert. Emergency declared for 2 days until risk subsides - routine camp activities mildly disrupted by emergency preparedness activities. Influx continues and surpasses 250,000[52], but GOB promotes repatriation 12 camps are full and more planned but acute land shortages are noted. Discrepancies noted between BDRCS food distribution data and camp population data (RRRC Mins, 21/5) in DP2 camp	**June** Influx continues but declines to <100/day. 13 camps are in existence. Almost 270,000 refugees have been registered including an estimated 91,000 without adequate shelter - a serious problem in view of the onset of the monsoon	**July** Total number of refugees registered at the end of the month is 264,916[53]. No new refugees will be registered and the border is unofficially closed by both GOB and GOM. A total of 16 camps are now operating GOB acknowledges need for census to confirm numbers (RRRC Mins, 9/7)	

[52] On 15/5/92 influx reached 256,186. Source, GOB, Daily Rohingya Refugee Report.

[53] The discrepancy with the previous months figures was thought to be due to the registration of some Bangladeshi families, so numbers were subsequently readjusted.

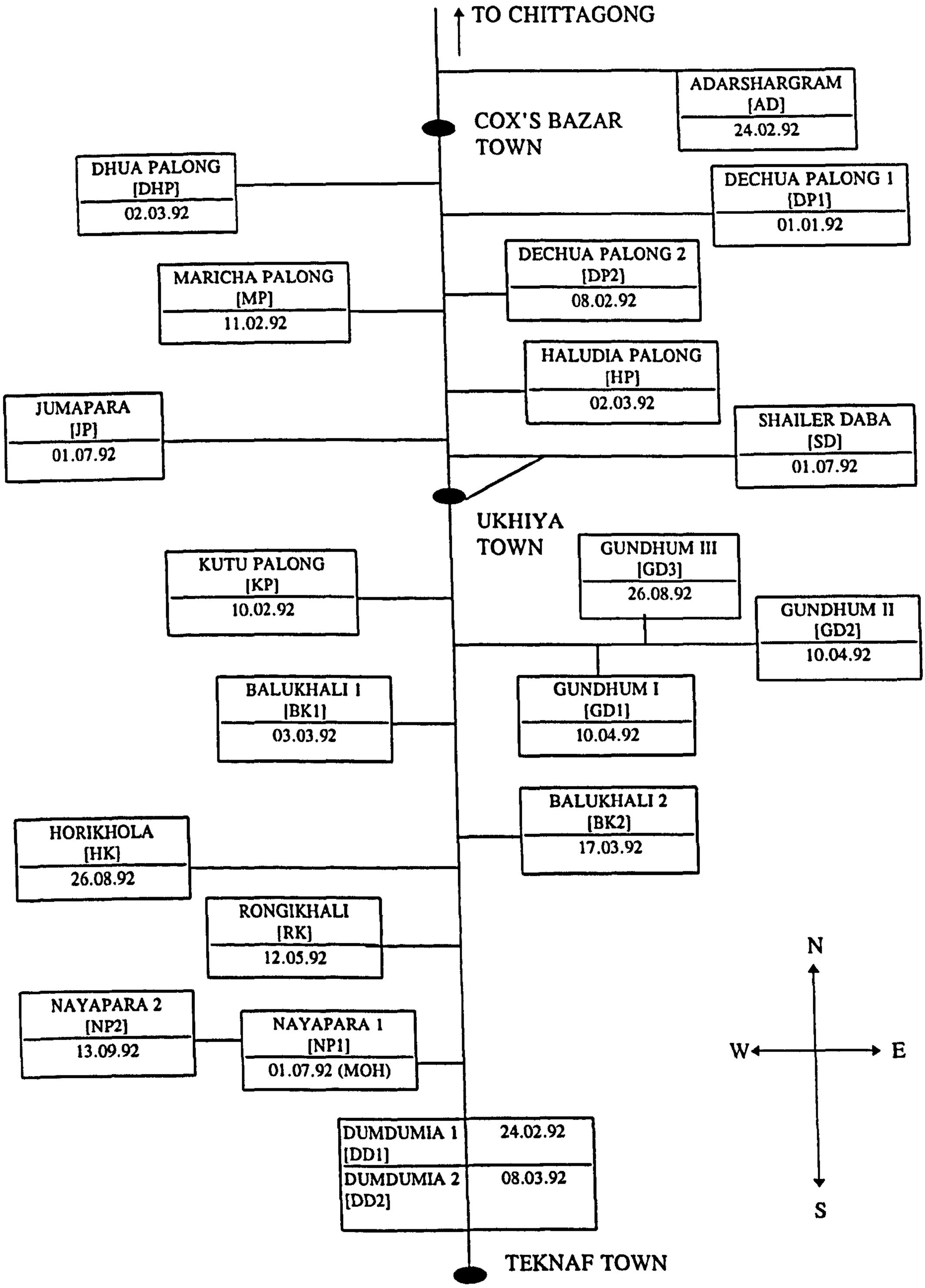
Figure 4.1[54] Total of refugees and the rate of population increase



NB: The reduction in population in July occurred because GOB found some local villagers had registered as refugees and readjusted the figures accordingly.

54 Based on daily statistics provided by the MOR via the RRRC Control Room in Cox's Bazar

Figure 4.2 Camps and start dates



NB: Start date is when figures first appeared in RRRC Control Room. Often the camp started several days or weeks before it became "official". Start date according to MOH statistics is given in brackets only where there is disagreement. Where there is disagreement the earliest figure is used.

Figure 4.3 New arrivals: the visible manifestations of chaos on the roadside (March 1992)

Interpretation:

The confusion observed during the acute emergency is summarised in Table 4.1/A and Figures 4.1 - 4.3, allowing some conclusions to be drawn:

* The rapid rate of influx in late February and March (up to 6,000 per day), meant that by early April[55], many new camps were being opened (Table 4.1/A and Figure 4.2). Systems (registration, logistics) and services (health and public health engineering) were in danger of being overwhelmed (see also section 5.2).

* It was difficult to assist refugees outside the camps because their numbers and locations were susceptible to rapid changes. Refugees voted with their feet and moved to where they thought assistance might be (Table 4.1/A, March). It was difficult to identify vulnerable groups as all appeared to be in desperate need (Figure 4.3).

* Daily population reports were produced by the RRRC Control Room. Delays in registration (some refugees had to wait for up to a week to be registered), and unreported transfers out, meant that obtaining accurate demographic data was problematic in some camps (Gonoshasthya Kendra, Annual Report, Dec 1992, p10). Yet these data were urgently needed for planning purposes (including allocation of resources) and particularly for calculating mortality rates.

* The population profile varied between early and later arrivals. The early arrivals (February/March) had a marked lack of men in the 15 to 25 year

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[55] The rate of arrival varied from 200 to 6,000 per day. The rate in mid-March was 4,500 per day (see figure 4.1). The rate declined during Ramadan (end March/April) and increased again once Ramadan finished (late April) and prior to the onset of the monsoon (due in late May). Less boat transportation was available during Ramadan.

age group and a significant number of widows were registered (Memo, 28/2/92 and RRRC, daily data sheets). The later arrivals (April - July) seemed to display a more balanced population profile, although the situation was not confirmed until a census was held in September 1992 (see section 4.1.2). Accurate population profiles are needed for ordering food and drug supplies. Lack of accurate data leads to best "guestimates" being used.

4.1.2 Stabilisation: August - September

In July, the GOB closed the border to new arrivals, heralding a period of comparative stability. A census was finally carried out in September (Siddique, 1992). However even the census figures were not without controversy.

There was confusion, for example, concerning the numbers of children under the age of 1 year[56] in selected camps (Memo, 22/9/92) and also concerning children under 5 years in the refugee population. Estimates for the latter vary from 23% (rapid assessment and nutrition surveys) to 19% (Siddique, 1992; Memo, 22/9/92).

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[56] A general food ration was often not allocated by the camp officer in charge, until a child was one year old. The number of children <1 year was therefore underestimated as parents inflated the age of the child in some camps to gain access to food rations (Jorgenson, 1992 p 15). In addition, the government refused to register some later arrivals or to grant refugee status to some groups, saying that they were not eligible or would be double registered. This dispute continued for some months.

Table 4.1/B Demographic chaos: August - September 1992

Monthly summary of population changes August - September 1992	
August	**September**
Official population figures remain the same, with "shelterless" numbering 59,225 470 refugees thought to be in prison (LB, 25\8)	Refugee census completed and population confirmed at 250,887[57]. Variation between GOB figures (264,916) and census figures was <6% which compares favourably to many other emergencies. On 22.9.92, 49 refugees were repatriated

Interpretation:

* Note that although the border was closed in July, new camps continued to be opened in July, August and September in order to clear the backlog of the "shelterless", waiting to be allocated a camp and to allow decongestion of some older camps (Figure 4.2).

* There were different population estimates available from various sources at different times. The UNHCR rapid assessment surveys in February 1992 (see section 6.1), provided initial estimates covering six camps. The GOB obtained figures by monitoring arrivals at entry points, collecting data from registration points in the camps and recording repatriation movements. The information was then relayed to the RRRC control room in Cox's Bazar. The health agencies working in the camps (eg MOH and NGOs) obtained estimates using nutritional survey and immunisation data. They adjusted their population figures to take into account births and deaths. The Bangladesh Red Crescent Society [BDRCS] was responsible for food ration

[57] Figures were reduced due to registration of some local villagers and failure to report some deaths in the camps.

registration and food distribution (Table 4.1/A, April). Food distribution figures were also used to provide population estimates.

* Although there were some data differences, when compared with many other emergencies eg Somali refugees in Ethiopia (Toole and Waldman, 1988), demographic data were available fairly rapidly, and were of a quality that could be used. The GOB data were used officially. Other data sources generally agreed within a 10% variance in April (LB, 17/4/92) and by September the difference between data sets was less than 6% (Table 4.1/B). GOB/RRRC figures are therefore used in this thesis unless otherwise stated.

4.1.3 Repatriation: October 1992 - February 1993

The demography changed as the GOB embarked on a process of repatriation. As this was not carried out with the full cooperation of the refugees, it resulted in the arrest and detention of some refugees (who were perceived by the GOB to be "anti-repatriation activists") and their subsequent transfer to prison.

Table 4.1/C Demographic chaos: October 1992 - February 1993

Monthly summary population changes October 1992 - February 1993		
October 167 refugees repatriated, and 3 transit camps operating. UNHCR no longer involved in the repatriation process (see also section 5.1)	**November** Repatriation continues but is temporarily disrupted by a cyclone alert (grade 9) which remains in operation for 2 days. Cyclone missed Bangladesh but some wind damage (to housing mainly) sustained to southern most camps (Dumdumia 1 & 2). 932 refugees repatriated	**December** 4,814 repatriated this month. Total repatriated in 1992 = 5,692. Number of refugees in prison thought to exceed 850. Approximately 30,000 refugees still without adequate shelter. yet sheds vacated by repatriation are demolished in several camps
January 1993 12,116 repatriated in January. By 18/1, a total of 17,129 refugees repatriated (but 32,448 removed from the camps so some still in transit). UNHCR has problems in reconciling numbers transferred, repatriated and census figures (Memo, 15/1)	**February** Rate of repatriation slows (3,278 by mid month). By 14/2, a total of 21,3456 refugees have been repatriated. but UNHCR is only involved in 21.6% of cases	

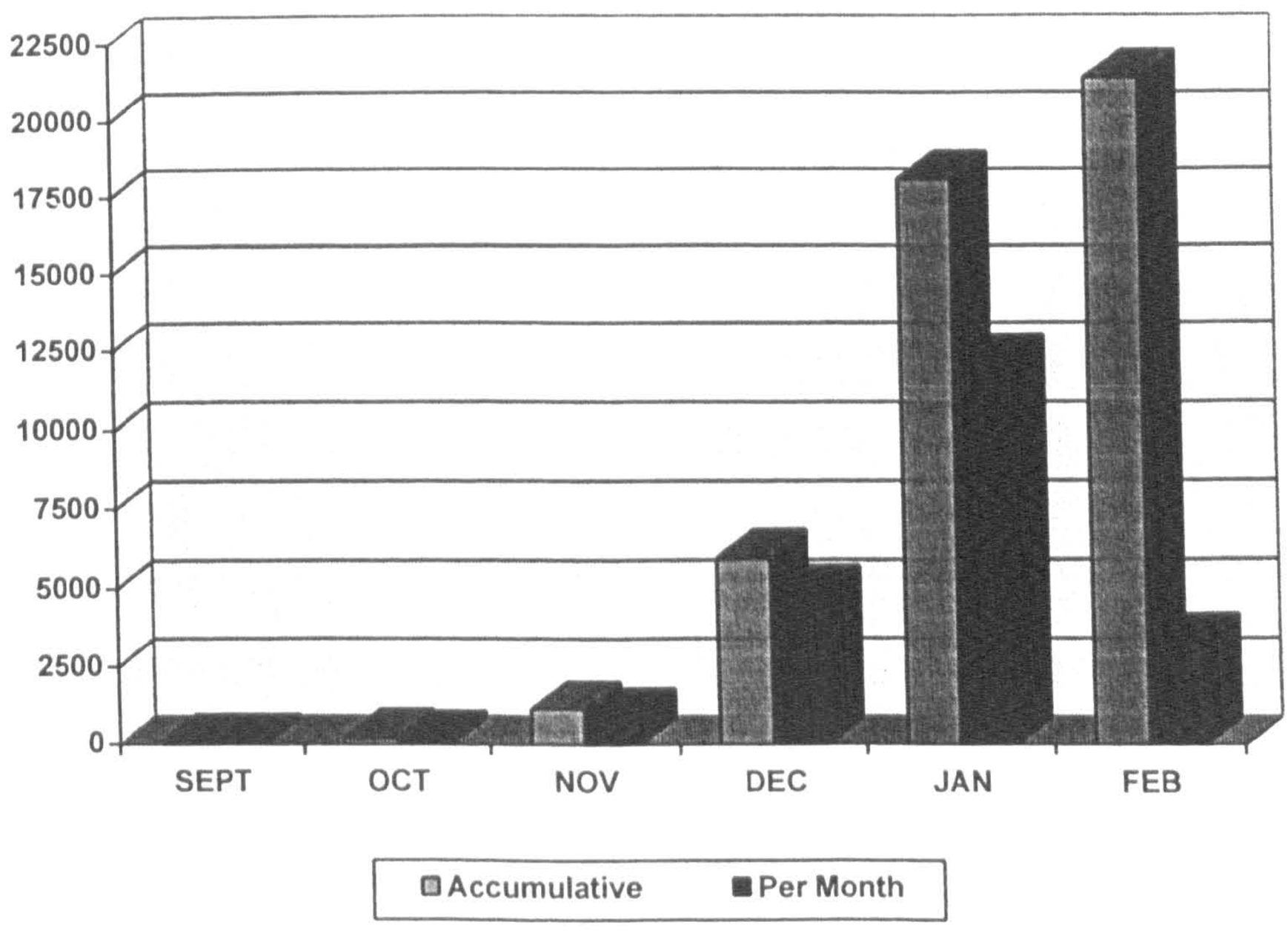
Interpretation:

* From May onwards (the repatriation promotion period), the demographic situation was further confused by transfers out of the camps to transit camps (to await repatriation), prison or hospital (for treatment of bullet wounds). Repatriation was accelerated in October - January.

* Transfers to hospital or prison were not always recorded or publicly acknowledged. According to the WHIB (August 1992 - Feb 1993), no refugees were killed by, or treated for, bullet injuries during the study period (see section 4.3.3).

* Some spontaneous transfers between camps also occurred as refugees sought to avoid repatriation. This was problematic as they were only registered to draw food in their camp of origin - spontaneous self-transfers were actively discouraged. Some camps were surrounded by barbed wire and sentries to prevent movement (LB, July 1992).

Figure 4.4[58] Repatriation by month (GOB/RRRC data)[59]



[58] Figures are not available for those transferred to hospital or prison. Best estimates by a UNHCR Protection Officer put the total at about 1,000 by January 1993 (Choosin, personal communication).

[59] End of month totals are used apart from February 1993. Data only goes up to Feb 14th, when the research finished.

4.1.4 A summary of demographic chaos

Predictably, stabilisation of the refugee population began when the rate of influx declined and then ceased completely. This was a manipulated rather than spontaneous occurrence and was due entirely to the closure of the border by the governments of Myanmar and Bangladesh[60] in July.

Not surprisingly, it was easier to obtain more reliable data when the situation had stabilised than during the period of peak arrivals ie the census was carried out in September. However, by then many major resource allocation decisions had already been made (see also sections 5.1 and 5.2). This raises the question of whether resources were allocated according to numbers in need, which is explored in section 4.3.4 and Chapter 6.

Demographic changes and data reliability were related to political events and management decisions; such as the decisions of the GOB to register the refugees (for assistance and repatriation), ask for international assistance, close the border, conduct a census etc, and the decisions taken by the GOB concerning opening new camps and promoting repatriation.

Because of the obvious links between management decisions and political events, the chaos observed is examined more closely from these political and management viewpoints in Chapter 5.

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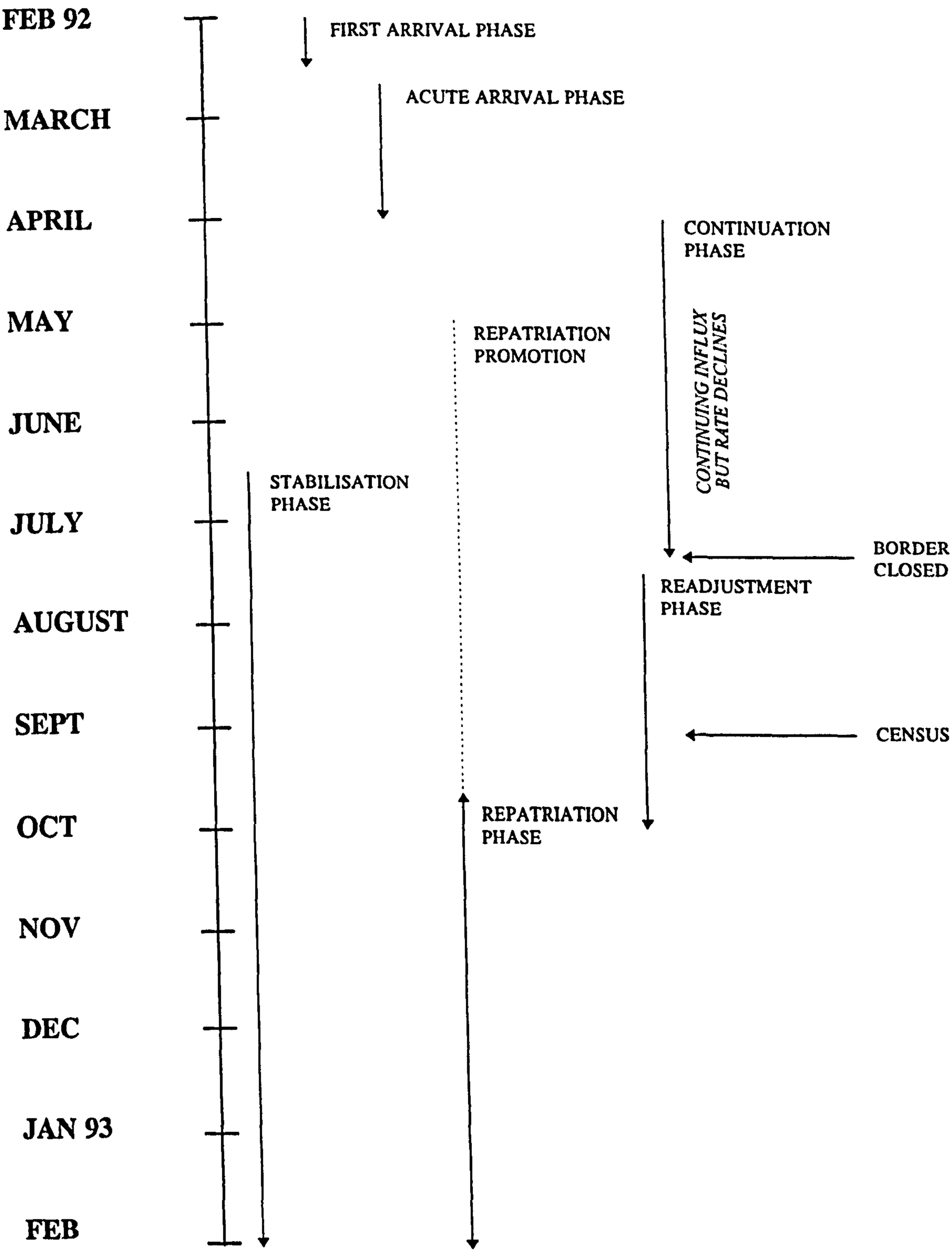
[60] An unknown number of displaced persons were trapped inside Myanmar. Their fate is not known.

4.1.5 Demographic chaos: a model

When demographic data are tabulated and organised, the situation in Bangladesh (which appeared chaotic) becomes well ordered. With the benefit of hindsight, it is possible to identify themes and trends which were not immediately apparent at the time. These are plotted and used to develop a demographic model (Figure 4.5).

The demographic model which emerges shows a number of phases in the relief cycle. Note that phases do not necessarily follow one after the other, as suggested in the literature (section 1.4), but may occur simultaneously. For example during the stabilisation phase (from August 1992), refugees were being transferred between camps and data were readjusted (a readjustment phase). At the same time repatriation promotion was taking place as a prelude to the repatriation phase (from September 1992).

Figure 4.5 Analysis of demographic chaos



4.2 Health and Nutrition Amid Chaos: An Epidemiological Calendar

The next three sections (including Table 4.2/A - 4.2/C), provide an overview of epidemiological events:

4.2.1 Health and nutritional status: January - April 1992

4.2.2 Health and nutritional status: May - July 1992

4.2.3 Health and nutritional status: August 1992 - February 1993

Subsequent sections (4.3 - 4.5) look in more detail at the epidemiological data collected during the study period.

4.2.1 Health and nutritional status: January - April 1992

Table 4.2/A Health and nutritional status: January - April 1992[61]

Epidemiological calendar January - April 1992			
January	**February**	**March**	**April**
Data generally not available	Rapid assessment by UNHCR shows that malnutrition rates (MUAC<12.0 cms) vary between camps (Brown *et al*, 1992/b). Dechua Palong 2 = 27%, Maricha Palong = 2.7%[62], Kutu Palong = 14.8%, Dumdumia = 27.7%. National pre monsoon average in rural areas = 12.7% (MUAC <12.5 cms) (Bloem *et al*, 1991) Mortality rates appear to be within normal limits (<1/10,000 per day). A few cases of measles are noted	Health status appears stable but there is recognition that deaths are under reported at the camp clinics, so actual status is not clear (LB, 12/3) NGOs and MOH are encouraged to start active surveillance of deaths (grave watching) and standardised routine HIS started. Reporting forms agreed with the MOH and discussed and distributed at the HNMC (HNMC Mins, 8/3) NGOs reporting to their own HQ rather than MOH or UNHCR. Data not accessible to the Civil Surgeon (see Annex 2)	Problems of data analysis within the HIS. Health status appears to be deteriorating but view not supported by the poor quality data with under reporting of deaths (section 4.3 and Annex 2) Data analysis is very slow so results not available for decision-making or lobbying Real health situation not known as there are discrepancies between MOH passive mortality data and active (grave watching) data

Interpretation:

* Poor quality data, lack of cooperation from some NGOs and problems of data analysis, meant that reliable comprehensive health information was not available for decision-making at this crucial time (Table 4.1/A, April).

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[61] Key events were recorded in the Log Book or appeared in the HNMC Minutes.

[62] Only 37 children were assessed so the result was not reliable.

* Had data been available, there would have been some difficulties calculating rates due to questions raised earlier about the quality of the demographic data (Table 4.1/A, March).

* Mortality data were collected from different sources (Table 4.3/A, March). The MOH system was based on passive surveillance (the reporting of deaths at clinics). In addition active surveillance (grave watching) was initiated. This showed under reporting of deaths at MOH clinics but the MOH data was "officially recognised".

* This period of unplanned, rapid and confused population movements (see Table 4.1/A), seemed to coincide with a deterioration in health status (Table 4.2/A April). It was difficult to prove that the health situation was deteriorating due to problems relating to poor data quality and delays in data analysis.

4.2.2 Health and nutritional status: May - July 1992

The suspected deterioration in health and nutrition status continued into May and July 1992. Key epidemiological events during this period are summarised in Table 4.2/B.

Table 4.2/B Health and nutritional status: May - July 1992

Epidemiological calendar May - July 1992		
May	**June**	**July**
By end of May, the numbers admitted to feeding programmes increase and MSF/H reports high death rates in Nayapara camp of 4.3 per 10,000/day on 27/5 via active surveillance (LB, 27/5) A similar picture is confirmed from other camps ie a marked deterioration in health and nutrition status, with mortality rates rising to an average of 1.29/10,000/ per day (active surveillance) at the end of May. MOH passive mortality data show a near normal situation Differences observed between active (grave watching) and passive data (deaths reported at clinics), confirm under reporting of deaths at clinics	HKI survey[63] report shows alarming rates of malnutrition in the camps (ie up to 39.7% <80% wt/ht) Typhoid outbreak suspected in Rongikhali camp [RK] by observant staff and later confirmed Crude mortality rates (active surveillance) reach a peak with a average of 1.61/ 10,000/day during week 26/6-3/7. In some camps the rate is much higher ie 8/10,000/day (MSF/F and MSF/H figures) CDC epidemiologists arrive and show that death rates are at least 3 times higher than for the local Bangladesh population and are rising[64]	CDC report released locally to RRRC which confirms unacceptably high death rates in the camps (Lee and Burkholder. 1992) Outbreaks of cholera in Adarshargram. Balukhali 1 & 2 and Gundhum 1,2 & 3 camps. However despite epidemics. mortality peaks at 1.64 on 3/7 and then falls at the end of the month to 0.62/10,000/day (active surveillance) Only 5,000 children are enroled in a feeding programme despite the high malnutrition rates noted earlier Health information system is computerised and a weekly health information bulletin [WHIB] is issued

Interpretation:

* According to the available information (which was limited) malnutrition and mortality rates rose sharply during May and June. Crude mortality rates peaked in early July and then started to decline.

* The poor quality information concerning mortality rates hampered decision-making in May and precluded the early possibility of lobbying for policy changes. Clear evidence of rising mortality rates did not emerge until the

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[63] see Wijnroks *et al*, 1992/a.

[64] The rates were also higher than those recorded in the first three months of the relief programmes in Somalia (1980-81) and Thailand (1979-80) (Toole and Waldman, 1988 and 1990).

end of June. Prior to June, mortality data did not stand up to public scrutiny.

* The health information system was not fully functioning until July and was dependant on technical and financial support from CDC and UNHCR. It failed to detect a typhoid outbreak in June.

4.2.3 Health and nutritional status: August 1992 - February 1993

Table 4.2/C Health and nutritional status: August 1992 - March 1993

Epidemiological calendar August 1992 - March 1993			
August	**September**	**October**	**November**
CDC report concerning rising mortality rates, released by UNHCR in Dhaka, to the consternation of RRRC (RRRC Mins, 6/8). Civil Surgeon states that active mortality surveillance (grave watching) is banned because it is against the culture and does not work (IINMC Mins 9/8; RRRC Mins, 12/8) and requests NGOs to undertake active (house to house) surveillance and visit mosques (IINMC Mins, 16 & 23/8) Mortality rates remain below <1/10,000/day in all camps. However under 5 mortality rates give cause for concern in several camps as being greater than 2/10,000/day [WHIB] SCF fails to submit weekly reports to the MOII/UNIICR and only gives them to its own IIQ in Dhaka [WIIIB, 23/8]. Malaria is acknowledged as a problem, with different solutions proposed (HNMC Mins, 16/8). Civil Surgeon says that permission for insecticide use is needed from MOH in Dhaka, but training of sprayers should go ahead (HNMC Mins, 23/8)	Mortality rates remain stable and satisfactory in all camps (<0.5/10,000/ day) except Horikhola which receives little assistance (WHIB) Number of children (<80% wt/ht) enroled in the feeding programmes exceeds 15,000 but this is thought to represent better coverage rather than an increase in malnutrition. Surveys are planned for November (Smith, 1992) Malaria continues to cause concern (WIIIB)	Small rise in mortality rates noted, mainly fuelled by an increase in diarrhoea related deaths, yet CMRs remain within normal limits 2 cases of diphtheria confirmed in Gundhum 1 [GD1]. Outbreak of cholera also in GD 1 & 2. CMR rates cause concern in selected camps including Horikhola [WHIB] Feeding programme beneficiaries reach peak of 17,422	Outbreak of renal disease in children (suspected nephritis). Case control study initiated Scabies survey carried out and high prevalence (>80%) noted in the Dumdumia camps (SCF report, December 1992). Camps with high scabies prevalence appear to have a greater incidence of renal disease Improvements noted in mortality rates, although <5 yrs mortality remains elevated in several camps. Numbers enroled in feeding programmes start to decline Nutrition surveys carried out

Epidemiological calendar August 1992 - March 1993			
December	**January 1993**	**February**	**March**
MOH reports (with UNHCR assistance) show unacceptably high death rates in transit camps (Diskett, 1993/a). Increasing concern about rising malaria (mortality and morbidity) rates [WHIB] Nutrition survey reports (Wijnroks *et al*, 1992/b; Diskett *et al*, 1992) released covering 12 camps show marked improvement in nutrition status although higher rate (13.9% <80% wt/ht) recorded in Horikhola. Transit camps are not surveyed (no permission from GOB) MOH HIS officer arrested and CDC epidemiologist medically evacuated (LB, 10/12; 31/12)	Measles outbreak in Gundhum and Balukhali 1 & 2 camps - response delayed due to failure of information system to detect outbreaks Mortality rates remain within normal limits	Measles outbreak contained, situation stabilises Research finishes 14/2. During the study period (covering 47 weeks) a total of 2,519 deaths are recorded via the passive surveillance system: 0-5 years = 1,256 deaths 5+ years = 1,263 deaths Active surveillance was never implemented in all camps so the total number of deaths is not accurately known, but was probably between 3,900-6,300[65]. This compares favourably with the 1979 refugee influx into Bangladesh when an estimated 10,000 died in an 8 month period (Aall, 1979)	No change

Interpretation:

* A number of disease outbreaks occurred. It appears that managers failed to respond to health information (September/Horikhola camp, December/malaria and the problems in transit camps/December).

[65] Active surveillance was implemented in 12 out of 20 camps, but not all 12 reported all of the time. A total of 2,394 deaths were reported via this system, but passive data showed a total of 2,519 deaths from all camps. Only about 33% of deaths were reported via the latter system during the acute phase of the emergency and in some camps, the difference between active and passive data was greater and death data were generally not available from the transit camps (only 8 weeks data was obtained). Allowing for under reporting, variations in population size and a close correlation between active and passive systems later in the relief cycle; a "best guestimate" of 3,900-6,300 is obtained using the following calculation: 2,394 active deaths from 12 camps divided by the population in those camps x total population (250,000). A similar figure is obtained by multiplying the total of passive deaths by a factor of 2.5 (during the acute phase) and 1.5 (during the stabilisation phase) to allow for under reporting. Child deaths were calculated using the same formula (see section 4.3).

* The HIS broke down temporarily in December when the CDC epidemiologist was medically evacuated and the MOH HIS officer arrested. Remaining staff struggled to keep the system going but the crisis led to a failure to detect a measles outbreak.

* Despite outbreaks of cholera, measles, malaria and diphtheria, crude morality rates remained within normal limits (<0.5/10,000/day) except in the transit camps and Horikhola (see also section 4.3).

4.2.4 An epidemiological calendar; summary

While a HIS was established, it was not fully functioning until July. There was however a major health and nutritional crisis in early May and June which arguably should have been predicted and averted - this is discussed in Chapter 6. Other issues are explored in more detail in the following sections.

4.3 Mortality Data and Trends

Mortality trends are analyzed from February 1992 - January 1993 (a total of 48 weeks data were obtained from the HIS). The problems of data collection and data quality, which specifically relate to the chaotic environment, are analyzed (4.3.1). Crude and under five mortality rates are described (4.3.2) as is proportional mortality (4.3.3). Section 4.3.4 identifies some influences on mortality and 4.3.5 contains a brief summary of mortality data.

4.3.1 Data collection under acute and chaotic emergency conditions

As the UNHCR Health Coordinator, my priority on arrival was to assess the existing data collection process and if appropriate develop, with the MOH and NGOs, a standardised health reporting and surveillance system. Three key criteria were identified. The HIS would need to meet national requirements, and cover all camps (to facilitate decision-making at district level). Yet simultaneously it should encourage data use at individual camp level in support of localised decision-making (Stintson, 1983; Hakewill and Moren, 1991). The main emphasis should be on monitoring diseases of major public health importance (Toole and Waldman, 1990; Toole and Malkki, 1992; Moren, 1995)[66].

In February 1992, health care in the camps was provided by the MOH medical teams and a few NGOs[67]. There was no standardised morbidity reporting system (used by both MOH and NGOs). Mortality reporting was very haphazard with, for example, gross under reporting of deaths (Memo, 13/3/92). MOH teams were using normal MOH reporting forms, but these reflected the national interests of the MOH rather than the local health needs of the refugees[68]. In addition, NGOs were often using their own forms and reported directly to their own headquarters

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[66] In an acute emergency these include ALRI, malaria, diarrhoea, measles, malnutrition, and location specific problems (eg meningitis, trypanosomiasis, encephalitis etc). TB and hepatitis are also important (Toole and Waldman, 1990 and 1993). In Bangladesh, the main health problems conformed to the above pattern and included cholera, shigella dysentery, malaria and TB.

[67] The number of NGOs involved changed almost daily hence exact figures are not included.

[68] The MOH reporting forms reflected the interests in Bangladesh in earlier vertical programmes, so included differential diagnosis of four types of diarrhoea for example and two types of malaria, but measles (of crucial significance in refugee camps), was included with other communicable diseases (Diskett, 1992/a p 9).

(eg Paris or London) and to donors (Lee and Burkholder, 1992 p1; Burkholder 1992, p2 - see also Annex 2).

I initiated several meetings with local MOH officials and NGOs and a standardised reporting format was agreed, based on diseases of major public health importance. It was compatible with both MOH reporting requirements and those of the NGOs. The form was to be filled in weekly (on a Friday) and submitted to the office of the Civil Surgeon on Saturdays, after which the data would be checked, analyzed and fed back within seven days via the weekly Health and Nutrition Management Committee [HNMC] or sooner if problems were detected. All agencies and teams running clinics were asked to cooperate. This system was implemented in early March (HNMC Mins, 8/3/92). The intention was to standardise, coordinate and consolidate health information at district level, where it could be used for decision-making. It would then be disseminated in all directions to those that needed it (nationally, regionally and locally). Agencies and MOH teams collecting data, were simultaneously encouraged to make their own preliminary analysis of the data and use this for localised decision-making.

No HIS is entirely satisfactory from the outset and this one was no exception. During the period February - May 1992 many shortcomings were identified (see Annex 2). Observation of the collection process over several months (including inspection of camp registers)[69] and discussions with the key actors rapidly

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[69] All clinics had a register of patients seen, which included age, sex, address, diagnosis and treatment. Data were transcribed from the registers onto the weekly reporting forms.

confirmed that problems adversely affected both the quality and availability of the data.

The most immediate problem concerned data analysis at district level. While data were being collected weekly, neither the MOH manual system nor the NGOs could cope with the rapid data analysis which was required. Data analysis at camp level generally did not occur apart from one or two notable exceptions[70]. The Civil Surgeon promptly requested UNHCR to take responsibility for the analysis of the data (HNMC Mins 8/3/92). Subsequent attempts to find local (and national[71]) solutions were unsuccessful (HNMC Mins 28/4, 24/5 and 31/5/92) so UNHCR agreed to provide funds for external expertise and advice to be sought.

The Centre for Disease Control [CDC] in Atlanta, USA was approached as this institution had recognised global expertise in this field. CDC had assisted UNHCR in many similar situations. It was also respected by and acceptable to the MOH. The first two consultants from CDC arrived together in June 1992. A total of five different consultants were involved between mid-June 1992 and early December 1992. The terms of reference for the first two CDC consultants

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[70] Dechua Palong 2 camp was assisted by the MOH, a national NGO and two international NGOs. All were operating clinics and collecting health data and all except one were submitting Health Information forms to the Civil Surgeon. However at camp level, they were not sharing data with each other and were all reporting separately/directly to the Camp Officer in Charge - often giving conflicting information (HNMC Mins 3/3). It was the MOH responsibility to coordinate health activities in the camps, but as staff worked in the camp for only four weeks and were then rotated back to their normal place of work, this system was slow to evolve (Burkholder, 1992 p4 and p8). NGO staff tended to stay longer, but it was not acceptable to the MOH to allow the NGOS to take the lead.

[71] Nationally, only one institution (Institute for Epidemiology and Disease Control Research [IEDCR]) within the MOH was actively collecting and using epidemiological data, but IEDCR's capacity was limited and it could not provide the required level of support to the refugee programme in either the short or long term. It was however able to provide limited short term assistance with training and standardisation - through infrequent short visits and workshops (Burkholder,1992 p7).

included a review of the existing HIS (see Lee and Burkholder, 1992; Burkholder, 1992 and Jorgenson, 1992).

Following the arrival of the CDC consultants (June 1992), the HIS was computerised. Data from 6 March - 10 July was entered and analyzed retrospectively, to provide a baseline for future comparisons and a report was produced (Lee and Burkholder, 1992). A revised system was established from 11 July and a weekly health information bulletin [WHIB] was produced and discussed at the weekly HNMC meetings[72]. It was normally produced within three to five days of data being received and checked.

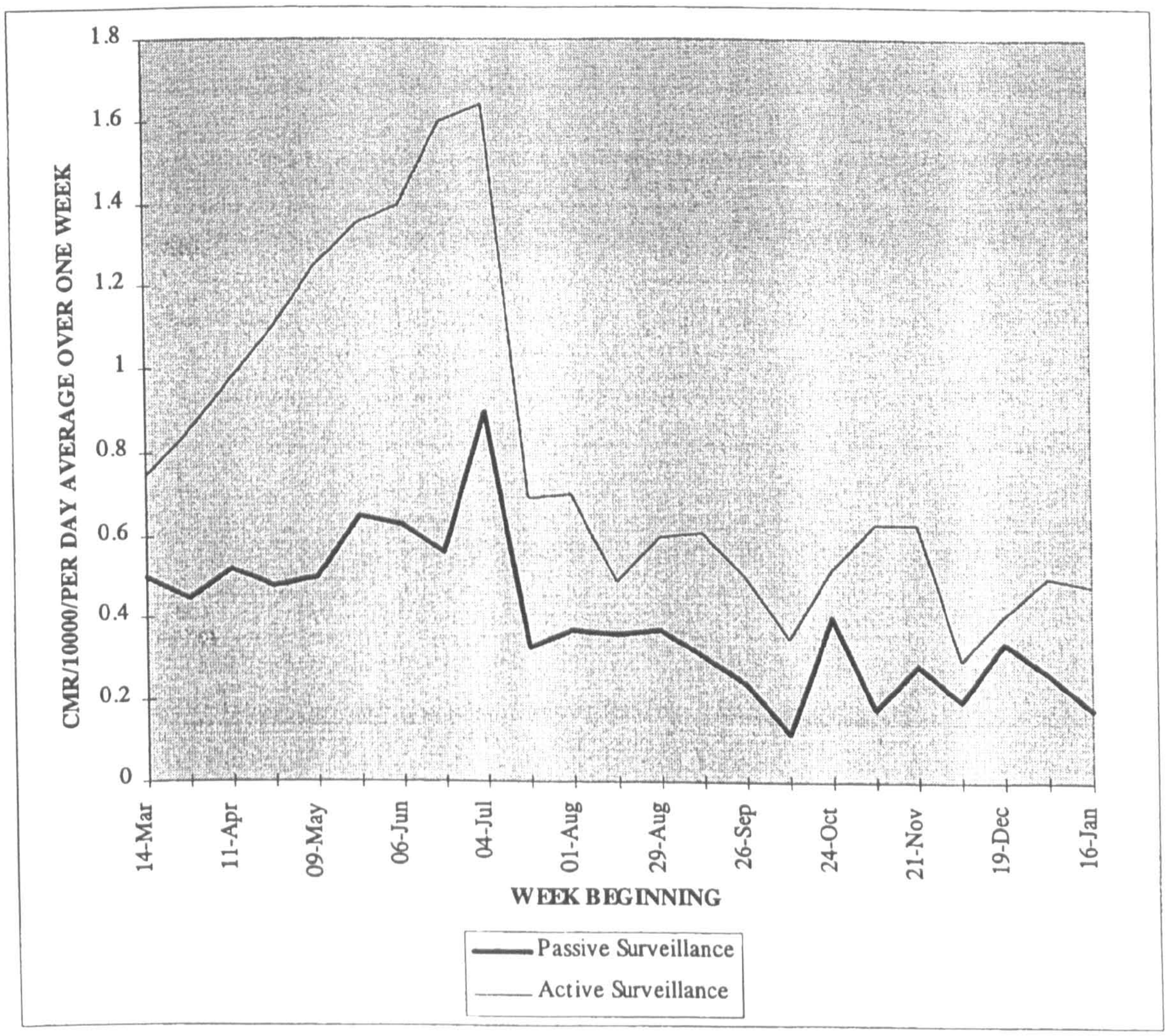
This system was generally considered to be effective and was still functioning in February 1996. It would however not have been feasible without the technical support of the CDC epidemiologists. This experience bears a striking similarity to others recorded during the Great Lakes (Goma) crisis when it was noted that data were only available when skilled (external) epidemiologists were present (JEEA, Study 3, 1996 p68).

[72] The Civil Surgeon was responsible for giving feedback to the RRRC in Cox's Bazar and usually presented a short summary at the weekly RRRC Coordination Committee meeting.

4.3.2 Mortality rates

Mortality data were collected via the HIS (reporting of deaths to clinics) as well as through active surveillance (grave watching). While the former system covered all 20 camps, only some NGOs cooperated in the latter system. As a result, active surveillance only covered a maximum of 12 camps. Figure 4.6 compares crude mortality data obtained from both data collection systems. Figure 4.7 compares crude and child (< 5 years) mortality rates using passive surveillance data.

Figure 4.6 **Crude mortality (active and passive surveillance) February 1992 - 93[73]**



[73] Passive surveillance covered all camps that were open at the time. Active surveillance data were obtained from a maximum of 12 camps (the number varied especially at the beginning of the relief cycle).

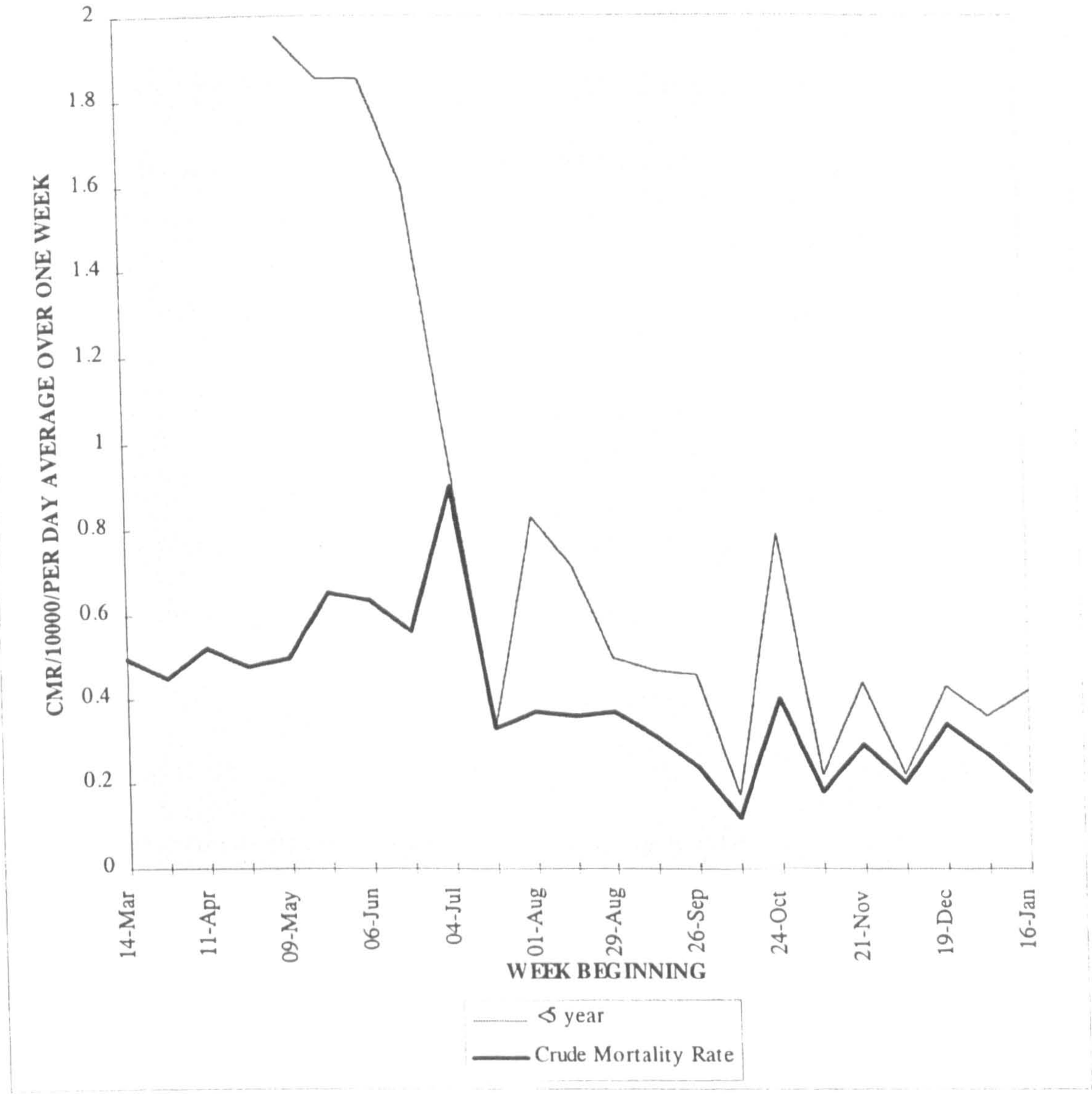
Interpretation:

* Over the year, active crude mortality rates revealed almost twice as many deaths as passive surveillance. The widest gap between the two data sets occurred from mid-May to the end of June 1992 (a very chaotic period), when almost three times as many deaths were reported by active surveillance. The gap narrowed as the relief operation evolved due to improvements in reporting and an awareness of under reporting.

* Mortality rates were considerably lower than in other recently reported emergencies, eg Goma (JEEA, 1996) and Sudan (Toole and Waldman, 1988). Yet if decision-making had been based on passive surveillance alone, then the severity of the crisis would have been seriously underestimated. The difference in results obtained from passive and active surveillance represents the difference between a normal situation and a major crisis.

* Mortality rates increased until they reached a peak in July. This could reflect the acute emergency phase when mortality rates are known to rise (Toole and Waldman, 1990) but part of this rise (June) could also be a seasonal increase (the monsoon from June to September). However the decline in mortality started at the height of the monsoon rather than later as expected but it coincided with rapid improvements in sanitation (see section 5.2.2 and Table 5.2/B August).

Figure 4.7 <5 Years mortality rates compared with crude mortality rates[74]



[74] Passive data are used as the active surveillance data are incomplete. Active surveillance only covered a maximum of 12 refugee camps.

Interpretation:

* The under 5 years mortality rate was highest during the acute arrival phase of the emergency. It stabilised in July. The slight rise in October was related to a seasonal increase in diarrhoeal disease.

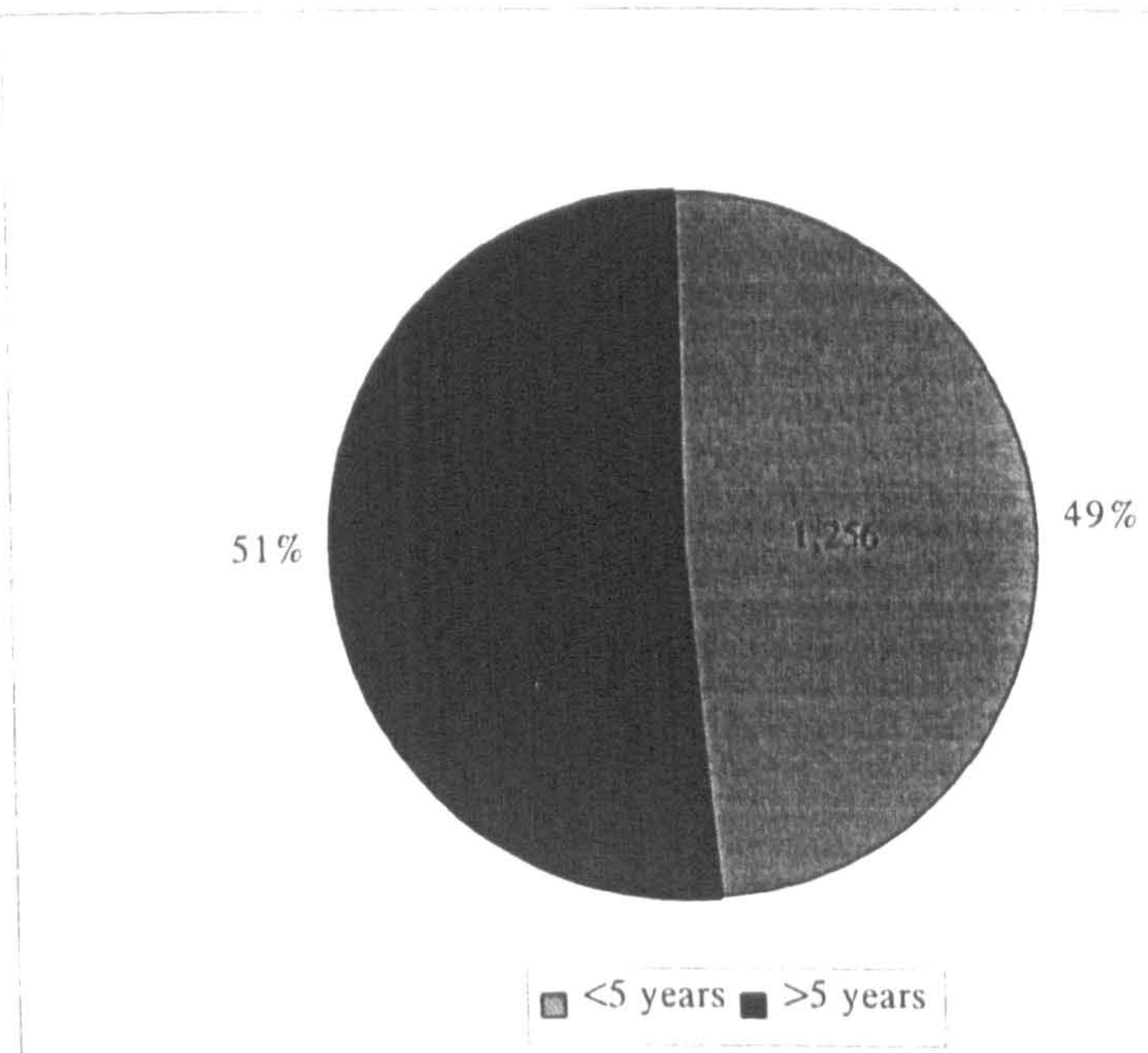
* The high rates in May coincided with high rates of malnutrition (see also section 4.4).

* The improvement in July again appeared to relate to improvements in sanitation. However as deaths were known to be under reported, this improvement could hide an even higher death rate in February - May. The weakest and sickest could have died leaving behind the relatively healthy, a phenomenon noted elsewhere (Nieburg *et al*, 1987).

4.3.3 The main causes of death (proportional mortality)

Reliable causes of death were only obtained through the passive system, where death certificates were issued. It was difficult to verify a definite cause via the grave watching system. In addition, less than 60% of camps participated in grave watching, so active data are incomplete. Passive mortality data are used here.

Figure 4.8 Proportional mortality: under 5 years and over 5 years (passive surveillance data)



Interpretation

* 49.9% of deaths reported through the passive surveillance system occurred in children <5 years, yet this age group accounted for only 20% of the total population. Thus, as noted in many other emergencies (Toole and Waldman, 1990) and as shown in Figure 4.7, children in this age group suffer a higher risk of death.

Table 4.3 Proportional crude mortality (passive surveillance data)

Cause of death	Number	%
diarrhoea	359	14.2
measles	3	0.1
malnutrition	49	1.9
fever	160	6.2
ALRI	658	26.0
hepatitis	29	1.5
trauma	6	1.2
maternal deaths	31	1.3
neonatal deaths	80	3.2
unknown	51	2
other	1093	43.4
Totals	**2519**	**100**

Interpretation:

* The most frequent cause of death, as shown in Table 4.3, was ALRI (26%). This was followed by diarrhoeal disease, which included dysentery and cholera (14.2%). ALRI was responsible for more deaths than all other communicable diseases combined (21.8% including diarrhoea, measles, hepatitis and fever).

* The cause of death was unknown in only 2% of cases. The large number in the "other category" include diagnoses such as "old age", "heart failure" and tuberculosis.

* Note that very few deaths due to "trauma" were recorded (Table 4.3), but a number of deaths were observed due to gunshot wounds (Table 4.4) following confrontations in the camps between the GOB and refugees (LB, as per dates in Table 4.4). These were not recorded by the WHIB (see also Table 5.1).

Table 4.4 Mortality: gunshot wounds

Camp	Date of incident	Number killed	Number injured
Balukhali 1	14/5/92	1	1
Kutu Palong	19/6/92	2 (?)	5 (?)
Adarshargram	16/7/92	1	2
Haludia Palong	18/8/92	2	7
Dhua Palong	25/9/92	3	3 (9)
Gundhum I	25/9/92	?	?
Shailer Daba	9/11/92	2	5
Dechua Palong 2	9/11/92	4	2
Nayapara 2	5/12/92	? (2)	2
Balukhali 2	21/12/92	1 (?)	1
TOTAL Incidents/camps killed/injured	10 incidents in 10 different camps	16 verified (probably more due to lack of access to the camps and information)	28 confirmed plus 6 others reported = likely figure exceeds 34

Interpretation:

* This discrepancy (between Tables 4.3 and 4.4) alongside the under reporting noticed when comparing active and passive surveillance systems (Figure 4.6) confirms the need for the HIS to be verified by observational data.

Table 4.5 Proportional under 5 years mortality (passive surveillance data)

Cause of death	Number	%
diarrhoea	247	19.6
measles	3	0.2
malnutrition	18	1.4
fever	63	5.1
ALRI	467	37.2
hepatitis	6	0.4
trauma	1	0.1
neonatal deaths	80	6.5
unknown	10	0.8
other	361	28.7
Totals	**1,256**	**100**

Table 4.5 shows the main causes of child mortality.

Interpretation:

* ALRI was responsible for 37.2% of deaths in children < 5 years and together with diarrhoea accounted for over half of all deaths (56.8%). Neonatal deaths accounted for a further 6.5%.

* The fact that measles caused an insignificant number of deaths (only three), can be attributed to under reporting between February and April 1992 and the high immunisation coverage rates (of 80% - 100% in different camps) from April onwards (Wijnroks *et al*, 1992/a) (see also section 5.2).

* In 1979 an estimated 7,000 children died in an eight month period (Aall, 1979). In this study, fewer deaths (1,256) were recorded over a longer time frame. Under reporting meant that the real figure was probably nearer 3,770 deaths over a 48 week period in a similar size population (Table 4.2/C, February 1993).

4.3.4 Were there any obvious influences on mortality?

Figure 4.6 (in section 4.3.2) shows that the eight week period December 1992 - January 1993 was marked by very low mortality rates. However high child mortality rates were recorded in selected camps during this period[75]. Table 4.6 illustrates that aggregated rates can disguise differences between camps.

[75] Note that an <5 years mortality rate of 1/10,000/day is considered normal (Hakewill and Moren, 1991).

Table 4.6 Mortality, variations November 1992 - January 1993

CAMP[76]	Average mortality rates[77] (#/10,000/DAY)	
	Crude mortality (passive data)	< 5 YEARS (passive data)
JUMAPARA	0.25	0.72
RONGIKHALI[78]	0.23	0.98
NAYAPARA 2	0.83	2.6
SHAILER DABA	0.55	1.35
Horikhola	0.51	1.05
All Camps (average)	0.27	0.39

NB: UPPER CASE CAMPS = transit camps. Lower case = non transit (regular) camps

Interpretation:

* The child mortality rates in this eight week period, were between two and six times higher in the four transit camps (Jumapara, Rongikhali, Nayapara 2 and Shailer Daba) than the average for all camps. The high < 5 mortality rate in Nayapara 2 was particulary worrying. The relationship to malnutrition was not known as data were not available.

* The crude mortality rates in Nayapara 2, Shailer Daba and Horikhola were between two and three times higher than the average for all camps.

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[76] The first four camps in the table are transit camps with a changing population and transfers in and out on a daily basis. It is difficult to calculate rates accurately due to the rapidly fluctuating population figures, however to gain an approximate idea, the mid week population figure averages are used.

[77] Average rates were calculated from 5 December 1992 to 29 January 1993 (8 weeks).

[78] The population in Rongikhali camp was fluctuated but generally the weekly average was less than 1,500 per week. Rates therefore need to be interpreted with caution due to the small denominator used.

* The four transit camps (apart from Shailer Daba) received no NGO assistance and it was difficult to identify those at risk due to population movements. Transit camps can therefore be regarded as high risk. It has been noted in Honduran refugee camps (Desenclos *et al*, 1990) that mortality rates were also higher in camps experiencing population movements.

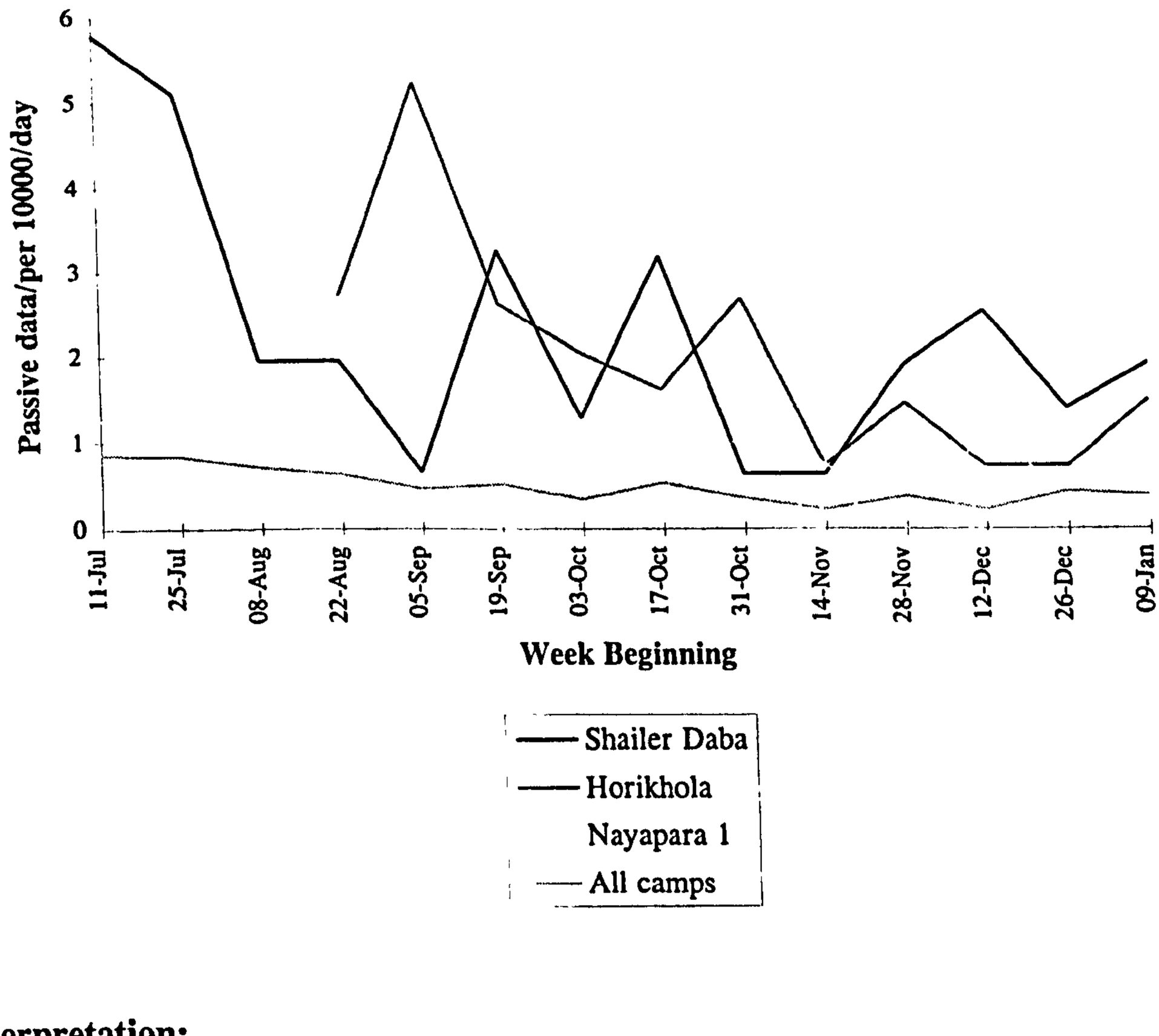
* Horikhola in contrast was not a transit camp, had been established since August 1992 (see Figure 4.2) and was four to five months old. Mortality rates therefore should have stabilised. However Horikhola, like the transit camps, received very little aid. It was assisted by a small NGO with limited capacity. As the GOB perceived that the camp already had NGO assistance, requests for additional aid were refused (see also Table 5.2/B).

* Mortality rates can therefore be directly related to the level of assistance available. The camps with high mortality rates (with the exception of Shailer Daba) received very little aid. An alternative explanation is offered for Shailer Daba camp (Figure 4.9).

Figure 4.9 compares child mortality rates for similar camps in relation to NGO activities. Nayapara 1 was assisted by an international NGO with considerable resources, experience and a public health perspective. Shailer Daba was assisted by an international NGO with no previous emergency experience and a curative (rather than a public health) orientation. Horikhola, as mentioned above received

assistance from a national NGO with no resources and no experience. All camps also had an MOH clinic. Shailer Daba only converted from a "regular" camp to become a transit camp in November 1992. Data are available covering the period 11/7/92 - 9/1/93.

Figure 4.9 Child mortality and NGO capacity/behaviour



Interpretation:

* Geographically the camps were close to each other (within an hours drive) in the same ecological zone, and with populations of 10,000 - 15,000 (see

also Table 5.4 later). They all opened in July or August 1992, so were of a similar age (Figure 4.2). There were few obvious differences between the camp environments although water availability at Shailer Daba was slightly better than in either Horikhola or Nayapara (RRRC weekly statistics).

* Shailer Daba camp experienced persistently high child mortality rates. It was assisted by an NGO with a centralised curative approach (with no outreach programme), no previous emergency experience and lacking in a public health perspective. Information was widely available through the weekly health information bulletin during this period, but despite information showing mortality high rates in July, there was clearly still a problem in October when compared to the average for all camps.

* In Nayapara camp, high child mortality rates were brought under control fairly quickly and remained generally under control. Horikhola meanwhile remained precarious.

* Mortality rates appear to be related to the skills, experience and resources of the NGO and to the approach (curative in Shailer Daba versus a public health approach in Nayapara 1). It has been noted that data are rarely available to allow these types of comparisons to be made (JEEA, Study 3 1996 p68). The data presented here give some insights but it is an area which needs further study.

4.3.5 Mortality data analysis: a summary of observations

A centralised HIS may disguise mortality variations between camps on a weekly basis. While the overall picture may be that of stability (as shown in Figures 4.5 and 4.6 from August 1992 onwards), closer analysis may reveal continuing acute areas of need (Table 4.6 and Figure 4.9).

While under reporting of deaths was a problem, it was not clear which deaths went unreported (was it mainly children, adults, women, or deaths from specific causes?). This is an area worthy of further research.

From a mortality perspective, the relief programm would appear to have been relatively successful. Mortality rates were generally lower than in the previous refugee emergency in Bangladesh (Aall, 1979) although between March and July, active surveillance revealed a CMR that was still three times higher than that among the local Bangladeshi population[79], despite attempts to use an epidemiological approach. This is analyzed further and discussed in Chapter 6.

It is clear, however, that organisational influences were important (see Chapter 5). Mortality rates can be directly related to the amount of aid available and to the skills and interests of the operational NGO.

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[79] A CMR of 0.5/10,000 day is used by UNICEF in Bangladesh (Lee and Burkholder, 1992).

4.4 Nutritional Data

Nutritional data are analyzed from February 1992 - January 1993. The problems of nutritional data collection, which specifically relate to the chaotic emergency phase, are analyzed (4.4.1). Global malnutrition rates are described (4.4.2) as are those for severe malnutrition (4.4.3). In section 4.4.4, nutrition data are cross checked with feeding centre data and 4.4.5 contains a brief summary.

4.4.1 Collecting nutrition data under acute chaotic conditions

Nutrition data are needed to assess nutritional status[80], assist with decision-making (ie regarding intervention or non intervention and to determine the most appropriate type of programme), as well as to provide baseline data for monitoring and evaluation purposes. Data are also needed to provide a basis for the calculation of general and supplementary food supplies (UNHCR, 1983; Lusty and Diskett, 1984; Young, 1992; Mears and Chowdhury 1994; MSF, 1995). Four methods of monitoring nutrition status and the effectiveness of nutrition programmes were used, generating different data sets:

* rapid assessment surveys carried out by UNHCR in February 1992
* nutrition surveys in selected camps by various agencies

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[80] Data are needed to obtain a point prevalence rate of malnutrition in children <5 years (ie to measure anthropometric status, calculate wt/ht means of the study population, analyse frequency distributions and calculate confidence intervals).

* nutrition screening in new camps as they opened. This later became mandatory in all camps in July - September 1992

* monthly feeding programme data. Monthly statistics produced by each NGO were then compiled and analyzed by the UNHCR Health Coordinator or Nutritionist.

A major concern is that of comparability of results between camps, especially when different methodologies and data sets are often used. A key question is: are study populations, anthropometric indices, cut off points, methodologies and results comparable?

In the literature it was noted that comparability was often compromised by a lack of standardisation and there was a lack of consistency between agencies (JEEA, Study 3, 1996 p153). In attempts to avoid such problems, surveillance was discussed in HNMC meetings (eg HNMC Mins, 1/3 and 8/3) and participatory nutrition workshops were held at intervals in May (HNMC Mins, 24/5), July (Smith, 1992 p.iii) and September (Smith, 1992 p.iv) in order to standardise criteria, methodologies, procedures and programmes. In addition there were frequent informal camp visits and meetings between UNHCR Coordinators, MOH and NGO senior staff. Yet despite these efforts, and the support of the UNHCR staff (a Health Coordinator (me), a Nutritionist, who was deployed from June - September (see Smith, 1992), and the CDC epidemiologists), a lack of consensus

persisted and led to difficulties in making direct statistically valid comparisons, although rough comparisons were used and are shared here (Tables 4.7 - 4.18).

Table 4.7 Surveillance in the camps, 1992-93[81]

Method of assessment	Camps assessed more than once	Camps assessed once	Camps assessed (no data available)	Camps not assessed	Total camps for which data are available, out of a possible 20 (%)
Rapid assessments	0	5	-	15	5 (25%)
Surveys	6	7	1	6	13 (65%)
Screening	3	12	3	2	15 (75%)

Interpretation:

* In fact nutrition data were not available from all camps at all times. A total of six camps out of a possible 20 (30%) were never surveyed (Table 4.7).

In addition, various indices, study populations and methodologies were used at different times and this hampered attempts to make comparisons between camps or monitor trends - adding to the chaos (see Table 4.8). In short, attempts at standardisation failed. The methods used are described and discussed here, as they relate to difficulties of data interpretation.

[81] The number of camps varied throughout the year (from six in February to 20 by September) see Figure 4.2. Therefore these data are drawn from individual MOH, NGO and UNHCR records which may not be complete. Some NGOs may have performed rapid assessments for example without reporting to or informing UNHCR or the MOH. The data are therefore used as a rough guide only.

Table 4.8 Nutritional indices used by different agencies

Camp /surveys	Assessments, February - April measurement/cut off point [agency]	Nutritional surveys, May 1992 measurement/cut off point [agency]	Systematic screening, July 1992 measurement/cut off point [agency]	Nutritional surveys, November - December 1992 measurement/cut off point [agency]
Dhua Palong	MUAC <12.5 cms [MSF/F]		wt/ht <80% or < 70% [MSF/F]	wt/ht <80% or < 70% [MSF/F]
Dechua Palong 2	MUAC <12.0 cms [UNHCR]	wt/ht <80% or <70% [HKI]	wt/ht <80% or < 70% [MSF/F+GK]	wt/ht <80% or < 70% [HKI]
Haludia Palong	MUAC <12.0 cms [MSF/F]		wt/ht <80% or < 70% [MSF/F]	wt/ht <80% or < 70% [MSF/F]
Kutu Palong	MUAC <12.0 cms [UNHCR]	wt/ht <80% or <70% [HKI]	wt/ht <80% or < 70% [Concern]	wt/ht <80% or < 70% [HKI]
Balukhali 1	WT/HT <80% or <70% [MSF/H]	wt/ht <80% or <70% [HKI]	wt/ht <80% or < 70% [MSF/H]	wt/ht <80% or < 70% [HKI]
Dumdumia 2	WT/HT <80% or <70% [SCF]	wt/ht <80% or <70% [HKI]	wt/ht <80% or < 70% [SCF][82]	wt/ht <80% or < 70% [HKI]
Rural Bangladesh[83]		wt/ht <80% or <70% MUAC <12.5 cms [HKI]		
New Arrivals (Teknaf)	MUAC <12.5 cms [SCF]			
Summary	A variety of different measurements and cut off points were used.	All surveys were conducted by the same agency, using internationally recognised cut off points, which were also compatible with data available for rural Bangladesh.	All agencies were coordinated by UNHCR and therefore used standard cut off points to allow comparisons between camps and with earlier surveys. All surveys also included MUAC measurements.	All surveys were coordinated by UNHCR and used standard cut off points to allow comparisons. All surveys also included MUAC measurements.

[82] Dumdumia 1 & 2 were treated as one camp by the NGO responsible for screening, hence separate figures for each camp are not available. Only the combined figures used here.

[83] Source is the series of HKI reports concerning nutritional surveillance of disaster prone (cyclone affected) areas. This figure may not be representative of unaffected rural areas (see also section 3.3).

Interpretation:

* Various anthropometric measurements and indices were used between February and April 1992 to assess children < 5 years, eg mid upper arm circumference measurements [MUAC] versus weight for height [wt/ht] (Table 4.8). During the assessment period (February 1992), child malnutrition was defined by different agencies using a MUAC cut off point of <12.0 cms or MUAC <12.5 cms.

* From May, all surveys included both MUAC and wt/ht measurements at UNHCR's insistence, to facilitate comparisons between camps.

* As well as variations between organisations, there were variations within organisations eg MSF/F was involved in the assessments of both Dhua Palong and Haludia Palong but used different MUAC cut off points. This rendered direct comparisons between camps difficult[84].

* There was clear agreement regarding wt/ht cut off points with all agencies using <80 and <70% wt/ht (and/or oedema).

* It is highly likely that actual measurements were performed differently by the various NGOs as the surveys were not carried out by the same staff

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[84] MSF/F received visits from the MSF nutritionist seconded to UNHCR and visitors from their HQ in Paris. As a result, while 12.5 cms was used as a cut off in February and early March, they then followed the advice of their visitors and switched to 12.0 cms from mid-March to May. This advice seems to have been based on earlier published research carried out by Andre Briend in Bangladesh. Briend now acts as an advisor to MSF/F.

(staff changed). Equipment differed between organisations and staff had varying degrees of training. This is a commonly recognised problem (Macfarlane, 1995).

The rapid assessments (shown in Tables 4.7 and 4.9) were carried out by UNHCR in February and March. UNHCR conducted "random surveys with a proportional sample of households per density zone[85], the first household was chosen at random" (Brown *et al*, 1992/b p2).

Table 4.9 Sample sizes : rapid assessments (February - March 1992)

Camp surveyed by UNIICR	Sample size (children 6/12 - <5 yrs)	Population at time of survey[86]
Dechua Palong 1	38	2,649
Dechua Palong 2	203	17,327
Maricha Palong	37	5,000
Kutu Palong	87	6,000
Dumdumia 1	36	2,900

[85] Differentiation was made between densely and sparsely settled sectors of the camps.

[86] During the rapid assessment survey, estimates were made of population size. The method used was developed by Fred Cuny of Intertect (personal communication during Freds' visit to Bangladesh in 1992). The method was based on measurements of the surface area covered by the camp and small surveys were then carried out to assess the average population density per camp zone. Unfortunately this method is not published. Fred Cuny disappeared during a mission in Chechnya in 1995 and is presumed dead. At the time of the rapid assessments, GOB figures were unreliable because registrars were unable to keep pace with the rate of arrival (see also section 4.1) which meant that many refugees were unregistered and therefore uncounted at the time of assessment.

Interpretation:

* Sample sizes were generally small. Confidence intervals were not calculated but could be expected to be wide, thus limiting the potential utility of the results.

* The methodology was not clearly specified in the report (Brown 1992/b) so it is not known whether cluster or systematic random sampling was used. Cluster sampling is not as statistically reliable as systematic sampling, therefore larger sample sizes are generally required to allow for the design factor (Young and Jaspars, 1995 p47).

* Sample sizes do not appear to be based on expected malnutrition prevalence rates. Reliable population data are needed in order to produce a sampling frame (Young and Jaspars 1995, p44; MSF 1995). However the rapidly evolving situation meant that population figures were rapidly changing and hard to verify.

* The surveys conducted did not follow the WHO rapid assessment recommendations[87] (WHO, 1990/b p7), because sample sizes in three

[87] WIIO recommends that, for rapid assessments, a sample of 50 dwellings should be assessed in each camp, the methodology described, however, is systematic random sampling rather than the cluster sampling which was used by UNHCR (WHO 1990/b p7). Rough calculations show that this would probably yield about 60 children under the age of 5 years (assuming that an average household = six people and 20% of the population are under 5 years old). WHO goes on to recommend that "a cluster sample nutritional survey should be carried out as soon as possible (within two weeks) (ibid. p10) and systematic screening of new arrivals should be carried out at the border. The UNHCR rapid assessment failed to do the latter.

camps were too small. Neither did they appear to conform to any of the commonly recommended methods for nutritional surveys.

NGOs also conducted nutritional assessments in the refugee camps (Table 4.10).

Table 4.10 Sample sizes : assessments by NGOs (February - May 1992)

Camp and NGO[88]	Sample size and percentage of < 5 years population (estimated at 20% of total)	Population on date of survey, 1992[89].
Dhua Palong [MSF/F]	2,572 (103%)	12,450 (1/3)
Dechua Palong 1 [MSF/F]	379 (34%)	5,550 (6/2)
Balukhali 1 [MSF/II]	not specified	20,788 (1/4)
Dumdumia 2 [SCF]	1,021 (8.5%)	60,558 (5/4)
Nayapara 1 [MSF/II]	443 (?)	Figures not available, as camp not officially opened until 1/7/92 (9/5)

Interpretation:

* NGOs used larger sample sizes than UNHCR (confidence intervals would be narrower), or screened the whole child population as soon as possible after the camp opened (confidence intervals are not required).

* When Tables 4.9 and 4.10 are compared, they reveal that Dechua Palong 1 camp was surveyed by both MSF/F (on 6/2/92) and UNHCR (18/2) - a

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[88] Data are extracted from the report "The nutrition situation of Refugees from Myanmar in Bangladesh" by Smith, 1992.

[89] The figures used are the weekly statistics provided by the RRRC control room (see section 4.1). The date at the time of the survey, or immediately after, is used.

duplication of work, especially given the large sample size of the MSF/F survey.

* At the same time as the Dechua Palong 1 surveys, Adarshargram camp (which was receiving refugees from early February and was officially opened on 24 February, see Figure 4.2) was omitted from the UNHCR surveys, due to time constraints incurred in collecting data from the other camps. However it was in a different geographic and ecological zone, rendering it somewhat different to the camps assessed.

Agencies also selected different study populations at different times. These are summarised in Table 4.11.

Table 4.11 Study populations and ht/age criteria

Agency/Method/Index	Criteria	Date
UNHCR (Rapid Assessment:MUAC)	Children 6/12-5 years (Brown *et al*, 1992/b p4)	February-March 1992
HKI (Surveys:WT/HT & MUAC)	Children 6-59 months (Wijnroks *et al*, HKI, June 1992 p10 & 15)	May 1992
NGOs (Screening: MUAC & WT/HT)	Children <110 cms (Smith, September 1992 p7)	August/September 1992
HKI (Surveys: WT/HT & MUAC)	Children 6-59 months (HKI, December 1992, p2)	November/December 1992
CDC/UNHCR/NGOs/IPHN (Surveys: WT/HT & MUAC)	Children 60-100 cms (Diskett *et al*, December 1992 p12)[90]	November/December 1992

[90] There was concern that a high prevalence of stunting would lead to the inclusion of many children outside the target group, ie children 5-9 years old (Smith, September 1992). It was agreed that for the purposes of analysis, different height cut off points could be compared to those normally used (to assess the impact of stunting). However due to a misunderstanding, these cut off points (> 60, 77 cms (2 years), and < 100 cms respectively) were used to measure children during the surveys instead of the more usual cut offs (> 65, 85 and < 110 cms). This error was detected too late for any preventive action to be taken (Memo, 17/12). Therefore children <77 cms were measured lying down and those

Interpretation:

* MUAC surveys (Tables 4.8 and 4.14) often included children between six months and one year (in addition to the usual target group of one to five years), potentially biasing the results due to doubts about the validity of using this measurement for this age group.

* Because of the difficulties in ascertaining accurate ages, agencies often selected children according to height category eg >65 cms or <110cms (MSF, 1995 p43). However even these selection criteria were not commonly agreed.

* One series of surveys was carried out (November 1992, Table 4.11) using height measurements of >60 - <100 cms as selection criteria rather than 65 - <110 cms as earlier agreed (see Diskett *et al*, 1992)[91] while simultaneously, another agency [HKI] was conducting separate surveys using age admission criteria - despite numerous meetings and an agreement (in principle) to standardise procedures.

77-110 cms were measured standing. The international reference tables however use 85 cms as the lying/standing watershed as do both the widely used computer programmes developed by CDC (Epi Info and Epi Nut). The values are calculated accordingly (a child lying down is usually approximately 1 cm longer than the same child measured standing). This presented data analysis problems for children measured standing with height values between 77.1 cms - 84.9 cms. To use the data at face value would result in a systematic bias of wt/ht indices for this group. Adding 1 cm to the height of those children could facilitate analysis and interestingly it made a significant difference to overall malnutrition results, raising the malnutrition rate from 12% to over 18% in one camp (Memo from Diskett to CDC, Atlanta, December 1992).

[91] There was a misunderstanding at the last minute partly due to the illness of the survey coordinator.

* The use of height as a proxy for age can be problematic. Chronic under nutrition leads to stunting, which is most apparent in the two to five years age group. Using height as a cut off point therefore risks including older children who are over five years but stunted.

* In summary, indices, cut off points and study populations varied.

Different methodologies (surveys and screening) were also used at different times (Table 4.7 and Table 4.12) and were not necessarily comparable.

Table 4.12 Survey methodologies

UNHCR initially (February - March) used random surveys (the type and method were not clearly specified). Helen Keller International [HKI] (an NGO already working in Bangladesh), in contrast, carried out surveys in some of the same camps in May, and used a "multi stage cluster sampling method" (Wijnroks *et al*, HKI, June 1992 p10) measuring between 402 - 476 children in each of 5 different camps (ibid, p15). However it stated that "since the organisation of the camps varies from one to another, a different selection procedure was developed for each of the camps" (ibid, p10). As neither these procedures, nor the number of stages and clusters selected per camp, were specified[92], it is impossible to know what impact this might have had on the results or their interpretation. This is crucial as the number of clusters, rather than the number of children, is "the main determinant of the size of the confidence interval" (Young and Jaspars, 1992 p47). HKI confidence intervals were not stated in the report (Jorgenson, 1992, p114).

The final round of surveys occurred in November and December 1992. They were undertaken by NGOs and the national Institute for Public Health and Nutrition [IPHN] under the coordination of CDC and UNHCR. The organisations concerned had varying degrees of expertise in nutrition. The survey methodology therefore had to be designed in a way that even the least experienced agency would be able to do it with some limited support (Jorgenson 1992 p116-118). As the camps were laid out in a grid system, with rows or blocks of sheds and each family had an address, a systematic random sampling method was used, as this was simpler to operate than multi stage random sampling and generally smaller sample sizes are required as there is no need to allow for the design effect.

The different methods were discussed at various coordination meetings between August and November. HKI initially refused to consult with UNHCR and the MOH regarding methodology (Jorgenson 1992 p23). Eventually agencies, including HKI (LB, 13/8 and 16/10) agreed to cooperate enabling a total of 12 out of 20 camps to be surveyed (Diskett *et al*, December 1992 and Wijnroks *et al*, 1992/b). Yet HKI, despite agreeing to cooperate, repeated their earlier methodology, without clarifying the details[93]. The implications, for comparability, therefore still could not be assessed. A compromise was agreed; to use both methodologies (HKI and CDC/UNHCR) in the same camp (Kutu Palong) at the same time and to compare results directly. This plan however failed due to the emergency medical evacuation of the CDC epidemiologist supervising the survey. The CDC/UNHCR survey in Kutu Palong collapsed in disarray and the data could not be used (Memo, 17/1).

Interpretation:

* Comparison of methodologies was hampered because basic information was not specified in survey reports or shared by individuals and therefore not widely available to facilitate interpretation of reports.

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[92] A meeting with HKI failed to resolve this problem. I was informed that in each camp 20 - 24 sheds were surveyed (each shed is divided into 8 - 12 family units). However HKI refused to share the "operational tool" (guidelines used by staff) so this claim, and the shed selection method, could not be verified (LB, 7/7). The reasons for this unwillingness to cooperate were never clear.

[93] We can only speculate as to the reasons, however it appeared that HKI's priority was to produce data comparable to some of its recent surveys in other parts of Bangladesh which had been published in international journals. It was less interested in the needs of the refugee programme per se.

* Despite frequent attempts at coordination, problems of failed cooperation persisted throughout the study period. Some agencies' own interests appeared to take precedence over the needs of the MOH and UNHCR. Conversely, it could be argued that UNHCR and the MOH failed to adequately consider the needs of individual NGOs.

* Calculations of the mean wt/ht of the study population and confidence intervals would have facilitated comparisons, but generally these were not calculated or reported on.

So why did these problems persist? Problems can be partially explained by looking at the skills and experience of key staff (Table 4.13).

Table 4.13 Training and support issues

Initially there were few staff present with nutrition survey or surveillance experience (IINMC Mins, 8/3/92) although most were able to manage simple MUAC screening. Temporary nutritionists visited and advised (from UNHCR, MSF/F, MSF/H and SCF) but they then left the district or country so there was only limited training or follow up for staff. As a result, the quality of work was extremely variable (eg NGO staff were poorly supervised using different equipment, various measuring techniques and had different levels of individual expertise etc). No expertise was available within the MOH apart from a few staff in IPHN (Dhaka) who had no emergency nutritional surveillance experience. There was a lack of guidance and reinforcement from UNHCR and the MOH. A nutritionist was not deployed by UNHCR until June (Smith, 1992), 5 months into the relief programme. Until that point, the UNHCR Health Coordinator was also expected to fulfil this role. The "health" related work load was too great to allow adequate attention to nutrition in the absence of a Refugee Health Unit or suitably experienced MOH nutritionist/counterpart.

Nutritional surveillance data: conclusions

Different survey or assessment methodologies were used at different times. The choice depended on the time available, capacity and interests of the NGO and knowledge/skills of individuals. There was a shortage of trained experienced staff especially at the beginning. This was later to be shown as being of critical importance as by May, agencies had developed their own (often flawed) methods of working. Once established it was difficult to persuade them to change.

While these surveys provided a useful snapshot of nutrition status in a particular camp at a specific time, comparability and validity were compromised by the different techniques used and (often unspecified) sampling methods. An age/sex breakdown of the data was often not given in the survey reports. A study population biased towards younger children (which are more prone to malnutrition) would give a higher (biased) malnutrition rate. Confidence intervals were often not given in reports.

Individual preferences and behaviour remained important factors. For example, the influence of a visiting nutritionist from the headquarters of a French agency was significant in changing MUAC cut off points in the middle of the assessment period (see the interpretation of Table 4.8 and associated footnotes). The preferences of some NGOs led to a failure to follow agreed guidelines. The result was a lack of standardisation between agencies. Neither UNHCR nor the MOH

had sufficient influence or power to enforce unwilling NGOs to comply with standard agreed guidelines and policies.

However despite its limitations this was the only nutritional data available, which had the potential to be used to influence change (Chapter 6). Data presented here (in sections 4.4.2 - 4.4.5) simply reflect the availability of data, allowing rough comparisons or contrasts over a specific time period.

4.4.2 Nutritional status: global rates of malnutrition

Two different indices (MUAC and wt/ht) were used and are presented here.

Table 4.14 Nutritional status data showing the percentage (%) of children < 5 yrs with a MUAC of < 12.5 cms during 1992. [94]

No	Camp	Feb - April (RAP and screening)	May (surveys)	July (screening)	Nov (surveys)
1	Adarshagram				
2	Dhua Palong	12.5%		46%	13.4%
3	Dechua Palong 1	28.8%			
4	Dechua Palong 2		21.2%		12.4%
5	Maricha Palong				
6	Haludia Palong				19.4%
7	Jumapara			8.33%	
8	Shailer Daba				
9	Kutu Palong		28.4%		8.3%
10	Gundhum 1		42.9%		10.3%
11	Gundhum 2				15.8%
12	Gundhum 3				18.0%
13	Balukhali 1		31.8%		8.30%
14	Balukhali 2				16.2%
15	Horikhola				15.0%
16	Rongikhali				
17	Nayapara 1				23.5%
18	Nayapara 2				
19	Dumdumia 1[95]	30.5%			
20	Dumdumia 2	30.5%	46.6%		18.3%
	Teknaf (new arrivals)	17.7%			
	Rural Bangladesh		12.7% (1991)		

[94] Blank cells in this and the following tables indicate that data are not available.

[95] Data from Dumdumia 1 and 2 were amalgamated at this time as the camps were adjacent and merged into each other. The boundaries were not clear.

Interpretation:

* It is difficult to draw firm conclusions from the information in Table 4.14, due to the weakness of the data and absence of confidence intervals. However camps which have three out of four data entries available for analysis show a deterioration in nutritional status from February until May or July, followed by an improvement.

Table 4.15 Global nutritional status (% of children <5 years who are <80% WT/HT)

No	Camp	Feb - April (RAP and screening)	May (surveys)	July (screening)	Nov - Dec (surveys)
1	Adarshagram				
2	Dhua Palong			36.37%	4.4%
3	Dechua Palong 1			33.3%	
4	Dechua Palong 2		13.1%	16.13%	4.4%
5	Maricha Palong			37.0%	
6	Haludia Palong			45.13%	6.3%
7	Jumapara				
8	Shailer Daba			26.9%	
9	Kutu Palong		20.4%	16.37%	7.5%
10	Gundhum 1		39.7%	23.10%	8.8%
11	Gundhum 2			26.64%	8.6%
12	Gundhum 3				6.3%
13	Balukhali 1	11.10%	24.8%	13.28%	10.8%
14	Balukhali 2			9.7%	8.1%
15	Horikhola				13.9%
16	Rongikhali				
17	Nayapara 1		28.6%	14.37%	8.6%
18	Nayapara 2				
19	Dumdumia 1	26.6%		19.04%	
20	Dumdumia 2	(26.6%)	31.9%	(19.4%)	9.9%

Interpretation:

* The only camp with complete data in Table 4.15, is Balukhali 1. The data suggest that nutritional status declined from the period when the camp opened (March) until May but had slightly improved by July. Data from Kutu Palong, Gundhum 1, Nayapara 1 and Dumdumia 2 appear to confirm this view, but in Dechua Palong 2, malnutrition rates appeared to increase between May and July (although no survey confidence intervals are available to assist with the interpretation of results, so results should be interpreted with caution).

* This apparent slight improvement in July could partly be explained by high mortality rates. However, as mortality rates also showed an improvement from early July, this is arguable.

* This apparent improvement however also occurred before the expanded supplementary feeding programme got fully underway (screening for this programme occurred from mid July to September). But, like the mortality data, it seemed to coincide with rapid improvements in sanitation in July and August (see Table 5.2/B and Kaojaroen, 1992/b). However whether there is a true relationship between improvements in sanitation and improvements in nutritional status is arguable, as the poor quality of the data (absence of confidence intervals in the May surveys) does not support

closer scrutiny. This is however a crucial area which deserves further research, as it could lead to a modification of priorities.

4.4.3 Nutritional status: severe malnutrition

Table 4.16 Rates of severe malnutrition (children <5 years who are <70% wt/ht &/or oedema)

No	Camp	Feb - April (RAP)	May (surveys)	July (screening)	Nov/Dec (Surveys)
1	Adarshagram				
2	Dhua Palong			2.8%	0%
3	Dechua Palong 1			2.6%	
4	Dechua Palong 2		1.1%	1.8%	0.1%
5	Maricha Palong			2.0%	
6	Haludia Palong				0.2%
7	Jumapara				
8	Shailer Daba			5.3%	
9	Kutu Palong		2.7%	2.2%	0.1%
10	Gundhum 1		5.0%	3.5%	0.1%
11	Gundhum 2			8.6%	2.6%
12	Gundhum 3				1.1%
13	Balukhali 1	1.1%	2.4%	1.3%	0.7%
14	Balukhali 2			0.7%	1.55
15	Horikhola				10.5%
16	Rongikhali				
17	Nayapara 1		2.9%	1.9%	0.8%
18	Nayapara 2				
19	Dumdumia 1	8.6%		0.7%	
20	Dumdumia 2	(8.6%)	3.6%	(0.8%)	1.0%

Interpretation:

* The prevalence of severe malnutrition, as shown in Table 4.16, appears to have increased between March and May in Balukhali 1 camp (the only data available for that period). Severe malnutrition rates then appear to decline between May and July (except again in Dechua Palong 2). The findings therefore correlate with the global malnutrition rates in Table 4.15 and mortality rates (shown in Figure 4.6), confirming the links between malnutrition and mortality.

4.4.4 Malnutrition rates: comparisons with feeding programme data

The feeding programme data had the advantage that reports showing the number of recipients registered were produced on a regular monthly basis (as opposed to surveys and/or screening, which were conducted periodically). Feeding programme data (from July onwards) were based on admission criteria of <70% wt/ht and/or oedema (therapeutic) and 70-80% wt/ht (supplementary)[96]. Children remained in the programme until they were discharged at 75% and 85% wt/ht respectively.

Nutrition survey data were analyzed using 70% and 80% wt/ht cut off points, hence direct comparisons between numbers in the feeding centre and survey results

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[96] Although from February to May, despite guidance from workshops organised by UNHCR and GOB, some agencies would only admit children <75% wt/ht as per guidance from their HQ and due to lack of sufficient staff and resources to "wet" feed a bigger target group.

(checking for coverage and utilisation) were not immediately possible, although in some cases these could have been calculated from the raw data. However one agency (SCF, working in Dumdumia 1 and 2) persisted in using its own feeding centre discharge criteria (>70 % and >80%) which enabled direct comparisons between survey results and feeding programme data to be made within those two camps but not with neighbouring camps.

While direct comparisons between the two data sets were of limited value (due to the constraints described above), it was theoretically possible to monitor trends via feeding centre data.

Table 4.17 Summary of feeding programme beneficiaries and trends: January 1992 - January 1993 (Smith, 1992; Diskett, 1992/b and 1993/b)

Month	Camp pop.[97]	Therapeutic feeding	Supplementary feeding programme[98]			Total
			Children	Pregnant or Lactating	Others	
JANUARY 1992						
FEB	c30,000					
MARCH	151,711					
APRIL	208,750					
MAY	256,186	1,292	3,931			5,223
JUNE	269,861	1,642	3,752			5,394
JULY	264,887	1,533	4,884			6,417
AUGUST	264,196	1,901	14,261			16,162
SEPT	250,777	1,128	10,650	2,236	1,254	15,268
OCT	250,665	839	12,776	2,474	1,333	17,422
NOV	249,780	616	10,375	2,496	1,154	14,641
DEC[99]	246,477	466	7,892	2,846	1,147	12,351
JANUARY 1993	236,146	384	6,301	2,649	852	10,186

Interpretation:

* Table 4.17 shows that the peak attendance at feeding centres (17,422) was reached in October. However the nutrition surveys (Wijnroks *et al*, 1992/a) suggested a nutritional crisis much earlier in May associated with a mortality crisis in June/July. The evidence suggests that this increase in

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[97] When the population figures were rapidly changing, the mid month averages are used.

[98] These figures shows the numbers registered at the end of each month.

[99] The drop in numbers this month is mainly from specific camps and appears to be due partly to repatriation.

attendance was due to better coverage and reporting following the mass screening exercises in July - September) rather than a "real" increase. This argument is supported by the nutritional survey and mortality data. Therefore if malnutrition rates had peaked in October (as suggested by the feeding centre data), mortality rates could also have been expected to mirror this peak. The fact that they did not supports the improved coverage theory.

* This analysis suggests that the sensitivity of feeding centre data in detecting changes in nutritional status, is poor primarily due to problems of coverage.

As May was clearly a key month, survey data are compared to feeding centre data (within the limitations described above) to assess if coverage was in fact a key issue as suspected (Table 4.18).

Table 4.18 Survey results and feeding centre data: May 1992

Camp	Survey results (<80% wt/ht)	Feeding centre totals (<85% wt/ht)	Camp population[100]	Number expected in feeding centres[101]	% attending of those eligible
Dechua Palong 2	13.1%	1,279	22,329	580	220%[102]
Kutu Palong	20.04%	106	12,768	512	20.7%
Gundhum II	39.7%	588	57,886	4,596	12.8%
Balukhali 1	24.8%	510	21,010	1,042	48.9%
Dumdumia 2	31.9%	1,151[103] (744)	47,357	3,021	24.6%

Interpretation:

* Coverage generally appears low, especially in Gundhum 2, which had the highest malnutrition rate. The average coverage of eligible children < 5 years (excluding data from Dechua Palong 2 as this includes others in addition to the target group) is only 26.75%. The real figure is much lower, as the feeding centre figures included a larger target group, those up

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[100] The population figures are those used by HKI to plan their sampling frame for the surveys. They were based on figures provided by the RRRC.

[101] This figure is calculated by taking the camp population and calculating the number of children <5 years old (estimated at 20% of the total). The malnutrition rate of children < 5 yrs (survey data) is then used to estimate the number of children under < 5 years who were eligible).

[102] Two NGOs (GK and MSF/F) were operating feeding programmes within the camp. While MSF/F generally used agreed criteria, GK tended to use clinical judgements rather than anthropometric measurement and also registered (healthy) relatives of the malnourished. Hence the figures of those attending are inflated as they include others who are >80% wt/ht. In addition, there was inevitably overlap between the two organisations as some clients were double registered.

[103] The data provided by SCF included beneficiaries from both Dumdumia 1 and Dumdumia 2, yet survey data covered only Dumdumia 2. As the camps were geographically and environmentally similar and started within two weeks of each other, it is assumed that malnutrition rates were similar in both camps. The population of Dumdumia 1 was less than that of Dumdumia 2 (26,961 versus 47,357). Dumdumia 2 therefore contained 64.6% of the total population. For the purposes of this analysis, it is assumed that 64.6% of feeding centre beneficiaries came from Dumdumia 2 camp. Therefore both the combined (and adjusted) figures are shown in the Table, but the latter figure is used for calculating coverage.

to 85% wt/ht. Further analysis cannot be done as the numbers falling between 80 - 85% wt/ht are not known.

* There are problems when comparing survey and feeding centre data. The potential utility of the latter data set is limited by low coverage of the population, confounding variables (eg admission campaigns) and differing admission and discharge criteria between NGOs. Therefore both sensitivity and specificity are poor.

* Interestingly, the HKI surveys in May (Wijnroks *et al*, 1992/a) found that the average admission rate to a feeding centre was 26.5% of those eligible. This figure is remarkably similar to that calculated in Table 4.18 and therefore confirms the poor sensitivity of feeding centre data.

4.4.5 Nutrition data: summary

The differences in data collection methods, indices and cut off points, combined with the poor sensitivity of the feeding programme data, seriously hampered the analysis and use of this data at district level to identify priorities and target specific camps. Data use is discussed in more detail in section 6.3.

4.5 Morbidity Data and Chaos

Section 4.3 examined mortality in the refugee camps and identified the leading causes of death. This section analyses the morbidity data and identifies the leading causes of ill-health.

Table 4.19 Proportional morbidity: causes

Disease	Total treated <5 years	Total treated > 5 years	Total treated
diarrhoea	114,634 (15.8%)	159,547 (13.6)	274,181 (14.4%)
dysentery	38,058 (5.3%)	59,160 (5.0%)	97,218 (5.1%)
ALRI	86,383 (11.7%)	96,795 (8.2%)	183,178 (9.6%)
malaria	30,982 (4.3%)	53,599 (4.7%)	84,581 (4.4%)
measles	1,889 (0.3%)	1,930 (0.2%)	3,819 (0.2%)
others	457,471 (62.6%)	804,612 (68.5)	1,262,083 (66.3%)
Total	729,417 (38.3%)	1,175,643 (61.7%)	1,905,060 (100%)

Interpretation:

* Table 4.19 shows that 38.3% of consultations were for children < 5 years and the remainder (61.7%) for those of > 5 years. But note that the mortality data showed that mortality rates in the < 5 year category are up to three times greater than those recorded in over the > 5 years group (Figure 4.7). Is the same true of morbidity data?

* When consultation rates are compared, the < 5 yr rate[104] is 0.06/10,000/week or 6/100/week and the > 5 yr rate[105] is 0.006/10,000/week or 0.6/100/week. Therefore children < 5 yrs were ten times more likely to visit a clinic than those > 5 years. There are many possible explanations including a greater exposure to communicable diseases in the younger age group or a family preference to visit a clinic[106].

* A high rate of morbidity was recorded. Each refugee averaged nearly eight (7.62) clinic visits during the 48 week period with an average of one illness episode every six weeks. Children < 5 years made 14.8 visits in 48 weeks or rather one visit every three weeks and those > 5 years made almost six (5.8) visits in 48 weeks which is equivalent to one visit every eight weeks. These high rates of consultation are slightly lower than those recorded in one camp during the 1978/79 crisis when, over a ten month period (43 weeks) each refugee averaged nearly ten (9.8) visits (Khan and Munshi, 1983) which equalled one illness episode every 4.4 weeks. The 1978 rates were considered to be "unusually high" in the Bangladesh context as are the 1992/3 rates.

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[104] 0 - 5 yrs consultations = 729.417 and population = 250,000. The denominator = 50,000 (20% of 250,000). Therefore 729,417/50,000 = 14.6 consultations per child in 48 weeks = 0.3/visit per child/week. The consultation rate = 0.06/10,000/week.

[105] Morbidity rate > 5 yrs is calculated as follows. Denominator = (250,000 - 50,000 children < 5 yrs) = 200,000. Therefore 1,175,643/200,000 = 5.8 consultations person in 48 weeks = 0.12/visits/week. The consultation rate = 0.006/10,000/week or 0.06/1,000/week or 0.6/100/week.

[106] It was suggested that morbidity rates were high in the camps as a) stress levels were high following the exodus to Bangladesh and during GOB attempts at repatriation and b) because there was little else to do at times in the camp as income generating, education, marketing and social activities were banned. Visiting a clinic was a way of alleviating the boredom.

* The high consultation rate in children under 5 years, coupled with a higher death rate for children than adults suggests that many children may not receive appropriate clinical care or possibly attended a clinic too late for treatment to be effective.

* Note that ALRI in children only accounted for 11.7% of consultations but was responsible for 37.2% of deaths (Table 4.5) suggesting that many did not seek treatment for this common complaint. It also suggests that relief workers failed to adequately address the problem.

* The main illnesses diagnosed (total treated) were diarrhoea and dysentery, which together accounted for 19.5% of all consultations, followed by ALRI (9.6%) and malaria (4.4%). The distribution of diseases was similar in both age group categories. This pattern is similar to that described in many other refugee emergencies (Toole and Waldman, 1990 and 1993; Burkholder and Toole, 1995).

* During the 1978/79 crisis, a retrospective study of one camp showed that 60% of all illness was due to diarrhoeal disease alone and was attributed to water contamination, congestion and insanitary conditions (Khan and Munshi, 1983). By contrast, in 1992/3, diarrhoeal disease (over a similar ten month period but covering 20 camps) accounted for < 20% of illness episodes, a notable difference which may be related to the investment on

this occasion, in protecting water sources and improving sanitation (see Table 5.2/B, August).

* Interestingly measles accounted for only 0.2% of consultations (a total of 3,819 cases). Figures are not available for 1978/79 but it is widely acknowledged that a measles epidemic was responsible for high mortality and morbidity rates between November and December 1978 (Aall, 1979). The fact that only 0.2% of consultations (Table 4.19) and 0.1% of deaths (Table 4.5) were attributed to measles should be regarded as a major achievement.

* 66.3% of all consultations fell into the category "other", which included cases of fever which accounted for 10.5% of total consultations (Table 4.20).

Table 4.20 Morbidity: Fever

Disease	<5 yrs	>5 yrs	Total cases
Fever	87,914	113,550	201,464
Fever (% of total visits)	12%	9.6%	10.5%

* It is therefore possible that the proportion of visits attributed to malaria was higher than the 4.4% shown in Table 4.19 as some cases of malaria may have been diagnosed as "fever" (Table 4.20).

* From Table 4.19, it is also useful to know which diseases are classified as "others". With so many cases in this category (66.3% of all consultations) there is a risk of missing something of major public health importance. A detailed breakdown of cases attributed to "others" is limited by differences of recording before and after the arrival of CDC (June - July 1992). But further analysis of the "others" (March - July 1992) shows that of 185,628 "other" visits, 19.3% (35,799) were attributed to intestinal parasites, 17.5% (32,429) to fever, 12.3% (22,867) to skin diseases and 5.5% (10,196) to nutritional problems[107]. These accounted for over half (54.6%) of the total "others" cases. No cause was specified for the remaining 45.5%.

Morbidity data - conclusions:

For future refugee HISs, it is desirable to include fever, parasites and skin diseases on the report forms as separate categories. This would improve the sensitivity of the system and reduce the number of diseases reported as "other". It should also help to reduce the risk of missing an event of major public health importance such as scabies, which was widespread and responsible for the majority of the early reports of skin disease. Infected scabies lesions were later implicated as a possible causal factor in an outbreak of renal disease (Table 4.2/C). The public health

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[107] Nutritional disorders were removed from the later reporting forms (July onwards) due to problems of diagnosis. Often a child presenting with malnutrition would also be suffering from another disease eg diarrhoeal disease or ALRI. The health workers experienced difficulty with the reporting forms when a multiple diagnosis was made. From July onwards, all cases were referred to the feeding programmes and malnutrition was therefore reported via an alternative route.

significance of scabies was under-estimated. Inclusion of "other" conditions (especially "fever") will also help expose the possible under- reporting of malaria.

4.6 An Epidemiological Model

While demographic data were (eventually) of reasonable quality, initial problems were encountered. These were due to rapid (often unrecorded and unpredictable) population movements during the acute arrival phase of the emergency. At the same time, the HIS was barely functioning (problems were not resolved until July 1992), mortality was under-reported and nutrition data were not standardised, hampering comparisons between camps. The quality of data generated through the HIS was also open to question (see Annex 2).

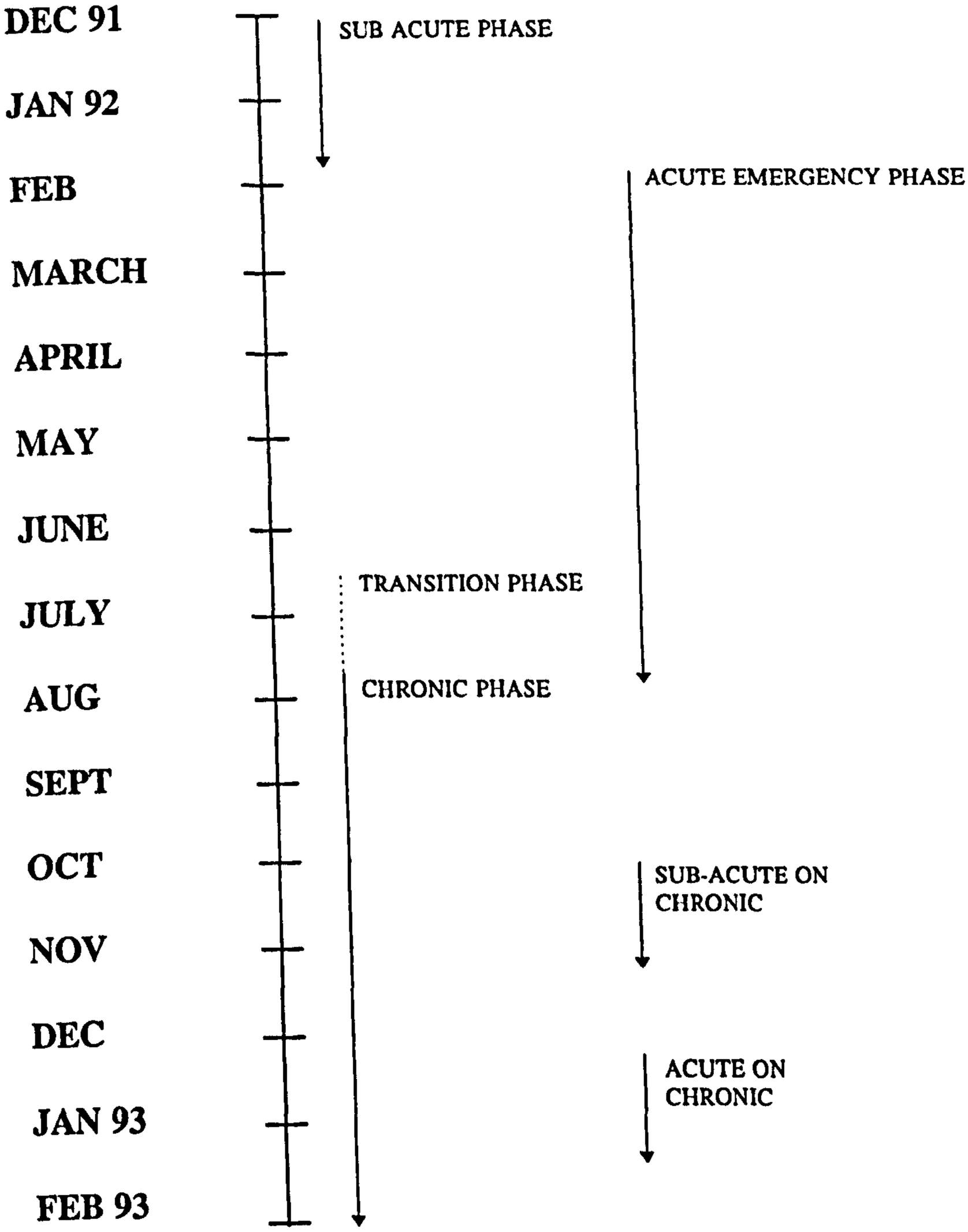
An epidemiological approach was tested out, using the data presented in this thesis, with the limitations described above. Despite the many short-comings, these were the only data available to decision-makers at the time.

By persistently pursuing an epidemiological approach, a considerable quantity of epidemiological data was generated. In the course of data collection, it was also possible to identify those characteristics of a PDE which are obstacles to data collection, analysis and data use. These obstacles prevented decision-makers (including myself) from methodically gaining the full benefit of the epidemiological approach.

In addition, the analysis and use of epidemiological information allowed trends to be identified, first, in a fairly timely way and second, retrospectively. It illustrated where failure to use an epidemiological approach had a negative effect on the health status of the refugee population. It did however also appear to influence some decision-making positively with direct health benefits for the refugees. The use of the epidemiological approach is evaluated more fully in Chapter 6.

The analysis of the chaos observed from an epidemiological perspective, was extremely useful. Themes and trends were identified. These findings are used to develop an epidemiological model of the PDE in Bangladesh (Figure 4.10).

Figure 4.10 An epidemiological model of a PDE



- SUB ACUTE PHASE - Arrivals are in a reasonable condition - average CMRs and malnutrition rates

- ACUTE EMERGENCY PHASE - Deteriorating situation (CMRs and malnutrition rates ↑, rate of arrival ↑)

- CHRONIC PHASE - CMRs and malnutrition rates at acceptable levels but high level of morbidity

- SUB ACUTE ON CHRONIC - seasonal (diarrhoea related) increase in CMR/0-5MR

- ACUTE ON CHRONIC - acute pockets of need (eg transit camps) within apparently stable situation

Interpretation:

* From the epidemiological viewpoint, a worrying situation (a sub-acute phase) deteriorated into an acute crisis (acute emergency phase). This acute phase was marked by rising death and malnutrition rates.

* The acute emergency phase was then transformed as mortality and malnutrition rates fell (the transition phase). It was followed by a period of relative stability (the chronic phase).

* Even during period of relative stability, there were some variations in mortality and morbidity rates. A seasonal, diarrhoea related, peak in mortality was observed in October (a sub-acute on chronic phase).

* Some camps also remained in an acute phase longer than others - after the apparent transition to stability (an acute on chronic phase).

* Note one marked similarity to the demographic model (Figure 4.5); phases do not necessarily follow sequentially. They may occur concurrently. Acute areas of need may be partially hidden within the overall confused picture.

In summary:

The epidemiological approach is very useful in exposing and identifying overall patterns, trends and needs. The process of using the approach for decision-making, in order to seek practical solutions to problems, is analyzed in Chapter 6.

CHAPTER 5

Political and Managerial Chaos

Chapter 5

Political and Managerial Chaos

"Everyday I think about dying,
about disease, starvation,
violence, terrorism, war,
the end of the world,
It helps keep my mind off things."
Survivor, Roger McGough, 1979

5.0 The Political and Managerial Perspectives

Chapter 4 looked at chaos from the epidemiological viewpoint and examined demographic chaos, health and nutritional status. This chapter follows a similar pattern but examines chaos from political and management perspectives; the subsequent analysis facilitates the development of political and managerial models of emergencies. These two chapters taken together complete the context in which the epidemiological approach and evidence-based decision-making were tested out (see Chapter 6). This chapter is organised as follows:

Section 5.1 Political chaos

Section 5.2 Managerial and organisational chaos

Section 5.3 What was the nature of chaos and does chaos matter?

5.1 Political Chaos

The international relief effort gathered momentum in February 1992, with the arrival of UNHCR. It attracted local and international media interest as well a significant levels of funding (channelled via UNHCR). While assistance was initially freely given by the GOB, the authorities always insisted that the refugees' stay was only temporary and that repatriation should occur as soon as possible. The refugees, however, were less than enthusiastic about repatriation. These differing perspectives led to a complex and changing political environment, as summarised in Tables 5.1/A - 5.1/C below.

This section examines the political changes which took place and is sub-divided as follows:

5.1.1 Political influences on relief activities: December 1991 - June 1992

5.1.2 Political influences on relief activities: July - September 1992

5.1.3 Political influences on relief activities: October 1992 - February 1993

5.1.4 Interactions: UNHCR, GOB and the media

5.1.5 Political chaos: an interpretation

5.1.1 Political influences on relief activities: December 1991 - June 1992

The refugees were initially welcomed in Bangladesh, but as their numbers increased, care changed to concern over their likely length of stay. There was a fundamental difference of opinion between the GOM and GOB concerning their legal status (Table 5.1/A, January and March 1992).

The GOB insisted that the Rohingyas were entitled to refugee status. Myanmar, on the other hand, insisted that the refugees were illegal Bangladeshi immigrants who had been expelled back to their homeland. Myanmar's intransigence on this issue of nationality only increased GOB's fears that the problem could become permanent. These fears led the GOB to develop a policy aimed at early repatriation (see April 1992). The refugees themselves were too afraid to return (especially as others were still arriving).

Table 5.1/A Political chaos: January - June 1992

Political Chaos Monthly Summary 1992		
November 91 - January 1992	**February**	**March**
In November UNHCR approaches GOB to seek assurance that refugees will be treated according to international humanitarian standards. In December UNHCR officially offers assistance to the GOB Prime Minister. GOB declines GOM insists that the displaced are not refugees but expelled illegal immigrants. Arguments continue over their legal status. BDRCS launches its own international appeal for funds	GOB invites UNHCR to assist the refugees (13/2) and UNHCR deploys Rapid Assessment Team (UNHCR press release 14/2) UNHCR allocates $1.5 million from its emergency fund (soon to be increased to $2.7 million) GOB appoints Refugee Relief and Repatriation Commissioner [RRRC] to coordinate activities in Cox's Bazar District Refugees receive some assistance from the local population (Memo, 8/3)	UNHCR launches an appeal of $27.5m based on rapid assessment report (*Daily Star*, 11/3). Visit to Bangladesh by the UN Humanitarian Relief Coordinator to open negotiations with Myanmar for a peaceful settlement GOB insists the arrivals are refugees from Myanmar and not expelled returning illegal Bangladeshi immigrants, as the Myanmar government claims (GOB Press release 12/3 and *Daily Star* 13/3). International media reports the influx (*Observer* (UK), 22/3, p13)

Political Chaos Monthly Summary 1992		
April	**May**	**June**
Joint statement by GOB and GOM on the repatriation of refugees to Myanmar is released- but the influx continues. Lists of those registered in the camps are submitted to the Myanmar authorities in anticipation of repatriation (*New Nation*, 27/4; *Daily Star*, 26/4) UNHCR is neither a party to the discussions nor a signatory to the agreement Friction over land rights between local lease holders and refugees (RRRC Mins 30/4)	Bilateral agreement on repatriation signed between GOB and GOM. GOB starts promotion campaigns in the camps for "voluntary" repatriation: MOHA insists refugees must go home[108] Report accuses Myanmar Government of systematic human rights abuses and ethnic cleansing of the Rohingyas (*Asia Watch*, 7/5) Anxiety grows: refugees insist that it is not safe to return and issue a declaration demanding international monitoring presence in Myanmar as a condition for their return. GOM refuses to consider this option stating that it is unnecessary. MOR insists that *"we have to trust the Myanmar Government ...there is no question of a repeat of what happened in the past"* (LB, 27/5) Curfew imposed in the camps (LB, 28/5). 1 refugee is killed and 1 injured by security forces following repatriation promotion campaign and subsequent unrest in Balukhali 1 [BK1] camp	Some Agencies prevented from expanding feeding programmes to cope with an increase in malnourished children (LB, 29/5 & 1/6). RRRC states that *"refugees are too comfortable here"* (LB, 1/6) Local residents increasingly hostile towards refugees as local market prices disrupted (RRRC Mins, 4/6). Camp markets and some UNHCR offices closed by GOB (LB, 3/6, 7/6) Pressure on WFP by GOB to cut food rations for children under 12 years (Memo, 18/6). Attempts by GOB to discredit the HKI nutrition survey report[109] (LB, 18/6) International Panel of Experts [POE] meeting convened by UNHCR in Dhaka to discuss the deteriorating nutrition and health situation in the camps. POE Report (eds Bhatia and Diskett, 1992) discussed. MOR endorses recommendations with reservations, *"repatriation should be as quick as possible/we will not support hindrances"* (LB, 29/6) Refugee leaders arrested for "anti repatriation" activities. Refugees demonstrate (Memo, 19/6). Security forces open fire on refugee crowd at Kutu Palong [KP] camp, 2 killed, 5 injured (LB, 19/6)

[108] Divisional Commissioner for Chittagong (one of four powerful Commissioners in the country, reporting to the Ministry of Home Affairs [MOHA]) states publicly that *"we will be able to send some back soon"* and that *"Myanmar is looking forward to having her lost children back"* (LB, 27/5). The Minister for Relief stated at the same meeting that *"If you press a lemon for too much, too long, it will be bitter...how long can we have them here?"* (LB, 27/5).

[109] The report showed high levels of malnutrition (see Chapter 6 for a full discussion). It was politically embarrassing for the GOB to be seen to be reducing food rations at a time when malnutrition rates were, in some camps, over 30% (<80% wt/ht). Yet a reduction of food rations was seen as essential to persuade the refugees to repatriate. Similar tactics had been used in 1978/9 (Aall, 1979).

In one sub-district (Ukhiya Thana) refugees soon numbered over 100,000 (April 1992), equalling, and eventually exceeding, the local population. Land shortage was a pressing issue. By April and May 1992, concern had been replaced by increasing hostility between refugees and villagers over complaints of price rises (mainly for fish and vegetables) in the local markets, pushing these commodities beyond the reach of the poorer villagers. Tensions rose.

Local businesses, land owners and politicians however stood to gain considerably from the refugees' presence - at least in the short term[110], although their role (and influence) in the relief effort was not openly acknowledged. The refugee presence was perceived to be disrupting both national security and the local economy. In short, the GOB decided that the refugees had to go home as soon as possible.

Interpretation:

* The refugees were less powerful than other key actors; their situation depended on the continuing goodwill of the host government and local population. The divergence of views between GOB and refugees over repatriation therefore signified a major change in the political climate (see also Chapter 6), and hampered NGOs' ability to operate in the camps (see also 5.2).

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[110] By selling corrugated iron sheets and other commodities on a large scale to those implementing the relief programme, buying lentils and rice cheaply from the refugees, renting land and receiving compensation from UNHCR, gaining local political support by appearing to disapprove of the refugees' presence etc.

* There was a relative "honeymoon period", between February and late April. The period from late April to the end of June was marked by increasing tension in the camps and a divergence of aims (or rather a "cooling off" period) between the key actors. There were competing priorities.

* This "cooling off" period culminated in violence, leading to refugee deaths and attempts by GOB to reduce the level of services in the camps.

5.1.2 Political influences on relief activities: July - September 1992

In early July, the GOB suddenly approved expansion of key NGO activities in the camps; an apparent reversal of its earlier position (Table 5.1/B). Repatriation promotion activities, however, continued.

This apparent change of policy can be partly explained by the onset of the monsoon (when repatriation movements would be more difficult) combined with international pressure following the Panel of Experts [POE] meeting (see Table 5.1/A, June). The GOB did not want to be publicly accused of allowing refugees to die (through failing to respond to high mortality and malnutrition rates). It wanted to keep refugees alive, but not so comfortable that they would wish stay in Bangladesh.

Table 5.1/B Political chaos: July - September 1992

Political Chaos Monthly Summary 1992		
July	**August**	**September**
GOB (MOR) finally accepts the need to expand health and nutrition activities in the camps but GOB (Ministry of Home Affairs [MOHA]) tries to discredit the CDC health report showing high death rates and bans active surveillance of deaths in the camps, only accepting MOH (passive reporting) figures which were much lower (Brent Burkholder, CDC personal communication). See also Chapter 6 Security forces again open fire to disperse protesting refugee crowds in Adarshargram (1 killed, 2 injured). In Balukhali 1 camp, 3 refugees contemplating a voluntary return home are killed by some "anti-repatriation" refugees	Security forces open fire again on protesting refugee crowd. 3 refugees killed and 7 injured in Haludia Palong (LB, 18/8). Refugees secretly pass letters to UNHCR and CDC staff, accusing GOB staff of arresting and imprisoning refugee leaders who refuse to cooperate over repatriation (LB, 25/8) Accusations appear in national press that "terrorist" refugees and NGOs are establishing their bases in the camps (*Courier*, 14/8; *Sangbad*, 21/8) and NGOs are advising refugees against repatriation (*Banglabajar*, 18/8). These accusations were linked to reports that the UNHCR representative would be made persona non grata (*Banglabajar*, 18/8) Refugees are accused of disrupting the economy and degrading the environment (*Daily Inqilab*, 21/8)	More reports in national press concerning environmental damage caused by refugees and their high consumption of fuel wood (*Daily Star*, 6/9) First repatriation movement takes place without UNHCR involvement. Refugee anti-repatriation demonstrations continue for several days in the camps (LB, 24/9, 26/9; *Telegraph*, 27/9, 3/10) Security forces open fire in Dhua Palong (3 killed) and an estimated 200 refugees arrested (LB 25/9) Relations between GOB and UNHCR reach an all time low and UNHCR protests to the GOB Access to camps restricted for UNHCR and selected NGO staff: need to travel in convoy (LB, 27/9). UNHCR denied access to injured refugees in hospital (LB, 28/9)

Interpretation:

* In July, the priorities of the stakeholders once again became more closely aligned and focused on the need to expand health and nutrition services in the camps. Relations, however, remained strained and subject to media comment, which generally supported the government line. There was an uneasy truce between the stakeholders, which ended in September with the first repatriation movement. This brought UNHCR and the GOB into direct conflict again.

5.1.3 Political influences on relief activities: October - February 1993

From October to December, the GOB and UNHCR made several attempts at reconciliation (see Table 5.1/C). However a fundamental difference over repatriation led to a major political crisis in December. The GOB appeared to be intent on repatriation at any cost whereas UNHCR wanted proof that all repatriation was voluntary. In fact there was evidence showing coercion of refugees, beatings and arrests. International intervention led to a modification of GOB policy and a resumption of relations in the new year (1993).

Table 5.1/C Political chaos: October 1992 - February 1993

Political Chaos Monthly Summary 1992-93		
October	**November**	**December**
National press accuses UNHCR staff of being "anti repatriation" (*Telegraph*, 3/10) Confusion over GOB edict restricting UNHCR and NGO access to the refugees (*Holiday*, 2/10) although some newspapers beginning to question the GOB's handling of the refugee crisis (*Daily Star*, 11/10: *Holiday*, 16/10) Compromise between UNHCR and GOB on modalities for UNHCR involvement in voluntary repatriation (*Sangbad*, 9/10). UNHCR agrees to assist affected Bangladeshi villages in order to try to defuse tensions (Memo, 27/10) First repatriation with UNHCR involvement(12/10). Others follow	Security forces open fire to disperse protesting refugee crowds. 2 killed in Shailer Daba, 4 deaths in Dechua Palong 2 (LB, 9/11; *Daily Star*, 10/11) 2 wounded children found chained to a bed, under arrest in Cox's Bazar hospital (LB, 12/11; Memo, 12/11) Forced repatriation (refoulement) of some 140 persons and subsequent withdrawal of UNHCR from repatriation process (*Daily Star*, 30/11; *Reuters*, 2/12, *Telegraph*, 5/12) Relationship between UNHCR and the GOB declines further with mixed reporting in the popular press	MOH Health Information Officer suspended following report on health situation in transit camps - accused of "spying" for UNHCR (Memo, 2/2/93) Security forces open fire in Nayapara 1 & 2 camps. UNHCR access denied so no confirmation of deaths/ injuries (*Daily Star*, 6/12). UNHCR Health Coordinator access to camps restricted by GOB (Memo, 10/12) Tactics for repatriation confirmed eg arrest or threat of arrest, beating or threats of beating, confiscation of food ration books (Memo, 14/12) Letter from UN High Commissioner to GOB Prime Minister accusing GOB of coerced repatriation and raising spectre of UNHCR withdrawal from Bangladesh (*Daily Star*, 27/12). UK supports GOB (*Telegraph, 30/12*) but USA makes representations. GOB expresses disappointment that USA should take the side of UNHCR (*New Nation*, 26/12). Opposition parties accuse GOB of incompetence (*Times*, 27/11; *Observer*, 27/11) GOB insists all repatriated refugees are volunteers and that UNHCR is hindering the repatriation process Boutros-Boutros Ghali (UN Secretary General) intervenes, but no media interest as all attention is on operation "Save Somalia" and the war in the former Yugoslavia

Political Chaos Monthly Summary 1992-93		
January 1993	**February**	**March**
GOB & UNHCR face deepening diplomatic crisis (*Holiday*, 1/1) Repatriation continues apace with still no reply to UNHCR's letter. Evidence mounts that repatriation has speeded up since UNHCR's approach to GOB (see Figure 4.4) New agreement negotiated between UNHCR and GOB (*Telegraph*, 23/1) Refugees interviewed by UNHCR in Jumapara camp, to assess if they were volunteers for repatriation (LB, 29/1), all refused to go. Next day many were found to have been beaten overnight for refusal (LB, 30/1). New agreement breaks down	GOB slows and then stops the repatriation process, ostensibly for technical reasons (Figure 4.4) World media still focuses on the former Yugoslavia (Bosnia mainly) and Somalia (*International Herald Tribune*, 20/1)	New modalities agreed between UNHCR and GOB for repatriation process with modest targets of volunteers for 1993

Interpretation:

* There was a "confrontation" period between October and December which was resolved through international intervention, leading to a period of "renegotiation and reconciliation".

* Conflict of political interests led directly to a restriction of relief activities.

5.1.4 Interactions: UNHCR, GOB and the media

The national media took a keen interest in the crisis. While reports were initially sympathetic to the refugees (see Table 5.1/A, March 1992), the tone of reporting soon changed. By August, refugees were accused of degrading the environment, using too much fuel (September) and destabilising the area (see Table 5.1/B). By October, UNHCR and selected NGOs were targeted as being anti-repatriation (and therefore anti-government), although by the end of the month some newspapers were beginning to question the GOB's handling of the situation (Figure 5.1). By December 1992, it was apparent that the leading opposition parties were using the refugee crisis (and the press) to score political points against the GOB (Table 5.1/C and Figure 5.1). At the same time, international donors and the UN (New York) were drawn into the crisis.

Figure 5.1 Collage of newspaper reports

Daily Star. March 8 1992, Dhaka

Refugee Assistance Programme
Terming it as a major refugee problem that the UNHCR has faced in recent times, he (the UNHCR representative from Geneva) said that if the current influx increases as it did in the last 10-12 days, at about 5,000 per day, then numbers may exceed 200,000 by the end of March. He said that the work done by the government and the local authorities was of exceptional quality. He noted that "*In my 20 years experience in dealing with refugees I found the devotion and effectiveness displayed by the government to be extraordinary*".

New Nation. April 27 1992, Dhaka

2 accords to be signed on Rohingya return
Bangladesh and Burma are likely to sign two agreements on the repatriation of Rohingya refugees who crossed into Bangladesh. ...To date more than 225,000 refugees have been sheltered at 12 camps in Cox's Bazar and Bandaraban Districts. Meanwhile, working groups of the two sides on Sunday met for the third consecutive day to find out the modalities for repatriation...

Banglabajar. August 18 1992, Dhaka

Diplomatic correspondent reports: "*The government thought about declaring the Cox's Bazar representative of UNHCR as persona non grata. NGOs including UN organisations, are discouraging refugees to go back home. They are involved in creating panic among the refugees, by spreading true and false stories about what is happening inside Burma*". Following that, restrictions were imposed on all representatives of NGOs including UNHCR. Refugees already created many social problems, including prostitution. They are destroying forests, cutting the hills. They are disrupting the ecological balance. Dhaka wants their early return".

The Telegraph. September 27 1992, Dhaka

Meanwhile, against the background of Fridays gun battles at different refugee camps and the arrest of 110 persons in the last two days on charges of possessing illegal weapons, the government is negotiating with UNHCR about the latter's involvement in repatriation of the Rohingya refugees. An inter-ministerial committee will be held today at the Ministry of Home Affairs to work out the terms and conditions of UNHCR's involvement and to scrutinise UNHCR's activities. Some of the UNHCR officials are engaged in activities beyond the mandate they got in the agreement for relief work in the camps, an official source said.

Holiday. October 2 1992, Dhaka

What sparked riots in the refugee camps?
At least five refugees were killed and hundreds injured following commotion's in the refugee camps in south-eastern Bangladesh. ...journalists movements were restricted immediately. At Rongikhali transit camp, plans to repatriate 44 Rohingya refugees were suspended. The camp looked like a concentration camp with barbed wire and a strong gate guarded by a BDR (army) man.....The refugees allege that they are being forcibly repatriated "*kill me here but for god's sake don't send me back there*" they called.

Holiday. October 2 1992, Dhaka

Inconsistencies in Rohingya policy
Since Bangladesh is committed to voluntary repatriation, it is important to prove that the refugees are going back of their own accord. The September repatriation has raised more questions than it has answered. The move also manifested the inconsistencies in government policy. The president, following a visit to the USA in March 1992, launched an anti-Myanmar campaign and armed conflict was not out of the question...the same government reversed its policy in April after signing a bi-lateral agreement with Myanmar and officials starting drumming up refugees for repatriation. Why did the government not involve UNHCR in the repatriation. Of what was the government afraid in the refugees were willing to go home? Why were journalists banned? New orders have been issued that require relief workers to be accompanied by a local magistrate if they wish to speak to refugees...

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Telegraph. October 3 1992, Dhaka

UNHCR withdraws its Cox's Bazar chief
UNHCR has quietly withdrawn its operational chief in Cox's Bazar. The government has earlier accused him of activities beyond his duties. Trouble broke out last week in Dechua Palong 2 camp where Rohingya refugees had staged a protest demanding the return of 49 refugees who had voluntarily left for Burma....Six were killed in the clashes....the UNHCR official had allegedly been present in the camp at the time.

Daily Star. December 6 1992, Dhaka

Cox's Bazar: A fierce gun battle in Nayapara camp between police and armed Myanmar refugees, left at least 70 people wounded. Police sources said the battle erupted when the RRRC went to the camp to bring 1,300 refugees to the transit camp for repatriation.

Holiday. January 1 1993, Dhaka

Government faces deepening diplomatic crisis
It is too early to predict the outcome of the diplomatic row, but many observers wonder why Bangladesh reacted so strongly. "*The whole thing has been mishandled*" said a former foreign secretary in the government. "*Bangladesh has alienated itself from the international community.*" The same view was expressed by another former foreign secretary.

The Telegraph. January 2 1993, Dhaka

Quiet diplomacy yielding results.
The US government has issued an unfortunate statement putting credence on reports received from NGOs and UNHCR about the forced repatriation of Rohingya refugees...In the latest meeting between Bangladesh and Myanmar, the Bangladesh government has been able to persuade the hard-liners in Myanmar to scrap the system of "volunteer labour". Bangladesh is working to solve the problems with Myanmar through quiet diplomacy...

Interpretation:

* An analysis of selected media reports and the tone of reporting, confirms the view that the political climate changed dramatically at several times during the year, reinforcing the analysis described above.

* Evidence began to emerge (December) that there was not a consensus in government and opposition circles on how best to handle the crisis.

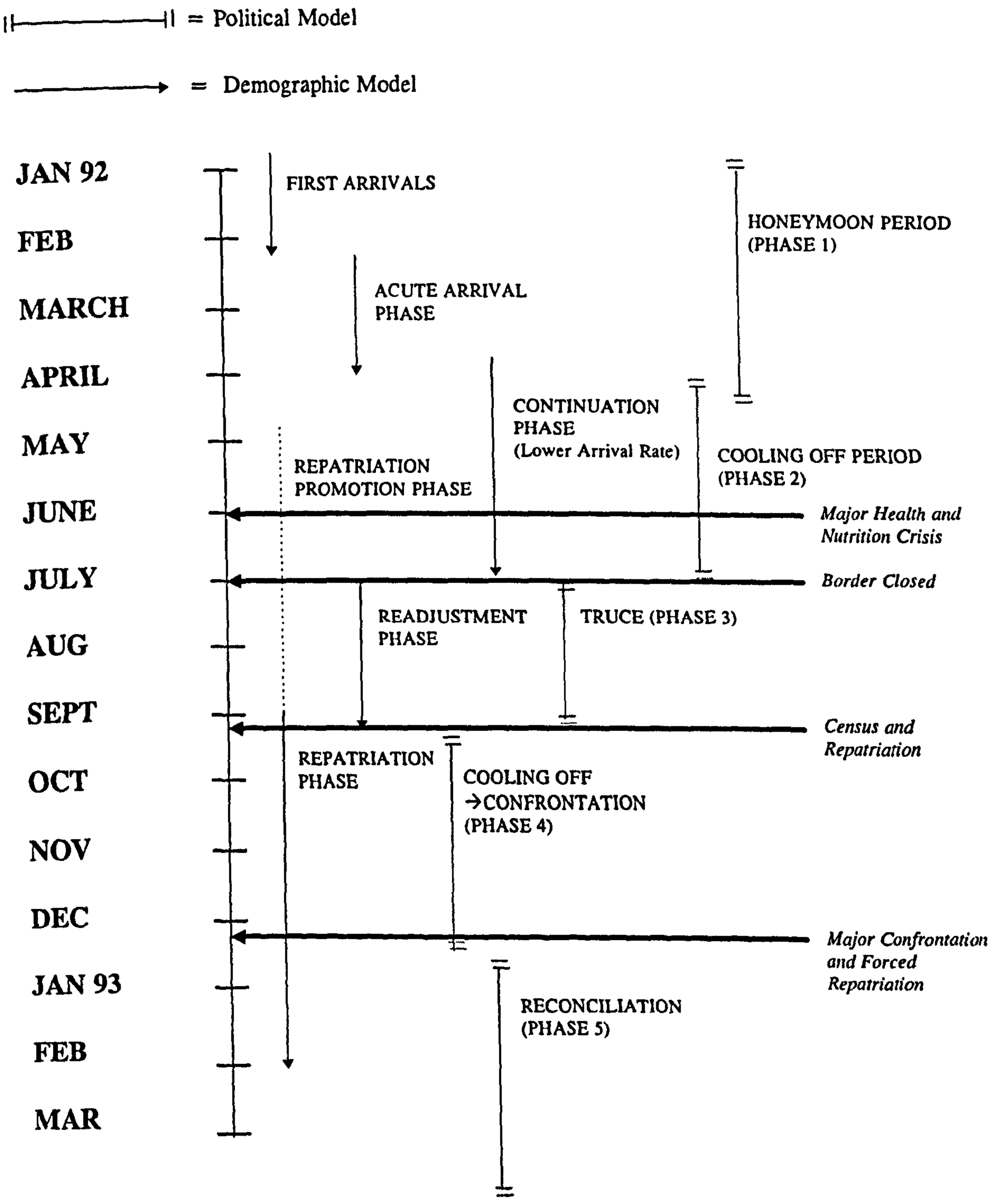
* International relations between the major stakeholders involved in the refugee crisis, reached an all-time low in December. UNHCR threatened to withdraw from Bangladesh over the issue of forced repatriation. UNHCR's withdrawal would have been unprecedented in the history of that organisation. Yet the significance of such a move was not fully appreciated internationally as the eyes of the media were on other global events (operation "save Somalia" and the crisis in the former Yugoslavia).

5.1.5 Political chaos: an interpretation

Politically, a dynamic situation existed. While initially, the aims and objectives of stakeholders appeared to be the same (to assist the refugees), competing priorities eventually led to a conflict of aims and a major political crisis. This political model is in contrast to the traditional models described in the public health literature, which identify an acute phase followed by a maintenance phase of

relative stability. From a political perspective, an alternative model is offered (Figure 5.2).

Figure 5.2 Political chaos explained



The Model Explained:

Phase 1: The honeymoon period

* The start of emergency and recognition of the need for assistance. All stakeholders are busy allocating funds, defining their own roles and attempting to define and meet needs.

Phase 2: A cooling off period

* Political differences and hidden agendas begin to surface and have an impact on the relief programme.

Phase 3: A truce

* Attempts are made by each stakeholder to control the situation to their advantage, therefore alliances change or emerge.

Phase 4: Confrontation

* Skirmishes and disagreements continue as negotiations had only papered over the cracks of major fundamental differences. Eventually there is a major confrontation and breakdown in relationships between key actors.

Phase 5: Renegotiation and reconciliation

* Eventually, renegotiation and reconciliation occur, often with the intervention of international actors eg UN New York, bi-lateral donors, international NGOs of stature etc.

It is interesting to examine the linkages between political events, managerial chaos and the epidemiological approach. Are these links as clear as might be expected? Does it matter? Does a rational epidemiological approach help when dealing with competing priorities and agendas or political chaos? Or rather does the political model above help shed light on some of the management problems and constraints encountered when using an epidemiological approach?

These questions are examined in section 5.2 and Chapter 6.

5.2 Managerial and Organisational Chaos

This section analyses the managerial and organisational chaos observed. It is broken down into:

5.2.1 The relief effort: beginnings (January - July 1992)

5.2.2 The relief effort: the middle (August - December 1992)

5.2.3 The relief effort: stage three (January - February 1993)

5.2.4 Who are the stakeholders?

5.2.5 How do they coordinate and does it work?

5.2.6 Ideal, reality and gaps

5.2.7 Management and organisational chaos: a summary and models

5.2.1 The relief effort: beginnings (January - July 1992)

In February 1992 only two international NGOs (Medecins Sans Frontiers - France [MSF/F] and the International Islamic Relief Organisation [IIRO]) and two national organisations (Gonoshasthya Kendra [GK] and BDRCS[111]) were active in health work in the camps. The RRRC started general coordination

[111] Strictly speaking BDRCS is not an NGO but a quasi-governmental organisation. However, like some of the NGOs, it worked under the auspices of the RRRC and became an operational partner of a multilateral agency, in this case, WFP.

meetings[112] and in March, health meetings were started (by the Civil Surgeon and UNHCR)[113] (Table 5.2/A).

A Refugee Relief and Rehabilitation Commissioner [RRRC] was appointed by the GOB (February) to coordinate the relief response. The coordination of health activities was delegated to the Civil Surgeon. Both the RRRC and the Civil Surgeon had offices in Cox's Bazar and were supported by UNHCR.

By late February, six camps were established and others were planned (Figure 4.2) yet all NGO activity focused on one camp only (DP2). We can only speculate why this occurred. DP2 was the largest, most visible and easily accessible camp close to Cox's Bazar. As it was astride the main road, it attracted visits from journalists and NGOs alike. Hence the MOH, MSF/F, IR/UK and GK ended up running clinics adjacent to each other, near the road. Having invested in buildings, they were then reluctant to relocate[114].

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[112] The RRRC initiated regular meetings; initially every evening they then became weekly. Minutes were kept (RRRC Mins/date) and are used and referenced in Table 4.3.

[113] Weekly health and nutrition meetings were started by UNHCR but under the chairmanship of the Civil Surgeon. The Health and Nutrition Management Committee [HNMC] then became a sub-committee of the RRRC's coordination meeting and minutes were kept and are referenced as (HNMC Mins, date).

[114] When NGOs arrived, the first thing they did was to establish a presence by constructing a building with their Logo displayed. Once they had invested in a building, they were then reluctant to move or relocate elsewhere as it would have meant handing over "their" building to another organisation.

During March and April, the capacity of the MOH and NGOs was outstripped by the continuing rapid influx of refugees. By May, political events (described in Table 5.1/A), affected the relief programme. NGO activities were restricted despite what appeared to be increasing needs. However, nutrition and health action plans were agreed (June and July).

Table 5.2/A Managerial and organisational chaos: January - July 1992

Managerial Chaos Monthly Summary 1992			
January 1992	**February**	**March**	**April**
GOB allocates some land and starts constructing shelters GK starts health programme in Dechua Palong 2 camp [DP2] as does MSF/F and an Islamic organisation (IR/UK). Only MOH assists in remaining camp (Dechua Palong 1 [DP1]) GOB distributes some food to refugees (Brown *et al*, 1992, Annex 15) 29/1 BDRCS starts food distributions (BDRCS Newsletter, June 1992)	MOH teams deployed to run basic clinics only and are overstretched (Memo, 26/2) Large number of GOB officials deployed to the camps, eg 15 officers, 39 staff, 49 security guards and 2 messengers in DP2 alone (Gonoshasthya Kendra Report, March 92) Anecdotal reports suggest that nutrition status in the camps is alarming (OXFAM Mins, 10/2). Rapid assessment and nutrition surveys carried out in 5 camps by UNHCR. Some NGOs start nutrition screening RRRC appointed and starts coordination meetings. Main focus of relief effort is on constructing shelter before the onset of the monsoon (Diskett, March 1992). However Islamic NGOs do not attend coordination meetings (Gonoshasthya Kendra Report, March) Measles immunisation starts (HNMC Mins, 3/3). Problems noted obtaining vaccines from MOH. It appears that NGO involvement in EPI is not welcomed (Gonoshasthya Kendra Report, March) Supplementary feeding started in DP2 only, by both MSF/F and GK (Memo, 26/2) Memorandum of Understanding drafted and signed by UNHCR, GOB and WFP	Existing NGOs described as "*overburdened*" (Memo, 8/3). Services unable to keep up with the rate of arrival and situation reported by UNHCR to be "*chaotic*", with "*miserable sanitary conditions*" and "*running away from us*" (Memo, 9/3) MSF/H arrives to assist as do Concern, ISRA/P, ISRA/S, IRO, SCF/UK and others. Some are funded by UNHCR (RRRC Mins, 13/3) Weekly meetings of Health and Nutrition Management Committee [HNMC] started. HIS and reporting discussed as NGOs all have different reporting requirements. Lack of technical expertise in nutrition surveys identified (HNMC Mins, 1/3) Problems of duplication of clinical services between GK, MSF/F, MOH and IR/UK in DP2 camp (HNMC Mins 3/3). Similar problems noted with measles immunisation campaign. Attempts made at coordination (by RRRC, UNHCR and MOH). Aim is to ensure only 1 NGO and 1 MOH team per camp - but there is only limited success (RRRC Mins 23/3) Camp officers in charge [COICs] told to coordinate with RRRC before allowing any NGO to start work in their camp (RRRC Mins, 23/3). GK opens clinic in Dumdumia (RRRC Mins, 23/3; Memo, 7/4). Need for extra NGO assistance in sanitation sector identified (HNMC Mins, 28/4). Delays in measles immunisation due ostensibly to delays by UNICEF in transferring funds and vaccines to MOH, lack of staff and to NGO capacity (RRRC Mins, 19/3 & 23/3; HNMC Mins, 3/3 & 8/3)	78,554 children <10 years immunised against measles and new arrivals immunised at the border (RRRC Mins, 9/4). Not all agencies submit weekly reporting forms (RRRC Mins, 9/4) Civil Surgeon reports shortages of drugs, staff, medical supplies and transportation (RRRC Mins, 13/4 and 30/4). MOH obviously over extended, but the RRRC is reluctant to allow additional NGOs in. Some NGOs arrive uninvited anyway (eg Caritas, AMDA). COICs again urged to coordinate activities of health agencies in their camp. NGOs also told to consult COICs before starting work (RRRC Mins, 9/4 & 13/4) Construction delayed (Gundhum camp) due to disputes with land lease holders (RRRC Mins, 30/4). BDRCS complains that food supplied by GOB is of "below standard quality" (RRRC Mins, 30/4). Problems with water, sanitation and flies in selected camps persist and lead to fears about a diarrhoea epidemic (RRRC Mins, 30/4) Health services are curative orientated, centralised and not accessible to all. Decentralisation discussed (HNMC Mins, 3/4). Health policy discussed with MOH in Dhaka (Memo, 19/4) UNHCR has problems in channelling money to the MOH as its agreement with GOB states all money must go via MOR. No system appears to exist to channel money between MOR and MOH (Memo, 7/5)

Managerial Chaos Monthly Summary 1992

May	June - part one	June - continued	July
MOH has 30 doctors and 113 paramedics in the camps (HNMC Mins, 31/5). Yet health services remain centralised with poor coverage, duplication between NGOs and MOH and drug shortages (LB, 29/5) Increasing numbers of malnourished children noted at feeding and health centres (IINMC Mins, 31/5) Priorities agreed at the IINMC (with WIIO and MOII support) are basic curative care, measles immunisation, supplementary and therapeutic feeding, diarrhoeal disease control and epidemic continency planning (Memo, 7/5 & 27/5) Helen Keller International [IIKI], at UNHCR's request, conducts nutrition surveys in 5 camps. Nutrition workshop held in an attempt to standardise policies, criteria, recipes and procedures between NGOS (HNMC Mins, 24/5) Contingency planning for diarrhoea epidemics goes ahead in all camps (IINMC Mins, 24/5) NGO activities in health and nutrition restricted in some camps by GOB (LB, 31/5 & 1/6)	Monsoon starts in earnest Permission denied for NGO to work in Rongikhali camp (Memo 1/6) NGOs told by RRRC not to employ or use refugee volunteers in the camps but to recruit local people, to try to reduce tension between the populations[115] (RRRC Mins, 4/6). SCF reports problems in finding local recruits (RRRC Mins, 18/6 & 20/6) Civil Surgeon told by RRRC to reduce number of NGOs in camps (LB, 7/6). NGOs encounter bureaucratic difficulties in attempts to expand or modify their activities They are told to re-submit plans to the NGO Bureau in Dhaka for approval as approval is no longer given locally (RRRC Mins, 18/6, 20/6 & Memo, 22/6) All NGOs asked to submit a detailed list of employees to GOB for approval (RRRC Mins, 18/6)	Increasing numbers of malnourished children noted in the camps. Attempts to expand feeding programmes meet with resistance from GOB officials (LB, 5/6; RRRC Mins, 18/6) NGO activities are forbidden in selected camps (Memo. 22/6) Shelter, latrine construction and water pump development continue (albeit haphazardly) in anticipation of the monsoon. Construction delayed in Horikhola camp because of disputes with local landowners (RRRC Mins 4/6) CDC consultants arrive and confirm rising death rates (Lee and Burkholder, 29/6) International Panel of Experts meet in Dhaka to discuss nutrition situation and results of IIKI survey (RRRC Mins, 29/6)	Agreement reached with the GOB and WFP to diversify the general food ration (LB. 29/6; RRRC Mins, 29/6 & 16/7). Nutrition action plan agreed [NAP] and NGOs asked to start screening and implementation straight away (RRRC Mins, 2/7). Some do, some don't due to lack of technical knowledge, staff shortages, logistics etc (RRRC Mins, 9/7 & 16/7) Health services remain centralised and do not meet main needs of the population. Health action plan [HAP] negotiated with MOH and NGOs in Cox's Bazar, discussed with the RRRC and Civil Surgeon (RRRC Mins, 16/7; Memo 21/7) and confirmed by MOH in Dhaka (Memo, 20/7 & 23/7) Health Information System is computerised. A total of 16 NGOs are now involved in the health sector but coverage between camps is uneven. Need is recognised for additional NGO involvement in sanitation and permission is given (RRRC Mins, 22/7) CDC report (Lee and Burkholder, 1992) reveals rising death rates. NGOs accused of gathering data and doing surveys without permission of COICs. The latter then instructed by the Divisional Commissioner for Chittagong not to allow this in future (RRRC Mins, 22/7). NGOs told they have to get permission from the *"competent authority"*. Who or what this is, not specified Expansion of SFP continues (RRRC Mins, 30/7), with 6-7,000 children assisted

[115] NGOs were concerned as most feeding centres were staffed by refugees who had been trained. UNIICR supported refugee participation so was concerned at this attempt to exclude refugees from activities that would benefit them. Refugee participation was also integral to the policies of UNHCR and most donors eg EC (LB, 11/6).

Interpretation:

* Implementation started in an ad hoc way **before** the GOB and UNHCR appointed coordinators and before the rapid assessment mission was able to report back. Despite the appointment of the RRRC, there was duplication in some areas (Table 5.2/A, April) and gaps in others.

* Most NGOs arrived in the period February to July, which coincided with the high arrival rates of the refugees. They therefore had to establish themselves, find a base, a camp and a role, negotiate permission, find funding and simultaneously start implementing. This was therefore a period of intense workload and high stress for NGOs, UNHCR and GOB alike.

* While a priority was to agree health and nutrition action plans via the HNMC, (section 2.3.3 and Annex 3), they were not officially approved by the RRRC until June and July respectively. Delays can be related to both the high work load of key staff and the political environment (leading to competing, and eventually conflicting, interests of the key actors). The political complexity meant that higher levels of authority were needed, than might otherwise have been necessary.

* NGOS focused on the higher profile "curative" activities (see February), nutrition and measles immunisation. The very important (but lower profile)

sanitation sector remained relatively neglected by NGOs, even until April. This could be attributed to competing priorities, lack of technical knowledge, lack of capacity, or simply to lack of interest. The most probable explanation is a combination of the above.

5.2.2 The relief effort: the middle (August - December 1992)

By July 1992, following a change of GOB policy, a total of 16 NGOs were working or planning to work in the spheres of health, nutrition, water and sanitation. Others were working in construction and the distribution of relief items (Table 5.2/B). These included both national and international organisations which ranged in size from very small (budget of only several hundreds of pounds sterling) to very large, such as SCF/UK and OXFAM/UK, both of which have an annual income internationally of between £80-100 million[116]

The organisations varied in the services which they offered. For example, the Association of Medical Doctors of Asia [AMDA] was very small and operated a selective (vertical) de-worming programme only, gradually working from camp to camp (HNMC Mins 7/6). In contrast MSF/H, a large international NGO, offered a comprehensive range of services and activities in three camps, including out-patients clinics, a small hospital, water and sanitation installations, construction of essential buildings and nutrition programmes (MSF/H Monthly Reports, March 1992-January 1993).

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[116] See the Annual Reports for OXFAM and Save The Children Fund 1992/3, 1993/4 and 1994/5.

Yet despite the activities of at least 16 NGOs, some programmes failed to take place as planned, eg malaria control (see September) and the establishment of the Refugee Health Unit [RHU].

Table 5.2/B Managerial and organisational chaos: August - December 1992

Managerial Chaos Monthly Summary - 1992

August - part one	August - continued	September
Nutrition screening continues and expansion of feeding programmes proceeds (RRRC Mins, 30/7). SCF and other NGOs fail to follow standard feeding programme guidelines (IINMC Mins, 9/8; RRRC Mins, 12/8) The strengthening of health interventions gets underway (IINMC Mins, 2/8; RRRC Mins, 6/8; IINMC Mins, 23/8) CDC report concerning rising mortality rates released by UNIICR in Dhaka, much to the consternation of RRRC (RRRC Mins, 6/8). Civil Surgeon states that active mortality surveillance (grave watching) is abandoned because it is against the culture and does not work (IINMC Mins, 9/8; RRRC Mins, 12/8)	Civil Surgeon requests NGOs at the technical meeting to undertake active (house to house) surveillance and visit mosques (HNMC Mins, 16/8 & 23/8) Latrine and sanitation programme proceeds apace (RRRC Mins, 6/8 & 12/8). EPI training for MOII and NGOs goes ahead (HNMC Mins, 16/8) Malaria is identified as a problem (Table 4.3). One NGO offered to distribute "a few hundred" mosquito nets (RRRC Mins, 27/8)	Service provision continues but anti malaria spraying blocked - ostensibly due to lack of consensus regarding insecticides (RRRC Mins, 30/9) Recurrent shortages of general rations and supplementary foods hamper the programmes (RRRC Mins, 30/9, Memo 21/9) Health services restricted at end of month due to tension and poor security in the camps (LB, 26 & 27/9)
October	**November**	**December**
No progress on establishment of Refugee Health Unit[117] although approval was given in July, reasons are not clear (LB, 12/10). Permission to conduct nutrition surveys not forthcoming Civil Surgeon concerned that in some camps NGOs appear to be competing with the MOII by offering more medicines and states at a HNMC meeting, *"I will not have competition in the camps"* (LB, 4/10) SCF prevented by GOB from working in Horikhola as earlier agreed (LB, 22/10 & 29/10) and new NGO activities refused by Ministry of Home Affairs [MOHA] (LB, 28/10)	New RRRC appointed (RRRC Mins, 1/11) COB receive permission to open health and nutrition programme in Horikhola but only have capacity to assist <31% of population (LB, 4/11). Still no permission for SCF to work there (LB,15/11). NGOs refused permission to work in transit camps (LB, 11/11) Meeting held to coordinate nutrition survey methodologies and select camps (IINMC Mins, 5/11). Reduction in general food ration despite objections from UNIICR (LB, 17/11 & Memo, 19/11). No permission for nutrition surveys (Memo, 19/11), but eventually approval given and surveys start	Health Information System breaks down and CDC epidemiologist medically evacuated (LB, 6/12) but nutrition surveys are completed in 12 camps. Data analysis starts (Memo, 17/12) MSF/II denied access to Nayapara so no nutrition or hospital services operate for one week. Limited assistance is given by MOH (MSF/II, Sitrep 14, 1/93) Still no permission for NGOs to work in transit camps, or Horikhola and Gundhum 3 camps (Memo, 28/12). RHU officially opened but only with part time staff (LB, 20/12). Scabies survey carried out in Dumdumia 1 & 2 (LB, 27/12)

[117] This unit was intended to operate under the auspices of the MOH and the Relief Commissioner to coordinate, monitor and supervise all health related activities in the camps, as well as to provide an in service training programme and manage the health information system.

Interpretation:

* Implementation went ahead but was fairly patchy. There were gaps in the provision of health care. This "patchiness" seemed to relate to the capacity of the individual NGO (eg see August/mosquito nets and November/Horikhola Camp) and also earlier coordination failures (March and April).

* It was almost impossible to implement some interventions between April and June (Table 5.2/A). When the political climate changed (July), the necessary permission was forthcoming and health and nutrition action plans were implemented, but only because of limited political support. Some problems (eg malaria control and death reporting) still remained unresolved. When the political climate changed again (September, Table 5.1/B), programmes were again impeded, emphasising the links between the political climate, management effectiveness and decision-making.

5.2.3 The relief effort: stage three (January - February 1993)

Table 5.2/C Managerial and organisational chaos: January - February 1992

Managerial chaos Monthly Summary - 1993	
January 1993	**February**
Measles immunisation "top up" campaign started but hampered by transfers of families to transit camps from measles affected camps (HNMC Mins, 20/1). RHU still not fully operational (LB, 11/1) Still problems of poor coordination between MOH and NGOs at camp level (LB,11/1) and HAP and NAP not fully implemented in all camps eg Horikhola Debate continues about strategies for malaria control but no decision reached (LB, 13/1 & 14/1; Memo 25/1)	Concern continues regarding poor services in transit camps but no obvious solutions as MOH overstretched and NGOs denied access (Memo, 18/2) Replacement UNHCR Health Coordinator arrives 25/2

Interpretation:

* Although the action plans were finally agreed in July 1992, by January 1993 they were still not fully implemented in all of the camps. Section 5.2.4 discusses the status of key interventions at different times in the relief programme (see also Tables 5.3 - 5.5).

* Although services were gradually expanded and extended to different camps, gaps remained especially in the transit camps, where NGOs were forbidden to work. There were also obvious gaps, for example in Horikhola camp, where the limited capacity of the NGO did not allow it to implement the health and nutrition action plans.

5.2.4 Who are the stakeholders?

Aid agency activities in all 20 refugee camps, are summarised in the following tables (5.3 - 5.6). The progress of the relief programme is assessed at three important points: the beginning (March 1992), the transition period from the acute emergency phase to the maintenance phase (July/August 1992) and at the end of the study period (January 1993). The health and nutrition action plans are used as a base-line against which progress is measured, thus the activities monitored were pre-determined by their inclusion in the action plans.

Key to Tables 5.3 - 5.5: Action Plan Implementation

Curative services

**	=	no services so refugees use Gundhum 1 or 2 facilities
OPD	=	outpatients department
IPD	=	inpatients department
ORS/C	=	oral rehydration salt centre
EDTC	=	emergency diarrhoea treatment centre
TB	=	tuberculosis control programme
TFC	=	therapeutic feeding centre

Preventive activities

Nut Survs	=	nutrition surveys
SFP	=	supplementary feeding programme
MCH/FP	=	mother and child health and family planning
ANC/TBA	=	ante natal care and traditional birth attendant training
EPI	=	expanded programme of immunisation
Health Ed	=	health education
Outreach	=	outreach programme/home visiting

Non-governmental organisations [NGOs]

HKI	=	Helen Keller International
TDH/N	=	Terre Des Hommes (Netherlands)
WC	=	World Concern
MSF/F	=	Medecins Sans Frontiers (France)
GK	=	Gonoshasthya Kendra
MSF/H	=	Medecins Sans Frontiers (Holland)
Conc'	=	Concern
ISRA/S	=	Islamic Solidarity Relief Agency (Sudan)
IIRO	=	International Islamic Relief Organisation
ISRA/P	=	Islamic Solidarity Relief Agency (Pakistan)
COB	=	Church of Bangladesh
IR/UK	=	Islamic Relief (United Kingdom)
SCF/UK	=	Save the Children Fund (United Kingdom)

Table 5.3 Health and nutrition action plan - implementation (end of March 1992)

Table: Health Service Status Report

Demography					Curative Care						Preventive Care				
No	Camp	Official Population	Un registered	Total Population	OPD	IPD	ORS/C	EDTC	TB	TFC	SFP	MCH/ FP ANC	Measle Imm.	Health Ed. Outreach	Sanitation
1	Adarshagram	4,727	500	5,229	MOH								MOH		
2	Dhua Palong	10,789	3,211	14,000	MOH ISRA/S MSF/F	MSF/ F				MSF/F	MSF/F	MSF/F	MSF/F		
3	Dechua Palong 1	3,221	0	3,221	MOH						MSF/F	MOH	MSF/F		
4	Dechua Palong 2	20,342	2,488	22,830	MOH GK IR/UK MSF/F	GK				MSF/F	GK MSF/F	MOH GK IR/UK	MOH GK MSF/F		
5	Maricha Palong	11,185	5,000	16,185	MOH GK						MSF/F	GK	MOH MSF/F		
6	Haludia Palong														
7	Jumapara														
8	Shailer Daba														
9	Kutu Palong	12,006	0	12,006	MOH					Conc'	Conc'	MOH	MOH MSF/H		
10	Gundhum 1														

Table: Health Service Status Report

Demography					Curative Care						Preventive Care				
No	Camp	Official Population	Un registered	Total population	OPD	IPD	ORS/C	EDTC	TB	TFC	SFP	MCH/ FP ANC	Measle Imm.	Health Ed/Out-reach	Sanitation
11	Gundhum 2														
12	Gundhum 3														
13	Balukhali 1	16,634	3,000	19,634	MOH MSF/H	MSF/H				MSF/H	MSF/H	MOH	MOH MSF/H		
14	Balukhali 2														
15	Horikhola														
16	Rongikhali														
17	Nayapara 1				MOH										
18	Nayapara 2				MOH										
19	Dumdumia 1	55,934	800	56,734	MOH					SCF	SCF	MOH	MOH SCF		
20	Dumdumia 2				MOH					SCF	SCF	MOH	MOH SCF		

Table 5.4 Health and nutrition action plan - implementation July/August 1992

Table: Health Service Status Report

Demography			Curative Care						Preventive Care					
No.	Camp	Population	OPD	IPD	ORS/C	EDTC	TB	TFC	SFP	MCH/ FP ANC TBA	EPI	Health Ed/Out-Reach	Sanitation	Nut. Survs
1	Adarshargram	15,276	MOH TDH/N			TDH/N		TDH/N	TDH/N	TDH/N	TDH/N MOH	MOH TDH/N	TDH/N	?TDH
2	Dhua Palong	17,555	MOH ISRA/S	MSF/F	MSF/F	MSF/F		MSF/F	MSF/F	MSF/F	MSF/F	MSF/F CARE	DPHE CARE	MSF/F
3	Dechua Palong 1	4,983	MOH ISRA/P						MSF/F		MSF/F	CARE MSF/F	DPHE CARE	
4	Dechua Palong 2	11,548	MOH GK IR/UK	GK	GK MSF/F	GK		MSF/F	GK	GK	GK	CARE GK MSF/F	DPHE CARE	HKI
5	Maricha Palong	10,982	MOH	MSF/F	MSF/F	MSF/F		MSF/F	MSF/F	MSF/F	MSF/F	CARE MSF/F	DPHE CARE	MSF/F
6	Haludia Palong	7,557	MOH IIRO			MSF/F		MSF/F	MSF/F	MSF/F IIRO	MSF/F IIRO	CARE MSF/F	DPHE CARE	
7	Jumapara	347	MOH										DPHE	
8	Shailer Daba	8,554	MOH IIRO	IIRO				IIRO MSF/H	IIRO MSF/H	IIRO	MOH IIRO		IIRO	
9	Kutu Palong	12,768	MOH IIRO			Concern		Concern	Concern	Concern IIRO	Concern IIRO	Concern	Concern	HKI
10	Gundhum 1	40,106	MOH MSF/F	MSF/F	MSF/F	MSF/F		MSF/F	MSF/F	MSF/F	MSF/F	MSF/F	MSF/F	HKI

Table: Health Service Status Report

Demography			Curative Care						Preventive Care					
No	Camp	Population	OPD	IPD	ORS/C	EDTC	TB	TFC	SFP	MCH/ FP ANC TBA	EPI	Health Ed/Out Reach	Sanitation	Nut. Survs
11	Gundhum 2	18,027	MOH GK	GK			GK	GK	GK	GK	GK	GK	GK	
12	Gundhum 3	7,770											DPHE	
13	Balukhali 1	21,101	MOH MSF/H	MSF/H	MSF/H	MSF/H		MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	IIKI MSF/H
14	Balukhali 2	11,041	MOH MSF/H	MSF/H	MSF/H	MSF/H		MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H
15	Horikhola	0	MOH ?COB						COB	COB			Caritas	?COB
16	Rongikhali													
17	Nayapara 1	15,122	MOH MSF/H	MSF/H		MSF/H		MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H
18	Nayapara 2		MOH											
19	Dumdumia 1	25,290	MOH SCF			SCF		SCF	SCF	SCF	SCF	OXFAM SCF	OXFAM	IIKI
20	Dumdumia 2	33,906	MOH SCF IIRO			SCF		SCF	SCF	SCF	SCF	OXFAM SCF	OXFAM	

Table 5.5 Health and nutrition action plan - implementation 18.1.93

Table: Health Service Status Report

Demography			Curative Care						Preventive Care					
No.	Camp	Population	OPD	IPD	ORS/C	EDTC	TB	TFC	SFP	MCH/FP ANC/TBA	EPI	Health Ed Outreach	Sanitation	Nut. Survs
1	Adarshar-gram	14,980	MOH TDH/N		TDH/N	TDH/N		TDH/N	TDH/N	TDH/N	MOH	TDH/N	TDH/N	
2	Dhua Palong	14,574	MOH ISRA/S	MSF/F	MSF/F	MSF/F		MSF/F	MSF/F	MSF/F	MSF/F	MSF/F CARE	CARE	MSF/ F
3	Dechua Palong 1	643	MOH ISRA/P		WC				WC	WC	WC	CARE WC	CARE	
4	Dechua Palong 2	11,548	MOH/GK IR/UK	GK	GK	GK	GK	MSF/F	GK	GK	GK	CARE GK	CARE	IIKI
5	Haludia Palong	5,892	MOH IIRO		MSF/F	MSF/F			MSF/F	MSF/F	MSF/F	CARE MSF/F	CARE	MSF/ F
6	Maricha Palong	9,824	MOH	MSF/F	MSF/F	MSF/F		MSF/F	MSF/F	MSF/F	MSF/F	CARE MSF/F	CARE	
7	Jumapara (transit)	10,170	MOH											
8	Shailer Daba	8,170	MOH IIRO	IIRO	IIRO			IIRO	IIRO	IIRO	IIRO	IIRO	IIRO	
9	Kutu Palong	11,151	MOH IIRO		Conc'	Conc' IIRO		Conc'	Conc'	Conc'	Conc'	Conc'	Conc'	IIKI
10	Gundhum 1	21,207	MOH MSF/F	MSF/F	MSF/F	MSF/F		MSF/F	MSF/F	MSF/F	MSF/F	MSF/F	MSF/F	IIKI

Table: Health Service Status Report

Numbers			Curative Care						Preventive Care					
No	Camp	Population	OPD	IPD	ORS/C	EDTC	TB	TFC	SFP	MCH/FP ANC TBA	EPI	Health Ed Outreach	Sanitation	Nut. Survs
11	Gundhum 2	16,051	MOH GK	GK	GK	MSF/F GD 1	GK	GK	GK	GK	GK	GK	GK	GK HCR
12	Gundhum 3	9,268	**	**	**	**		**	**	**	**	**	**	MSF/F
13	Balukhali 1	16,527	MOH MSF/H	MSF/H	MSF/ H	MSF/H	MSF/ H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	HKI
14	Balukhali 2	8,671	MOH MSF/H	MSF/H	MSF/H	MSF/H	MSF/ H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H
15	Horikhola	8,244	MOH COB					COB	COB	COB			?COB	COB HCR
16	Nayapara 1	15,314	MOH MSF/H	MSF/H	MSF/H	MSF/H	MSF/ H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H	MSF/H
17	Nayapara 2 (transit)	4,192	MOH											
18	Rongikhali (transit)	957	MOH											
19	Dumdumia 1	14,967	MOH SCF		SCF	SCF	SCF	SCF	SCF	SCF	SCF	OXFAM SCF	OXFAM	HKI
20	Dumdumia 2	31,425	MOH SCF HRO		SCF	SCF	SCF	SCF	SCF	SCF	SCF	OXFAM SCF	OXFAM	

Interpretation of Tables 5.3 - 5.5:

* There was an uneven distribution of resources between camps which persisted throughout the study period. There were also continuing problems of coordination within camps (LB, 11/1). Dumdumia I and Dumdumia 2 look, superficially, as though they benefit from considerable assistance[118]. However both camps were linear and adjacent, stretching along the main road for 8 kilometres, yet the main clinics run by the MOH, IIRO and GK were all grouped centrally, within 1/2 km of each other, leaving large numbers of people without any easy access to health care (LB, 13/10).

* Although considerable progress was made over the year, in transforming chaos into a semblance of order, some inequalities between the camps remained. These can be partly explained by GOB policies, restricting access to transit camps and preventing NGOs relocating from existing camps, to fill gaps. The reluctance of NGOs to move, after having made investments in camp infrastructure, was also relevant.

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[118] Assistance was give by the MOH, and three international NGOs (SCF, Oxfam and IIRO) plus, temporarily from March - May, a national NGO (GK).

* Failures in implementation can also be directly linked to failures in coordination and the limited capacity of the MOH and selected individual NGOs. Yet the presence of a weak NGO in a camp blocked others from gaining access to help.

* While Tables 5.3 - 5.5 show gaps in services provided, they do not give any clues about quality of the work being done or the impact on health status.

Table 5.6 Summary of stakeholders

Category of stakeholders	Actors and organisations	Activity
Bi-lateral Donors	European Community [EC], Islamic Development Bank, American [USAID], French, British [ODA], Dutch, Scandinavian, Japanese, and Saudi Arabian governments etc	funding of government, UNHCR and NGO relief activities, provision of relief items, eg food aid, plastic sheeting, drugs, vehicles, etc
Multi-lateral Agencies	UNHCR, UNICEF, WFP, UNDP, WHO	funding of GOB and NGO relief activities, funding and operation of own relief programmes, donations of essential items eg, food, drugs, plastic sheeting etc, and technical support
NGOs	**National**: eg Gonoshasthya Kendra [GK], Church of Bangladesh [COB], CCDB, ADRA **International**: eg MSF/F, MSF/H, IIRO, AMDA, HKI, SCF/UK, OXFAM, ISRA/P, Muslim Aid, Concern, TDH/N, CARE, Caritas, IR/UK, World Concern [WC], Concern Universal [CU], Enfants Du Monde [EDM], Rabita Al Islam, World Vision etc	a range of relief programmes, funding activities and interventions ie service provision, commodity supply, provision of staff and/or technical support some implemented selective programmes eg CARE implemented only sanitation work, others provided a comprehensive service eg GK, which worked in construction, health, nutrition, water, sanitation, education etc
Quasi - Governmental Organisations	Bangladesh Red Crescent Society [BDRCS]	food supplies, logistics, food distribution, provision of relief items
Governmental Ministries & Departments	Ministries of Home Affairs [MOHA], Foreign Affairs [MOFA], Relief [MOR], Defence [MOD], Health [MOH], etc Departments of Public Health Engineering [DPHE], Forestry [FCom] Individuals eg Relief Refugee & Repatriation Commissioner [RRRC], Civil Surgeon [CS], Divisional Commissioner for Chittagong [DIVC], Deputy Commissioner [DC] of Cox's Bazar	coordination and daily management of the relief effort and the camps, construction of shelters, water points, latrines, offices etc management of communications, press, information, disbursement of funds and allocation of relief items promotional campaigns, eg health education, repatriation, etc
National and Local Groups/Individuals	refugees (individuals), refugee solidarity groups eg Rohingya Solidarity Organisation [RSO] local & national political parties & politicians local "anti refugee" groups eg Cox's Bazar Refugee, Relief and Repatriation Committee local media, press etc	voluntary labour, campaigning for own rights, others' rights, legal assistance to individuals, local aid provision and fund raising, trading activities with NGOs, UNHCR and GOB information sharing

Explanation of Tables 5.3 - 5.6 - A summary of stakeholders:

Stakeholders and their different roles are categorised and summarised in Table 5.6 and explained below.

5.2.4/A **The GOB:** The relief operation was managed from the town of Cox's Bazar and a national Relief, Refugee and Repatriation Commissioner [RRRC][119] was appointed in February 1992, to coordinate operations on the ground. The Divisional Commissioner of Chittagong (one of four powerful Divisional Commissioners nationally, who related to the Ministry of Home Affairs) was also a key player as he was appointed by the GOB to oversee repatriation. He had the power to overrule the RRRC (the MOR), and the Civil Surgeon (the MOH). See Table 5.1 (May and July) and Table 5.2/A (July).

It was initially difficult to assess the capacity of the MOH. It had to work within directives emanating from other ministries in Dhaka, eg the Relief Ministry, and Ministry of Home Affairs [MOHA], etc. In addition, all funding was meant to be channelled from UNHCR to the GOB via the MOR. The MOH was therefore expected to access funds via the MOR, but had difficulty in doing so (Table 5.2, April). Shortages of MOH drugs and staff (April) can be related to the funding restrictions faced by the MOH at that time. The MOH was therefore weaker than the MOR and the MOHA, both in terms of decision-making and access to funding.

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[119] He reported directly to the Minister for Relief

5.2.4/B **The UN:** Within the UN family of agencies (UNHCR, WHO, WFP, UNDP and UNICEF) it was agreed that UNHCR should take the lead in coordination; thus the MOR and UNHCR became operational partners and a Memorandum of Understanding was signed (Table 5.1, February). UNHCR would channel funds directly to the GOB via the Ministry of Relief and NGOs who would become the implementing partners. UNHCR would also supply technical assistance and relief items (vehicles, some food items, plastic sheeting, clothing etc). UNICEF and WHO agreed to supply technical advice and support to UNHCR and the MOH as needed or requested. They looked to UNHCR for guidance. UNDP remained an interested observer while WFP agreed to supply food for a basic refugee ration.

5.2.4/C **The Donors:** Bi-lateral Donors (such as the European Community [EC], United States Administration for International Aid [USAID], Overseas Development Administration of the United Kingdom [ODA] etc) were approached to underwrite the operations of the GOB, United Nations agencies and NGOs.

5.2.4/D **The NGOs:** NGOs formed an essential part of the refugee assistance programme, contributing staff, resources and expertise. Many had both a national and international fund raising capacity and could afford to start implementing emergency programmes using their own resources. The NGOs, however, are a diverse group, often with their own policies and priorities. They appeared at times to have more flexibility and freedom to operate than the MOH because of their financial autonomy and independence. However for work beyond the first

three months they needed additional resources which were obtained either by launching appeals or applying to major donors such as the ODA, USAID or EC. Many applied directly to multilateral agencies such as UNICEF and UNHCR.

5.2.4/E **Organisational behaviour and performance:** Behaviour and performance are inextricably linked. Organisational typologies emerged during the course of the research (based on observed behaviour) and are suggested in Table 5.7. These composites have the potential to allow predictions of likely behaviour and could be useful to aid workers, to aid their assessments of agency capacity. However they need to be more thoroughly researched. This was not possible during the course of this study (it is outside the objectives of this research). The typologies are included here as a summary of behaviour observed in Bangladesh and as a potential useful tool which could be tested out in future emergencies.

Table 5.7 Agency typologies/composites

Agency Description	Distinctive Features: Structure			Distinctive Features: Behaviour		
	Management	***Financing***	**Public Profile**	**Personnel**	**Knowledge**	**Performance**
"FIRE BRIGADE" (usually international)	HQ usually in another country so little opportunity to react locally as policy defined by HQ	Plenty of money and good links with bilateral donors but may be dependant on these Because of strong resource base is capable of prompt action but often with little thought for the consequences and may act without seeking permission	Likes to be seen as saving lives but under public pressure to maintain this image ie high profile activities may not be based on accurate needs assessment (preference for feeding programmes or clinical work) Often critical of government and/or UN	Often uses inexperienced staff as part of rapid response (need to provide bodies to run visible programmes quickly) High staff turnover as staff on short term contracts. Often no language or management skills	Local knowledge poor as it may not have worked in the country before Technical knowledge varies: professional clinical skills often good but lacking in an overview and sensitivity	Usually comes with an aid "package" ie its own specific programmes and guidelines. It therefore adopts a "top down" approach Performance patchy as depends on skills and experience of individuals hastily recruited What they say matches what they do but quality may be questionable
"DEVELOPMENT SET" (often international)	HQ usually in another country but some degree of decentralisation) Policies are defined locally but are based on assessment of what is acceptable to HQ	Plenty of money; has its own fund raising so is less dependant on other donors Response may be slower due to careful thoughts on resource allocation implications	High public profile but it prefers to promote its development image Priority is to safeguard development programme. More likely to support local initiatives (less likely to intervene directly)	Uses longer term personnel with more emphasis on developing local/national skills but may lack specialist emergency technical knowledge & experience Language skills variable	Often excellent due to long term development work in the country May have useful high level contacts	More flexible - a listening agency - but may have some problems in changing gear from development to emergency mode What they say may not match what they do (need to protect image as "experts")

Agency Description	Distinctive Features: Structure			Distinctive Features: Behaviour		
	Management	Financing	Public Profile	Personnel	Knowledge	Performance
"ALL ROUNDERS" (often national)	HQ in capital city but may have international fund raising capacity Has limited opportunity to react locally as policy controlled by HQ which is very conscious of donors' expectations	Skilled at fund raising from large donors so has adequate resources and flexibility to act quickly, often without official government approval Because of high public profile often has donors queuing up so may become complacent	High public profile as life savers and development experts, hence it needs to be seen to be active to guarantee funding Often a thorn in the side of government or openly critical. Politically aware and has influential contacts	Committed and dedicated individuals skilled in development work May lack some theoretical (emergency) knowledge but has excellent local language and communication skills	Excellent knowledge and aware of political environment in which it operates but may deliberately chose to tread on some toes to achieve aims and protect radical image (muscle flexing to maintain street credibility)	Varies according to skills of individuals and the support given to them Often weak on middle management What they say and what they do are usually different because of the need to retain public image
"SHOE-STRINGERS" (often national)	HQ in capital city. May have a strong affiliation to an ideology or revolve around one person. Has a weak structure and poor decision-making Little support or management of local projects	Poor fund raising and little credibility so often broke. Usually national as international groups have problems in affording the airfare Has staff and ideas but no money = promises but little action	Low public image but if it has an ideology or affiliation, its image may be high in that sphere only Wants to improve image so keen not to upset anyone (in fact wants to keep everyone happy but fails to come up with the goods so often ends up upsetting all)	High on commitment at start but few technical skills and no support so fades rapidly Its initial presence may prevent other better equipped organisations from becoming involved Comes from the city so local knowledge and language may be poor	Knowledge is usually poor or non existent Politically naive and full of own ideas so insensitive to locally expressed needs	Abysmal and sporadic performance as it can't maintain the momentum What it says and what its docs are always different

Agency Description	Distinctive Features: Structure Management	 Financing	 Public Profile	Distinctive Features: Behaviour Personnel	 Knowledge	 Performance
"THE BIG SPENDERS" (usually multi-lateral UN organisations)	HQ usually in another country Highly bureaucratic and rigid hierarchy. Local policy making actively discouraged	Receives money from bi-lateral donors and governments Money received often reflects foreign policy of donor. Money may be with-held if the recipient country is not "flavour of the month" or a political priority of the donor	Very high. Likes to be seen to be doing a good job and can't cope with criticism. Is very protective of its image to maintain donor credibility Has personnel quotas (fixed numbers from different countries) and very high staff costs (salaries and allowances) Has "diplomatic" as well as operational and advisory roles	Varies, some are experienced but others are political appointees Staff may be more concerned with own position than with the job. It is often easier to block ideas than to push plans through (negative power) Technical advisors may be overruled or not supported by administrative staff, who control the funds	Technical advice may not be followed because of political considerations or local power struggles Local knowledge may be poor but it is adept at international politics	Can range from excellent to appalling. Despite the controlling bureaucracy, it acts erratically, due to the negative power that can be exerted by some individuals What it says and what it does are almost always different It uses "political double speak" and has some mirage projects, which may exist only in name or on paper
"THE REALLY BIG SPENDERS" (if you do what we say) (Bi-lateral donors, eg USAID, ODA, EC etc)	Headquarters are always in another country and funding offered usually reflects foreign policy of the donating government Highly bureaucratic, controlling and political	Availability of funds reflects current government priorities Response often slow unless it is politically expedient to have a rapid intervention. Aid often has strings attached to it (ie linked to additional purchase of items from donating country)	Highly protective of its public profile and image. Does not react well to criticism and often covers up problems May implement high profile programmes if politically expedient, (to be seen to be assisting a friendly nation) but these may not be based on a rational assessment of need	Most are civil servants and some are political appointees. There is a rigid hierarchy and career structure Administrators have more power than technical advisors and also control allocation of funds, but often lack the necessary technical knowledge and experience	Technical advice may not be requested or used due to political priorities; so interventions may not be based on its technical knowledge Is adept at national and international politics but has to follow the policy of its own government. It therefore has little room for manoeuvre locally	Despite the controlling bureaucracy and political orientation, it can appear to act unpredictably as it has its own hidden agendas What it says and what it does are inevitably different unless there is an opportunity for political gain

Interpretation:

* UNHCR, through financing (at least in part) the operations of some NGOs, had the potential to influence their sphere of operations. In fact some agencies were forced to withdraw, or subsequently chose not to get involved, when UNHCR turned down their funding applications.

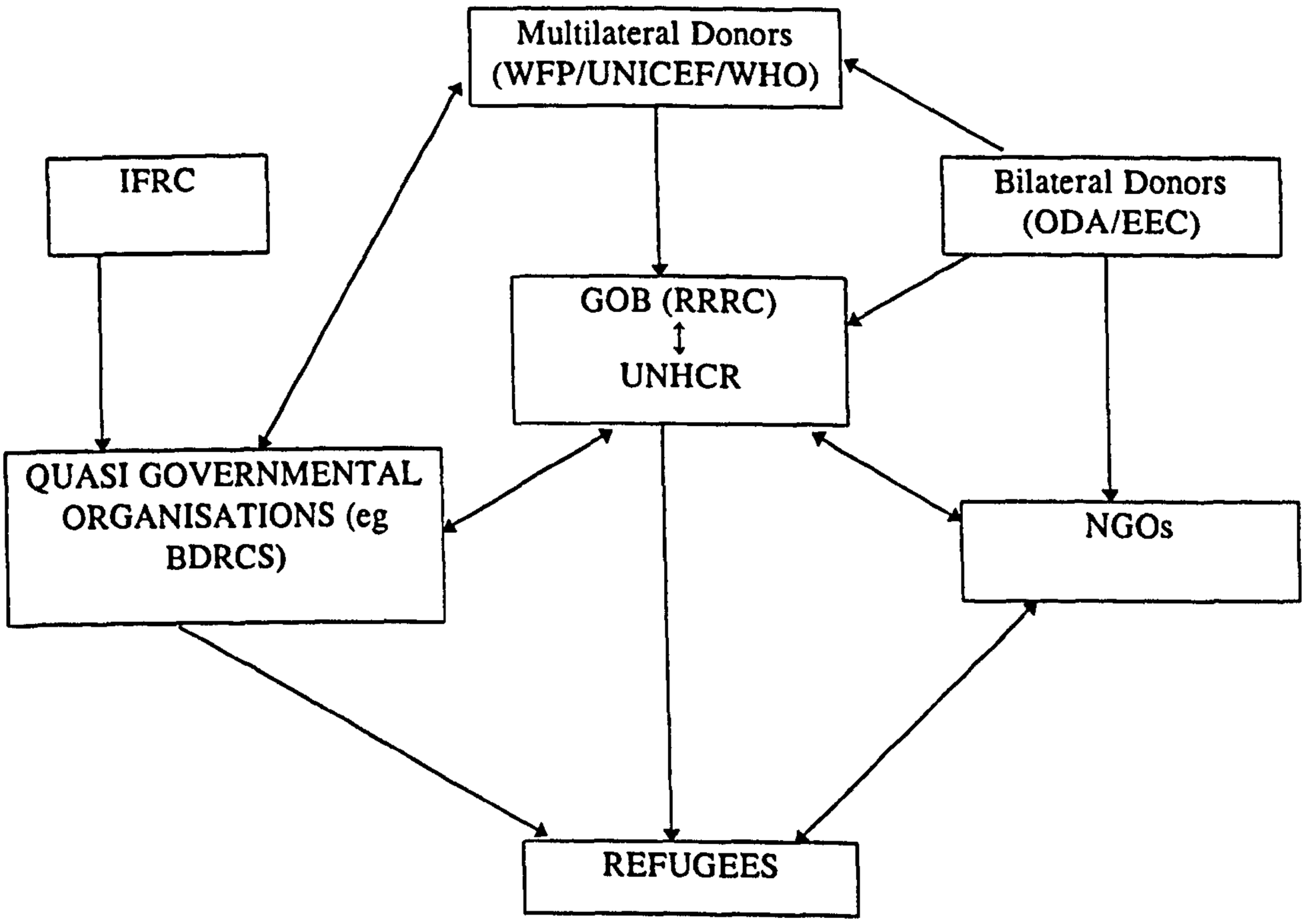
* UNHCR had some influence over the activities of those agencies which it funded, it had little or no influence over those that it did not fund (this included some sister UN organisations and most of the Islamic NGOs). A similar observation was made of the Rwanda emergency (JEEA Study 3, 1996).

* The behaviour and capacity of different organisations is clearly central to discussions regarding implementation, ie even when there is good access to information and action plans and standard guidelines are agreed, some policies will be easily implemented and others may not be implemented at all (Table 5.2/B, August/feeding programmes and September/malaria control).

5.2.5 How do they coordinate and does it work?

5.2.5/A **General coordination - theory**: The assumption in major relief programmes is that the coordination mechanism will lead to effective coordination. In Bangladesh the GOB took control in February 1992 by appointing the RRRC. This coordination mechanism existed for the duration of the relief programme and worked via a series of weekly general meetings and sub-committees.

Figure 5.3 General co-ordination mechanism (February 1992) : theory



Interpretation:

* Initially, this mechanism appeared to function as agreed through the Memorandum of Understanding (see Table 5.2, February and Figure 5.3). However, drawing together threads from section 4.1 (Demographic Chaos) and 5.1 (Political Chaos), it becomes apparent that, while a general coordination mechanism may exist, its effectiveness depends on a variety of factors, including the willingness of actors to be coordinated and power relationships which change during the course of the relief effort.

* A health coordinator and a coordination mechanism, the HNMC, were both in place. Yet despite what appeared superficially to be a well coordinated relief programme, there were still some failure to deliver services and programme - aid was not evenly allocated between the camps (Tables 5.3 - 5.5). The significance of this is explored further in Chapter 6.

* Some Islamic NGOs adeptly by-passed the coordination mechanism by failing to attend meetings (Table 5.2/A, March) and failing to give activity reports[120]. They had independent funding and therefore UNHCR had little leverage.

[120] The Islamic Agencies had independent funding and initially had the support of the Divisional Commissioner in Chittagong. Therefore even the RRRC had little control over their activities or even awareness of what they were doing.

* The refugees (at the bottom of the coordination tree) appeared powerless yet had considerable negative power in the sense that their objections and demonstrations (Table 5.1/A, May and June) hampered the GOB's repatriation plans and forced the international community to acknowledge their plight.

* The general coordination mechanism described above assumes that the different government departments (and indeed the UN Agencies) are themselves well coordinated, which may not be the case.

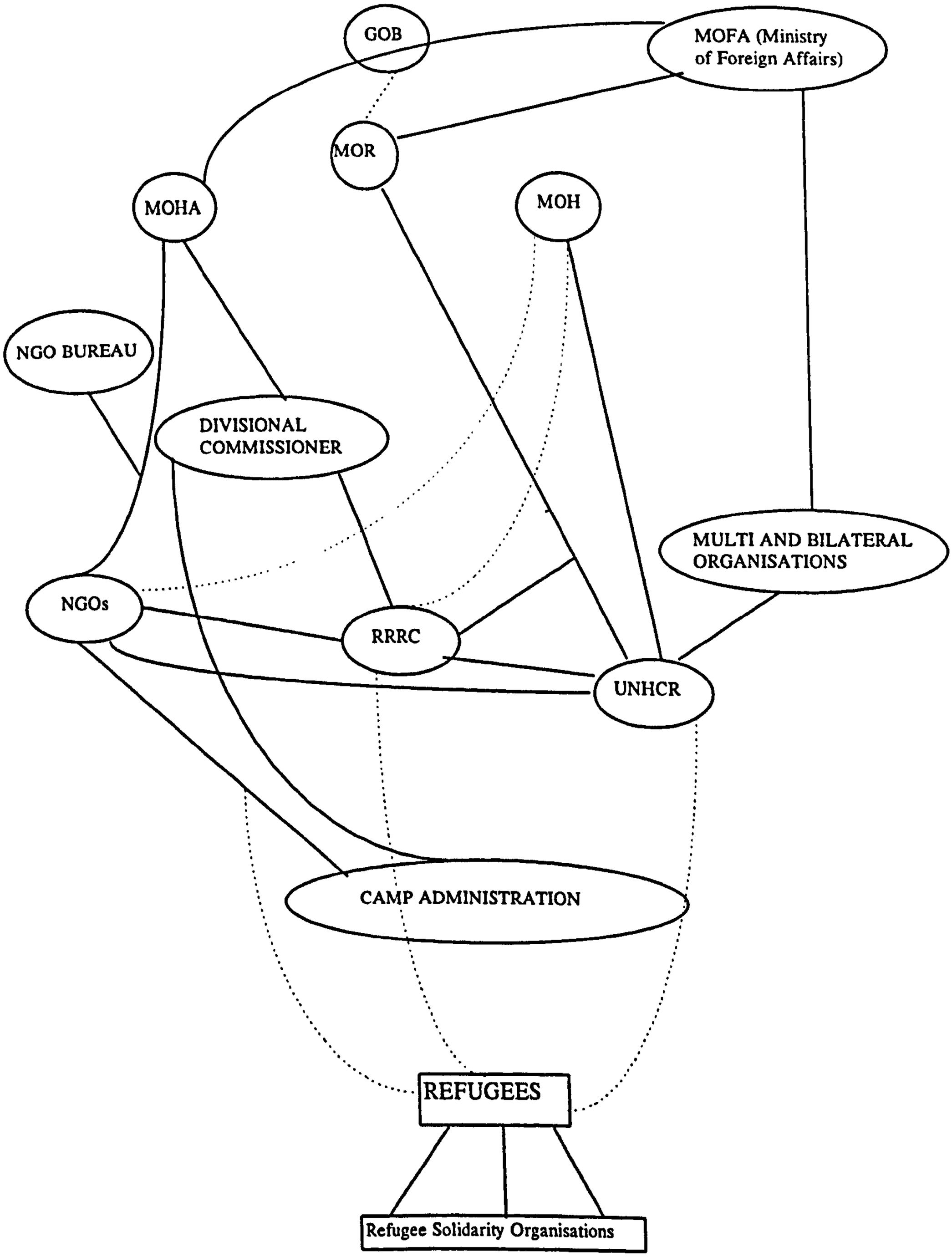
* Coordination and power relations are inextricably linked. The balance of power shifted during the year and during the different phases of the relief programme. It is not therefore surprising that the coordination mechanism evolved and developed and its effectiveness varied at different times.

5.2.5/B **The reality of coordination between agencies:** The assumption that the GOB was well-coordinated was challenged by conflicting messages and information. The MOR was implementing a major assistance programme and was responsible for the coordination of NGOs in the camps (Table 5.2/A, February and March). At the same time it agreed with the MOHA that too much assistance could prevent the refugees from returning home (Table 5.1/A, May and June). NGOs were subsequently informed that they had to gain permission for activities (including services, surveys and surveillance) from the "competent authority" (Table 5.2/A, July/quote from the Divisional Commissioner) yet simultaneously

they were being urgently pressed by the RRRC to expand in the nutrition and sanitation sectors (Table 5.2/A, July).

It was never specified who or where this "competent authority" might be. It could possibly have been the RRRC, the Divisional Commissioner in Chittagong or the NGO Bureau (part of the MOHA in Dhaka). Agencies were referred back and forth between them (Table 5.2, March, April, June, August).

Figure 5.4 The reality of coordination between agencies



The reality of coordination, observed between May and December 1992, was therefore different to that agreed earlier (see Figures 5.3 and 5.4). The NGOs themselves also did not appear well coordinated, as shown by problems identified in Table 5.2 (January to April) and persistent gaps in service provision (Tables 5.2/C and 5.5).

Interpretation:

* Despite a coordination mechanism, there was confusion over who had the final authority over the NGOs. This confusion could reflect either poor government coordination, a deliberate strategy of the GOB to control and frustrate NGOs, or a reluctance of individuals to take responsibility in an adverse political climate. A combination of reasons appears to be the most plausible explanation. The GOB wanted continuing international assistance (and money), and needed to secure its funding base by showing it was using the money well (for emergency relief activities). At the same time it wanted the refugee problem to be resolved by repatriation, hence the different messages from the various ministries at different times.

* Coordination can be a double-edged sword. Coordination needs to be effective to maximise resources and the relief effort. Agencies have to agree to be coordinated. Yet acquiescence can then be used against them, to control, manipulate and restrict their activities. Thus aid is used as a weapon. This was summarised by the Head of UNHCR in Bangladesh:

"April 28, a bilateral repatriation agreement was signed by GOB and GOM, to repatriate 20,000 per week, ...yet 1,000 people per day were still arriving. In May UNHCR said that it couldn't participate in repatriation under those conditions. The GOB was unhappy with the UNHCR stance. The International community (UK, USA, EC[121]) also objected so repatriation did not happen. So the GOB then used relief as a tool to persuade the refugees to go back, to make life uncomfortable for them. UNHCR[122] resisted that line" (LB, 11/10).

5.2.5/C **The reality of coordination within agencies - UNHCR:** Coordination was clearly a more complex activity than initially appeared. As shown above, conflicting messages emanated from the GOB and power relationships were not always obvious. Was UNHCR well-coordinated internally or did it experience similar internal problems to the GOB? This section uses a short cameo of UNHCR to explore internal coordination. Cameos are small case studies (or pictures of a moment in time) which are used here to illustrate specific points or influences on decision-making (see also Chapter 6).

UNHCR staff in Bangladesh effectively formed three teams:

* Field and Programme Officers whose role was to supervise and monitor relief activities, forge agreements with NGOs, allocate funds and provide logistic support

[121] These donors were funding UNHCR as well as some of the NGOs such as Care (USAID), OXFAM (ODA), GK (EC), MSF/F (EC) etc.

[122] UNHCR was reacting in response to concerns raised by its own staff regarding infringements of refugees rights. It was also responding to concerns raised by the NGOs which it was funding, especially MSF/H and MSF/F, OXFAM etc.

* the Protection Team, who were employed to deal with issues of legal status, security etc

* a large Technical Team (including health, nutrition, water and sanitation and construction consultants). The consultants acted as coordinators in their sector and provided technical support to the MOH, relevant departments and NGOs

The first two teams worked very closely together, as due to staff shortages, Field Officers often had to take on some of the duties of Protection Officers.

Cameo 5.1 UNHCR internal coordination

It was unusual for UNHCR to provide such strong technical input. It occurred because the UNHCR Representative recognised that considerable technical support would be needed in order to avoid a worst case scenario. UNHCR field staff were dependant on advice from the technical team to identify priorities (to prevent excess mortality) and deal with rising mortality and malnutrition rates. Hence from February - July 1992 there was a high degree of support and back-up for the technical team (in negotiations with government officials, securing transport, supplies etc).

However, from July 1992 onwards, malnutrition and mortality rates declined and there was a change of UNHCR administrative and field staff. These changes coincided with increasing political constraints, disturbances in the camps and a government which was intent on repatriation. The direct consequence of staff changes and the changing political climate, was less interest in health and technical issues. UNHCR priorities changed from assistance to protection.

It became very difficult for technical staff to operate due to a failure to share information, the withdrawal of logistic support, reduced access to transport and reduced general programme support (LB, 22/9; 23/9; 24/9 and 26/9). At the same time the technical staff were informed by UNHCR that it was not appropriate for them to visit camps (LB, 29/9) or attend weekly RRRC coordinating meetings yet all NGO technical staff attended (LB, 23/9) and UNHCR technical staff were meant to be coordinating them. UNHCR teams in Cox's Bazar appeared to be competing for resources and had different priorities (LB, 24/9).

Interpretation:

* Declining security in the camps, with approximately 20 refugee deaths from gunshot wounds, resulted in UNHCR giving "protection" a high priority. However more refugees were dying monthly from communicable diseases than as a result of violence (see Tables 4.3 and 4.4). It could be argued, on the basis of health statistics, that public health issues were still of high priority yet the view of a UNHCR Field Officer predominated:

"Technicians are consultants and therefore not part of UNHCR, ...health is not important but security is" (LB, 26/9/92).

* UNHCR's internal priorities changed but its coordination mechanisms were not strong enough to deal with effective sharing of information internally, agreeing priorities or coping with competing internal demands on key resources. This led to the increasing frustration of the technical team, who drew on the NGOs as their main source of information rather than UNHCR colleagues (LB, 22/9).

* The statement by the Field Officer above also revealed an ambivalence of regular UNHCR staff towards the role of technicians (who were consultants) within UNHCR. There was a feeling that technicians had too much power and needed to be controlled by Field Officers (LB, 26/9). In other words, UNHCR, like the GOB, also had its own internal power struggles and competing priorities. Which meant that internally, its activities were not always well coordinated.

5.2.6 Ideal, reality and gaps

The data presented in Table 5.2 initially appear to conform to the model of an acute emergency phase followed by a period of relative stability. However, implementation started before the rapid assessment was completed and before the coordination mechanism was in place. Once NGOs had started implementation, it was difficult to get them to modify their approach, change tack or relocate to a more needy camp.

Some key activities were identified, based on epidemiological evidence. The implementation of some was delayed, such as the health action plan. Others simply did not happen, eg attempts to organise malaria control failed (Table 5.2/B, September 1992), the Refugee Health Unit was approved in July but still not established by October 1992, no NGO assistance was allowed in transit camps (November 1992), and NGOs were selectively denied access to specific camps (December 1992). Problems continued into early 1993.

While superficially the situation appeared well coordinated and under control, there were persistent gaps in the provision of services within camps. Resources did not appear to be allocated systematically between camps either (on a basis of health needs). The variation between camp provision showed up in health statistics. Horikhola camp, for example, received little assistance and had persistently high death rates (Table 4.2/C, September 1992 and Figure 4.9).

Similar observations were made of the transit camps (Table 4.2/C, January 1993 and Table 4.6).

Some of these gaps appeared to relate to the different capacity, policies and preferences of NGOs. Coordination systems (operated by UNHCR and the RRRC) seemed unable to cope with this particular problem. Attempts at effective coordination were constrained by competing (different) political and organisational priorities. In addition, it was impossible to control independently funded NGOs. In summary, there was a coordination failure.

An analysis of management chaos, and implementation shows that while in theory, coordination is essential, in practice it is quite complex. A willingness to coordinate can be abused in an adverse political climate.

5.2.7 Management and organisational chaos: A summary and models

Managerial chaos was observed during the different phases of the relief programme. The disorder observed during the research, was ordered through the device of tables (Tables 5.2 - 5.5). The tables are used to develop a simple model of managerial and organisational chaos (Figure 5.5).

Four main phases are identified:

Start Up Phase (until April 1992)

* An acute chaotic situation when agencies are trying to establish emergency (life-saving) programmes.

Entrenchment Phase (from the end of April to the end of June)

* Acute emergency interventions have been implemented and are now refined and consolidated. Attempts are made to expand some programmes.

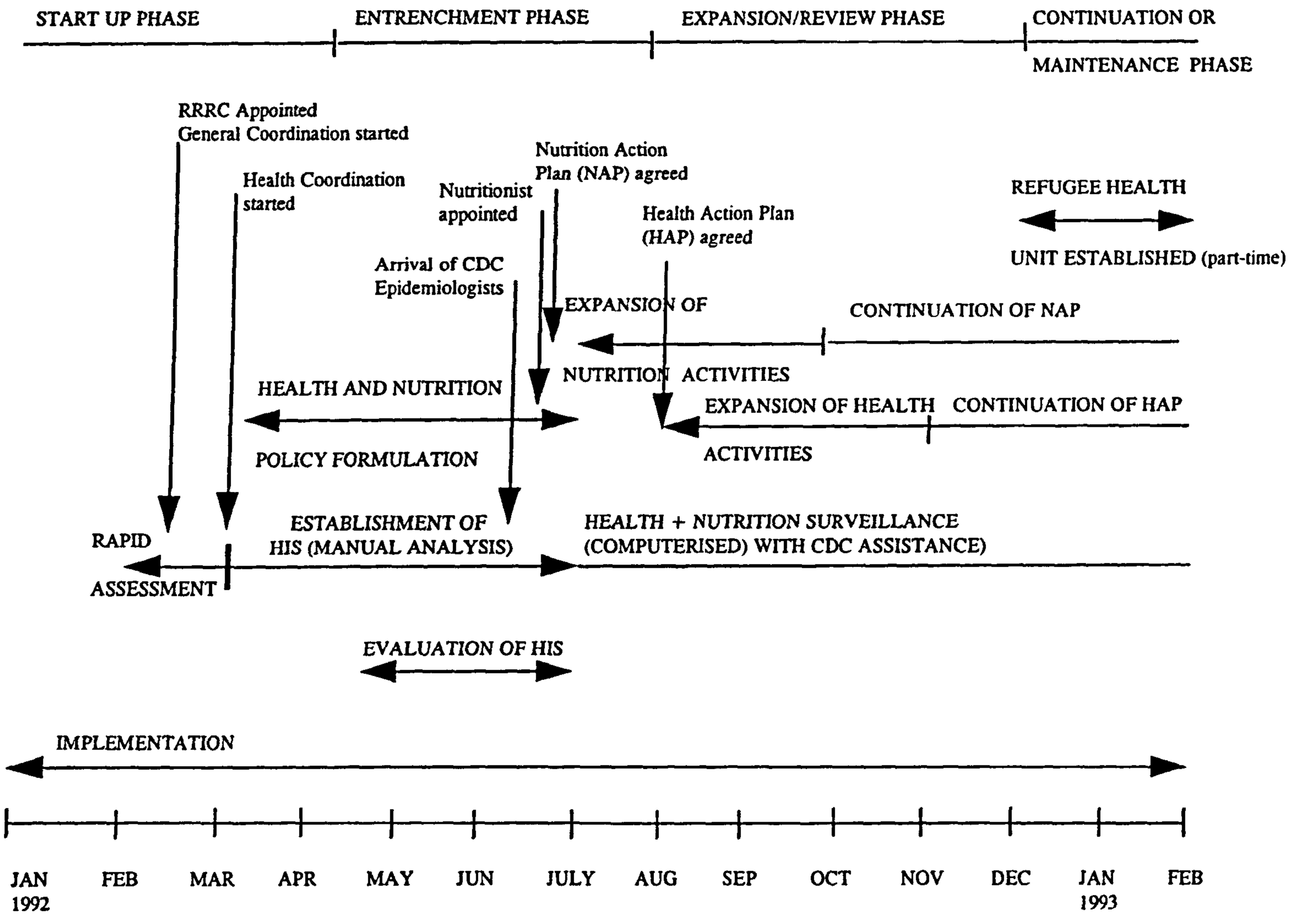
Expansion Phase (from July until December 1992)

* Programmes are expanded as per the HAP and NAP. NGOs also incorporate "development" type activities into their work programmes, eg mother and child health clinics, ante-natal care etc.

Consolidation Phase (from December 1992 onwards)

* Existing programmes are maintained and consolidated.

Figure 5.5 Managerial chaos explained



Interpretation:

* A series of activities and interventions were identified and prioritised (see section 1.5, Tables 5.3 - 5.5 and Annex 3). Some were implemented as planned and others occurred much later in the relief programme than anticipated. The action plans were only officially approved after high mortality and malnutrition rates had been recorded. Ideally they should have been implemented much earlier, in order to prevent a critical situation from arising. A turning point was observed in July 1992, when the action plans were endorsed and activities were expanded. The HIS also became fully operational.

* By December 1996, crude mortality rates and child malnutrition rates were low and appeared to be stable (see Figure 4.6 and Table 4.15). It was at this time that the Refugee Health Unit [RHU] was finally declared operational. The original intention of establishing an RHU, had been to provide technical leadership and coordination, set polices and support NGOs. This leadership and policy setting role is of crucial importance, especially during the acute phase of an emergency. The RHU was established too late in the day to fulfil the defined role at the crucial time.

* In emergencies events move very quickly, which means that rational models developed in development and PHC environments do not always follow the same logical sequence.

* Because of obvious and pressing needs, implementation may go ahead before priorities have been identified and agreed. These "needs" may have a basis in the humanitarian imperative or may simply reflect the need of organisations to define a role for themselves in a competitive environment.

5.3 What was the Nature of Chaos and Does Chaos Matter?

Chapter 4 started with a consideration of chaos and identified a need to impose some order on the chaos before trying to identify themes and trends or attempting to analyse the context in which the epidemiological approach was applied. This section summarises the main points arising that have a bearing on evidence-based decision-making.

5.3.1 Chaos: a summary of findings

Clearly many things happened during the course of the year which were undesirable as they hampered the relief effort. They can be attributed to competing frames and priorities. Key points include:

* The situation described was chaotic and politically fraught. Many key actors were involved with their own agendas (both explicit and hidden). The influence of individuals was important (eg the Divisional Commissioner based in Chittagong), although it was not always clear how much they represented individual views or their employers' policy.

* The relative skills, experience, capacity and resources (funding) of NGOs were important influences on the relief effort and on implementation. Some NGO typologies and behaviours are suggested in Table 5.7.

* Power relationships were very important, but they changed over time, were often not explicit and depended on other (often hidden) factors and hence appeared unpredictable.

* Public health was not an important priority of all key actors at all times. The top priority of the MOHA was repatriation, while the MOR's priorities were divided between repatriation and assistance. UNHCR's priorities changed from assistance to protection. While the NGOs and the MOH agreed technical priorities in May (Table 5.2), in practice there were many failures to implement, persistent duplication and a lack of standardisation, suggesting that these were not the over-riding priority for NGOs and the MOH at that time either.

5.3.2 Chaos: models

In this and the previous chapter (Chapter 4), the chaos observed was analyzed from different perspectives (demographic changes, health and nutritional status, political analysis and management chaos) and ordered through the use of tables and figures. It was possible to identify themes, trends and linkages. By drawing linkages across the themes, weakness in existing models were exposed and

alternative models are suggested. These are shown in Figures 4.5, 4.10, 5.2 and 5.5.

These models are used to identify the different phases of the relief programme. The phases however are not sequential and can run concurrently. Their relative importance is difficult to measure as it depends entirely on what perspective (or political or technical frame) you are coming from (which confirms Schon's observations, noted in section 2.3.1) (Schon, 1987). It seems clear however, that political influences (summarised in the political model, Figure 5.2) were very strong.

5.3.3 Chaos: does it matter?

* It is difficult to answer this question directly without a detailed analysis of how epidemiological data were used or not used, linked to an assessment of health impact. This is attempted in Chapter 6.
* This relief programme clearly illustrated some important problems. Despite the existence of action plans and coordination mechanisms, there were still gaps in the provision of health care and inequalities between camps (January 1993).
* In overall terms, the relief programme would appear to have been relatively successful as mortality rates were lower than those recorded in some recent emergencies elsewhere (Toole and Waldman, 1990 and 1993). Yet CMRs

still exceeded internationally accepted norms (see section 2.2.2). Malnutrition rates also reached unacceptable levels by international standards (section 2.2.2 and UNHCR, 1983; Toole *et al*, 1988; Mears and Chowdhury, 1994).

* It could be argued that in an adverse political climate with large numbers of environmental and political risk factors, mortality might have been expected to be higher.

The context in which the epidemiological approach and the hypothesis are to be tested out, has been described and analyzed. From Tables 5.1 and 5.2, it is apparent that health data were used in attempts to influence change. Two key questions remain. These are explored further in Chapter 6, where data use is examined in more depth. They are:

* How effective was the epidemiological approach in this chaotic environment?

* Did it make a difference?

CHAPTER 6

The Epidemiological Approach
and
Managerial Chaos

Chapter 6

The Epidemiological Approach and Managerial Chaos

"It is said that the frog, dropped into boiling water will leap out again at once, untouched, but if the same frog is put into the water and the temperature is raised ever so slowly, it will not react or move and if left there, will allow itself to be boiled alive"

Understanding Voluntary Organisations, Charles Handy, 1988

6.0 Managerial Chaos and Evidence-Based Decision-Making

This chapter evaluates the use of the epidemiological approach in the chaotic emergency context described in Chapters 4 and 5. It asks one main question:

What is the role of an epidemiological approach and evidence-based decision-making in reducing and controlling mortality, malnutrition and disease outbreaks in an acute emergency? (see section 2.2.1)

Two-sub questions are also addressed:

* Is an epidemiological approach feasible under acute emergency conditions (ie is it do-able)?
* Can an epidemiological approach help to reduce mortality rates and avoid some of the commonly found problems (ie does it work)?

Four different case studies are examined in sections 6.1 - 6.4. These case studies are used to question different aspects of data use and to provide further insights into facilitating factors and blocks. Cameos are used within the case studies to illustrate the different influences on the epidemiological approach. The impact (effectiveness) of data use is assessed.

The first case study (section 6.1) focuses on the role of rapid assessment data. It questions how data were collected and used to define priorities, develop policy and plan interventions.

The second case study (section 6.2) asks how crude mortality rates were used to assess the severity of the situation and influence change.

In section 6.3 the third case study examines the question: how were malnutrition rates used in support of management decision-making? For example, were they used to determine food requirements, define priorities and monitor the nutritional situation in the camps?

The final case study (section 6.4), asks how disease outbreaks were detected and managed.

A short summary concerning the epidemiological approach and decision-making is located in section 6.5. The findings of this study are examined in Chapter 7 where threads from Chapters 4 - 6 are brought together and discussed.

6.1 How Was Rapid Assessment Data Collected and Used?

The different stages of a rapid assessment are identified and analyzed. A cameo is used to compare theory with the reality observed in Bangladesh (Cameo 6.1, parts A - D), in order to identify achievements and problems. This section examines the background to the rapid assessment (6.1.1), its purpose (6.1.2), aims and agendas (6.1.3), the rapid assessment itself (6.1.4), the assessment report (6.1.5) and data use (6.1.6). A summary of influences is located in 6.1.7 and the impact of the rapid assessment on policy formulation is discussed in section 6.1.8. Section 6.1.9 contains a brief summary of data use.

6.1.1 Background

UNHCR needed to prepare budgets and formulate proposals and action plans for assistance to present to potential bilateral donors[123] as part of an international appeal for funds. UNHCR therefore agreed, in response to GOB requests, to send a rapid assessment mission to Bangladesh. My briefing by UNHCR was to assess, jointly with MSF/F, health and nutrition needs (Brown *et al*, 1992/b, Annex 5).

[123] While some funds were immediately available (initially $1 million which was later increased to $2.7 million from the High Commissioner's emergency fund), substantial sums would be needed to establish and maintain an emergency programme over a period of time.

6.1.2 Purpose of the rapid assessment mission

The theoretical purpose of a rapid assessment mission, as defined in the literature, is summarised in Table 6.1. WHO (1990/a, p7-9) also defines actions which need to be taken before the rapid assessment starts (Table 6.2).

Table 6.1 Rapid assessment - aims in theory

Aims: (WHO, 1990/a, p2)
* determine the magnitude of the disaster or emergency and estimate its likely duration * measure the present and potential health impact (ie an epidemiological assessment) * assess local response capacity and immediate needs

Table 6.2 Rapid assessment: preparation required

Preparation: (WHO, 1990/a p3)
* the type of expertise needed (health policy expert, water engineer, nutritionist, epidemiologist etc) should be clearly defined and personnel should work as an integrated team * information priorities should also be agreed in advance (eg data should be accurate and useful for timely decision-making; data should have public health importance)

Advice on how to translate rapid assessment recommendations into health policy is lacking, although it is implied that this will be done through the MOH in the host country using existing structures (WHO, 1990/b p3-4). So what happened in reality (see Cameo 6.1)?

Cameo 6.1/A Rapid assessment: getting started

MSF/F opened a modest programme in one small refugee camp (two weeks before UNHCR was invited to assist by the GOB), and was interested to expand its programme (Table 5.2/A, February). It offered to send a doctor and nutritionist from Headquarters, at its own expense to join the UNHCR rapid assessment mission. UNHCR Headquarters in Geneva voiced some concerns but acquiesced[124]. The following terms of reference were received by MSF/F from UNHCR: *"to assess the health and nutrition emergency needs of Burmese refugees in Bangladesh and advise accordingly on priority interventions envisaged"* (Brown *et al*, 1992/b Annex 1 p24).

The relationship between MSF/F delegates (two assessors) and UNHCR staff (myself and a site planner) was not clear although the site planner was the most senior and considered by UNHCR (Bangladesh) (but not MSF/F) to be the team leader. We (the UNHCR team) arrived in Bangladesh and immediately made contact with the MOR and the RRRC and tried to contact the MSF/F staff (LB 22/2).

Interpretation:

* While the theoretical aims were not, at this stage, questioned, the recommended actions (Table 6.2) were not followed and leadership was not clearly specified (Cameo 6.1/A). Participation in the rapid assessment depended on staff availability and the opportunism of a NGO, rather than an analysis of the range of skills needed.

* The actors involved included UNHCR, myself, the MOR, the RRRC in Cox's Bazar and an NGO (MSF/F). Note the MOH was not included.

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[124] MSF/F was often openly critical of UNHCR and has a reputation for "doing its own thing in its own way" which meant that the relationship between the two was from time to time problematic. However MSF/F was known internationally for its life-saving work. It was a large, very active and politically powerful organisation, which UNHCR needed to retain as an operational partner. The agreement to a joint assessment came about partly as a bridge building exercise and partly because one of UNHCR's senior health advisors was a former MSF/F employee and remained supportive of their work.

6.1.3 Aims and agendas

As the assessment got under way, areas of agreement and potential conflict emerged. Early differences are summarised in Table 6.3.

Table 6.3 Comparison of theoretical and real aims

Theory (WHO, 1990/a)	Reality observed
Determine magnitude and duration of PDE	GOB determined that the duration would be short. UNHCR was tentatively planning for a longer term programme (Tables 5.1/A and 5.2/A March and April; LB, 11/10/92)
Measure present and potential health impact (epidemiological assessment)	GOB needed funds but it later became apparent that it did not want the refugees to either receive substantially more assistance or appear to be in worse health than the local population (minimalist approach, Tables 5.1/A and 5.2/A, June). UNHCR needed to raise funds and budget for contingencies such as an expected deterioration during the monsoon (a maximalist approach, see Tables 5.1/A and 5.2/A, March).
Assess local response capacity and immediate needs	UNHCR policy was to support national institutions (MOR, MOH), local initiatives (RRRC coordination) and selectively fund NGOs. MSF/F policy initially was to be operationally active (ie run their own programmes). However the GOB at first discouraged NGO involvement (OXFAM Mins, 10/2).

Interpretation:

* The purpose of rapid assessment as defined by WHO (1992/a) is explained in rational humanitarian and technical terms based on the assumption that the information collected will then be used to plan appropriate responses and help to define policy. In practice it emerged that different actors had a variety of different interests.

* The decision to send a rapid assessment mission to Bangladesh (with MSF/F participation) was influenced by various factors, in addition to humanitarian ones (assessing health needs). MSF/F wanted better access to the refugees in order to expand in the face of GOB resistance. A close alliance with UNHCR seemed to give the NGO this opportunity.

6.1.4 Doing it: what happened?

The process of the rapid assessment is described and analyzed (Cameo 6.1/B).

Cameo 6.1/B Rapid assessment: data collection

The MSF/F doctor (seconded to MSF/F from Epicentre[125]) arrived a few days before the rest of the assessment mission (LB, 20/2) and started work alone without any prior agreement over methodology or nutrition "cut off" points. This was unfortunate, as it later materialised that this was his first assessment mission as an epidemiologist and also his first job as a newly appointed staff member of Epicentre. Consequently, he used nutrition criteria[126] which were not widely recognised internationally, thus limiting the potential utility of his data. The questionnaire was also flawed as it made some assumptions about foods available which were not valid[127] (see Brown *et al*, 1992/b p4 and Annex 2).

A part of the problem seemed to be the epidemiologist's briefing from MSF/F, which was to assess (for them) the health situation and to review the role of MSF/F as well as to assist UNHCR. This was not compatible with UNHCR's requirement for an independent (objective) assessment (Diary and LB, 20/2/92). As an epidemiologist, his prime interest was in gathering epidemiological data and reviewing the MSF/F programme with a view to expansion (Brown *et al* 1992, p22). However UNHCR needed a wider perspective, including an assessment of local response capacity. His objectives were too restrictive for UNHCR's needs but also arguably too ambitious, given the short time frame allowed (one week).

Interpretation:

* The epidemiological data, on their own, would not (and did not) provide enough information to allow for the detailed planning and budgeting which was required by UNHCR. The requirements of UNHCR had not been

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[125] Epicentre is a centre for research and technical advice in emergencies, set up initially by MSF/F with the support of other members of the international MSF family.

[126] He used a MUAC cut off point of <11 cms to indicate severe malnutrition and 11-<12 cms to equal moderate malnutrition (Brown *et al*, 1992/b). In Bangladesh, and internationally, cut off points of 12.5 cms and 13.5 cms respectively are commonly recognised (HKI, 1992/a; C de Ville de Goyet *et al*, 1978; Young, 1992) whilst UNICEF and UNHCR internationally both use cut off points of 12.0 and 13.5 cms (UNHCR, 1983. UNICEF, 1986).

[127] The aim was to assess the food distribution cycle and estimate calorie intake. The questionnaire asked when rice was last received and how much (Brown *et al*, 1992/b: Annex 2). The most common answer was 1.5 kg per person per week, which would give a calorie intake of only 750 calories per person per day. However the GOB and BDRCS were also distributing wheat (about 2 - 2.5 kg/per person per week), lentils and oil. As no questions were included about other commodities, total calorie intake was seriously underestimated. This problem only came to light when the assessment was already well under way, so some of this data could not be used as initially intended.

made clear or perhaps had not been understood by MSF/F. More probably, the interests of the MSF/F epidemiologist were different to those of UNHCR.

* The capacity of the MOH and NGOs to respond was not fully assessed due to the time constraints incurred in collecting epidemiological information. In other words, management and organisational issues were neglected in favour of gathering quantitative data.

* The data did, however, provide a brief snapshot of the current health situation within the limitations of a flawed methodology (survey sample sizes were generally too small to allow conclusions to be drawn about nutritional status, for example)[128].

[128] Sample sizes were too small to provide reliable malnutrition or mortality rates, and confidence intervals were not calculated.

6.1.5 Report writing and feedback

Cameo 6.1/C Rapid assessment: reporting

Attempts were made to salvage the mission and to draw together a more cohesive approach. The UNHCR Site Planner (Team Leader), finally met with the MSF/F assessors and reached an agreement to prepare a combined final report in Dhaka. However the MSF/F team submitted a draft report covering 60% of the camps surveyed and left the country to continue data analysis in Paris (Diary, 25/2). This draft included commendations for MSF/F's existing work and recommendations focused on expanding the MSF/F programme (Brown *et al*, 1992/a). These were later modified at UNHCR's request after additional information concerning the capacity of a variety of other NGOs was provided by UNHCR staff and the RRRC.

The final report was relayed from Paris shortly afterwards (Memo, 5/3; Brown *et al*, 1992/b). However neither I, nor the UNHCR Site Planner (Team Leader) saw this version or the recommendations before it was released by MSF/F. A combined comprehensive UNHCR/MSF assessment report was not produced, partly for political reasons[129], but primarily because of logistic factors. The MSF team had already returned to Paris, the UNHCR Site Planner to Geneva via Nepal and only I remained in Bangladesh. By the time the final MSF/F report arrived in Dhaka (mid March), the situation had already dramatically changed (from 33,000 refugees to 150,000) as shown in Table 4.1/A and Figure 4.1.

Interpretation:

* The situation was dynamic and changing rapidly. By the time the report was made available, interventions were already underway (Table 5.2/A). Whether the activities of NGOs and the GOB were influenced by the UNHCR report is difficult to measure but the utility of the report for

[129] MSF/F at this stage was involved in a separate major confrontation with the GOB - see cameo 5. UNHCR interceded on its behalf to prevent the organisation from being ejected from Bangladesh - but was then seen by the GOB as aligning itself with MSF/F. In addition MSF/F persisted in recruiting fairly inexperienced staff, therefore the quality of its programme at this stage was questioned by both UNHCR and GOB.

planning must be questioned (see also section 6.1.8 which discusses policy formulation).

6.1.6 Data use for fund-raising and coordination issues

Cameo 6.1/D Rapid assessment: outcomes

UNHCR prepared its budgets and launched an international appeal for funds in early March 1992, based on information collected by the assessment team. Technical health recommendations can be found in five different reports (Diskett, 1992/a; Neumann, 1992; Nash, 1992; Brown *et al*, 1992/a; Brown *et al*, 1992/b) and was also published (Brown *et al*, 1992/c in *MSF News*, 1992).

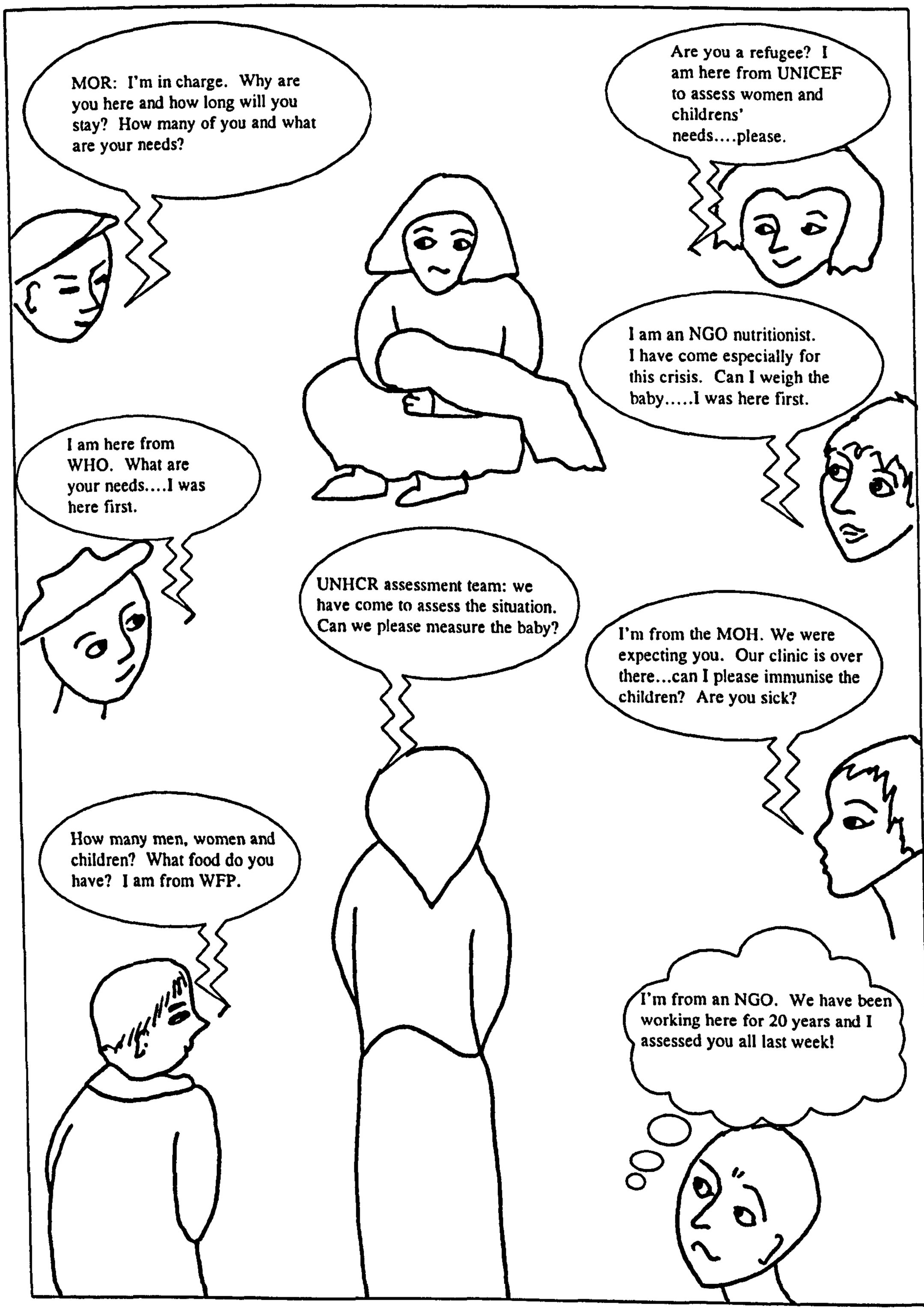
During the assessment, we came across other assessment missions gathering similar data in the same locations, including the WHO, the WFP and UNICEF, sister UN organisations who had just agreed that UNHCR should be the lead UN agency in this emergency (see Figure 6.1 and Diary, 19/2 & 23/2; LB, 19/2). As UNHCR Health Coordinator, I did not have access to any other reports which may have been produced. WHO wrote (and shared) health assessment notes. These did not contain clear recommendations although some can be extrapolated from the text.

Interpretation:

* Several reports of varying quality enabled UNHCR to prepare budgets for potential donors and negotiate with the GOB. Fund raising, based on these reports, was very successful and the relief programme was well funded by the international community. However we can speculate that funds may have been allocated even without the report. Western political interests were sympathetic to Bangladesh at that time and less so towards Myanmar. Business interests inside Myanmar were being hampered by that country's

poor human rights record - see the writings of Aung San Suu Kyi (Kyi, 1991). Donor support for refugees in Bangladesh increased pressure on the Myanmar government to put its house in order.

Figure 6.1 Rapid assessment and coordination (see Cameo 6.1/D)



6.1.7 Rapid assessment: a summary of influences

The influences of the different organisations involved are summarised and analyzed from different perspectives in Table 6.4.

Table 6.4 Influences on the rapid assessment[130]

Examples of factors	Technical perspective	Political view	Personal concerns
Fund raising	Need to attract international funding to underwrite costs of interventions and relief operations - a key factor influencing UNHCR, GOB & MSF/F Recommendations would therefore need to be both technically sound, acceptable and likely to attract financial support from donors, which have their own policies and priorities	The GOB had been under pressure from UNHCR to allow UN and NGO involvement. The GOB subsequently requested UNHCR assistance and international aid. UNHCR, donors and the NGOs were then under some pressure to "come up with the goods" in order to gain credibility with the GOB ie to be seen to be assisting (Memo, 28/2). The GOB was under public scrutiny and had to fulfil the expectations of the people who elected it (Table 5.1/A and Figure 5.1)	Heads of agencies were accountable to their own headquarters. Failure to come up with good funding proposals or good programmes may reflect badly on them and adversely affect their future careers
To fulfil own agency mandate	UNHCR's mandate concerned protection of refugees and assistance (health, water, shelter etc). Relative priorities were often not clear ie to assist the GOB? to deal with refugee protection? or health interventions? MSF's mandate included the right to intervene on humanitarian grounds - which has the potential to bring it into conflict with host governments	UNHCR's immediate concern was the "protection" (security) of the refugees although it also wanted to safeguard their health. GOB wanted to be seen as a caring government but also had a responsibility to its own population to ensure that the refugees went home as soon as possible. MSF needed to be seen "saving lives" as per its public statements - by visibly running high profile feeding programmes and clinics etc	Many individuals had their own agendas' for being there, which may or may not be compatible with the aims of their organisation, eg to gain experience or gather data for research

[130] Information used in this table is extrapolated from various sources including Log Books, Diary (Feb 19-27 1992), agency reports and literature, minutes of a Donor's coordination meeting in Dhaka Feb 27th and newspaper reports (Feb 19-27). Internal UNHCR memos (memo, 26/2- 8/3) and reports (Brown *et al*, 1992/a; Brown *et al*, 1992/b; Diskett, 1992/a) were also used.

Examples of factors	Technical perspective	Political view	Personal concerns
To meet expectations of donors and media	The media expected to see life saving interventions but were more likely to report sensational stories of malnutrition and deaths. Donors wanted to be reassured that their money would be spent on life-saving programmes	No one wanted to be blamed for being seen to allow refugees to die because of apparent relief programme failures. This probably had more immediate relevance to the organisations within Bangladesh than to those with headquarters outside	Many individuals were conscious of the need to promote positive rather than negative media images - for personal, professional and political reasons. However individual journalists were looking for an exciting (often negative) story to sell newspapers
Rational planning considerations - to safeguard health	Baseline data were needed to plan interventions, assess resources needed and to monitor the health and nutrition status of the refugees in the coming months (UNHCR, MSF/F)	Data were needed to justify interventions to donors and the GOB. However UNHCR's interests were longer term than the GOB's - leading to potential differences over the level and duration of likely interventions	Individual expertise and preferences were important eg epidemiologists tend to gather epidemiological information. Strong team leadership (to draw together a coherent view) was lacking
Others	To review MSF/F's existing work and assess expansion opportunities (MSF/F)	To show that the GOB was not dependant on international NGOs and was in control (GOB)	Good experience to enhance future career prospects, publications etc

Interpretation:

* The varied expectations and influences of the different stakeholders, organisations and individuals, combined with the absence of a clearly recognised team leader and poor coordination, resulted in confusion over the organisation of the assessment, a lack of agreement over the criteria to be used and different interpretations of expected recommendations or outcomes.

* There were many competing influences on the rapid assessment as well as the straightforward technical perspective ie there were competing

viewpoints and stakeholders often had different needs. Table 6.5 is a summary of the factors influencing the rapid assessment.

Table 6.5 Factors influencing the rapid assessment : a summary

"Rational" factors	"Technical" and professional factors based on rational planning and epidemiological models
"Real" factors	"Political and personal" factors which may or may not fit the rational (technical and professional) models

If the information collected was used to influence policy, these additional factors could also be expected to have some effect, ie constrain or facilitate policy development and implementation.

6.1.8 What was the impact of the recommendations on policy formulation?

Using two key reports (Brown *et al*, 1992/b; Diskett, 1992/a) and notes provided by WHO (WHO, 1992/c) a number of recommendations were made. These are summarised in Table 6.6.

Table 6.6 Summary of recommendations[131]

Category/Report	Brown *et al*, 1992/b	Diskett, 1992/a	WHO, 1992/c
Health services	- immunise all children aged 6/12 - < 10yrs - equally distribute health care coverage in the five camps - provide qualified staff in adequate numbers - provide appropriate equipment/facilities in the five camps	- expand measles immunisation programme and extend up to 10 yrs - improve availability of curative care facilities - agree minimum staffing criteria with MOH for all camps - investigate ways to improve/ expand existing MCH/FP services	- supply basic essential drugs - provide ten more (MOH) doctors for disease containment
Food and nutrition	- ensure general food distributions - set up extra feeding programmes for children < 5yrs	- extend supplementary and therapeutic feeding programmes to all camps where there is a clearly indicated nutritional need	
Environmental health	- give shelter priority because of coming monsoon - reduce crowding - improve water and sanitation eg one latrine per 20 families	- urgent public health action to improve the latrine and sanitation situation before the onset of the monsoon - urgently improve water especially in Dumdumia and Haludia with UNICEF/OXFAM help	- send a WHO public health engineer and UNICEF team to assess the water and sanitation situation on 3rd March
Coordination, support and surveillance	- use reliable population estimates for planning - use the services of specialised NGOs - follow up on basic indicators to monitor the situation - coordinate aid	- improve coordination at camp level and in Cox's Bazar and strengthen planning capacity through the development of health and nutrition management committees at both levels - strengthen health and nutrition surveillance system and monitor the evolving situation - conduct a detailed study on women's needs and psycho/social issues - strengthen referral centres - contingency planning and preparedness for epidemic control measures (including health promotion) - recruitment of a UNHCR health/ nutrition coordinator and MOH counterpart to coordinate activities and develop policies - consider need to establish a refugee health unit	- send one specialised MOH medical team (senior entomologist, malariologist) to monitor disease patterns - send a combined WHO/UNICEF team to develop strategies for diarrhoeal disease control and acute respiratory infections

[131] These are not necessarily in order of priority.

Interpretation:

* It was easy to make recommendations. In fact some of them were so general that they could have been be made without setting foot in a refugee camp (ie use population data for planning, give out food etc).

* Little attention was given to addressing key issues such as:

  - the feasibility of implementation (are the recommendations realistic and politically acceptable?)
  - developing strategies for implementation (how to do it and more important: who should do what?)
  - ranking relative priorities (there was agreement that measles immunisation should have high priority, but what about the other proposals?)
  - assessing the mechanism and procedure by which some of these could be developed into policy (who finally decides policy and who are the key decision makers?)
  - weighting the views of the MOH and other ministries (how do their priorities and capacity fit with these recommendations?)

In order to identify the impact on policy formulation, key activities are extracted from Table 6.6 and compared with information presented in Chapters 4 and 5. The results are summarised in Table 6.7.

Table 6.7 The impact on policy

Rapid assessment recommendations	**Action taken and dates** (extracted from Tables 4.1, 4.2, 5.1 and 5.2)	**Analysis**
Health services: immunise all children < 10 years against measles	Measles immunisation of 78,544 completed in April (coverage of between 80-100%) (Table 5.2/A)	This programme was successfully implemented but took longer than expected to get started
Health services: improve coverage of health services	Discussed at the HNMC and RRRC meetings in April and May, yet still problematic in July and November (Tables 4.2 & 5.2)	An awareness of the problem did not lead to immediate solutions, although changes took place in some selected camps
Food and nutrition: ensure general food distributions	These were initiated in January by the BDRCS (before the rapid assessment was carried out), and continued uneventfully apart from ration reductions in June (Tables 5.1/A & 5.2/A), September and November (Table 5.2/B)	This happened anyway, with seemingly little reference to the rapid assessment data
Food and nutrition: expand supplementary feeding programmes where there is a clearly indicated nutritional need	NGOs were overburdened in March and April (Table 5.2/A). Permission to expand was refused in May (Tables 5.1/A & 5.2/A). NAP agreed at end of June (5.2/A) and expansion occurred in July	Need was recognised by NGOs, MOH and UNHCR, but not by key decision makers (eg the RRRC and Camp Officers in Charge)
Environmental health: give shelter priority	Shelter given high priority in February, but some delays due to land disputes in April (Table 5.2/A). By June about 91,000 are said to be shelterless, reduced to 30,000 by December (Table 4.1/B-C)	Initial delays were due to the rate of arrival exceeding construction capacity, but generally this programme received high priority. Delays from June to December were due to the emphasis given to repatriation promotion. (Why build shelters when the refugees are going home?)
Environmental health: improve water and sanitation services	This was recognised as a high priority (Table 5.2/A, March), yet poor sanitation remained a problem in April. Permission not given for additional NGO involvement until July (5.2/A), with dramatic benefits in August, partly in response to a recognition of risk factors associated with the monsoon (Table 5.2/B)	The need for good sanitation practice was not fully appreciated until the onset of the monsoon. High malnutrition rates were attributed to high levels of diarrhoea in most camps (IIKI, 1992/a) and Table 5.2/A, June)
Coordination: improve coordination at camp and district level	Regular weekly health meetings were held from March onwards (Table 5.2/A). But problems of coordination were revealed by gaps in the provision of services and some duplication of assistance (Table 5.2, March, April, September, December)	A coordination mechanism was in place and functioning, but those coordinating were not necessarily those with decision-making power
Surveillance: strengthen health and nutrition surveillance	A standardised HIS was established and functioned (see section 4.3 and Annex 2)	A consensus was reached on the need for a standardised system although disputes continued over mortality reporting (Table 5.2/A, July)

Interpretation:

* Table 6.6 shows that the assessment yielded some useful information and provided a snapshot of the health and nutrition status of the refugees. The data were also shared widely with GOB, donors and NGOs (HNMC Mins 27/2/92; RRRC Mins 27/2/92 and donors meeting/diary, same date). Table 6.7 shows that some of the recommendations were eventually adopted as, or incorporated into, policy (through the HAP and NAP, see Annex 2).

* Some of the recommendations were implemented. Whether this was as a direct result of the rapid assessment, or whether they would have happened anyway, is difficult to assess. Experiences from other emergencies (which reported high mortality from measles, for example) would suggest that the information from the rapid assessment did at least increase awareness and accelerate the implementation of some key interventions.

6.1.9 A summary of data use: the rapid assessment

* Some interventions had started before the assessment was underway. Organisations (GK, BDRCS, MSF/F) had made their own judgements and followed their own guidelines (there were pressing humanitarian needs). Others started work before the results were widely available such as IIRO and Concern (Tables 5.1/A and 5.2/A).

* The data were used by UNHCR to formulate its own budgets and define aims and objectives (Memo 30/3 and 30/5; Annex 3). Despite its limitations, the rapid assessment was therefore a very powerful tool for generating funds.

* Weaknesses in methodology inhibited later attempts at monitoring effectiveness of policy implementation as sample sizes were too small.

* The situation was dynamic. When the assessment was done the population was 33,000. Budgets were prepared on a basis of 50,000 (Memo, 1/3/93). By mid-March refugees numbered 150,000 (Figure 4.1). While general recommendations can be multiplied up and applied to all camps, the assessment mission underestimated the need to strengthen management, support and referral structures. Different management structures are needed when the influx exceeds 50,000- 100,000[132]. In a dynamic situation, and in the absence of a strong lead from the MOH, repeated regular reassessments are needed, so that recommendations can be reviewed, modified and upgraded if necessary.

* A rapid assessment is more useful if it does not simply stop at recommendations but also begins to look at strategies for implementation

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[132] In Bangladesh, normal systems and structures were under considerable strain when the refugee population exceeded 50,000 and were rapidly overwhelmed (certainly by the time the population reached 100,000). However capacity to cope depends on the flexibility and strength of existing structures, the scale of the influx and the rate of arrival. It is likely therefore that the crisis point will vary from emergency to emergency according to location-specific factors. However it appears from this data that a danger point of 50,000 is useful as an indicator to reassess management structures.

and assesses their feasibility. This is essential if the persistent gap between policy and practice is to be narrowed. However there are implications for the way in which rapid assessment teams are recruited and used.

* There is no international consensus on the type of data to be collected in rapid assessments and how such data should be presented and used. For example, WHO recommends a comprehensive approach (Table 6.3) whilst MSF is very selective eg *"reports should contain figures and nothing else"* (Moren, 1992 p10) ie only epidemiological data should be collected. The key issue appears to be a lack of clarity between different actors concerning the purpose of rapid assessments. Joint assessment missions of this nature will continue to be problematic unless some consensus is reached.

6.2 How Were Mortality Rates Used?

As noted earlier, crude mortality rates are an essential indicator of the severity of the situation (WHO, 1990/b; Hakewill and Moren, 1991; Toole and Waldman, 1988) and are used to define priorities and monitor trends. In addition, mortality data can be used for advocacy and lobbying purposes, to influence change (Mears and Chowdhury, 1994 p17). Two methods of mortality surveillance are mentioned in the literature and both were used in Bangladesh (Chapter 4 and Annex 2). It was necessary to use both so that the utility of data from different sources (for evidence-based decision-making) could be assessed and to allow cross checks

(triangulation) between different data sets and methods in order to assess the data quality in the context of this research project. The two methods were:

* passive surveillance (routine reporting of deaths via the clinic based health information system)

* active surveillance of mortality (through surveillance of graveyards)

In this section, the main uses of mortality rates are described and analyzed. Influences on data use (introduced in Chapters 4 and 5) are explored in more depth. The section is organised as follows:

6.2.1 Mortality surveillance in the political context

A cameo of mortality surveillance (Cameo 6.2/A-E) is used to analyse the two different mortality data collection methods which were implemented in the camps; describing passive (6.2/A) and active surveillance (6.2/B) and the politicisation of data (6.2/C). This cameo is included in order to set the scene for an analysis of controversies (6.2/D) and data use/outcomes in the political context (6.2/E).

Cameo 6.2/A Mortality surveillance: passive surveillance

Deaths were reported to MOH clinics voluntarily by relatives of the deceased. They received either a burial shroud or cash to cover its purchase as an incentive to encourage reporting. However there were early indications that deaths were seriously under-reported (Memo 13/3/92). Subsequently, interviews with the refugees (Lee and Burkholder, 1992 p2) confirmed that they often used their own resources to purchase burial cloths, to avoid reporting deaths to camp officials. Once reported, the deceased's name was removed from the food ration card and the weekly family food ration reduced. The refugees calculated that the value of a continuing monthly food ration was greater than the value of one burial shroud.

Interpretation:

* Active surveillance of deaths through monitoring graveyards (grave watching) was implemented in order to overcome the problem of under-reporting.

Cameo 6.2/B Mortality surveillance: grave watching

MOH staff were fully occupied on clinic duties so, with the Civil Surgeon's agreement, NGOs were asked to check graveyards daily, counting new graves, discussing identities with religious leaders and tracing relatives. The aim was to obtain a more reliable estimate of deaths and a rough age/sex breakdown. Through interviews with relatives it was sometimes possible to establish cause of death with some accuracy. Active surveillance consistently identified twice as many deaths (sometimes up to three times as many) as passive (MOH) reporting (Lee and Burkholder, 1992 p2). The discrepancy in data, confirmed by CDC consultants in June 1992 (Figure 4.6), was worrying as officially only MOH (passive) data were used and recognised by the GOB. The MOR took the view that active surveillance data over-estimated deaths as graveyards were sometimes shared by refugees and villagers (LB, 15/8). This was not confirmed by post mortem interviews (which identified refugee relatives rather than villagers), however the MOR declined to revise its view.

Interpretation:

* Deaths in the camps were severely underestimated. The active surveillance data showed that mortality rates were worryingly high and rising (Tables 4.2/A and 5.1/A, May and June). The GOB was reluctant to concede that there was a problem.

So was this problem overcome? Cameo 6.2/C describes how a relatively simple problem became subject to political influences.

Cameo 6.2/C Mortality surveillance: the politicisation of data

Discussions were initiated with the MOH in Dhaka in early July and approval was given by the Director of Primary Health Care who recognised the need to combine and use both reporting methods. However, despite this support from the MOH, the CDC report (Lee and Burkholder, 1992) caused considerable consternation in GOB circles when it was released (LB, 15/8). Proposals to remove the link between death reporting and changes in the ration[133] were subsequently rejected by the RRRC, who himself was under instruction from the Divisional Commissioner in Chittagong, backed by the Ministry of Home Affairs (MOHA). The priority of the MOHA was repatriation - not improved data collection.

Eventually grave watching was banned by the latter on the grounds of "cultural insensitivity". Attempts were made by the GOB to discredit the CDC report. CDC, and by implication UNHCR, were accused by the GOB of insinuating that the GOB was deliberately lying over camp death rates and concealing deaths (LB, 15/8).

[133] CDC proposed that food rations for the deceased should continue for 3 months rather than ceasing immediately.

Interpretation:

* Data became politicised as findings showed more deaths (and a more serious situation) than the GOB was prepared to admit. Passive surveillance alone would underestimate the CMR and <5 years mortality rates and appear to show a much better, more stable health situation than the reality observed would suggest.

* Because of the discrepancies it was obviously crucial to improve the MOH passive reporting system and to gain official recognition of an active surveillance system. Both methods were essential to allow cross checks of data quality and reliability.

Cameo 6.2/D Mortality surveillance: the controversy

The issue of active versus passive surveillance became a major national controversy in July 1992, as active surveillance (NGO) data showed more deaths than passive (MOH) data (Figure 4.6), which argued for an expansion of relief activities. This conflicted with GOB wishes to reduce assistance to the camps in order to promote repatriation (Tables 4.1/A, April; 5.1/A and 5.2/A, June). The GOB was therefore not pleased at data which argued conversely for an increase in assistance. This controversy adversely affected the quality of the data collected subsequently (as only less accurate passive data could officially be collected) and impeded rational data use.

Interpretation:

* A theoretically sound and essential policy (active mortality surveillance) was overruled by the political considerations described in Table 5.1.

Mortality data are potentially very powerful politically and are therefore controversial. Arguments concerning data quality and collection methods took precedence over actions to improve the deteriorating health situation on the ground.

* The GOB was in an unenviable position. It could not afford to give credence to a report showing high mortality rates as this would further undermine its repatriation efforts, which were considered integral to national security and stability. Yet at the same time, ignoring the report could throw into doubt its international credibility as a caring government.

Cameo 6.2/E Mortality surveillance: data use and outcomes

UNHCR consulted with major donors. International pressure and increasing concern about rising CMRs resulted at the end of July 1992 in a temporary reversal of GOB policies, and repatriation was abandoned until the end of the monsoon (Tables 4.1/B and 5.1/B).

Eventually it was agreed that active surveillance through house to house visits, could be tried as it was culturally acceptable (Table 5.2/B, August). It appears the GOB (MOR and MOHA) expected this to fail as it would be difficult to sustain or validate (LB, 15/8). The Civil Surgeon, however, supported it as a possible compromise solution (Table 5.2/B, August). Some NGOs declined to attempt active surveillance as it was seen as being too political and could jeopardise their longer term interests elsewhere in Bangladesh (LB, 18/8). Others simply did not have the capacity (WHIB, August-December 1992).

A witch hunt ensued, fuelled by accusations that CDC and UNHCR had fabricated data (LB, 15/8). Attempts were also made to prevent both UNHCR and the NGOs from having access to the information (LB,15/8).

These attempts generally failed due to the UNHCR/NGO policy of working closely with the MOH, operating the HIS jointly (Burkholder, 1992). The situation did, however, place MOH officials in jeopardy, culminating in the secret surveillance and subsequent suspension of the MOH Health Information Officer on charges of spying for UNHCR in December (Table 5.1/C).

Interpretation:

* Data were used to lobby the GOB and powerful donors. Policies changed, apparently as a result of donor pressure, and increased assistance was allowed into the camps. Note though, that the monsoon was in full flood during July and August making it difficult to repatriate large numbers due to flooded roads and a lack of boat transport. Donor pressure coincided with physical barriers to repatriation. It is possible that the GOB had decided to suspend operations anyway because of the monsoon.

* The MOH faced a dilemma. It recognised the need for accurate mortality data but needed technical support and collaboration from UNHCR and the NGOs to achieve that. However its own government, through other more powerful ministries (especially the MOHA), required rather different information - which showed low mortality rates - in order to reduce and discourage NGO involvement.

* The politicisation of data exposed national MOH staff to serious security risks culminating in arrest. International staff appeared to be protected by their international status, although they remained under surveillance.

In summary, the rational use of mortality data, to respond to a deteriorating situation, was constrained by competing political interests. The interests of the most powerful actors took precedence over the clearly-defined health needs of the refugees.

6.2.2 Mortality surveillance: monitoring trends

Different influences on data use have already emerged, eg a lack of consensus concerning the purpose of data collection, the type of data to be collected and the politicisation of data (6.2.1). Other influences were also apparent. A cameo of monitoring mortality trends (6.3) is used to illustrate a rather unusual influence on data sensitivity, quality and subsequent utility.

Cameo 6.3 Monitoring mortality rates : Balukhali 1 camp

During the week of 29.8.92 to 4.9.92, a marked rise was noted in the average weekly crude mortality rate for all camps from 0.35 per 10,000/day (WHIB, 28.8.92) to 0.65/10,000/day - almost double the previous weeks figure. The data, collected using MOH passive surveillance, were initially accepted at face value by CDC and the MOH. Further scrutiny of the data (by me) revealed that the rise was generated by a large number of deaths (53) reported that week by the MOH in Balukhali 1 camp (in contrast to 12 deaths reported the previous week). However, this rise was not validated by the NGO (MSF/H) active surveillance data (7 new graves counted) (MSF/H data sheets 29/8 - 4/9). The CDC staff, MOH and MSF/H staff in Cox's Bazar were unaware of any particular problems in the camp and were at a loss to explain this phenomenon.

Investigations instigated in the camp by UNHCR revealed that the rise was not "real" but an artefact of reporting. The camp officer in charge had been concerned that too many refugees were not reporting deaths in order to obtain extra rations. A census was planned for the following week. Anticipating discrepancies between food rations issued and the refugee population figures, the camp officer in charge declared an amnesty for one week. During that week, refugees were told to report all deaths which had occurred. They would not be penalised for concealing deaths, but anyone found lying the following week during the census would be punished (Jorgenson, 1992).

A total of 51 out of the 53 deaths that were subsequently reported had occurred in the period since the camp opened (March 92). Re-analysis of the data for that week, excluding these earlier deaths, confirmed that average (passive) CMR for the week in question remained stable (0.37/10,000/day - WHIB, 4/9/92).

Interpretation:

* Under-reporting of deaths was confirmed, albeit in an unexpected way. Interestingly, in the period between the camp opening (March 1992) and this incident, MSF/H counted 330 graves whilst the MOH passive surveillance system accounted for only 274 deaths (equivalent to 83% of

the number of graves). The additional 51 concealed deaths brought the MOH total up to 325, a figure remarkably similar to the MSF/H data.

* An apparent rise in crude mortality rates for one camp can disproportionately skew the results for all camps when using a centralised reporting system. In this case, CMRs were artificially elevated above the target of 0.5/10,000/day. Some factors affecting quality of data (and their use) may be hard to predict but if they are not detected quickly can lead to false positives.

* Data collection and data use requires continued observation, supervision, training and skill. Vigilance, an awareness of camp specific factors (ie an efficient camp official in charge) and checking procedures are essential in order to exclude false positives.

In summary, staff often do not appreciate the need for rigorous checking and evaluation of data, as the main emphasis has been on data generation (quantity) and availability rather than quality. Staff training is clearly a major issue and checking procedures should include actively seeking out anecdotal reports and qualitative information, in order to validate quantitative data, which should not be accepted at face value.

6.2.3 Mortality surveillance: identifying vulnerability

In the literature it was recognised that sex-specific mortality data may show some difference, especially in the context of different cultures. In Bangladesh, while attempts were made to collect this data, the limited experience of the data collectors, early problems of analysis (4.3.1), and the political environment (5.1) led us to suspend attempts to collect sex-specific data from all camps.

However the opportunity arose for sex specific data analysis from one sentinel site (Cameo 6.4). The camp (Gundhum 2) was fairly typical, being of medium size and situated geographically half way between Cox's Bazar and Teknaf, in the centre of the refugee affected area (Figure 4.2 and Table 5.4).

Cameo 6.4/A Male/female mortality

One of the NGOs [GK] carried out a health screening exercise in Gundhum 2 camp during May/June 1992. Data were collected on variables such as family size, family profile, deaths since arrival in the camp (retrospectively), illness in the family, immunisation status etc. All households were visited, generating a mass of data. CDC staff offered to help facilitate the analysis of the mortality data. A specific interest in the relationship between gender and mortality was identified by UNHCR (as some differences may be expected in a Muslim culture). The analysis revealed that men were more likely to attend clinics than women (ratio 60% : 40%), yet females (66% of deaths) were twice more likely to die than males (33% of deaths) (Lee and Burkholder, 1992).

This data also confirmed earlier findings (Figure 4.7), that children under 5 years were more likely to die than those over 5 years (62% : 38%).

Interpretation:

* While the investigation was carried out by an NGO, rapid data analysis depended on the support of a (female) CDC epidemiologist. The NGO had collected a wealth of data but all analysis was carried out manually and therefore was very time consuming, prone to errors and slow (only one person was available to work on analysis). Involvement of an epidemiologist meant that data were made available in a timely fashion to a wider audience than might otherwise have been the case.

Cameo 6.4/B Male/female mortality: outcomes

Findings were included in the CDC report and discussed at HNMC meetings. Investigations showed that women were reluctant to stand in queues at clinics alongside men who were not immediate relatives. In addition a lack of female health workers was stated, by both men and women, to be a barrier to women's attendance for treatment. As a result, some clinic practices changed. Different entrances were used for men and women (queues were segregated) and each clinic devoted one day per week for females and small children only. In addition, attempts were made to recruit and/or train more female health workers. The high child death rates were linked to high malnutrition rates and argued for an expansion of nutrition interventions (see also section 6.3)

Interpretation:

* Analysis of male/female mortality differentials in one camp raised awareness of gender issues in a male-dominated Muslim culture. It led to a change of practice in many camps to encourage greater female attendance at clinics. Gender issues are often very sensitive; data, when presented

objectively, can be used constructively to promote debate and changes in practice.

* Analysis of age differentials led to increased awareness of child health problems.

6.2.4 Mortality surveillance: a summary of key issues

CMRs (per 10,000/day) are an essential indicator with a widely recognised value, but care needs to be taken to ensure that data are reliable, sensitive and specific. Emergency staff do not have the necessary skills or training to critically appraise data quality. Interestingly this observation also applies to some epidemiologists - especially those without previous relief experience. Quantitative systems need to be backed up by anecdotal information and observation to validate results (Cameo 6.4). This may not routinely happen as staff may be more preoccupied with generating statistics than safeguarding quality. Few staff have received training in the evaluation of HISs.

Passive mortality surveillance alone is likely to be an unreliable method of obtaining mortality data, yet this was the MOH's main source of information for official statistics (Figure 4.6 and Table 4.2/B). Passive surveillance data will reveal trends, but underestimate both CMRs and child mortality rates, and therefore have low sensitivity.

In highly-politicised environments, information about mortality is potentially a very powerful tool. It is essential to monitor crude death rates in the camps yet these can be used (and manipulated) for political purposes. In Bangladesh, mortality data were used to influence change; with donor support UNHCR successfully persuaded the GOB to change its policy. However, the opportunity costs were high as the relationship between the GOB and UNHCR broke down, resulting in a major confrontation (Table 5.1/B and Figure 5.2). Decisions regarding interventions were delayed due to arguments about the data (Cameo 6.2 and Tables 4.2/B, 5.1/A and 5.2/A).

In a politically sensitive environment, attempts by UNHCR and NGOs to strengthen local infrastructure (eg increasing the capacity of the Civil Surgeon's Office to manage the HIS) can bring MOH and national staff into conflict with their own government policies, placing their personal safety, family security and future careers at risk (Tables 4.2/C and 5.1/C, December; Cameo 6.2).

It is worth noting that refugees had little or no influence in the process of data collection and use except in a negative way, through failure to report key events (eg deaths) to the authorities (Cameo 6.2).

6.3 Data Use: Nutrition

This section examines the use of nutritional survey and screening data. However note that section 4.4 identified a number of problems affecting data quality. The impact of some of those problems on data use is examined here.

Nutrition programmes in refugee camps are frequently described as either general food distributions (when a basic ration is targeted at families or given to each family member) or selective feeding programmes aimed at specific vulnerable groups, such as the malnourished (<80% wt/ht), pregnant and lactating women, the chronic sick and some elderly or disabled groups (Seaman *et al*, 1983; Peel, 1979; Lusty and Diskett, 1983; Young 1992; MSF, 1995). Two different types of selective feeding programmes are commonly instituted; therapeutic [TFP] (to rehabilitate severely malnourished children <70% wt/ht), and supplementary [SFP] to cater for moderately malnourished and other vulnerable groups (Gibb, 1988; Sholham, 1994; MSF, 1995).

It is often stated that SFPs should not be started unless there is a clearly indicated nutritional need based on survey results (UNHCR, 1983; Lusty and Diskett, 1983; Young, 1992). However it has been observed that SFPs are often instituted, contrary to advice, by NGOs without clear evidence of need (Shears, 1983/a) and therefore are often controversial (Shoham, 1994). The benefits of SFPs are also in dispute. The decision to open them should therefore not be taken lightly.

Nutritional data then have a number of potential uses in emergencies - in addition to monitoring nutritional status. For example the data can provide a basis for the calculation of food requirements, can assist with decision-making (when to open or close selective programmes) and can be used to evaluate the coverage and effectiveness of nutrition interventions.

This section evaluates the use of nutrition data and is sub-divided into four main parts:

6.3.1 Determining food rations

6.3.2 Monitoring nutritional status and influencing change

6.3.3 Nutritional data use: evaluating selective nutrition interventions

6.3.4 Nutritional data use: what conclusions can be drawn?

6.3.1 Determining food rations

General food rations (sub-section A) were initially distributed by the GOB and the Bangladesh Red Crescent Society [BDRCS] (Table 5.2/A, January) whilst NGOs took responsibility for the selective programmes [SFP and TFP] under the coordination of UNHCR as the MOH did not have a nutrition capacity (sub-section B).

A: General food rations

WFP agreed to provide food for all three types of programmes and procured food on behalf of the GOB. It insisted however that family food rations should be distributed through one organisation, the BDRCS, ie it chose to use an intermediary rather than hand over the food directly to the GOB/RRRC. WFP did not have immediate access to sufficient food stocks in the country so emergency distributions were initiated by BDRCS, using their own disaster preparedness stocks and locally purchased food, with funds from an appeal to the International Federation of Red Cross/Red Crescent Societies. In addition, the GOB released emergency rice stocks, as a loan to WFP, which would later be replaced by WFP imported wheat.

Food rations were therefore distributed from an early stage as it was unnecessary to await the arrival of emergency food imports. They started before nutritional information was available as no surveys had been done. Rations were standardised, providing a ration in excess of 2,100 kcals/per person/per day (Table 6.8).

Table 6.8 Food rations used in the refugee camps

Food item	WFP ration/per person/per day from March 1992 onwards	BDRCS Emergency ration/per person/per day, January-February 1992
Rice (or wheat)	500 gms	400 gms
Oil	25-30 gms (soya oil)	50 gms (butter oil)
Lentils	60 gms	110 gms
K cals	2,130-2,200 (approx)	2,100 approx

Interpretation:

* This ration was distributed to all registered refugees in all camps (see Table 4.2/A-B). The GOB discouraged distributions to unregistered refugees including those awaiting registration, as food was the incentive to register. Demographic data were used to calculate food needs but as the early situation was dynamic and demographic information was in dispute (Table 4.1/A), there were some difficulties in matching resources to needs. Demographic data (and food requirements) were up-dated on a daily basis as more refugees arrived.

* By international standards this ration was above the recognised minimum (1,900/day) (Seaman and Rivers, 1988) and higher than rations recorded in other recent emergencies (Toole *et al*, 1988; Toole *et al*, 1989). The ration, however, was lacking in foods targeted specifically at the nutritional needs of young children (eg who need energy-dense foods). There was no blended food, for example. Not surprisingly, malnutrition rose in the under 5 years age group (see Table 4.2/B).

* The ration was also lacking in essential micronutrients (iron, vitamin C, and B complex vitamins, especially vitamin B2). It was more suitable for short-term emergency use than longer term maintenance[134]. Predictably an outbreak of vitamin B2 deficiency was suspected in June and then confirmed (Moren, 1995).

B: Selective feeding rations

Supplementary and therapeutic food needs were calculated and budgets were prepared based on the data obtained through the rapid assessment surveys, with adjustments made for a deterioration during the coming monsoon and the acute emergency period (Diskett, 1992/a). It was therefore assumed that < 21% of children under five were < 80% wt/ht and in need of selective feeding[135].

In fact the deterioration in nutritional status which occurred was much more severe and prolonged than was originally anticipated (section 4.4), with malnutrition rates rising to an alarming 37.9% <80% wt/ht (Table 4.15) in May.

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[134] Experts recommend a higher caloric intake of c2,350 kcals/per person/day through a diversified ration, but this is not yet accepted internationally by the leading agencies such as WFP (ACC/SCN, 1992).

[135] Estimates were based on a population of 200,000 of which 20% were under the age of 5 years. An estimated 21% of those were in need of selective feeding (6% therapeutic and 15% supplementary). The aim was to proved a therapeutic diet of approximately 2,000 kcals/child/day (depending on size) for the severely malnourished and a supplementary diet for the moderately malnourished of 600-750 kcals/day.

Interpretation:

* Demographic data and nutritional data were used to calculate special nutritional needs. However calculations made in March were redundant by the end of May, as the situation had deteriorated beyond expectations and the total population figure had also increased (Tables 4.1/A and 4.2/A-B). Additional food was needed but budgets had been based on much lower food requirements.

* There was clearly a need to expand feeding programmes as well as to adjust UNHCR budgets. The former was relatively easy as UNHCR had sufficient funds available. The expansion required GOB permission and the supply of additional food items from WFP, which were not forthcoming (see 6.3.2 and Table 5.2/A, May and June).

Summary

Some demographic and nutritional data were used for calculating food requirements, but a deterioration in nutritional status and micronutrient deficiencies was not prevented despite an awareness of the risks[136]. The response to the nutritional crisis (May - June) is examined in more detail to assess

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[136] It is likely that in addition to problems associated with the rations, high disease transmission rates in the camps also contributed to the nutrition crisis (see section 4.5 and Table 4.19).

influences on decision-making and the role of data at this crucial time (6.3.2).

Table 6.9 sets the scene.

Table 6.9 Refugee population statistics and camp situation in June 1992

No.	Camp	Population	Status
1	Adarshagram	15.262	Receiving new arrivals
2	Dhua Palong	17.555	Closed to new arrivals
3	Dechua Palong 1	4.983	Closed to new arrivals
4	Dechua Palong 2	22.392	Closed to new arrivals
5	Maricha Palong	10.982	Closed to new arrivals
6	Haludia Palong	7.557	Closed to new arrivals
7	Jumapara		Not yet planned
8	Shailer Daba	1.300	Self referrals moved spontaneously. New camp for 12.000 is planned and due to open in 1 week
9	Kutu Palong	12.768	Closed to new arrivals
10	Gundhum I	58.125	Closed but readjustment taking place between GD1 and GD2
11	Gundhum II		Numbers not known as included in GD1 figures, population readjustments taking place between GD1 and 2
12	Gundhum III		Receiving transfers in and new arrivals, figures included in GD1
13	Balukhali 1	21.010	Closed to new arrivals
14	Balukhali 2	11.041	Closed to new arrivals
15	Horikhola	(12-15.000)	Planned but camp still empty and no refugees transferred
16	Rongikhali	14.457	Open and receiving transfers in and also sending transfers out
17	Nayapara 1	(20.000)	Not officially open but refugees started transferring in May from Dumdumia 1 and 2
18	Nayapara 2		Planned but not open
19	Dumdumia 1	26.961[137]	Transferring out to Shailer Daba, Gundhum and Nayapara 1
20	Dumdumia 2	47.357	Transferring out to Shailer Daba, Gundhum and Nayapara 1
Total	15 camps officially exist and 3 more about to open	270.450	

[137] Numbers in Dumdumia 1 and 2 were not yet officially readjusted to take into account those transferred out to other camps.

6.3.2 Monitoring nutritional status and influencing change

Nutritional survey data (from a variety of sources) were available in May at the height of the nutritional crisis but generated considerable controversy (section 4.4 and Tables 4.2/B, 5.1/A and 5.2/A). It is important to understand the nature of this controversy before data use can be assessed. Cameo 6.5 illustrates what happened when attempts were made to use the data in order to influence change.

Cameo 6.5/A: Nutritional surveillance: the crisis

Helen Keller International [HKI] was asked by UNHCR, with GOB approval[138], to carry out nutritional surveys in the camps. The HKI report (Wijnroks, 1992) released in June, revealed dramatically high malnutrition rates, expressed as the percentage of children <5 years with a MUAC <12.5 cms or who were <80% wt/ht (see Tables 4.14 - 16).

The high malnutrition rates appeared to be associated with anecdotal reports of a rise in crude mortality rates in selected camps. For example, Gundhum 2 recorded a < 5 yr mortality rate of 8/10,000/day by active surveillance (LB 22/5[139]). The CMR in Gundhum 2 was between 0.91/10,000/day using MOH passive surveillance data (LB, 25/5[140]) and 0.93/10,000/day (MSF/F, active surveillance). MSF/H working in Nayapara 1 recorded a much higher CMR of 4.3/10,000/day[141] using active surveillance (LB, 27/5).

The serious nutritional situation at the end of May was of major concern to UNHCR and the NGOs. It was reported by them in May (Table 4.2/B) before the HKI survey data were available (Wijnroks, 1992/a), for example:
* *"No feeding programme exists in Gundhum 2 & 3 yet the <5 mortality rate for Gundhum 2 is 8/10,000/day. We do not have permission from the Camp Officer in Charge to start a feeding programme"* MSF/F (LB, 22/5).
* *"There is an increase in Kwashiorkor in Gundhum 1 with 35 new admissions to the therapeutic feeding centre [TFC]"* MSF/F (LB,25/5)
* *"The TFC is overflowing with severely malnourished children, we are extending the SFP and building a second SFC".* MSF/H, Nayapara (LB, 27/5)
* *"We have an increase in admissions to the TFC and permission is not forthcoming to extend the programme"* MSF/F, Dhua Palong (LB, 29/5)

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[138] HKI was highly regarded in Bangladesh and worked closely with the Institute of Public Health and Nutrition [IPHN] in Dhaka. Its involvement was suggested by the EC representative (who channelled funds to both UNHCR and HKI), the MOH and NGO contacts. It had performed "distress monitoring" in Bangladesh over the last 3-4 years, in disaster prone areas and was therefore regarded as being very experienced in the Bangladesh context, and accustomed to the aftermath of disasters.

[139] > 4 = situation out of control (Hakewill and Moren, 1991)

[140] A child mortality rate of > 1 = a very serious situation (Hakewill and Moren, 1991). Note that CMRs were not available through the HIS at this time due to problems of analysis. Reports were from concerned NGOs in selected camps, reported anecdotally to me. They were therefore disputed by the RRRC as MOH reports were somewhat different, showing fewer deaths.

[141] CMR > 2 = emergency out of control, > 4 = major catastrophe (Hakewill and Moren, 1991).

Interpretation:

* As noted in section 4.4, firm conclusions are not possible due to the weakness of the data, but it appears that nutritional status deteriorated rapidly between March and May resulting in a major nutritional crisis.

* The deterioration was observed and reported anecdotally before survey data became available.

* It was necessary to invite an NGO (HKI) to conduct the surveys as many other NGOs did not have the necessary skills or specialist knowledge in survey techniques, nor did the MOH. UNHCR did not have the capacity to organise a rigorous technical training programme.

Cameo 6.5/B Nutritional surveillance: differing perceptions

The HKI (May) survey report (Winjroks, 1992), released in mid June confirmed a "dramatic problem" and was supported by data from the recently arrived UNHCR Nutritionist who observed that: *"the number of registered beneficiaries in the TFC increased 27% between May and June"* (Table 4.17 and Smith, 1992). However the most important question arising from the HKI report was: does nutritional status improve with time spent in the camps or deteriorate? The discussion surrounding this point generated considerable controversy. If nutritional status improved in relation to length of time spent in the camps, then the argument for increased assistance was undermined.

UNHCR and the NGOs welcomed the HKI report as it provided much needed hard data which appeared to confirm their own observations - that nutritional status was deteriorating and urgent action was needed to avert a major disaster (LB, 5/6-17/6). However both the WFP and the GOB were reluctant to acknowledge problems at all (LB, 17/6) and argued that nutritional status improved in the camps. They blamed the problem on new arrivals and claimed that no action was necessary as once they had settled in things would improve anyway.

This stance increased the concern of NGOs and UNHCR who recalled that in 1978/9 the same refugee group (Rohingyas) were forcibly repatriated. During that period a number of tactics were used. Food rations were reduced, camps closed, markets restricted and NGO activities banned. About 10,000 people died as a result of the ensuing nutrition crisis and measles epidemics (Aall, 1979). NGOs and UNHCR regarded the GOB scepticism and inaction with suspicion. They felt that the GOB must have a hidden agenda (LB, 19/6).

Interpretation:

* Unfortunately the cause of this new crisis was not immediately apparent and open to interpretation. The HKI report (Wijnroks, 1992/a), offered several possible explanations but focused on issues relating to diarrhoeal disease, repeated infections and poor environmental sanitation, rather than food related problems. At the same time, UNHCR was concerned about the poor quality of the food basket, the poor coverage of the population by

health and feeding programme facilities and poor sanitation, ie multifactorial causes (UNHCR Sitrep 3, June 1992).

* In short, there was a lack of consensus on both the scale (trends) and the causes of the problem. In order to understand the issues surrounding data use it is necessary first to discuss and understand in more detail the area of controversy.

These issues (scale of the crisis, trends and causes) were crucial because at the end of May and in early June, refugees were still arriving (Figure 4.1 and Table 6.9). It was impossible to predict what the final total would be and in addition, the monsoon had started; the situation was still dynamic. If it could be shown that nutritional status improved in relation to time spent in the camps, there would be no arguments to support any additional nutrition related interventions as nutrition status could be expected to continue "improving".

Cameo 6.5/C Nutritional surveillance: the controversy

The HKI report revealed that: *"rates of under-nutrition are highest in the more recently established camps which might indicate that the refugees arrive in a very poor nutritional state and improve during their stay in the camps - however even in the oldest and best organised camp (Dechua Palong 2) rates of under nutrition are still high"* (Wijnroks *et al*, 1992/a p24).

In summary, malnutrition rates were highest in the newer camps eg Gundhum (LB, 9/6) and lower in older camps eg Dechua Palong 2 (Wijnroks *et al*, 1992/a). Unfortunately this appeared to confirm the prevailing opinions of the GOB and WFP that the Bangladesh camps are good for nutritional health. WFP insisted that *"nutrition status is improving"* (LB, 10/5) but perhaps more significantly an MOR official stated *"we do not want Bangladesh blamed for any disasters"* (LB, 9/5).

Note also attitudes to data: *"we want facts and figures and evidence"* (WFP prior to the HKI report, LB, 10/5), and *"show us there is a problem first"* (WFP **after** the HKI report was released, UNHCR Sitrep 3, June 1992) ie WFP stated that it needed data, but when presented with it, refused to accept it.

Interpretation:

* It was in the political interests of the GOB to believe that nutritional status improved with time as this justified inaction. This situation coincided with a hardening attitude by the GOB towards the relief programme in the last few weeks of May and early June, as (in parallel to the earlier events of 1979) it re-directed its efforts towards repatriation (Table 5.1/A-C) and therefore wanted to reduce assistance in the camps.

* It was difficult for UNHCR and the NGOs to scientifically disprove the claims of HKI, GOB and WFP due to weaknesses and poor interpretation of the data. Direct comparisons with earlier survey reports were open to

debate as methodologies, sample sizes, indices and cut-off points varied (Chapter 4.4). Anecdotal reports existed from selected camps but were not accepted by the WFP, which was only interested in data which confirmed its own political stance.

* UNHCR and leading NGOs were convinced (contrary to the GOB belief and wishes), that there was a major nutritional crisis in international terms. This however appeared to be of less interest to the GOB and WFP than the debate concerning data quality, interpretation and trends.

* HKI, on the one hand, had made an assertion (Wijnroks *et al*, 1992/a) yet survey staff had failed to speak to experienced field workers, did not compare their findings with other NGO reports or check the nutritional status of new arrivals. The report also failed to consider the possibility that apparent improvements in the older camps could be as a result of bias (ie improvements could be related to high mortality rates as the most malnourished children may have died in the period prior to the surveys; the camps with the lowest rates had been in existence longer), thus disguising a very serious situation.

* In addition, senior HKI staff failed to make provision, within the methodology, for cross-checking of information from a variety of sources (triangulation). The organisation appeared to be politically naive and did not fully consider the implications of its recommendations. It unwittingly

confirmed the GOB's and WFPs views, further justifying inaction. There was no accountability as the Acting UNHCR Representative noted at the time: *"HKI staff decided to circulate the report to who they want. HKI has no need to collaborate with UNHCR or anyone as it has independent funding"* (LB: 15/6).

Cameo 6.5/D Nutritional surveillance: conflict within government

This lack of consensus concerning nutritional trends at a politically fraught time played directly into the hands of a government reluctant to admit to problems and intent on repatriation. The politically weak MOH was convinced that: *"the nutrition situation is an increasing problem and NGOs will continue to have the support of the MOH"* Civil Surgeon (LB 7/6). But the crisis had the potential to bring the MOH into conflict with other (more powerful) GOB ministries (the MOHA and MOR), which controlled access to the camps.

The lack of consensus meant that a "political" strategy, which made full use of the data available, would need to be developed to convince those in power, (namely the GOB who needed to give permission for any programme expansion and WFP which provided the food) to respond quickly.

Interpretation:

* Conflicting priorities between key actors meant that "appeals back to the data" were unlikely to succeed alone as different actors had framed the problem differently (Schon, 1987 and section 2.3.1), and therefore would interpret the data to suit their own agendas.

* A lack of consensus over data in May and June and competing agendas led directly to delays in decision-making, allowing the crisis to worsen, as confirmed by rising mortality rates (Figure 4.6).

Cameo 6.5/E Nutritional surveillance: appeals to the data - UNHCRs view

NB: Data used here is from sections 4.1 and 4.4 (Figure 4.2 and Tables 4.14-16)

The rate of malnutrition appears to have doubled in Balukhali I over 2 months (March-May). Dechua Palong 2, as noted (4.4) was the only exception to this pattern. Data from Nayapara, the newest camp for which data was available (from MSF/H) could have been accessed by HKI. It showed a malnutrition rate which was unacceptably high (28.6% <80% wt/ht). This could, however, be partly explained by the length of time that refugees had to wait in transit areas for registration before they arrived in the camp. Yet the malnutrition rate in Nayapara (most recent camp) was still lower than that in the older Dumdumia (31.9%) and Gundhum camps (39.7%), confirming the view that declining nutritional status was related to length of time in the camp.

Evidence supporting this theory can also be drawn from screening exercises amongst new arrivals. The rates of malnutrition in recent new arrivals (SCF data[142]) were lower than or similar to those found in disaster prone areas of rural Bangladesh. The SCF data were available, but not accessed by HKI.

Attempts to collect extra data were prevented. HKI tried to continue surveying, but the camp officer in charge selected healthy children for measurement (instead of allowing random sampling) and said *"the GOB was frightened of the first report as it was bad"* (LB,18/6). HKI was then prevented from doing further surveys (LB, 18/6) and told by the camp officer that written permission from RRRC was needed, but HKI already had this so it was then accused of not having the permission of NGO Bureau, which it also possessed, but apparently not in the *"correct form"* (RRRC Mins, 18/6).

[142] Data were obtained from the Teknaf border crossing (SCF data sheets) and new arrivals in a newly opened transit camp (Jumapara, UNHCR data). At Teknaf, 17.7% of children arriving had a MUAC measurement of <12.5 cms (198 were measured and a systematic random sampling method was used) whilst in Jumapara all children were screened and only 10.7% had a MUAC <12.5 cms.

Interpretation:

* Nutrition status was associated with length of stay in camps but status deteriorated rather than improved. HKI lacked previous operational emergency experience and as a result misinterpreted the survey findings. WFP and GOB felt, as a direct consequence of an unsubstantiated, ill-researched statement, that their views were vindicated.

* Even when data exist, information is subject to vagaries of interpretation, naivety and misinterpretation in the political context. Information which cannot easily be verified allows findings to be manipulated by stakeholders for their own political ends.

* Because the information produced was controversial, and ran counter to major political interests, further data collection (which could have been used to verify earlier findings) was prevented. Like the mortality data earlier, nutrition data became highly politicised.

There was also a lack of consensus concerning the cause of the nutrition crisis which ran concurrently with the debate about the data (the diagnosis). Not surprisingly, this resulted in a lack of consensus regarding possible solutions. A number of possible causes were identified and are tabulated below (Tables 6.10 - 6.13). Stakeholder's views are also summarised (Table 6.14).

Table 6.10 Registration related problems

Theme	Explanation	Arguments - for and against
Delays in registration of new arrivals led to delays in receiving rations.	New arrivals at Teknaf had to wait several days to register, before transfer to a camp (Nayapara or Jumapara). Registration was not guaranteed as they had to produce documents to confirm their claims to refugee status (Sitrep 3, 1992). Food rations were often not issued for several days (in some cases more than 8 days), on the pretext that the current food allocation to the camp (Jumapara) did not allow for new arrivals, only for those already registered (perhaps 1,000 less than the actual population size).	Delays in food distribution (and food shortages) would contribute to increasing malnutrition rates especially amongst small children. But the time period before a full ration was given, was usually short (less than 10 days), allowing a rapid recovery from any earlier weight loss. So this was not a very convincing argument.

Table 6.11 Economic restrictions/influences

Theme/possible cause	Explanation	Arguments - for and against
Restriction of economic activity and refugees confined to camps	Refugees were forbidden to leave the camps, resulting in acute shortages of firewood. Some refugees used wooden batons/supports (holding down the corrugated iron roofs) of their houses. Others paid a small "fee" to be allowed outside the camp. In some camps, children were allowed out to collect firewood. Firewood shortages had a serious impact on the refugees' ability to cook food.	This was a recent problem, yet the severity of the nutrition crisis suggests that the origins of the problem were much earlier, as it must have taken time to develop. However this problem obviously could contribute to a further deterioration.
Selling of dhal in exchange for fish	The dhal ration was often sold on the market by refugees, and/or exchanged for condiments, spices, fish and meat. Some government officials claimed that the price (and purchasing power) of dhal had fallen, while the price of meat and fish had risen thus adversely affecting both refugees and the local population.	The price of fish was higher than the value of dhal, leading to a poor exchange rate. But this problem was relatively recent; the high malnutrition rates suggest that the nutrition crisis may have had a longer history.
Trading forbidden	Refugees were forbidden to trade with the local population either through camp markets or in the villages. This ban resulted in cutting off the refugees' only access to condiments, spices, fruits, vegetables and fish (their main purchases).	Again, a relatively recent development which ran counter to the evidence (high malnutrition rates) which would have taken at least six to eight weeks to evolve (Shears/a, 1983)

Table 6.12 Food issues

Theme	Explanation	Arguments -for and against
Reduced rations: there may have been slippage in the food distribution cycle	Food was distributed on a weekly basis. A delay of a few days (ie distributing a 7 day ration every 8-10 days) could have had an impact on nutritional status.	The IHKI survey results suggested that in 4 of the camps, there was not a problem of slippage. While there was some slippage in Dumdumia 1/2 (which was a disorganised camp), only 11% of the population had to wait longer than 7 days.
Poor quality of the general ration and lack of diversity of foods	UNHCR had many discussions with WFP over the quality of the food basket as only 3 main items were included (oil, dhal and rice). No complementary items were available (eg dried fish, tea, sugar, condiments). The quality of some of the rice was poor (old, often musty, GOB date expired stocks of polished rice which was low in B vitamins).	Poor quality food and lack of diversity could partly explain the problem. However data concerning the use of food within the home was not available.
Refugee preferences for other foods	While the diet was adequate in terms of calories (c 2,100 kcals/per person/day), the nutritional needs of small children were not specifically addressed (eg no instant blended food or dried or tinned fish - LB, 11/6). As a result, the children were eating mainly plain rice, which, compared to other cereals, was low in protein (7 gms protein per 100gms). The refugees generally prefer to eat fish (not given) rather than dhal.	High bulk, low energy diets are known to be a major risk factor for PEM (Young and Jaspars, 1995 p13) in small children.
Refugee choices/supplementary feeding	WFP claimed that *"mothers are selling the ration and deliberately starving the children so that they (the children) will be admitted to the supplementary feeding programme"* (LB, 6/5).	There was no evidence to support this theory. Feeding centre data, showing poor coverage (Table 4.18) suggests that supplementary feeding centres were under subscribed rather than very popular as this theory would suggest.

Table 6.13 High infection rates

Theme/possible cause	Explanation	Arguments - for and against
High morbidity rates in the camps (see also Table 4.19). NB: There was an increase in diarrhoea and illness following the heavy showers in May and the onset of the monsoon, related to the poor sanitary conditions.	Frequent repeated episodes of diarrhoea could contribute to growth failure and malnutrition - especially chronic persistent diarrhoea. The IHKI report showed that diarrhoea was an important cause of morbidity in the camps.	The point prevalence of diarrhoea was comparatively low in Dumdumia 2 (15% of children were affected on the day of the survey) which had a high malnutrition rate (31.9% <80% wt/ht). A higher diarrhoea rate was observed in Kutu Palong (25%) yet the malnutrition rate was lower (20.4% <80% wt/ht). Therefore while diarrhoea may have been an important factor, an alternative explanation was needed.

Table 6.14 Views of stakeholders (a summary)

Theme	UNHCR	NGOs	WFP	GOB/RRRC/MOHA	MOH
Registration	There are some delays but this does not appear to be a major problem (UNHCR Sitrep 3, 1992)	*"It is possible that local (Bangladesh nationals) are registering as refugees ..camp administration is very strict"* (GK report. June 1992)		It was difficult to promote repatriation as new refugees were still arriving. so unofficially the aim of the GOB was to make life difficult to discourage new-comers from registering.	
Food	Add fish (tinned or dried) and blended food to the diet and diversify the ration. Coverage of the programmes is variable and tends to be rather low. There are certainly not pressures from the refugees to admit more children although many would undoubtedly benefit (coverage needs to improve)	*"In the long term the refugees will suffer from vitamin deficiencies"* (GK report. June 1992) and *"nutrition status got worse....deterioration due in part to insufficient basic ration"* (MSF/F. report. June 1992)	*"We could be ready to diversify the food ration .... but in 5/6 months time. allowing for shipping delays"* and *"there is a lead time of 3-6 months on Corn Soya Milk (an instant blended food) and refugees won't like it anyway. there is no local alternative..."* (LB. 10/5) *"refugees are selling food on the market so they have plenty"* *"they have a better diet than the local population"* *"the problem is they don't know how to use the food, they make the dhal too weak we must educate them"* (LB. 18/6)	Divisional Commissioner (MOHA. Chittagong) says that the HKI survey sample size is too small (LB. 18/6). Refugees' ration cards are confiscated and refugees arrested in Dhua Palong (LB. 18/6). Refugees are shot during attempts to arrest leaders in Kutu Palong (LB. 19/6). The GOB asked WFP to reduce rations for children (LB. 18/6). All these actions show a reluctance to accept that there could be a food problem.	*"The nutritional situation is an increasing problem and NGOs will continue to have the support of the MOH"* Civil Surgeon (LB. 7/6).
Economics	Food is their only source of cash so the refugees have little choice but to sell or barter		*"We can't provide a diet that is double that of the local population"* (LB 9/5)	Refugee banned from taking paid employment in camps (LB. 11/6)	
Infection	The local population do not live in such a crowded insanitary environment and have access to a wider range of foods ie the health and nutrition risks that the refugee population face are greater	Deterioration due. in part to an increase of infection and diarrhoea during the monsoon (MSF/F. June report. 1992)	*"The problem is sanitation and diarrhoea"* (LB 18/6)		

Theme	UNHCR	NGOs	WFP	GOB/RRRC/MOHA	MOH
Conclusions	One of the most likely explanations may lie in the quality (rather than quantity) of the general ration. If this were true, this would lead to increasing malnutrition rates in the coming weeks. But cause is probably multifactorial	HKI was surprised at GOB and WFP interpretation of their report and advised UNHCR that problem is *"food habits and or rations not diarrhoea"* (LB. 16/6). MSF/H and MSF/F were concerned and repeatedly asked the GOB to allow them to expand their programmes to meet increased needs. and requested UNHCR support	While recognising the need to diversify the food basket. World Food Programme [WFP] in Cox's Bazar was reluctant to take action. It seemed only prepared to act on the receipt of statistics showing that there was already a problem eg *"prove to us there is a problem first...."*. By then it would be too late as most foods have long lead times. It seemed to value its relationship with the GOB more than its responsibilities to the refugees. NGOs and UNHCR.	Actions spoke louder than words. very little was said on specific topics. but actions indicated a reluctance of the GOB to accept the HKI report findings. Some of the actions taken were not those of a caring government. although of course the GOB disagreed... *"We are treating these people like sons in law...we have to put in some effort so that sooner or later they will go back"* Divisional Commissioner. Chittagong. MOHA (LB. 27/5)	The MOH recognised the need to expand SFPs but pointed out that this was not in line with the wishes of the Divisional Commissioner - *"he wants to reduce the number of NGOs in the camps to a minimum"* and *"this problem between the government and NGOs. what are we to do. the GOB wants the money but not the NGOs"* Civil Surgeon (LB. 7/6). Civil Surgeon also reported he was being transferred

Interpretation:

* Stakeholders' views are summarised in Table 6.14. Opinions abounded but there was a lack of widely accepted hard evidence. Experience from other refugee situations suggests that the causes were multifactorial and most likely related to the ration and environmental risk factors (Toole *et al*, 1988; Toole, 1991/a; Toole, 1992).

* Extra information could have been sought or collected, but this was prevented by the GOB (Cameo 6.5/E). In any event, there was no guarantee that additional data (from household surveys, key informants etc) would be accepted either. The political climate at the time suggested that any "hard data" which ran counter to GOB plans would be disputed (see Tables 6.10 - 6.14).

* In addition, it takes time to plan and conduct investigations and analyse results. When a major crisis already exists, urgent action is needed. Time delays cost lives, a point not always appreciated by "non health" professionals - often those with decision-making powers.

In June, the debate about the nature and causes of the problem was continuing without any apparent results (Tables 5.1/A and 5.2/A). NGOs became increasingly frustrated by bureaucratic blocks and lack of action. It was not

always clear where to target lobbying activities. Attempts were made to identify "hidden agendas" and decision makers.

Cameo 6.5/F Nutritional surveillance: who is the decision maker?

"There is no progress in trying to expand the feeding centre; the camp officer in charge said to get written permission from the RRRC, but the programme has already been approved. The RRRC said to await the arrival of the Director of the NGO Bureau - everything (decisions) is concentrated in the NGO Bureau in Dhaka (under the MOHA), the RRRC is only the mouth, he has no decision-making powers at all" MSF/H (LB, 16/6).

The GOB gave out mixed messages: the RRRC initially agreed that NGOs should expand feeding programmes (LB, 11/6) yet at the same time told NGOs to sack all refugee employees by 15/6. These were mostly feeding centre workers (LB, 11/6). GOB officials did spot checks on employees (Kutu Palong LB, 11/6). This resulted in strikes by refugees in Dechua Palong 2 (LB, 11/6). New restrictions were imposed on the movements of NGOs *"no home visits allowed, threatened closure of the rehydration clinic, all local staff to have ID cards and need approval of the RRRC"* MSF/H (LB, 22/6). Concern staff were prevented from working in Kutu Palong (LB, 18/6). The RRRC also put up practical stumbling blocks *"in some camps there is no space to expand SFPs"* (LB, 20/6). The aim seemed to be to limit contact between NGOs and refugees (LB, 22/6) but also between UNHCR and refugees (LB, 7/6). A written request from UNHCR to RRRC, for blanket expansion of feeding programmes to meet the demand went unanswered (LB, 17/6). The political environment continued to deteriorate during June making it increasingly difficult for the NGOs to implement any programmes at all.

WFP's actions and motives were also questionable. It proposed to stop family rations where children were attending feeding centres (LB, 11/6) as a result of a request from the GOB. This was changed to a 50% cut in food rations for children under 12 years (LB, 15/6 & 16/6/92) and then 1 day later, to a 100% cut for those < 12 yrs[143]. Initially it acquiesced to GOB demands *"it is reasonable to cut family food rations as kids can go to the SFP"* (LB, 18/6). There was however an acute shortage of some supplementary foods and therapeutic foods (dried fish and dhal) of which WFP was well aware. Other items were expected to run out within the next month (June/July) and were of poor quality and infested with insects (LB, 6/6).

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[143] Note that an SFP was intended to provide a supplement to the family food supply. Only malnourished children were eligible (70-80% wt/ht) as part of the nutritional rehabilitation programme. Therefore removing their access to a general food ration would have a three fold effect:
a) it would undermine the benefits of any SFP as the supplement provided would theoretically become the only ration available for that child and therefore its calorie consumption would be dramatically reduced
b) there would be no food ration available for well-nourished children who were not eligible for the SFP
c) there were insufficient supplementary foods available to feed all children
The proposal to remove the child from the general food ration risked increasing child malnutrition levels dramatically.

Interpretation:

* These tactics, including reduction of food rations and restriction of NGO activities, were identical to those followed by the GOB in 1978/79, to force the Rohingyas back into Burma. A Senior UNHCR official noted then that:

> *"It is folly to expect to be able to fine tune the ration to such an extent that refugees will be enabled to survive but will not be 'too comfortable'"*
> (Lindquist, 1979; commenting on the deaths of an estimated 10,000 refugees from the lethal combination of malnutrition and measles)

The same observation could be made of the situation in June 1992.

* It appeared that decisions were being made by the MOHA, whose agenda was repatriation. The MOR and the RRRC had to comply. The MOH was powerless.

* The only option open to UNHCR, if it wanted to use the data to influence change, was to gain the support of other more influential actors, who were in a position to bring pressure to bear on the GOB, and were not afraid to use their political clout. The debate had to be internationalised if major loss of life was to be averted. UNHCR had to take the lead because of its humanitarian and protection mandate (LB, 9/6). Some of its own staff were asking: *"how long can UNHCR witness starvation of refugees,*

harassment, beatings, abductions and intimidation of NGOs and UNHCR?"

(UNHCR Health Coordinator; LB, 19/6)

* WFP also had a hidden agenda. It is useful to note that WFP had worked in Bangladesh for many years and was a major channel for development food aid - Bangladesh was one of WFP's largest programmes globally. It appears that the national and global interests of WFP (in safe-guarding its prestigious development/food aid programme) took precedence over those of the refugees and UNHCR.

A political analysis, using the above evidence and Table 5.1, gave one clear message. The need to expand activities in the camps conflicted with the GOB's national priority - repatriation. Therefore rational data use was not possible due to competing and conflicting agendas.

Cameo 6.5/G Nutritional surveillance: influencing change

The UNHCR representative proposed that an International "Panel of Experts" [POE] meeting be held in Dhaka as soon as possible and tentative preparations went ahead (LB, 15/6, 16/6, 17/6 and 18/6). The aim of the POE was to discuss the report, examine the crisis and recommend action. This was clearly a high risk strategy because of the government's intransigence.

At best, relationships between UNHCR and the GOB could deteriorate further and at worst there was a strong possibility that UNHCR and selected NGOs might be asked to leave the country, which could further jeopardise the security, health and nutritional status of refugees. This possibility had been raised by the GOB albeit obliquely when the MOR addressed NGOs and insinuated that *"certain groups are working against repatriation..this if true, it is a sad state of affairs and cannot be tolerated by either the GOB or local people..if this is found and proved we will take stern action"* (MOR, LB 27/5) and *"the GOB is committed to repatriation, we are asking the support of NGOs"* (MOR, LB 27/5) and *"repatriation should be as quick as possible. ...if anything hinders our steps we will not support this"* (MOR, LB, 29/6)[144].

The POE meeting took place at the end of June (LB, 28/6), and was attended by food and nutrition experts and/or donors from Brussels (EC), Geneva (UNHCR and WHO), and from within Bangladesh (UNDP, WFP, WHO, UNICEF, IFRCS, NGO Directors, National Institute Directors). A visit to the field was orchestrated by UNHCR for key visitors prior to the meeting. The outcome of the meeting was a consensus that there was a major nutritional crisis, that causes were multi-factorial and an integrated multi-faceted response was required[145] (Bhatia and Diskett, POE Conference Report, 1992). This report was presented to senior GOB ministers (LB, 29/6), a heated debate ensued.

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[144] Note that the GOB has already ensured the removal of three UNHCR officers on various pretexts. The most recent to leave resigned under pressure after being banned from visiting camps. It was no coincidence that he spoke Bengali and had drawn many incidents of abuse or threats concerning refugees to the attention of his superiors - he discovered too much (LB, 9/6).

[145] The response included a Nutrition Action Plan with screening of all children under five years old, changes to the basic ration, expansion of health activities and major efforts to improve water and sanitation in the camps.

Interpretation:

* The GOB was in an unenviable position. It could not afford to give credence to a report showing high malnutrition rates as this would further undermine its repatriation efforts. On other hand, ignoring the report would throw into doubt its credibility with its main donors, as a caring government.

Cameo 6.5/H Nutritional surveillance: outcomes

WFP insisted that it accepted the survey results but felt short changed on reasons. It still thought diarrhoea was the problem so wanted more surveys carried out but agreed to diversify the ration, on condition that it was part of a wider public health package. MOHA stated that *"action had already been taken and it was effective..if the programme needs to be expanded then there is no problem. The alarm created by this report is not fully justified. A balance is needed between international assistance and the reality of the situation inside Myanmar"*. The GOB finally gave the recommendations a general endorsement of approval and gave the go ahead for rapid implementation of the nutrition action plan (LB; 29/6). The details of this were finalised in Cox's Bazar at special HNMC meeting.

Interpretation:

* In early July 1992, international pressure resulted in a temporary reversal of GOB policies, and repatriation was abandoned until the end of the monsoon (September 1992).

Nutritional surveillance and influencing change: a summary of findings

* The data were effectively used to influence change but opportunity costs were high because of delays in decision-making. Delays cost refugees their lives. When decisions eventually were taken an extremely serious nutritional situation, associated with elevated CMRs, had already developed, ie attempts at early warning failed in an adverse political climate.

* This failure can be partly attributed to a lack of nutritional data in April and early May when the situation was developing. Anecdotal reports were available but were not acceptable to either the GOB or WFP. Early attempts to intervene also failed due to political hostility to the idea of relief programme expansion and a lack of consensus regarding the causes of the problem and trends.

* The controversy, and subsequent actions, contributed to a further breakdown in relations between GOB, UNHCR and NGOs (Table 5.1/B and 5.2/B, July and August). However evidence exists (Table 5.1/A and 5.2/A, April/May) which suggests that this breakdown started before UNHCR chose to internationalize the nutritional crisis, so arguably it would have occurred anyway due to a conflict of aims.

* NGOs which have staff with technical nutritional skills may not necessarily have emergency experience or be "street wise" from a political perspective. They may not fully appreciate the implication, of the different interpretations which can be drawn from their reports, by stakeholders with diverse (often hidden) agendas. Their reports and data interpretation may therefore be "naive" in the chaotic, politically fraught emergency context and may not stand up to public scrutiny. If this political naivety is combined with an unwillingness to collaborate with, or listen to advice from, experienced NGOs or aid workers, then the problems are compounded.

6.3.3 Nutritional data use: evaluating selective nutrition interventions

As stated at the beginning of this section, multiple uses of nutritional data were identified in the literature. Those not yet discussed are tabulated below and compared to the reality observed in Bangladesh during the study period.

Table 6.15 Nutritional data use: evaluating interventions

Potential data use	Actual data use	Implications
Decision-making: expansion or closure of feeding programmes Setting a baseline to monitor the effectiveness of SFP and TFPs	NGOs often opened SFPs without a prior nutritional assessment (Table 4.7 and 5.2/A) However, SFPs and TFPs were expanded in July and August after data had been used to lobby the GOB. In addition admission criteria were increased from <75% wt/ht to <80% and nutrition policy changed, from wet (supervised) feeding to dry take home rations which were less resource/time consuming and preferred by refugees (Smith, 1992; Diskett, 1992/b) Later data (November/December) were used to close TFCs in selected camps as the nutritional situation had improved (Diskett, 1993/b)	In the acute emergency stage, decisions to open feeding centres may be taken before nutritional assessments are done. Nutritional data can be used effectively to influence policy even if of dubious quality. But even when a policy is agreed, not all NGOs comply. SCF resisted the expansion of admission criteria and delayed changing to dry distributions as it was under instructions from its HQ in Dhaka (the manager was a non health/nutrition person) not to change its approach, confirming that some organisations will respond to changing circumstances/data and others have their own priorities and will not change (HNMC Mins, 9/8 and RRRC mins, 12/8)
Check the coverage of feeding programmes	Nutritional surveys and feeding programme data reflected different target groups and used different criteria (section 4.4), restricting efforts to use data to check programme coverage. However surveys usually did attempt to identify the % of malnourished children in the sample which were registered at an SFP or TFP (Wijnroks *et al*, 1992/a, 1992/b)	Nutrition programme coverage was never known with any degree of accuracy although rough estimates were available
Reallocate resources to match changing needs	Surveys in December confirmed major problems in Horikhola camp which had a small agency unable to cope {COB}. It was already known (through observation and Tables 4.6, 5.2, 5.3) that its feeding programme capacity did not match needs and its staff had very limited experience	Attempts to change the situation failed. The NGO concerned was unable to increase its staff or improve its performance (it was only interested in assisting 200 families but the camp had population of 9,500). The GOB was reluctant to admit that there was a problem. The situation in other camps had improved dramatically and once again the GOB had embarked on a major repatriation campaign (Table 5.1/B). It wanted to reduce the level of international assistance in the camps. It refused permission for another agency to assist even though SCF was willing and able, and had resources supplied by UNHCR
Monitor/improve NGO performance	Gundhum 2 and Horikhola, despite monitoring and considerable advice to staff, persisted in having higher rates of severe malnutrition longer (from point of camp opening) than other agencies (Diskett, 1992/a and 1993/b)	As noted above, even when problems were identified, NGOs were often unwilling or unable to modify their approach

Interpretation:

* Table 6.15 shows that data use in the management context was influenced by NGO behaviour and capacity. It was also constrained by political events and competing priorities.

* Data were used effectively to adapt policies to changing needs, but simply adapting a policy did not guarantee that it would then be implemented. Often policy commitments agreed in the field were not matched by a similar commitment from the agencies' HQ (either in Dhaka or another country).

* There was a failure to use data to improve performance or fill gaps in camps with problems as in some cases problems were missed (no data available) and in other cases intervention was forbidden. Even when the need for improvement was identified and agreed, the NGO concerned often did not have the capacity to "gear up" yet its presence in a camp blocked others from becoming involved.

6.4.4 Nutritional data use: what conclusions can be drawn?

Anecdotal reports based on qualitative data and comparisons with other refugee assistance programmes failed to precipitate a GOB or donor response in May. Survey data (of disputed quality) were eventually used effectively by UNHCR to

influence change. It appears that survey (quantitative) data of dubious quality are more powerful than anecdotal (mainly qualitative) data. Yet anecdotal data were available much earlier.

Arguably change only occurred because simultaneously the GOB recognised that repatriation was difficult, if not impossible, during the monsoon while refugees were still arriving. It decided to postpone repatriation until after the monsoon (September) and close the border (July). It then had a responsibility to keep the refugees alive in the intervening period. As noted earlier, it did not want to be blamed for a disaster, or seen to be allowing refugees to die, so its priorities once again became more closely aligned with those of UNHCR and the NGOs. It became politically expedient to accept the survey results, so the GOB acceded to UNHCR's and donor demands. WFP then followed suit.

The lack of comparability of data between camps is a major international concern. It is extraordinary that despite many years of international disaster relief and following the publication of numerous papers and guidelines, there is still a lack of consensus concerning methodologies, cut-off points, indices etc. This lack of consensus (and lack of data comparability) weakens district level decision-making and resource allocation.

The two major uses of data are summarised in Table 6.16.

Table 6.16 Nutritional data: a summary

Potential data use	Actual data availability and use	Implications/action
Monitor nutritional status	In May, only 6 camps (Table 6.15) out of a possible 15 camps (Table 4.7) were surveyed. The survey results showed considerable variation between the camps which meant that it was possible, for example, to miss a major deterioration in one of the unsurveyed camps. By January 1993, (one year into the relief programme) 7 camps had never been adequately surveyed (Adarshagram, Dechua Palong 1, Maricha Palong, Jumapara, Shailer Daba, Rongikhali, and Nayapara 2) Of the camps surveyed, 5 camps presented problems of data interpretation. These were Gundhum 1, 2 & 3, and Dumdumia 1 & 2. Both Gundhum and Dumdumia started as one camp. As they grew, they were sub-divided. Refugees were reallocated and moved both from Dumdumia 1/2 to Gundhum 1/2/3. They also relocated within the camp complexes, eg from Gundhum 1 to Gundhum 2 or 3	Four unsurveyed camps, (SD and the transit camps, JP, RK, NP) had high < 5 mortality rates (WHIB, October-January). It was therefore highly likely that malnutrition was a contributing factor as no nutritional services existed in the transit camps, and there was no outreach programme (no active case finding) in SD. Therefore no data existed to verify that services were needed and access to transit camps was denied by GOB. Earlier surveys and later surveys probably measured different populations. It was not clear whether, for example, earlier surveys for Dumdumia covered both DD 1 and 2 or were biased towards DD 1 (no separate results were available for the 2 camps). The same problem affects Gundhum data. Thus any data concerning trends should be interpreted with caution.
Calculating food requirements	Food requests were initially based on an expected malnutrition prevalence rate of 20% (RAP), which was raised to c 35% (varied between camps) following the IIKI surveys The nutritional value of the new diversified ration was calculated taking into account the nutritional needs of the different vulnerable groups (Bhatia and Diskett, POE report, 1992).	UNHCR, in recognition of WFPs' earlier failures, agreed to supplementary foods. However repeated UNHCR shortfalls led to the closure of the programmes on several occasions. UNHCR Geneva failed to procure adequate stocks in time ie commitments in the field were not matched by support from HQ. The diversified ration was not available until September and even then it was incomplete. Agreed policy changes in the field were often not matched by a similar commitment from agencies whose HQ is in another country

Interpretation:

* Political, organisational and practical problems (Tables 5.1, 5.2 and 6.16) were compounded by the chaotic emergency environment. This created difficulties (March - May) in predicting relief needs and in responding to data.

6.4 Data Use: Disease Outbreaks

The literature often cites that a HIS needs to be sensitive, to detect disease outbreaks and to allow early warning of epidemics (Moren, 1995) but also notes that the data generated must be specific, to avoid false alarms (Vaughan and Morrow, 1989 p84; Declich and Carter, 1994) and should focus on diseases of major public health importance that are either preventable or amenable to early treatment (Toole and Waldman, 1990). The information relating to disease outbreaks in Bangladesh is therefore described (6.4.1), interpreted (6.4.2) and summarised (6.4.3). Its effectiveness in detecting epidemics is evaluated.

6.4.1 Detecting disease outbreaks: data collected

Several disease outbreaks occurred and are shown in Table 6.17. The question asked is "did the HIS successfully detect disease outbreaks and did this information lead to a change of practice or initiate new interventions?". The sources of information and outcomes (where known) are therefore used as a measure of effectiveness of the HIS and surveillance system. The information in Table 6.17 is also used to test the assertion that the value of anecdotal reports is underestimated. It was noted earlier that very little analysis and feedback of HIS data occurred prior to July 1992, (Table 4.2/A-B). However, from mid-July onwards the computerised system was developed and a Weekly Health Information Bulletin [WHIB] was issued regularly (jointly by the MOH and CDC/UNHCR).

The data contained in the WHIB were discussed at the following HNMC meeting in Cox's Bazar. Table 6.17 should be interpreted in this light.

Table 6.17 Disease outbreak investigations

Disease reported	Camp(s) affected: date of outbreak		Source of information	Action taken?
ALRI	Selected camps	May 92	An increase was first noted by MSF/F from their clinic data.	Discussed frequently at the weekly HNMC meetings, active case finding encouraged (with the aim of earlier diagnosis and treatment) alongside improvements to refugee shelters. However, ALRI remained a major cause of morbidity and mortality throughout the research period.
	Most camps	Aug/Sep 92	WHIB noted all increases in prevalence from July onwards, prior to that only anecdotal reports and observations available (no data analysis)	
	Adarshagram	Aug 92		
	Kutu Palong	Aug 92		
	Gundhum 1	Aug 92		
	Horikhola	Aug/Oct 92		
Cholera	Adarshagram	Jun/Jly 92	Suspected by NGO staff from TDH/N (LB. 16/6) and MOH doctor (LB. 19/6)	Each suspected outbreak resulted in a rapid response which included laboratory confirmation of diagnosis, investigation of outbreak and active case finding, treatment of water sources and improvements to sanitation, control of public eating places, opening of emergency rehydration and treatment centres, soap distributions etc. Despite numerous outbreaks, CMRs generally remained within normal limits suggesting that interventions were effective.
	Gundhum 1 & 2	Jly 92	Not clear but it seems that an MSF/F Medical Officer reported it to CDC (LB. 14/7)	
	Gundhum 1, 2 & 3	Oct 92	NGO report to UNHCR/MOH (LB. 26/10)	
	Balukhali 1 & 2	Oct 92	NGO report to UNHCR/MOH (LB. 29/10)	
	Nayapara 1	Nov 92	NGO report to UNHCR/MOH (LB. 2/11 & 16/11)	
Diarrhoea/ dysentery	Gundhum 1 & 2	May 92	Anecdotal reports by NGOs to UNHCR Health Coordinator and MOH (LB. 27/5 - 4/6)	A chronic problem which was considered when preparing the Health Action Plan (July 92). Standard treatment guidelines were issued in September 92 (Jorgenson, 1992). Major efforts to improve water and sanitation began at the end of June in most camps (Table 4.2/B-C).
	Nayapara 1	May 92		
	Rongikhali	May 92		
	Horikhola	Aug/Sep 92	WHIB reported all increases in prevalence after July 92	
	Jumapara	Sep/Oct 92		
	Rongikhali	Oct 92		
	Most camps	Oct 92		
Diphtheria	Gundhum 1	Oct 92	MOH and MSF/H Health staff reported two suspicious cases to CDC consultant and MOH (LB. 7/10)	Acceleration of the immunisation programme was approved by the Civil Surgeon (Jorgenson, 1992).
Hepatitis	Adarshagram	Jly 92	NGO staff (TDH/N)	General actions were taken to improve the camp environment, but their effectiveness was questionable given the persistent problem in Adarshagram (which had a chronic water supply problem). Investigations by CDC suggest that original cases were imported from Myanmar and the camp environment facilitated spread (Lee and Burkholder, 1992).
	Gundhum	Jly 92	NGO report to CDC (Jorgenson, 1992)	
	Balukhali 1 & 2	Jly 92	Not clear - it seems that the NGO reported to CDC (Jorgenson, 1992)	
	Adarshagram	Aug 92	MOH anecdotal report (LB. 27/8)	
	Adarshagram	Oct/Dec 92	MOH report (LB. 12/10) and WHIB	

Disease reported	Camp(s) affected: date of outbreak	Source of information	Action taken?
Malaria	Several camps Aug 92 Dumdumia Sep/Nov 92 Gundhum 1 & 3 Nov/Dec 92 Nayapara Nov/Dec 92 Horikhola Nov/Dec 92 Balukhali 2 Nov/Dec 92	MOH Medical Officer's observations during camp visits (HNMC Mins. August) and WHIB WHIB WHIB WHIB WHIB WHIB	Little action was taken apart from improving diagnosis and treatment. Attempts to initiate vector control activities between June 1992 and January 1993 were unsuccessful (Kaojaroen. 1992/a and 1992/b; LB. 21/9; Diskett. 1993/a\)
Measles	Dechua Palong 2 Jan/Feb 92 Most camps (sporadic cases) Feb 92 Gundhum 1. 2 & 3 Dec 92 Balukhali 1 & 2 Dec 92	Health staff (MOH and GK) note sporadic cases as does rapid assessment mission (Brown *et al.* 1992/b) Health staff (MOH and NGO's) confirm cases A few cases were noted by MSF/T during last week in December and were reported to MOH/UNHCR (LB 15/1/93). when MSF/H also alerted. NB: WHIB not issued for 4 weeks so outbreak not detected by HIS	Measles immunisation was initiated by MOH in Feb 92 followed by campaign in all camps in April 92 (see Table 4.2/A-B) A measles outbreak investigation and immunisation "top up" campaign started in January 1993
Scabies/renal Disease	Nayapara Oct 92 Balukhali 1 & 2 Oct 92 Dumdumia 2 Dec 92 Horikhola Jan 92	NGO staff note increase in number of children with renal disease and suspect link with infected scabies (LB 12/10) NGO reports of many cases of infected scabies Many cases also observed during nutrition surveys (Diskett *et al.* 1992) and subsequently by UNHCR (LB. 28/1/93)	A case control study was initiated but not completed (data not analyzed) due to the departure of the CDC consultant with all data sheets and no handover (see Annex 2). An alternative investigation was initiated of prevalence rates and camp hygiene. Scabies control strategy was tested in two camps in Feb/March 1993
Typhoid	Rongikhali May/Jne 92	UNHCR Field Officer reported suspicions. but MOH insisted that disease was an acute viral infection (influenza). Diagnosis confirmed by UNHCR[146]. MSF/H and WHO Consultant.	Data were used to gain approval for an NGO to work in the camp alongside the MOH. The camp was temporarily closed (July and August 1992) when improvements were made to the infrastructure

[146] A UNHCR officer working in the camp also became ill with identical symptoms to those living in the camp. He was medically evacuated and typhoid was later confirmed by laboratory tests.

6.4.2 Investigating disease outbreaks: an interpretation

A: System sensitivity

It is not surprising that no acute disease outbreaks were detected by the HIS between March and July 1992, because of early failures to analyse data. The probability that small outbreaks did occur is quite high as the period between May and June 1992 was marked by rising malnutrition rates (Table 4.2/A-B), increasing crude mortality rates (Figure 4.6) and poor sanitation (Table 5.2/A-B). In addition, the refugee assistance programme was very new and still undergoing expansion. Many of the MOH and NGO staff were new to the programme (and to this type of work). It is argued that they were less alert to disease outbreaks during this earlier period than later (after July) when programmes were better established, coordination improved and feedback from weekly statistics was guaranteed.

B: The acute phase of the emergency

The acute stage of the emergency (February - July) coincided with the period when the disease surveillance system and HIS was new, slow, very weak and unlikely to detect an epidemic. It takes time, good supervision and training to effectively operate such a system in all camps, yet data from other emergencies show that most deaths occur during the first four months (Toole and Waldman, 1990) - a potentially dangerous time for the refugees.

C: Epidemics during the maintenance phase

From July 1992 onwards, 100% of the notifications/observations of acute outbreaks of potentially serious diseases (eg cholera, diphtheria, measles) came directly from observant health staff in the camps in the form of anecdotal or verbal reports. These were rapidly transmitted to Cox's Bazar and confirmed by the HIS as information became available. It appears that health staff during this period were well aware of the dangers of a cholera or measles outbreak in the camps and therefore were cautious and vigilant.

However staff were less likely to notice or report an increase in ALRI or non-specific diarrhoea, which in fact were responsible for far more deaths in total (Table 4.19) than for example cholera, diphtheria and typhoid and measles combined. There are several possible explanations but the most probable lies in the fact that ALRI and diarrhoea are highly endemic in Bangladesh and many other poor countries. Their severity and public health importance was therefore underestimated.

D: Endemic diseases during the maintenance phase

While the HIS did successfully detect an increase in endemic diseases such as malaria, diarrhoea and ALRI, which generated lively discussions at the weekly HNMC meetings, this information did not automatically lead to action and/or improvements.

E: Health problems escaping detection

Health problems not immediately detected by either anecdotal reports or HIS included angular stomatitis (LB 12/10 and Diskett *et al*, 1992), Vitamin A deficiency (Bitot spots) (LB, 23/1/93; HKI, 1992/b) and TB (Jorgenson, 1992). These problems emerged during the maintenance phase of the programme (July 1992 onwards) and were not acute but had public health significance.

F: Public health interventions

Diarrhoea was identified as a leading cause of both mortality and morbidity (Table 4.19). It was taken seriously (Table 6.17) because the risk factors which facilitated the spread of cholera and shigella, for example, would also lead to high rates of "non specific" diarrhoeal disease and vice versa. A fear of cholera appeared to be a very powerful incentive for action. Efforts to minimise cholera and shigella risks would help to reduce the risk of diarrhoea generally. Considerable priority was given to the provision of safe water and adequate sanitation during June, July and August (Table 5.2/A-B). While cholera and shigella outbreaks were not completely avoided (Table 6.17), they were rapidly controlled. A small diarrhoea-related peak in mortality rates was noted in October (Figure 4.6), but crude mortality rates from July - January remained below the critical threshold of < 1/10,000/day. Therefore efforts directed towards preventing excess mortality due to diarrhoeal disease can be said to have been

effective, even though morbidity rates due to diarrhoeal disease remained high - possibly due to the land shortages and the high degree of crowding in the camps.

6.4.3 Disease outbreak investigations: a summary of findings

Anecdotal reports (which triggered an investigation) were a quick and reliable method of detecting epidemics and were often received before the weekly reporting forms had been filled in, transmitted to Cox's Bazar and analyzed. NGO staff were more likely to make these reports as they were responsible for operating in-patient facilities |IPDs| in the camps which treated the most severely ill patients who were referred from NGO and MOH operated out-patient clinics. Close monitoring of these patients generated the anecdotal reports, the value of which is often underestimated in the literature.

The HIS was useful for monitoring trends of infectious endemic diseases, it was less successful in detecting sudden disease outbreaks and micro-nutrient deficiencies as it was slower than anecdotal reports, which were often received before the data was analyzed. The HIS was successfully used to validate these anecdotal reports and influenced change through the weekly HNMC meetings.

The strong emphasis given to data collection and use may have sensitised staff in the camps to be more vigilant, leading them to generate the anecdotal reports which proved to be so effective. However this is an arguable point. These

observations are compatible with the assertion that there is scope to incorporate a system of anecdotal reporting into the more traditional refugee HISs.

Attempts to influence change were more successful for diseases that were perceived to be life threatening (eg cholera and typhoid) and had the potential to develop into major epidemics in the crowded refugee environment. There was less commitment or interest in tackling problems related to ALRI even though it was responsible for more deaths in total.

6.5 The Epidemiological Approach and Evidence-Based Decision-Making

While a substantial amount of data were generated via the HIS, the information was of questionable quality (see Annex 2). Epidemiological evidence was generally not available at district level from March - July due to problems of data analysis. Some information was however used at district level (by the MOH and UNHCR), to obtain an impression of the range of problems presenting in the different camps, and to gain an overall (retrospective) view of mortality rates (see UNHCR Sitreps 1, 2 and 3, March - April 1992). There was a great dependence on anecdotal reports in the early phases of the emergency. Because of the complete failure to quickly analyze the data at both camp and district level, health information was initially used only to confirm general observations rather than to assist with decision-making or identify disease outbreaks.

In emergencies, it is clearly important to monitor daily crude mortality rates (per 10,000/day). Proportional mortality, plus age and sex-specific rates are needed for district level decision-making. Due to a lack of training amongst international aid workers and national staff, age and sex-specific mortality and morbidity rates may be obtained more easily through sentinel site surveillance. Attempting to collect these data through a comprehensive system will add to problems of analysis, especially during the acute emergency phase. Nutritional status data are also needed, but a lack of standardisation is a major concern.

While mortality and nutrition data are needed for district level decision-making, the information generated can be sensitive and therefore open to political manipulation by powerful stakeholders. Morbidity rates are extremely useful, to monitor disease patterns and trends. They are less likely to be politicised than mortality rates, yet the suggestion of cholera will trigger a very different response than the suggestion of ALRI. In addition, as noted elsewhere, (Klaucke *et al*, 1988), morbidity data may not reflect the true situation in the camps, being biased by problems of access to clinics and poor acceptability of the services offered.

There is also one major problem when using mortality and malnutrition rates to influence change. By the time information shows a deterioration or a crisis, it is often too late to take preventive action - an acute emergency response is then rapidly needed. Ideally, action should be preemptive and taken before the deterioration becomes marked, but any action is dependent on donor support. In

this case, selected donors wanted evidence before they were prepared to respond (Cameo 6.5/C), which contributed to the delay.

This is an interesting paradox and a major weakness of the epidemiological approach, especially as anecdotal evidence was widely available but was not considered acceptable. Too much dependence on hard data can lead to unnecessary delays which cost lives. It is argued here that the risks caused by such delays are greater than the risks of a false positive response.

Individuals can also be very influential in determining how and when information is used. Key decision makers are not always immediately obvious and are not always involved in policy formulation. As a part of their assessments, UNHCR and NGOs need to do a careful political analysis, trying to identify more closely key (frequently concealed) decision makers and their (often hidden) agendas.

Not surprisingly, the health and nutritional status of the refugees was closely linked both to political events (affecting the social environment) and to the relief effort (the ability of aid agencies to operate or adapt to changing circumstances). While seasonal factors are important (the monsoon), political, managerial and organisational factors are over-riding ie peak mortality was reached in late June (pre-monsoon) rather than later as had been anticipated.

Different phases can usually be identified in a typical emergency using the dominant (time phases) classification (Table 1.1). Based on the analysis in this

thesis, four alternative models can also be suggested relating to (i) demographic changes, (ii) epidemiological observations, (iii) political events and (iv) organisational chaos. By using an analysis which combines these four models, it is possible to demonstrate that, despite an adverse political climate and competition between organisations, there are still opportunities to avoid a worst case scenario (unacceptably high death rates) by taking preventative (lobbying) actions.

CHAPTER 7

Evidence-Based Decision-Making Amidst Chaos

CHAPTER 7

Evidence-Based Decision-Making Amidst Chaos

"No man can reveal to you aught but that which already lies half asleep in the dawning of your knowledge ... and he who is versed in the science of numbers can tell of the regions of weights and measures but he cannot conduct you hither".

The Prophet, Kahlil Gibran, 1923

7.0 The Discussion: What Are The Issues?

In this chapter, the research findings (Chapters 4 - 6) are examined in relation to the study questions (Chapter 2). The discussion is organised as follows:

7.1 The epidemiological approach and evidence-based decision-making: Does it work?

7.2 Is the epidemiological approach do-able by an experienced relief worker?

7.3 Evidence-based decision-making: how can relief workers acquire good quality information under emergency conditions?

7.4 An epidemiological approach: epidemiological information

7.5 Evidence-based decision-making in the political context

7.6 Evidence-based decision-making in the management context

7.7 Limitations of the epidemiological approach: a rational approach in a chaotic world?

7.8 How to improve evidence-based decision-making in PDEs?

7.1 The Epidemiological Approach and Evidence-Based Decision-Making: Does it work?

The key element of this thesis was to see if an epidemiological approach and evidence-based decision-making would make a difference to health and nutrition status during the acute chaotic phase of an emergency and to assess if the approach was used to successfully influence change, ie did it work?

As noted in Chapter 4, this was a relatively successful relief programme by international standards. Crude mortality rates did not exceed the bench-mark of 2/10,000/day - although it was clear that deaths were under-reported especially during the acute chaotic emergency phase. When allowances are made for under-reporting, fewer people are estimated to have died (section 4.3) than in the previous catastrophic refugee emergency in Bangladesh (Aall, 1979; Lindquist, 1979). However child malnutrition rates did exceed internationally recognised norms (UNHCR, 1983) by a considerable margin (section 4.4).

Can this apparent improvement on the 1979 situation be attributed to the use of an epidemiological approach or were other factors responsible? A controlled trial (comparing camps where the epidemiological approach was used with "control" camps) may have provided a more clear cut answer this question, although such a trial clearly would not have been feasible in the situation described.

From the available evidence, it is clear that Bangladesh had gained considerable experience in disaster management in the intervening period since the earlier refugee influx of 1979. In addition, more NGOs were available to assist in 1992-3 than in 1979. However the main factors implicated in refugee deaths in 1979 were not to do with a lack of access to resources, expertise and assistance, but were related to the political and personal dimensions. These included a national government intent on repatriation at all costs, individuals intent on protecting their UN careers and donors unwilling to challenge the government because of long term political interests (Aall, 1979; Lindquist, 1979). It appears that more assistance could have been available had permission been granted by the government (Lindquist, 1979).

Similar political influences (presented in Chapters 5 and 6) and donor factors (eg Cameo 6.5/F which illustrates the role of WFP) were identified and recorded in 1992/3. However a significant difference was that in 1992/3 serious attempts were made to influence change using epidemiological data.

A similar scenario to that noted in 1979 was well developed by June 1992 (Tables 4.1, 4.2, 5.1 and 5.2). If left unchallenged, then even higher mortality and malnutrition rates would undoubtedly have resulted as political influences on decision-making were very similar (Table 5.1). Despite attempts by specific stakeholders to discredit or refute the data (Cameo 6.2), a lobbying and advocacy strategy was used effectively (by UNHCR, CDC and NGOs) to argue for an expansion of assistance to the camps at a crucial time.

The availability of epidemiological data in June and July made it extremely difficult for those decision makers with competing agendas to ignore refugee health needs. Ignoring such information would expose them to accusations of allowing refugees to die. The effectiveness of the UNHCR lobbying strategy, however, depended on the negotiating skills, commitment and determination of the senior UNHCR Representative. The outcome could easily have been different if a less determined and experienced individual had been placed in that particular role.

Another major difference between 1979 and 1992/3 was that in the earlier emergency, reliable comprehensive epidemiological information was not as widely available at the crucial time, although "best estimates", anecdotal and isolated reports were provided. However senior UN officials failed to use that information effectively, apparently due to personal career concerns (Lindquist, 1979).

To use an epidemiological approach effectively, in a fraught political arena such as that described here, requires a high level of skill and commitment from senior decision makers, who must be prepared to take personal risks, as well as having data of reasonable quality that can stand up to public scrutiny.

It appears that more notice was taken of mortality rates (obtained with the rigorous help of CDC) than of malnutrition rates (obtained by various NGOs using disputed methods). This point however is debatable, as the nutritional information was available before the mortality data - it could be argued that the mortality data

simply confirmed earlier nutrition studies and it was the combined weight of evidence which was the determining factor.

In terms of the impact on health and nutrition status: were appropriate actions taken? The nutrition and health situation did deteriorate alarmingly before an appropriate response was finally generated. It can be argued that, because of the adverse political conditions, agencies should have "gone political and public" earlier. Too many attempts were made to appease and negotiate in order to avoid confrontation. In mitigation, while the political agenda was apparent, the strength of feeling within the GOB (and the competing pressures within the different GOB departments) were not immediately made explicit. Nor was the impact of these, and the subsequent manipulation of the relief programme, immediately clear.

It is therefore easy, with the benefit of hindsight, to suggest that UNHCR should have taken a stronger line with the GOB at a much earlier date. However, in the context described in April/May 1992, reliable epidemiological information was not readily available to back such an approach and all options had not been explored. A confrontation was felt to be premature.

So under what circumstances does the epidemiological approach work? Previous history suggests that death rates would have been higher, which indicates that epidemiological information was used successfully to promote a change of policy at government level. The approach was less successful when used to try to influence the behaviour of individual aid agencies (see 7.5 and 7.6 below).

When the host government is hostile towards an expansion of the relief programme, epidemiological information can be used to effect change but the quality of the epidemiological information is very important. Donors and governments require evidence or rather in their words *"facts and figures"* (Cameo 6.5/C). If these facts and figures offer a contrary opinion to that of the major stakeholders, then the information will inevitably be scrutinised and challenged by those who hold a different view. Epidemiological information must be reliable and valid - it must stand up to considerable public scrutiny.

In a politically charged setting, the use of aggregate crude mortality rates (the weekly average CMR for all camps) can be open to abuse. As shown in Tables 4.2 and 4.6 and Figure 4.9, the weekly average rates disguised significant differences between camps. For example, Horikhola was still in emergency phase (November 1992) when aggregate data showed a stable situation. If a government is not fully committed to an epidemiological approach and has its own (different) agenda, aggregate data can be used to ignore local differences and justify inaction. Or rather, information can be manipulated by stakeholders to suit their own political agenda(s).

In summary, in answer to the question at the start of this section "did the epidemiological approach work?", there is evidence that epidemiological information was used convincingly to influence change. Success depended on a number of factors. These included:

* the skill, experience and knowledge (the level of training) of data collectors

* professional competence in data analysis and interpretation (to generate reliable and unbiased information)

* political awareness on the part of those generating data and a knowledge of lobbying strategies

* the conviction and determination of the "users" of the epidemiological approach when faced with an adverse political climate.

Note that in this case study, the aim of the government was to "keep refugees alive but not make them too comfortable so that they will want to stay". From the data presented here, it would appear that the government had a modicum of success in achieving its "hidden" agenda. If an epidemiological approach had not been effectively used, then it is argued here that despite the intention of "keeping refugees alive", the outcome would have been very different.

Possible solutions?

In the highly charged political context described, the epidemiological approach was only possible because it was accompanied by a political and organisational analysis of the situation. Decision-making and influencing change are not straightforward rational processes, nor is using an evidence-based or epidemiological approach.

A better analysis and understanding of political, organisational and managerial behaviours, and influences on those behaviours, is likely to be helpful in defining potential blocks at an earlier stage and in determining possible strategies to accommodate difficult circumstances. Models such as those developed here need to be tested out and used in different circumstances. If they hold up to scrutiny, then other aid workers and governments confronted with emergencies could find them helpful in their attempts to make decision-making more understandable, transparent and rational.

7.2 Is the Epidemiological Approach Do-able by an Experienced Relief Worker?

The first question that arises is "who is the epidemiologist?". Despite an intention to use an epidemiological approach, reliable and timely mortality data only became available in Bangladesh when external epidemiologists were asked to assist[147]. This observation was also made recently concerning the Zaire relief programme (JEEA, Study 3, 1996 p68) where accurate health information was only available when aid workers were assisted by epidemiologists (section 1.6.5). Is this a realistic approach in all emergencies?

It is clear that most international aid workers, including experienced relief workers like myself, whilst having acquired some epidemiological knowledge, are not

[147] Nutrition data remained problematic throughout, but for different reasons, including the lack of an international consensus concerning methods and approaches.

trained as epidemiologists. Nor are they trained in evidence-based decision-making. They are however present in major emergences in large numbers. In contrast, whilst epidemiologists have the required specialist skills, they are generally not present in all emergencies, in all affected areas at all times. National staff are always involved in emergencies to varying degrees, but in Bangladesh, like many other countries, there was a national shortage of trained staff with specialist epidemiological skills (section 4.3 and Annex 2).

Internationally, epidemiologists are usually seconded as consultants by donors (eg CDC was funded by USAID and UNHCR and then seconded to UNHCR and the MOH in Bangladesh). A similar arrangement was reported in Zaire (JEEA, Study 3 1996). Epicentre staff in Bangladesh (see Cameo 6.1 concerning the rapid assessment) were supported and seconded by the EC and MSF/F.

As we have seen in Chapter 5 and the literature review (section 1.6) donors can be very influential. Epidemiologists seconded under such circumstances can therefore have considerable influence with the donor organisation but conversely, because they are seconded (and therefore on short term contracts), they are usually advisors rather than decision makers. Their status and influence within the relief programme is often not clear, ie who do they report to - is it the donor, the MOH, UNHCR or their own headquarters? Where do their loyalties lie?

In addition, the presence of external epidemiologists is dependant on the willingness of donors to fund them and the willingness of host governments to

accept their assistance. While funding may be readily available in the short term (when every stakeholder is eager to obtain information), in the longer term the situation is less clear. Donors often lose interest when the acute emergency subsides or a new emergency occurs elsewhere and draws their interest.

In Bangladesh, external epidemiologists were available for six months (from June to December 1992) but the programme continued from 1992 to date (1997). A total of five different CDC staff members with varying degrees of experience were involved at different times during that six month period. Four had never worked in an emergency before, so while they had valuable technical skills, they were not necessarily street-wise; lack of continuity was an issue.

Who then is the epidemiologist, and who should be? Arguably, as "front line" relief workers (national and international) are usually present in major emergencies, they should be trained in epidemiological methods, data collection and negotiating skills. However, given the high staff turn over and short-termism of most aid workers' contracts, this is hardly a cost effective approach. As was noted elsewhere, there is no career structure in aid work (McNair, 1995). The focus should therefore be on selecting, training and supporting experienced "team leaders" in an attempt to develop and retain expertise.

A focus on training selected national staff would have the potential to benefit the host country in the longer term - building capacity in both relief and development programmes. However host governments may be understandably concerned about

training cadres specifically for the relief programme when their long term MOH "development staff" may not have such opportunities. In addition, such training programmes, because of funding concerns, may not be affordable or sustainable beyond the emergency period.

Possible solutions?

If an epidemiological approach is to be used more widely, alternative ways of working need to be found. There have been many instances where "no epidemiologists = no reliable data" (Hirnschall, 1991; JEAA Study 3, 1996). Managers need professional skills, knowledge and motivation in order to use epidemiological information to obtain the best possible outcome for the refugees. Whilst some relief managers may have all of these skills, it is clear that many do not. Others simply will be overburdened and not have time to collect and analyse data. How can these problems be overcome the future PDEs? Based on this case study, various possible solutions are suggested:

* Managers will need to be supported by a professional epidemiologist and/or a very experienced relief worker specially trained in epidemiological methods. In addition, the skills of external short-term epidemiologists need to be better used. They need to become more involved in the transfer of skills and field-based epidemiological training, so that the resource base (of trained individuals) is widened. Managers, for their part, need to learn how to make better use of epidemiological information. They also need to

ensure that skilled epidemiologists report directly to decision makers and receive the support that they will undoubtedly need.

* The selection and training of international aid workers also needs to be improved (as suggested by McNair, 1995). Potential team leaders should receive rigorous epidemiological training.

* More importantly, there is a need to concentrate on selectively building national (host government) capacity, enhancing the level of preparedness. The development of a national public health capacity (with epidemiological expertise) would have benefits far beyond the relief period.

A comprehensive training needs assessment for all cadres of relief workers should be carried out, as a new approach to training relief workers is long overdue. Short courses (for example in epidemiological methods) are needed. A training needs assessment can be used to clearly define the type and level of training required. Existing selection criteria and training opportunities for staff also need to be reassessed - not just as part of a preparedness strategy, but also at the beginning of each new emergency.

In summary, there appears to be an urgent need for basic training centred around emergencies "where there is no epidemiologist". Training curricula should be designed bearing in mind the needs of national and international relief staff and

decision makers. They also need to focus on the skills required to effectively collect reliable information and translate it into action.

7.3 Evidence-Based Decision-Making: How Can Relief Workers Acquire Good Quality Information Under Emergency Conditions?

In PDEs there is a need for good quality demographic data which are sensitive to rapid changes. When compared to the literature (see section 1.6.2), Bangladesh was exceptional: useable demographic data were available almost immediately (due to the commitment of the GOB and financial support of UNHCR). In other emergencies, especially where there is no government commitment or where there is no government, the collection of demographic data may continue to be problematic due to competing agendas or time constraints. In addition, it may be beyond the skills and experience of many relief workers[148].

The quality of health, nutrition and demographic data is clearly of concern when they are collected under acute emergency conditions. Data collection systems need to be continuously monitored and evaluated to ensure reliability, detect false alarms and note problems (eg Cameos 6.3 and 6.4). Because they are not specifically trained in data collection and analysis, relief workers are often uncritical about data quality - they do not know how to evaluate health information systems. Health and nutrition information is often accepted at face value.

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[148] Inexperienced relief workers are often rapidly recruited (McNair, 1995; JEEA Study 3, 1996). The speed at which they are recruited and deployed often means that they receive only minimal briefing and no training.

There is also concern about the lack of standardisation of data and compatibility with national requirements. Even when criteria and methods have been discussed and agreed and guidelines drawn up, agencies have their own agendas and reporting requirements. These may not be compatible with local or national needs, ie the quality and comparability of data is directly linked to aid agency capacity, training and performance; it is also related to agency agendas as well as to the personal preferences of individuals and their interpretations of international guidelines. This point was clearly illustrated in the critique of nutritional surveillance (sections 4.4.1 and 6.3).

When used centrally, for coordination and decision-making, mortality and morbidity data have to be available on a daily and weekly basis during the acute stage, and then at weekly and monthly intervals afterwards. Therefore considerable investment (measured in time, training and money) is required. The cost was not calculated but it would appear to be high. It would be useful to conduct a rigorous evaluation and cost benefit analysis of emergency health information systems, defining minimum requirements and the most cost effective and sustainable methods.

Speed is of the essence where data analysis in emergencies is concerned. Therefore it is useful, because of the shortage of skills mentioned earlier, to initially promote a manual system of data analysis at individual camp level which can feed into the district level or regional system. This system must be standardised and accompanied by written guidelines and a training programme. If

expertise, training and support are available, then computerisation at camp level is also an option, but without rigorous quality control, there is clearly a danger that apparently reliable (professional looking) figures will be produced that actually have little basis in reality on the ground.

A computerised emergency health information system at district and regional/national level has many clear advantages for decision makers in terms of speed of analysis and presentation of results. A manual district level system can be too slow and cumbersome for emergency needs. However both types of system need good quality control.

The role of anecdotal reports needs to be enhanced and explored. In this emergency, useful anecdotal reports, backed by direct observation, were available before reliable epidemiological information was obtained (Table 4.2). Epidemics were also often signalled "anecdotally" before they were confirmed by the HIS (section 6.4).

However decision makers prefer "hard data". It is easier to discount observational or qualitative reports than figures, even though those figures may be of questionable quality. There is a need to develop rapid assessment methods to verify and/or improve the quality of qualitative reporting as both qualitative and quantitative data are needed. They are clearly complementary.

Too much emphasis on epidemiological data collection and figures (eg as in Cameo 6.1: the rapid assessment) runs the risk of "information blindness", ie missing other relevant qualitative (observational) reports which can also signal when action is needed. Qualitative information can alert aid workers to the need for change. It can be used to verify epidemiological reports and can assist when assessing the feasibility of different options.

Possible solutions?

The decentralisation of information systems (to camp level) and cost sharing (between individual agencies, UNHCR and the MOH) is one option, but it will incur considerable training and supervision costs for the MOH and NGOs. Some NGOs may not be willing to participate or may lack interest in data collection or training because of their curative mandates. Such NGOs are likely to be resistant to change and should be discouraged from working in emergencies which require a wider public health perspective.

The suggestions made earlier concerning training (see section 7.2) focused on situations "where there is no epidemiologist". Such training should include an understanding of data collection methods but also must take account of quality concerns, such as:

* How can data quality control measures be instituted?

* How can emergency health information systems be evaluated?

* How is data interpreted in the light of international standards?

The development of standardised computer-based packages is another option which needs to be explored, eg

* Prepared health information data collection forms on floppy disc (to allow adaptation to different circumstances according to local requirements)

* Standard diagnostic criteria to match the prepared forms

* Data analysis programme packages based on the Epi-info programme[149], to facilitate analysis at both camp and district level, with simple instructions allowing adaptation to local circumstances

* Guidelines on setting up, managing and evaluating emergency HISs

There is also scope to adapt some of the participatory rapid assessment [PRA] methodologies, which are used in the development context, to test their utility in emergencies in support of the epidemiological model (some examples of PRA for nutrition assessments are given in Young, 1992). While some PRA methods have been tested in the context of famine and early warning systems (Young, 1995),

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[149] Epi-info is a computer software programme developed by CDC specifically for the analysis of epidemiological data.

there appear to be missed opportunities in the context of displaced persons and public health which deserve further attention.

7.4 An Epidemiological Approach: Epidemiological Information

This research has shown the power and potential of epidemiological information. The case study of disease outbreaks (section 6.4) demonstrates that sudden high profile changes (eg an outbreak of cholera) are more likely to precipitate an emergency response than slow, low profile changes (eg an increase in ALRI and malaria).

The epidemiological approach did successfully identify less obvious changes of public health importance but failed to influence change for the better. It would appear that some key NGOs and MOH staff did not take the evidence seriously ie some pieces of evidence are more powerful that others, though not necessarily more important.

From this case study, the most useful epidemiological indicators were:

A: Crude and 0-5 mortality rates

Data were collected through active and passive surveillance. Both data sets were used to estimate the degree of under-reporting of deaths - a crucial piece of information. The active surveillance system was clearly more sensitive (and more

useful) than the passive system. The data necessary for calculating these rates, need to be collected from all sites at all times.

B: Sex and age specific mortality and morbidity

Interesting age and sex-specific differences were noted when data were dissected. However, because of the described difficulties concerning data collection and analysis, it is suggested that the preferred method for the collection of this type of information is through sentinel sites surveillance. Attempting to collect this information from all sites will lead to data overload and exacerbate problems of analysis. Sentinel sites need to be carefully selected to ensure that they are representative.

C: Nutritional surveillance data

Nutritional information is clearly of crucial importance, but likely to be problematic. Comprehensive information is needed from all camps rather than from sentinel sites as there are variations between camps. These differences are specific to a particular location, a moment in time and/or sometimes, the responsible agency. Aggregated data will hide these differences. Comparisons between camps are frequently impeded by a lack of standardisation of data collection methods and weak analysis.

D: Disease outbreak data

The early detection of disease outbreaks is essential if major epidemics (with high fatalities) are to be averted. In Bangladesh, despite outbreaks of typhoid, cholera, diphtheria and diarrhoeal disease at different times, mortality rates were under control for the main part of the year. The importance of early detection and rapid response is confirmed.

E: Others

The data sets suggested here will also permit the calculation of case fatality ratios. Although these were not specifically studied during the course of this thesis, they have the potential to influence choices between methods of treatment. Health service data (numbers attending, numbers treated) were less useful for monitoring trends due to low sensitivity, but were useful when compared to the other data sets above, for detecting gaps in service provision or problems of service quality and acceptability.

In summary, the information found to be useful in Bangladesh is similar to that suggested in the literature (Toole and Malkki, 1992). This research however provides an enhanced understanding of the power differential between the various pieces of data.

7.5 Evidence-Based Decision-Making in the Political Context

The political influences in this case study were extremely strong. As a result, mortality and nutrition information became very "politicised". In fact, what the information told us (the content) at times appeared more important than the quality of the information (sections 6.2 and 6.3).

Political agendas (at macro/national level) determine which information is likely to be listened to, when and by whom. Local level (micro) politics are also important, as shown by the competition between aid agencies (sections 4.4, 5.2 and 6.3), reluctance of stakeholders to admit to problems (Figure 4.9 and Chapter 6) or indeed agree what the problems were (section 6.3). There were also competing political priorities locally between the host villagers and refugees (Tables 5.1 and 5.2) leading to the risk of instability and conflict.

The strength of the political agenda had serious implications for the human rights of staff and refugees alike. Using data to influence political decisions in an adverse climate is clearly a high risk strategy. There is a danger that confrontation will lead to a government backlash, exposing key staff and refugees to unsuspected risks (such as imprisonment, harassment and/or loss of career opportunities).

In addition, government control of NGOs is a two-edged sword. Strong coordination is needed to control the relief programme and to prevent some of the

worst effects of emergency relief. At the same time, such control in a hostile environment can prevent aid reaching those in greatest need (eg Horikhola and the transit camps - see sections 4.3 and 5.2). NGOS and UN agencies then face difficult choices:

* to speak out (and possibly have to leave the country or risk being asked to leave) leading to reduced assistance for the refugees and no "witness" function

* to keep quiet and carrying on working (which may not be ethical)

* to continue to assist and quietly negotiate in hope of change

Difficult judgements like those described above need to be taken by skilled and experienced individuals with the full backing of their organisations. However as noted in this study, individuals may not be skilled in the political arena and organisations will have their own internal problems which can hamper rational decision-making. In this study, political pressures led to a conflict of priorities within UNHCR when UNHCR changed its own priorities as protection issues took precedence (see Cameo 5.1). External pressure allowed internal conflicts, which had been suppressed, to surface at a time when a concerted view was needed.

Political influences appeared to be stronger than other influences eg political agendas overrode individual opinions and advice. This led to attempts to discredit

the epidemiological data and prevented certain agencies from working in needy camps at crucial times (Tables 4.2, 5.1 and 5.2).

However despite the strength of the political influence, locally there was a failure to control NGO behaviour (eg the RRRC, MOH and UNHCR failed to prevent incompetent agencies from becoming involved in certain camps or failed to persuade them to adapt their programme in the light of un-met health needs, as shown in sections 4.3 and 5.2).

The political influence therefore was strong enough to give a blanket blockage to relief activities (Tables 5.1 and 5.2) ie it was very strong and influential at the macro level. It was less strong at micro (camp) level where selected failings appeared to be related more to organisational behaviour and organisational or managerial pressures (see section 7.6).

National security interests not surprisingly take precedence over the health needs of refugees. Therefore relief interventions need to be evidence-based but also need to be accompanied by a political analysis, identification of hidden agendas and exposure of hidden (behind the scenes) decision makers. There is a need to target stakeholders and decision makers but it is not always immediately clear who, in which government department, is the most influential. It is safe to say that this is not usually the MOH! Lobbying activities seemed to be most effective when major (bi-lateral) donors, who were sympathetic to promoting the best interests of the refugees, were targeted and became involved (Table 5.1),

Possible solutions?

Emergency health workers need to develop skills in political analysis (ie understanding the political climate and working the system or rather, being "street-wise"). They also need to learn to frame arguments from different perspectives in order to understand the views of various stakeholders, before entering into negotiations.

Training, in advocacy and lobbying techniques (who to approach, when and how), would be very useful for UN and NGO staff, especially if it focused on the relative merits of different methods and strategies of influencing change.

Aid workers would also benefit in training or guidance on how to make better use of the media - a very powerful tool. In the Bangladesh context the national media was, for the main part, hostile to the relief programme, supporting the government line. It may have been possible to put forward alternative views sooner had the dangers associated with a hostile press been fully appreciated.

Scope to influence the international media is limited in situations where attention is diverted elsewhere, as occurred in this study when attention was focused on Somalia. The crisis in Bangladesh was ignored by the media due to their focus on the activities of the US (a major world player) in Africa (Table 5.1). This focus exposes the media to accusations of biased reporting - a situation that is unlikely

to be influenced by aid workers but is symptomatic of the international political agenda.

7.6 Evidence-Based Decision-Making in the Management Context

While political influences were extremely strong, this study revealed that even when a sound policy based on data (evidence) was agreed, change did not automatically happen (Tables 4.2, 5.1 and 5.2). Many factors which affected decision-making have already been identified and include hidden agendas, competing frames and differing organisational priorities, the capacity of aid agencies to respond, access to resources, the skills, knowledge and interests of staff etc.

From the management perspective of a UNHCR Health Coordinator, a number of questions remain. These include:

* Can aid agency behaviour be predicted?

* How can NGO performance and behaviour be managed during the acute stage of an emergency?

* How can organisational capacity and commitment be assessed, given that there is often a difference between what is said and what is done?

The issue of organisational capacity is crucial. Despite epidemiological evidence there was a persistent failure to implement appropriate programmes in some camps. This failure can be attributed to the inability of coordinators either to influence NGO behaviour or to enhance the capacity of selected organisations. UNHCR only had the capacity to influence those which it directly funded. Even the RRRC found himself by-passed by some organisations (Table 5.2).

Coordination depends on the willingness of NGOs to be coordinated. Very few countries appear to have the required legal framework to enforce standards (JEEA Synthesis Report, 1996) and there are no international controls, yet NGOs represent a growth industry. Self regulation does not appear to be satisfactory. This is clearly an area which requires more attention if the international aid industry is to improve its performance on a macro level.

On a micro level, some NGOs will never have the ability, interest or money to perform or improve their performance, but their presence in a camps blocks access for other more committed and competent organisations. Once NGOs are established in a camp, it is difficult to persuade them to move and their inability to perform often only becomes apparent after a period of time. The aim then, is to prevent under-resourced or incompetent agencies establishing themselves in the first place. But how is it possible to predict who those might be?

The models of organisational behaviour (such as those developed by Handy, 1986; Korten, 1990) have not been tested out in emergencies. They arose from the

development context, yet pressures on agencies and organisational responses are likely to be different under chaotic and pressured emergency conditions.

The potential of such models to assist mangers in their assessment of agency capacity and prediction of performance, should be tested out under emergency conditions. A model was suggested here (Table 5.7), which I developed and used in Bangladesh to assist with such predictions. Its validity and potential utility needs to be tested out in different circumstances.

Possible solutions?

Some possibilities have been mentioned above, in summary they include:

* guidance and training for managers in understanding organisational behaviour

* testing out of different models/typologies of NGOs in emergency conditions to assess their predictive value

* the development of international norms of behaviour, codes of practice and an auditing or accrediting system

* support for the development of national legal frameworks

There is a pressing need to objectively measure the impact of individual agencies' activities on the health and nutritional status of the refugees. Some agencies are clearly more competent than others. Their performance determines the life or death chances of a refugee. Many agencies, however, will find this suggestion threatening. To date, concerns about information quality, eg lack of reliability and comparability of information, coupled with unavailability (JEEA Study 3, 1996), have rendered this measurement extremely difficult if not impossible. Now is the time for change.

The impact of different interventions implemented by NGOs and governments, also needs to be measured. There is some evidence from Bangladesh, that improvements in sanitation had a major positive impact on health and nutrition status. Benefits were apparent before the wider nutrition and health interventions were fully implemented (section 4.3 and 4.4), ie reductions in mortality and malnutrition rates were attributed to improvements in sanitation rather than other interventions, although the evidence is not conclusive. Yet sanitation in emergencies is a neglected field (Adams, 1996).

Such information therefore is potentially very important from a management perspective, in defining relative priorities in a crisis, but also for relief agencies in determining where (which sectors) they decide to develop their skills, capacity and expertise. The relationship between malnutrition and infection (and sanitation), as noted earlier (in section 1.5.2) is often location specific (Tompkins and Watson, 1989 p32). While a focus on sanitation appeared to have a major impact on both

health and nutrition status in Bangladesh, information needs to be actively sought out from other emergencies. Agencies and governments may need to re-orientate their priorities, especially in circumstances where a scarcity of resources prevents a multi-sectoral comprehensive approach.

7.7 Limitations of the Epidemiological Approach: A Rational Approach in a Chaotic World?

When ordered through the device of tables, emergencies are not as chaotic as first appear, but clearly there are major challenges to be addressed when trying to use a rational science in an environment of competing demands and competing (and sometimes conflicting) perspectives. While one perspective may appear rational to the person concerned, the same perspective may appear irrational to a stakeholder who disagrees or holds an alternative view. Therefore the PDE environment can be summarised as one which has "competing rationalities".

The epidemiological approach and evidence-based decision-making is sometimes limited by the availability of data or lack of training in data collection methods, but the biggest single constraint for many relief workers is still lack of "know how". Relief workers are frequently not "street-wise" and do not know how to "work the system". Even when they have considerable technical knowledge, they lack the management and negotiating skills needed to translate this knowledge into effective responses in a politicised environment.

This lack of "know how" was demonstrated in Bangladesh by many examples, showing delays in implementation and the problems experienced when attempting to translate rational epidemiological evidence into feasible recommendations in an adverse political climate (Tables 5.1 and 5.2; Cameo 6.5).

Although this "lack of know how" was first noted in 1983 (Simmonds, 1983), the comment is still valid today. The reasons are multiple and relate to the poor institutional memory of aid agencies, patchy recruitment, lack of investment in training and the short term nature of most aid workers' contracts. It has been suggested elsewhere that humanitarian aid is the last bastion of amateurism (JEEA Study 3, 1996). However that may be a little unfair, as some progress has been made towards professionalising of disaster management in recent years (see the literature review).

In any event, it is apparent that developing "know how" requires a highly professional approach to emergency aid. A wide range of management, analytical, epidemiological and diplomatic skills are needed, requiring considerable expertise. To foster and promote this would require a change in the way that the international relief system is structured and operated.

The situation is unlikely to change dramatically in the near future, although some initiatives are either recently implemented or currently underway such as the development of a voluntary Code of Conduct for NGOs (IFRCS, 1994) and a

voluntary Code of Best Practice in Human Resource Management (People in Aid, 1996).

Possible solutions?

A persistent theme running through this chapter is that a better (heuristic) understanding of the dynamic context, by those working within the relief environment would benefit both relief workers and refugees alike. Thus the earlier suggestion (section 1.7), that future research in emergencies should examine problems from different frames or paradigms to enhance understanding, remains valid.

The suggestion, for example, that epidemiological evidence and understanding can be enhanced by social science or anthropological research (Craig *et al,* 1986; Prothero, 1994) is extremely useful. The emergency context, because of the complexities involved, would benefit considerably from this type of "multi-frame" research in support of earlier epidemiological studies. In fact this is essential if we are to begin to fill this gap in "know how" and to improve aid workers' understanding of the skills needed to operate successfully in emergencies.

7.8 How to Improve Evidence-Based Decision-Making in PDEs?

The hypothesis stated that:

> In the chaotic phase of emergencies, the rational use of valid information about mortality, nutrition and disease outbreaks (as a management tool) will result in a better health outcome for displaced populations than interventions which are not evidence-based. An epidemiological approach will help to identify interventions which can control mortality and malnutrition rates and hold them at acceptable levels (see 2.3.2 for study definitions).

From a management perspective, this is probably correct, particulary when comparing this current crisis to the previous crisis in Bangladesh. Death rates were lower in 1992/3 than 1978/9. But it is clear that an epidemiological approach alone is insufficient to influence change.

There is a persistent problem when trying to convert epidemiological information into action. Failures of this approach in Bangladesh are evidenced by continuing gaps in the provision of health care (section 5.2) and elevated mortality rates beyond the acute arrival period (Table 4.2). The epidemiological approach is frequently constrained by other clearly identified factors and influences, which often undermine or impede attempts at rational (evidence-based) decision-making.

This case study has identified many constraints associated with evidence-based decision-making in emergencies. It has also identified some facilitating factors. Further improvements to the current situation regarding international emergency relief, require a multi-faceted approach.

Some of the lessons and models arising from this case study can be used to suggest alternative ways of thinking and acting. A better understanding of the dynamics of major relief operations may open up increased opportunities to influence change through an evidence-based approach.

The main trends and themes identified in this case study are summarised and brought together here (Figure 7.1) as a contribution towards generating a better understanding of PDEs and evidence-based decision-making.

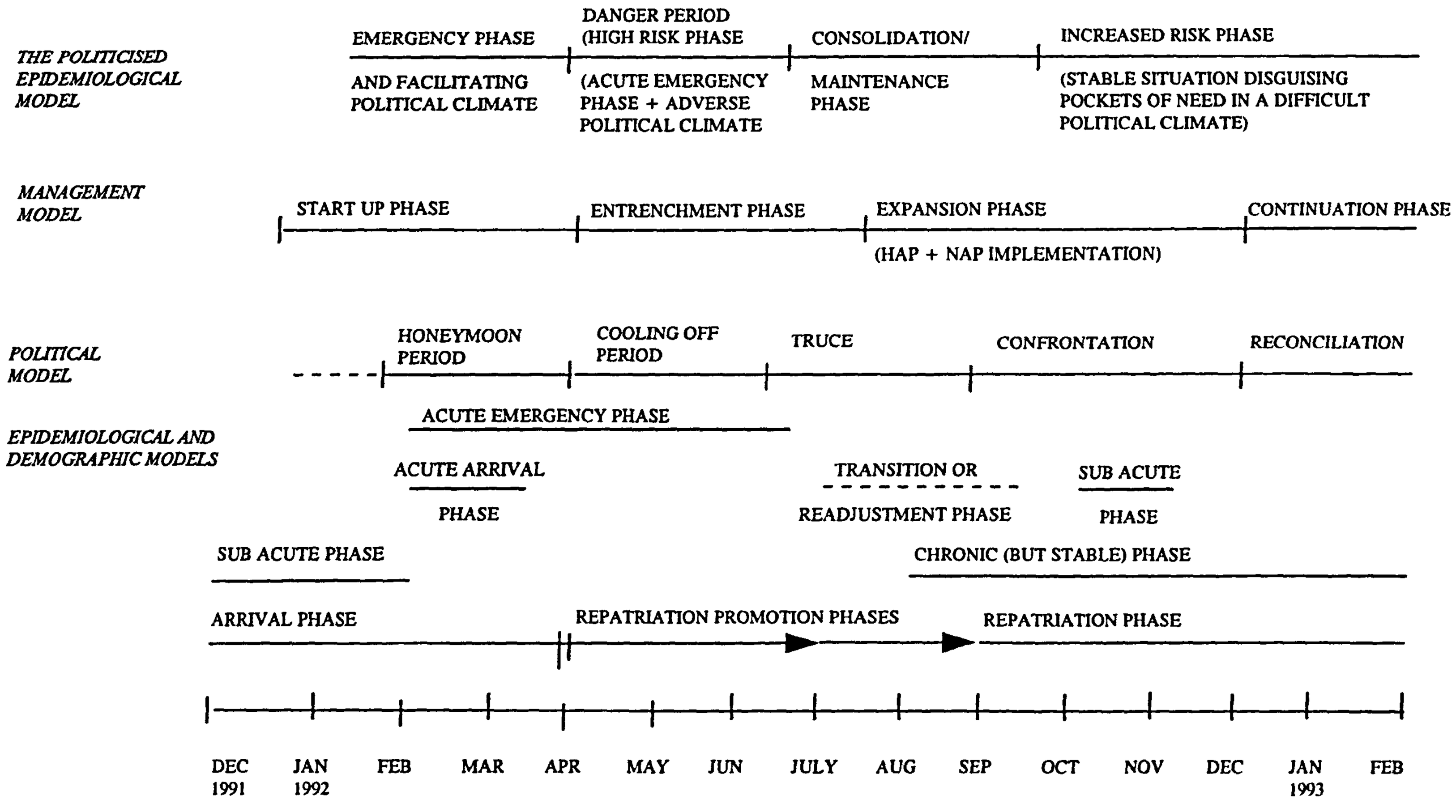
Epidemiologists have led the way. We need to take some of their recommendations and operationalize them:

* through operational or action research

* through improvements in the selection and training of relief workers (national and international)

* by developing an approach (with funding attached) which encompasses preparedness, capacity building and training, investments which may help to capture and retain expertise ie an approach which goes beyond a simple focus on rapid emergency response packages.

Figure 7.1 A politicised epidemiological model of PDEs



CHAPTER 8

What Next?

CHAPTER 8

What next?

"Not chaos like, together crushed and bruised,
but as the world harmoniously confused:
Where order in variety we see,
and where, though all things differ, all agree"
Windsor Forest, Alexander Pope, (1688-1744)

8.0 The Reality Of Research In PDEs

Conducting operational research under acute emergency conditions is a high risk strategy. The unpredictable and often chaotic emergency environment inevitably has an impact on even the best planned, highly structured and controlled studies. This study was not immune from such influences. As it is primarily a qualitative and explorative study, it could be said to be particularly vulnerable to external pressures and the vagaries of interpretation. The main question to address, therefore, is whether the circumstances described unduly biased the results.

In this final chapter, lessons learnt about conducting research under such conditions are briefly examined. The impact of major influences on the study is assessed and areas needing further research and investigation are identified. This chapter has three sections which are:

8.1 The reality of research under acute emergency conditions

8.2 The impact of the chaotic environment on this study

8.3 Where do we go from here?

8.1 The Reality Of Research Under Acute Emergency Conditions

It was noted in the literature review that prospective primary research is rarely conducted under acute emergency conditions. This case study has highlighted some of the practical reasons why this is still the case.

8.1.1 Access to information

Information is often politically sensitive. Some of it can only be accessed by working at a fairly senior level within the relief system. This means that the research activity is often secondary to the highly visible work role.

The researcher has to make difficult ethical decisions when there is conflict between the work role (which requires that information remains confidential) and the research needs (which requires exposure of that particular piece of data). Lack of respect for confidentiality can jeopardise the work role as well as leading to a loss of access to information for both work-related and research purposes. At the same time, failure to use information effectively in the work role can lead to unnecessary refugee deaths, which ethically is not acceptable. In the example described in this study, the poor health conditions in the transit camps (Table 4.2/C) were exposed at a politically sensitive time, when both myself and the

health information officer were under surveillance. Subsequently the latter was suspended and interrogated. National security interests not surprisingly took precedence over the health needs of refugees as far as the GOB was concerned. While the expatriate has a degree of "international immunity", national staff have no such protection.

There are no easy answers. An evidence-based approach requires that epidemiological information is used to influence change and reduce/control mortality. It is inevitable, in a complex and politicised emergency environment, that epidemiological information will also become highly politicised. Those using such information will become embroiled in national and international politics that goes way beyond any preparation or training that they may have had (either in political analysis or medical ethics), even though they may be well versed in rational decision-making.

The assumption that decision-making in emergencies is "rational" stands, with the caveat that "rationality" is relative. In this case, my definition of what is "rational", based on epidemiological evidence, clashed with a government definition based on national security interests. In other words a decision which may appear irrational to me, is actually very rational to someone else[150]. The difficulty is in identifying and exposing the hidden agendas which influence these decisions, in a non-threatening way. Accessing and using such information also

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[150] The bottom-line for decision makers (taking into account international humanitarian law), is that decisions should respect refugee rights and should protect the best interests of the refugees.

draws us back to the ethical argument and illustrates some of the problems associated with trying to verify such information.

Researchers wishing to access, research and use information under emergency conditions are well advised to study both the political and ethical implications of their actions in order to increase their awareness of the likely consequences, particulary for their colleagues. There will be some instances where capacity building (especially training national counterparts in data collection methods) is ill advised as it exposes staff to unacceptable risks.

8.1.2 Opportunism and data quality

In emergencies, valuable information is often exposed through opportunism (ie being in the right place at the right time). As emergencies are often unpredictable, proactive/prospective research also requires a high degree of opportunism. There is, however, inevitably a trade-off between opportunism and data quality concerns.

In this case the research started (through opportunism) before the methodology was fully refined. Thus data collection during the rapid assessment stage of the emergency was not as rigorous as later and the data are therefore more difficult to verify.

However the dynamics of relief operations and decision-making during the acute emergency phase need to be studied in depth if we are to understand the many

constraints facing decision makers. Such studies will inevitably be opportunistic. Methodologies (and safeguards) need to be developed specifically for the emergency context and tested out. They are worthy of future research in their own right.

8.1.3 High stress, poor quality?

As noted above, studies carried out under acute emergency conditions are high risk. It should also be added, from a researcher's point of view, that they are also high in stress - especially when the work role and research role are combined.

The researcher has to contend with competing time demands, political pressures, ethical questions and very little "time out". Tiredness and frustration may lead to a loss of objectivity. In order to safeguard study quality, it is important that qualitative studies conducted under emergency conditions are very tightly structured, to compensate for such pressures. The methodology used here (three different data collection methods and triangulation), provided a clear structure, minimised biases and improved the reliability and validity of the results.

The use of just one data collection method (eg participant observation alone) is ill-advised in this type of situation. In such a frustrating and complex emergency environment, the researcher would undoubtedly risk losing objectivity; using a single data collection method would also increase problems relating to data verification. In addition, the literature review highlighted that the value of some

earlier epidemiological studies was compromised by a failure to take into account associated risk factors (organisational, political, managerial). Therefore single method studies exploring emergency dynamics and relief responses should be avoided if possible.

8.1.4 Repercussions?

It is likely that many issues raised in this thesis will not be welcomed by some stakeholders as they reflect on government policies, relief agency performance and individual behaviours. When I started out, there was a clear risk of "washing dirty linen in public". In fact this risk was greater than originally envisaged due to the unexpected and disproportionate power of political influences.

The intention of the study is not to criticise governments or organisations but to expose some of the ways they influence decision-making, and to enable the different actors to understand each other's perspectives more clearly.

The government of Bangladesh did invest considerable resources and energy in the refugee programme and gave it a high national priority. But despite the existence of action plans, the UN, the NGOs and the GOB had different definitions of what was required to "keep refugees alive". The GOB was walking a tightrope between keeping refugees alive and not wanting to make refugees "too comfortable so that they do not want to go home". As is often the case, most senior decision makers were politicians or administrators with no public health background or training.

They were making life and death decisions based on political expediency rather than health indicators and knowledge.

The idea here is not to apportion credit or blame - indeed by international standards this programme can be regarded as being relatively successful. Nor is there an intention to say who was right or wrong. The aim is rather to understand the pressures facing the key actors in emergencies and to expose some of the dilemmas facing researchers, ie whether to speak out and risk alienating future partners or to keep quiet and fail to learn from repeated experiences. This case study attempts to learn from experiences with the intention of benefiting future researchers and relief workers.

8.2 The Impact Of The Chaotic Environment On This Study

The chaotic emergency environment inevitably affects data collection and influences the quality and variety of information produced. The impact of the emergency on research outcomes is briefly examined to check the validity of the results.

8.2.1 The impact on research outcomes

I experienced many difficulties relating to data collection. Most have already been mentioned, including the lack of standardisation of epidemiological data (Chapter 4), the difficulty of exposing political agendas (Chapter 5) and the political naivety of some stakeholders, leading to problems of interpretation of data (Chapter 6).

Despite the difficulties, a mass of verifiable information was collected on a variety of topics. The chaotic environment arguably benefited the research, providing a much greater wealth and depth of information than was earlier envisaged. A "broad brush" approach was used to identify and verify themes, trends and issues. This approach can also be regarded as a prelude to future research: leading to the identification of related topics needing detailed investigation (see section 8.3).

During this piece of research, it became clear that researchers (and stakeholders) need to develop political, organisational and epidemiological analyses of events. Despite its obvious limitations, the findings of this study should provide useful information for other researchers in similar major PDEs, facing similar challenges, problems and dilemmas.

8.2.2 The value of the models?

The models developed and suggested here (Figures 4.5, 4.10, 5.2, 5.5 and 7.1) may help to facilitate understanding elsewhere. In particular, the aid agency composites (Table 5.7) should be tested out in different circumstances, to confirm their validity and evaluate their potential in predicting (and controlling or managing) aid agency behaviour.

8.3 Where Do We Go From Here?

The final question of this study, is "what next"? Like most researchers, I am hesitant to complete one piece of research by suggesting that "further research is needed". However some clearly identified research needs exist and therefore must be mentioned. They are listed and briefly summarised here (as an "aide memoire"); as many have already arisen in the context of discussions arising from this and previous chapters. They include:

* To develop appropriate research methodologies which take into account, and compensate for, the chaotic emergency environment.

* To test out aid agency typologies and assessing their potential use in emergencies from a management perspective.

* To evaluate the impact of aid agency policies and activities and the quality of their interventions on the health status of the displaced.

* To develop methodologies for training needs assessments [TNAs] and conduct them among national and international agency staff and selected national government departments - leading to the development of needs-based training courses

* To develop and test out suitable basic guidelines, booklets and training materials for situations "where there is no epidemiologist" including:

  - guidance on how to set up and manage an emergency computerised health information system covering several camps

  - the development of a simple standardised epidemiological computer programme (eg based on Epi-info) for immediate collection and analysis of health information, including the basic forms and instruction manuals

  - guidance on how to evaluate emergency health information systems

  - as it appears that many epidemiological studies may be based on weak data

* To further develop the demographic, epidemiological, political and organisational models suggested here: also developing methodologies for conducting these analyses as a part of the rapid assessment data gathering exercise.

Finally, to enhance understanding of seemingly chaotic emergencies (and improve emergency responses) it is suggested that research which combines qualitative and quantitative information in a rigorous way, is extremely useful in offering explanations for seemingly irrational and chaotic events. Emergencies are not in fact as chaotic as they initially appear - as indeed this case study shows.

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ANNEXES

Annex 1 Refugee Numbers and Political Interests

A1/A Numbers of persons internally displaced

The literature review confirmed that the total number of refugees has steadily grown from 1.4 million in 1960 to approximately 15 million in 1996 (UNHCR, 1996; IFRCS, 1997). The number of internally displaced persons has also increased and although recent estimates are available (Table A1.1), their accuracy is not reliably known.

Table A1.1 Global numbers of internally displaced people[151]

Year	Asia	Africa	Europe	Latin America	Global estimates
1980	2.3 million	3.7 million	0.6 million	0.2 million	6.8 million
1990	7.9 million	5.6 million	0.9 million	1.2 million	15.6 million
1993	3.4 million	16.9 million	2.8 million	1.4 million	23.7 million
1996	3.8 million	9.4 million	4.8 million	1.3 million	19.4 million

Note that the greatest rate of increase during the decade ending in 1989, was observed in Asia. The highest rates of increase subsequently (1990 - 1993) were in Europe and Africa. The increasing numbers of displaced in Europe were mainly in the former Soviet Union and former Yugoslavia. In Africa, the number of displaced increased by over 11 million in the first three years of 1990. Most of these were located in just six countries: Angola, Liberia , Mozambique, South Africa, Sudan and Zaire.

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[151] Sources: UNHCR, 1996 piii; IFRCS, 1997 p133-134).

A1/B International politics and the economic burden of refugee assistance

The economic burden of refugees, currently carried by host governments, varies considerably. In Table A1.2 below, the refugee burden is compared to GNP per capita and size of the host population.

Table A1.2 Economic burden of refugees borne by host government[152]

Number in world league (refugees per GNP), 1993.	Host Country	Total of refugees	GNP per capita	Year of GNP estimates	Ratio of refugees to host population	Ratio of refugees to GNP per capita[153]
1	Malawi	1,058,000	230	1991	1 : 9.8	4,600
2	Pakistan	1,629,000	400	1991	1 : 76.6	4.073
3	Ethiopia	432,000	120	1991	1 : 122.6	3,600
6	Iran	4,151,000	2,170	1991	1 : 14.8	1.913
11	Bangladesh	245,000	220	1991	1 : 449	1,114
49	USA	473,000	22,240	1991	1 : 518	21

In terms of numbers of refugees, Bangladesh for example hosts far fewer than many other countries eg; USA. However because of its relative poverty (as shown by low GNP per capita), it bears a high economic burden (coming 11th in the world league which assesses economic burdens). Malawi bears the highest burden because of its small population and low GNP per capita. Using this calculation, it becomes apparent that the poorest countries usually bear the greatest financial burden.

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[152] Data is extrapolated from UNHCR, 1993, p155 - 156 and Annex 1.2 and 1.3

[153] Calculation refers to the number of refugees supported by one unit of GNP per capita : the higher the figure, the poorer the country

UNHCR is a multi-lateral organisation funded primarily by donor governments[154]. Over the years, the international funding available for refugee relief work has varied enormously. Donor funding preferences are reflected in UNHCR's expenditure. They also influence UNHCR's ability to fulfil its mandate (for both assistance and protection). This is confirmed by an analysis of UNHCR expenditure extrapolated from the literature (UNHCR, 1993, p3 and p177). Table A1.3 shows that while gross annual spending has steadily increased, when matched to refugee numbers, marked fluctuations emerge.

Table A1.3 Number of refugees and UNHCR expenditure

Year	Number of refugees (millions)	UNHCR expenditure ($)	Spending per refugee ($)
1970	2.4 m	8,308,000	3.3
1974 *	2.4 m	69,006,000	28.75
1980	8.2 m	496,956,000	60.6
1985	11.6 m	457,849,000	39.47
1990	17.2 m	544,009,200	31.63
1992	18.2 m **	1,071,884,345	58.9

* = Figures for 1975 are not available
** = Figure doesn't include 810,000 internally displaced in Bosnia and Herzegovinia

Note the increased funding per capita in 1980 and 1992. The former coincides with large, generously supported, relief programmes in Thailand (Cambodian

[154] Currently (1992) the 10 largest donors to UNHCR (in order of absolute donations) are USA, EC, Japan, Sweden, Germany, UK, Norway, Netherlands, Canada and Denmark. (UNHCR, 1993 p177).

refugees), Somalia and Pakistan (Afghan refugees). This level of support reflect Western political and economic interests at that time.

Likewise in 1992, the large increase in funding coincides with major international assistance programmes in the former Yugoslavia[155] and former Soviet Union, presumably to the detriment of other programmes elsewhere. The former Yugoslavia consumed almost 30% of UNHCR's global budget in 1992 (UNHCR, 1993 p176) yet accounted for less than 20% of UNHCR's total beneficiaries. This analysis confirms that international (financial) assistance is often closely linked to Western economic and political interests rather than based on a more detailed analysis of real needs.

[155] The largest programme in 1992 was in the former Yugoslavia valued at $296,518,600 (extrapolated from UNHCR, 1993. p176). This constituted 27.7% of UNHCR's total budget yet covered only 19.8% of beneficiaries. By implication, it would appear that some other refugee assistance programmes in Africa and Asia may have remained static or suffered cut backs as a direct consequence of changing western interests.

Annex 2 Data Quality and the Health Information [HIS]

A2/A Introduction

In order to assess the utility of the epidemiological approach and the application of a rational science in a chaotic environment, it was necessary to briefly examine the quality of the epidemiological data, ie the approach could have failed because poor quality information led to an under, or over-estimation of health problems.

Many problems related to the HIS have already been mentioned, including the under-reporting of deaths and a failure to standardize nutrition data. As nutrition data has already been scrutinised (section 4.4), this section focuses on other problems of the HIS not previously addressed. The intention is to critically examine epidemiological data in the emergency context and to identify areas where the quality of data allows conclusions to be drawn about the impact of the epidemiological approach on health status.

As noted in Chapter 1, it is widely recognised that a standardised HIS should be established immediately. Unfortunately the literature is less expansive about how to do this under chaotic emergency conditions. Key questions which arise include:

* how to operate the system and ensure rapid data analysis (how to do it)?

* how to ensure and maintain data quality (how to do it well)?

* how to evaluate its potential utility and effectiveness (how can we simultaneously check that we are doing it well)?

A number of possible influences on the HIS, were identified in the literature review. Internal factors, such as staff training, motivation, supervision and the type of system adopted are very relevant. Pertinent external factors include political will, the resources available and a wide variety of less clearly defined (often location specific) influences. Guidelines for evaluating surveillance systems (Klaucke *et al*, 1988; WHO, 1994), suggest a number of key tasks to be carried out. Some have already been described:

* list the objectives of the system (4.3.1)

* describe the components and operation of the system (Table 4.2 and section 4.3.1)

* describe the health events under surveillance (4.2 - 4.5)

The remaining tasks are briefly discussed in this Annex (Klaucke *et al*, 1988):

* draw a flow chart of the system (A2/B)

* assess key attributes of the system ie simplicity, acceptability, sensitivity, specificity, representativeness, cost, usefulness, reliability, flexibility and timeliness (A2/C)

A brief discussion concerning implications for the epidemiological approach is located A2/D, where the reality observed in Bangladesh is compared to the ideal (as identified in the literature). A summary is located in A2/E.

A2/B The HIS and information flows

Three epidemiological activities in support of decision-making were identified and evaluated. These were:

* passive surveillance (routine reporting of demographic data, mortality and morbidity via the health information system)

* active surveillance (of mortality and malnutrition rates)

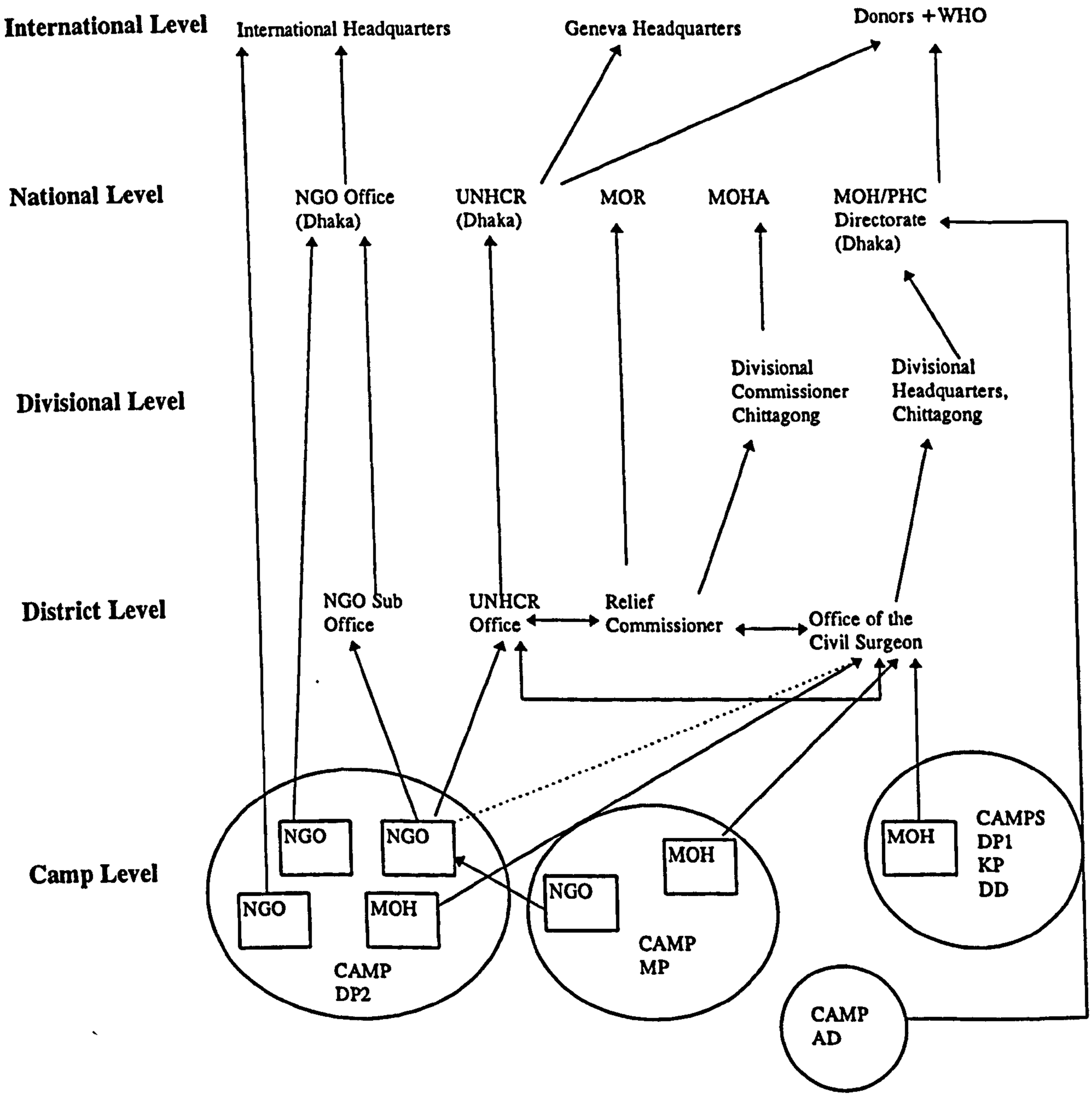
* special investigations eg disease outbreak investigations

Actual data use is dealt with separately as far as possible in Chapter 6.

As noted in section 4.3.1, information often flowed in different directions. Information flows are therefore examined in more detail here to understand the extent of the problem more clearly.

The regular MOH operated HIS in Bangladesh was centralised and vertical in nature, hence statistics were routinely collected and sent to Divisional Headquarters in Chittagong and to the National Primary Health Care Directorate in Dhaka for analysis. There was no provision (staff time or training) for local data analysis and use, merely for local collection, collation of and transmission of statistics up through the system (Lee and Burkholder, 1992/a p1; Burkholder, 1992 p2). In addition, in emergencies, this collection and collation process was usually done on a daily basis (in accordance with GOB emergency policy) which was labour intensive (Burkholder, 1992 p2).

Figure A2.1 Health information flows, February 1992



Despite gaining a consensus on reporting needs, some NGOs continued to use their own forms and often reported directly to their own headquarters (eg Paris, Dhaka or London) and to donors. As a consequence, the Civil Surgeon did not have access to all health information generated in the refugee camps (see Figure A2.1; HNMC Mins, 1/3/92; Lee and Burkholder, 1992 p.1).

Interpretation:

* While vertical lines of reporting (Figure A2.1) were strong (and reflect the vertical nature of health service structures in Bangladesh), horizontal links were much weaker with duplication of effort in some areas and gaps in others. At the same time there was a lack of an overview at either camp or district level (HNMC Mins, 1/3/92).

* The MOR and UNHCR had access to wide ranging information from various sources, yet the responsibility for the HIS lay with the Civil Surgeon within the MOH, who did not have access to all the information.

A2/C <u>Key attributes of the HIS: problem analysis</u>

Factors affecting key attributes, as identified in the literature ie simplicity, acceptability, sensitivity, specificity, representativeness, cost, usefulness, reliability, flexibility and timeliness, (Klaucke *et al*, 1988; WHO, 1994) are assessed. This analysis (Table A2.1) covers the acute chaotic period from

February 1992 (when attempts were made to develop a standardised HIS) until July 1992 when the HIS was computerised and functioning.

Table A2.1 Analysis of internal problems within the HIS (February - July 1992)

Attributes	Description (sources: Log books, Memos, CDC reports)	Implications for data quality/possible improvements
Sensitivity and Specificity	Diagnosis was influenced by drugs available and problems of differential clinical diagnosis (eg fever, malaria, ALRI), in the absence of a laboratory or doctor etc. Sensitivity and specificity of diagnosis was therefore unclear eg malaria was diagnosed on clinic grounds and 9,771 blood smears were sent for laboratory confirmation, only 5.6% were confirmed as positive (Burkholder 1992, p4).	Standard diagnostic criteria, treatment regimes and drug lists would be needed, as would training in their use - this has policy and practical implications eg establishing a drug supply/control system for MOH and NGOs
Representative-ness	Utilisation of clinics and coverage by the health services was poor (less than 40% in need used a clinic)[156]. Many diseases were under reported (diarrhoea, ALRI, malnutrition)[157] Huge variations in coverage between different clinics (eg NGO and MOH clinics in the same camp) lead to large variations in disease patterns within the same camp when comparing the two sources (Burkholder, 1992 p5)	Disease profiles would give a rough guide only of community health problems. Some problems may be under estimated or missed. The accuracy of this rough guide improves when balanced against rapid appraisal data and anecdotal reports. For passive surveillance to be more reliable, efforts would need to be directed towards encouraging better use of clinics by the refugees ie making them more accessible and acceptable.
Cost	Repeat visits a source of confusion[158]. Each camp had more than one clinic (no patient retained records) so patient could be treated several times on the same day for the same disease at different clinics (HNMC Mins, 3/3/92; LB, 29/5/92)	Could perhaps be improved by training or clearer forms, but best option would be to develop a policy of patient retained records[159] and a clearer definition of roles between MOH and NGOs

[156] Brown *et al*, 1992/b p13 & p15)

[157] see Brown *et al* 1992/b p13 & p15

[158] A repeat visit by the same patient with the same illness if recorded in error as a first visit would inflate clinic based disease incidence rates (Lee and Burkholder, 1992 p4). In addition, as many MOH clinics were short of drugs, often only 1-3 days supply of medicine was dispensed (Lee and Burkholder, 1992 p5 & LB 29.5.92). The patient was expected to return daily. These "drug pick up" visits were often recorded as a first visit (first visit that day - rather than first visit with that disease) thus further inflating incidence rates.

[159] After the census in September, it was planned that each refugee family would be issued with a Family Record Book - their passport to assistance in the camps (eg receiving food rations, relief items and health care). A refugee would not be seen at the clinic unless the Family Book was produced (although exceptions were made). The individual details of each family member were recorded in the book, including births, death, consultations, treatment and immunisations etc.

Attributes	Description (sources: Log books, Memos, CDC reports)	Implications for data quality/possible improvements
Simplicity and usefulness	Form filling was generally poor and influenced by treatment/drugs available[160], the need to fill in a category on the official form[161] also there were simple inaccuracies of transcribing camp register data (diagnosis) onto forms eg clerical errors	Any improvements in data quality would be dependent on improved supervision and on the provision of training. Data analysis and feedback would also need to be improved and guidelines issued.
Reliability and representative-ness	MOH teams rotated on a monthly cycle (Diskett, 1992/a p10; Burkholder, 1992 p4; Memo 19/4/92) and data varied according to different form fillers[162]	Options were to change the rota system, offer monthly training, or to put more emphasis on NGO reports - the only option open to the MOH was the second (most expensive)
Usefulness	Poor quality control at all levels and no quality checks - data taken at face value. MOH staff trained only to send in numbers at end of week - no checking or use of data observed (Burkholder, 1992 p1, 2 & 7).	Need to develop capacity of Civil Surgeons Office - likely that any improvements would be slow due to lack of staff, training and conflicting priorities
Usefulness and flexibility	In-camp analysis was not initially feasible due to lack of MOH staff time and skills. Training was constrained by the 4 week staff rotation in and out of the camps[163]. While NGOs had the capacity for in camp analysis, there was no sharing of data between NGOs and MOH at camp level (Burkholder, 1992 p2). Data was often simply filed; results were rarely available (Lee and Burkholder, 1992 p1).	Decentralisation of analysis to the camps was possible for the NGOs (but not the MOH) and by the end of May several organisations were successfully producing weekly mortality rates (HNMC Mins, 24/5/92). Lack of sharing of data at camp level due to rivalry between the different organisations and instructions from RRRC to MOH that NGOs had no right of access to MOH data. Therefore a policy change would be needed.
Timeliness	Data was promptly collected and transmitted to Cox's Bazar, but analysis was virtually non existent between March and June 1992. When only five camps (and seven clinics) existed, manual analysis was feasible. However prompt analysis of data from 15 camps and 35 clinics was impossible without additional resources.	It was clearly impossible to analyze the data rapidly manually with existing staff. Options included computerisation or increasing staff[164].

[160] A refugee may attend with two problems, severe malnutrition and intestinal parasites (mild). As drugs for the latter are available and treatment for malnutrition was not, the diagnosis is "worms". Thus malnutrition is under estimated even though the health worker recognises this as the main problem.

[161] 35-50% of diseases recorded were in the "other" or "unknown" categories (Burkholder, 1992 p18; Diskett, 1992/a p 9) often because of confusion over diagnosis and lack of guidance on form filling. For example, although the health worker suspected malaria, s/he could not confirm it by laboratory diagnosis, as per his MOH training hence was reluctant to record this in the malaria category on the form. Neither could s/he record it as PUO (pyrexia of unknown origin) as PUO is a distinct entity in Bangladesh which requires the exclusion of other possible diagnoses by laboratory tests which were not available in the camps. Consequently, suspected malaria was often recorded it as "unknown".

[162] In some camps, disease prevalence rates (eg the rates of bloody diarrhoea and watery diarrhoea) varied dramatically from one week to the next (Lee and Burkholder, 1992 p3). This could usually be related to a change of team and a different person form filling (transcribing data from the registers)

[163] Each team might spend 14-28 days in a camp and then return to their normal place of work as a new team arrives, on loan from the MOH PHC programme (see Diskett, 1992/a p10 regarding the rota system)

[164] Given the rapid increase in the number of camps and clinics, and current trends in the MOH in Dhaka, it was felt that computerisation would provide the MOH with a good learning experience. Additional technical support would be needed from outside the country. A GOB "freeze" on government staffing levels meant that recruiting additional temporary staff was not an option.

Interpretation:

Sensitivity, specificity and representativeness: The variable quality of the data limited its potential during the acute emergency phase. It was not very useful for example; in the allocation of resources, because it was not always clear which camp had greatest health needs. While differences in data could reflect real needs, there was under-reporting, they could also reflect differences in data collection/form filling - the data was not reliable.

Cost: Health information systems in emergencies require considerable investment in terms of staff time and expertise in order to function effectively - yet there were also many other competing demands (requests for health information, and inputs into programme planning, budgets, supervision and implementation etc). It can be inferred that health information systems are expensive to implement (a financial analysis of system cost has rarely been done).

While a detailed analysis of costs is beyond the scope of this thesis, it is apparent that efforts to improve and maintain quality require considerable further investment, resources and training - there is a trade off between accuracy and investment.

Simplicity and acceptability: A simple system was established in March, using a standard format. This was acceptable to and agreed by the MOH and NGOs (HNMC Mins, 8/3/92). However the operation of the HIS was problematic.

The new reporting procedure (introduced in March), did not replace existing procedures (as national statistics were still required), but became an additional burden on the CS. While both myself and the CS were aware of the importance and the difficulties in operating an HIS, neither UNHCR nor the MOH had the capacity to resolve problems such as ensuring rapid data analysis, interpretation and feedback[165].

Usefulness, flexibility and potential utility: There was a general lack of knowledge and understanding about the purposes of the HIS, as shown by mistakes in form filling, lack of sharing of information, no quality control etc (see Table A2.1).

There was no appreciation of the epidemiological approach (virtually no data use in the camps prior to July) - this was not included in MOH staff training so they did not know how to use it (Burkholder, 1992). As a consequence, there was little interest in ensuring either the accurate collection of data or "form filling".

Reliability: An epidemiological approach is dependant on having access to rapidly available, reliable information, which is not easy to obtain under the circumstances described.

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[165] We decided to adopt a manual system initially as this was the type of system familiar to the MOH. We were reluctant to introduce a computerised technology which may prove to be unsustainable - in terms of the level of training and ongoing technical support required. However we did not have either the skills and training needed to attempt computerised analysis or enough staff or sufficient time for manual analysis and interpretation.

While a substantial amount of was data generated, it was of questionable quality, not generally reliable (not representative).

Timeliness: Its potential to be used more in decision-making was extremely limited as the situation was rapidly changing (dynamic), leading to need to constantly keep priorities under review. The poor quality and even more importantly, the slow rate of analysis meant that prior to July 1992, data was generally not accessible when it was needed.

A2/D <u>What are the implications for the epidemiological approach</u>?

The above sections illustrate some of the very practical difficulties encountered when setting up a refugee health information system which influenced data quality. However as well as the practical problems, it seems that other influences are equally important.

There were significant differences between weekly reports from MOH and NGO clinics (Table A2.1). These can be partly explained by resource differences. NGOs generally had access to far greater resources (more drugs and staff) than the MOH. Their performance of health activities[166] was different and affected their morbidity reports. Initially there was little sharing of resources between NGOs and MOH, perpetuating the problem. There was competition and suspicion

[166] Eg treatment given, drugs used, number of patients seen) were visible manifestations of these differences which affected data quality (eg no MOH injectable antibiotics meant no treatments available for severe respiratory infections = none given = under reporting of ALRI).

between the MOH and NGOs. This was not conducive to ensuring cooperation and coordination: both requirements for a sensitive and effective HIS.

Inequality of resources led to differences in performance and in reporting. Improvements in reporting were needed to facilitate the epidemiological approach, yet improvements were, to some extent, dependant on a fairer allocation of resources, or at least a more equitable drug supply system. This had policy implications for the MOH locally and nationally eg is it realistic to improve the control and supply of drugs for refugees when local villagers only have very restricted access to MOH drugs or to train camp officers in simple epidemiology when no other MOH staff had this training?

Perhaps the most important influence on data quality and use was that the MOH was weak (lacking in resources and influence) in relation to the NGOs and other GOB Ministries. It was also less flexible (centralised) as even trivial decisions had to be cleared the MOH[167] in Dhaka and the Relief Commissioner.

The MOH was responsible for coordinating health activities, yet this lack of power (of the MOH) meant that there was some reluctance within the MOH to seek support for an expanded role in the assistance programme (LB, 24/9). The MOH in Cox's Bazar was concerned that an enhanced role had the potential to bring it

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[167] Even within the MOH, lines of authority and decision-making were not clear as on occasions the Health Minister, Director of Primary Health Care, Director of EPI services and Director of Human Resources (in Chittagong) all had to be consulted, yet the final decision, when taken, often could not be enforced or implemented as, for example, the Divisional Commissioner in Chittagong (reporting to the Ministry of Home Affairs) could effectively block day to day activities in the camps by instructing camp officials not to cooperate eg see Cameo : Active Mortality Surveillance in section 5.6.1 and Chapter 7.

into conflict with other GOB ministries. The MOH was looking to its long term goals in Bangladesh rather than to short term (refugee health care) gains.

It was apparent that technical assistance (and computer technology) would be needed if epidemiological data was to be used to assist with planning and monitoring (as recommended in the literature). It was politically unacceptable for the MOH to allow NGOs to take on the responsibility (some of whom arguably could have developed the capacity), the MOH needed to be seen to be in control, yet at the same time it didn't have either the capacity or the skills.

While control of the HIS lay ostensibly with the MOH, it was dependant on the support of the CDC and UNHCR - whose operational partner was the Ministry of Relief.

UNHCR (with CDC help) by becoming directly involved, was taking on a long term technical commitment and financial burden yet had little alternative. It did however ensure that UNHCR had access to the data, which may not have been the case if the data had stayed solely within the MOH.

The political weakness of the MOH is directly relevant to the debate about who bears the cost of data collection and related activities (supervision, standardisation of drug supplies, staff training, etc). The ultimate responsibility for covering this cost is rarely made explicit as it is assumed that the HIS is an MOH responsibility. Yet for many Ministries of Health globally, refugee programmes take a low

priority eg in Bangladesh the refugees account for only 0.24% of the total population for which the MOH is responsible.

Therefore while an effective HIS may be a priority for donors, NGOs and UNHCR, it may not be such a high priority for the MOH in terms of resource allocation as it may detract staff and resources from other (more important development) work. Likewise, an epidemiological approach may not be a priority for governments as health data may argue for increased investment in refugee camps diverting resources from longer term (and strategically more important) development programmes.

A2/E <u>Conclusions: data quality and the epidemiological approach</u>

* The process of collecting data (checking its quality, reliability, sensitivity and specificity) was not as straight forward as some texts would lead us to believe and requires considerable negotiation and sustained effort by skilled trained staff. There is one obvious contradiction; data is needed immediately yet it takes time to establish a sensitive, reliable health information and surveillance system which covers all camps.

* Considerable effort was invested in the HIS, yet it only became fully operational following inputs from CDC (external) epidemiologists.

* Data collection is rarely standardised in the early phase of the emergency. Attempts at standardisation may be hampered by competing rationalities, including political, managerial and time priorities as well as the personal preferences of individuals and NGOs. Governments and the MOH know about HISs - but from the perspective of vertical programmes and national statistics - rather than an epidemiological approach perspective.

* While a lot of data is generated, its potential utility is limited by its poor quality and a lack of comparability, especially during the acute phase of the emergency. Yet an epidemiological approach is dependant on having access to timely, reliable, sensitive and verifiable data which can be used to influence change. It has to stand up to public scrutiny.

* In-camp analysis and data use is arguably more appropriate than a centralised system, yet few staff (MOH or NGO) have the training or skills to do this during emergency phase when data is most needed. There is a shortage of staff trained in epidemiology nationally and this is also a major weakness of most NGOs and although some are rapidly gaining expertise, their knowledge may be compromised by a high turn over of staff. A training needs assessment is clearly needed.

There were some very obvious problems with the quality of data collected, despite considerable investment in the operation, monitoring and supervision of the HIS. It can be anticipated that problems would be greater in less well supported

systems. As we became aware of problems, they were approached through a variety of means:

* cross checking of data, eg active and passive systems, anecdotal reports, focused discussions in camps with staff etc

* training programmes (eg diagnosis, standard treatments, form filling, data analysis and use etc)

* supervision and support visits to the camps (by trained staff from the MOH, CDC and UNHCR), including spot checks on consultations, drug supplies, registers and forms

* weekly discussions at the HNMC meetings

These activities would appear to be the minimum required to ensure continued smooth running of the system and they need to be maintained for the duration of the relief programme to compensate for a high turn over of emergency staff. Despite the constraints of data collection mentioned above, we did have some acknowledged successes in the global context, as noted by Toole and Waldman, 1993:

> *"The collection of health information has improved; standardised mortality surveillance has been instituted relatively early during recent refugee influxes in Bangladesh, Ethiopia, Malawi, Nepal and Zimbabwe..."* and *"the surveillance system in refugee camps in Bangladesh provided rare data on sex specific mortality..."*

The data collected in Bangladesh, despite obvious problems, was of a quality that rendered it useful. We should note, however, that access to good quality information is no guarantee of good management (Srinivasan, 1986).

Annex 3 Health and Nutrition Programme For Rohingya Refugees in Bangladesh

This annex includes:

A3/A <u>The aim for health and nutrition programmes and activities</u>

* The attainment and maintenance of satisfactory health and nutrition status in the refugee camps, through establishing preventive, promotive, curative and rehabilitation activities. Interventions should be both sustainable and affordable in the local context.

A3/B <u>Philosophy and approach</u>

The aim will be achieved through developing a standardised Primary Health Care [PHC] programme in all of the refugee camps which:

* will address the main health problems that the refugees brought with them into the camps such as chronic skin diseases, diarrhoea, measles, ALRI, chronic malnutrition

* anticipates and meets those health needs arising from risk factors specific to the refugee camps such as crowding (leading to increased transmission of, for example, ALRI, malaria and other communicable diseases) and a deteriorating environment (eg diarrhoea). The programme must be responsive to changing needs

* anticipates health and nutrition problems likely to arise in the future, and takes preventive action, bearing in mind the health situation in neighbouring villages ie interventions must be appropriate to the local context and, as far as possible, consistent with national policies

* develops and/or strengthens district level management structures and improves the local capacity to plan, implement, monitor and evaluate the programme and the outputs

* strengthens and supports MOH activities in the camps and at referral centres outside of the camps, ie benefits both refugees and local inhabitants

A3/C Project description

An initial assessment, of health and nutrition status and immediate needs, was carried out in February by a multi-disciplinary team from UNHCR. The importance of a PHC approach, in tackling the many health and nutrition problems, was recognised. Since then the situation has changed and evolved as more refugees have arrived. However the basic approach remains valid.

Preventive, promotive and curative health and nutrition programmes are currently being implemented by the MOH and NGOs in all of the established camps under the guidance, technical support and monitoring of UNHCR. The Health and Nutrition programme will be implemented in three phases, by the MOH with NGO assistance, as follows:

Phase I (emergency phase)

In each camp, as it opens:

* provision of emergency curative care services, assessment of nutritional status and implementation of emergency nutritional rehabilitation programmes if needed

Phase II (transitional phase)

* expansion and consolidation of a range of services within the camp, using the primary health care approach, with the development of participatory camp health management committees and with refugee involvement

* development of appropriate management structures to coordinate, monitor and support the work in the camps, to ensure standardisation of approach, fair allocation of resources between and within camps and to respond to changing needs

* development of appropriate training programmes in support of the above structures and services

* strengthen MOH referral facilities where appropriate

Phase III (maintenance phase)

* maintenance of activities and consolidation of the programme with a phased withdrawal of international NGO assistance and handover to the MOH and national NGOs.

* continued monitoring and evaluation of the health and nutrition situation, programme and activities.

Some activities have already been implemented and others are planned. In some proposed new camps, operational partners have yet to be identified. The general aim however is to have, in each camp, one or two NGOs working alongside MOH staff, with complementary and supportive activities.

A3/D Specific Objectives

i) To provide a range of PHC services which meet the health needs of the majority of the population, in terms of preventive, promotive and curative activities

Outputs:

Within 3 months of the camp opening, refugees will have access to a range of services including:

* basic curative care facilities eg 1 health post per 5,000 people and 1 in patient facility per camp of population above 10,000 (able to treat 80% of cases presenting at the clinics) see attached plan (appendix 3)

* measles immunisation for those under 10 years and Vitamin A capsule distribution (with coverage in excess of 80%)

* supplementary and therapeutic feeding programmes (where there is a clearly indicated nutritional need)

* mother and child health care [MCH] services including EPI (up to the age of 5 years), ante natal care, family planning, oral rehydration programme etc

* communicable disease surveillance and specific disease control activities (eg, investigation of diarrhoea outbreaks, contingency planning for severe diarrhoeal outbreaks, malaria control programmes etc) in consultation and collaboration with the sanitation sector

* health promotion, information and health education activities through existing services and programmes

Assumptions:

* the MOH and NGOs will continue to allocate staff to the refugee health and nutrition programme

* the refugees will remain in Bangladesh for the next 6 months at least

* sufficient resources will be made available to implement all aspects of the programme

* that MOH and NGOs will continue to work in a collaborative manner

* that the services and activities suggested here will contribute towards the overall objective of maintaining satisfactory health and nutrition status within the camps

Risks:

* another disaster elsewhere in Bangladesh (or internationally) which results in the transfer of staff and resources

ii) **Development of appropriate management structures to coordinate and support the PHC programme in the camps**

Outputs:

By July 1992:

* the establishment of a Refugee Health Unit [RHU], in Cox's Bazar, under the auspices of the MOH and Refugee Relief and Rehabilitation Commissioner [RRRC] which will include

* a functioning monitoring and evaluation system and health information unit as part of the RHU

* an operational central pharmacy and drug control system

By August 1992:

* standard guidelines (in draft form) covering the main aspects of the refugee health and nutrition programme eg, standard treatment guidelines, nutrition programme guidelines, disease surveillance guidelines etc

* a training and support programme for those involved in refugee health care, including a standard curriculum for each different grade of staff and regular workshops on specific topics

Assumptions and risks:

* it is assumed, that following preliminary discussions, the MOH remains convinced of the need for a RHU, although an official agreement has yet to be reached

* risks include a loss of political interest/support in the light of plans for repatriation

iii) Strengthen MOH referral facilities

Outputs:

By July 1992:

* the Upazilla health complexes [UHC] at Ukhiya and Teknaf will have been strengthened through the provision of additional trained staff (MOH) and procurement of medical and surgical equipment (UNHCR)

* services provided by these facilities will include emergency surgery (eg, caesarian sections, road traffic accidents) and emergency medical treatment of severe cases (eg cerebral malaria)

* Teknaf UHC will have a fully operational X-Ray facility

Assumptions and risks:

* it is assumed that the equipment and supplies will arrive on time

* there is a risk that the MOH may not be able to transfer enough staff with sufficient training in surgery to make full use of the facilities

A3/E Implementation Strategy and Sustainability

The programme will be implemented in three phases as described, but strategically, will also be approached on 3 different levels:

Level 1	Institutional
Level 2	Camp
Level 3	Refugee Community

Level 1: The strategy is one of support for existing institutions, to enable them to extend their work in support of the refugee health programme. This involves institutions within the MOH in Dhaka as well as local MOH structures in Cox's Bazar and Bandaraban.

Level 2: The aim is to develop camp health management committees, with the participation of camp authorities, staff from the health and related sectors, NGOs and refugees. This will be the forum whereby health needs and problems can be identified, discussed and hopefully, resolved or tackled at camp level.

Level 3: The value of refugee involvement, in health and nutrition programmes which benefit them, is well recognised. Refugees will be involved in many of the health activities in the camp. There will be opportunities for employment, participation and/or training.

This strategy will facilitate the implementation of the health and nutrition programme and contribute towards achieving the overall and specific objectives. The focus, on institutional support and refugee participation, will contribute towards the overall sustainability of the project, and will provide a forum to assist with planing for repatriation, from a health and nutrition perspective.

A3/F Health Action Plan Summary

Aim:

To quickly **reduce the high mortality, morbidity and malnutrition rates** in the camps and to attain and maintain satisfactory health and nutrition status, through:

* rapidly extending **preventive, promotive, curative** and rehabilitation services and activities and

* the development of essential support and management structures.

Objectives:

1. To increase the **coverage** of the existing health services through:

   * decentralisation of services and activities, (ie, development of **satellite health posts, Oral Rehydration Centres** etc)

* outreach activities (**active case finding by trained refugee volunteers**) and

* an integrated approach ie, linked with activities in other sectors eg, nutrition, sanitation and water etc.

2. To **expand** the existing programme to include a more comprehensive range of services including eg:

* EPI, MCH/FP, Health and Nutrition Promotion, Disease Control Activities etc.

* The development of an **in service training programme** for the different levels of staff (MOH, NGO and refugee volunteers).

3. To put in place the necessary support structures ie:

* **A Refugee Health Unit** (to coordinate, plan, monitor and evaluate activities)

* **A Central Pharmacy**

* Strengthen **Referral Facilities** (at Ukhiya and Teknaf)

Strategy:

In order to developing a standardised Primary Health Care [PHC] programme in all of the refugee camps, the following strategy will be used:

* allocation of responsibilities and work plans will be reviewed on a camp by camp basis through the camp Health Committees in consultation with The Civil Surgeon and UNHCR.

* more involvement of MOH in MCH/FP work and data collection/use

* greater involvement of NGOs in all health activities, following MOH/UNHCR guidelines. **NGOs unwilling or unable to provide community based health care should be replaced by others with the necessary expertise and experience.**

* recruitment of female health workers and training of female refugee volunteers and training of all levels of staff in the PHC approach.

Table A3.1 Action plan emergency activities

Problem and Sector	Immediate - within 1 week	Urgent - within 2 weeks	Long Term Action
Sanitation and water	Water Quality Expert to set up water testing system	Improve coordination between sanitation and health sectors Implement weekly camp Health Meetings	Organise refugee teams/ volunteers and provide training and support
Centralised Health Services and poor coverage	Active case finding in camps through meetings with majis, refugee home visitors etc	Satellite Health/ORS posts and plans for training of outreach workers	Expand the coverage and long term training plans
Inadequate Treatment and gaps in health care provision	Emergency action plan for each camp and Emergency Diarrhoea Treatment Centres (EDTC) MCH/FP programme Obstetric services	Training in Rehydration Therapy Develop Standard treatment guidelines Establish disease surveillance laboratory	Monitoring, supervision and evaluation of programmes
Management and Organisation	Functioning Health Information and Surveillance system	Refugee Health Unit Central Pharmacy	Training for supervisory staff
Overburdened referral facilities	Strengthen referral facilities at Ukhiya and Teknaf through transferal of additional staff	Purchase of additional equipment and supplies/drugs	

Organisation and Management:

1. Large refugee camps (over 10,000 people) will have satellite Health Posts (one per 5,000 refugees). These will provide simple curative care. Trained medical assistants will be able to treat only cases of diarrhoea, chest infections, malaria, minor ailments and aches and pains. More serious cases will be referred to the central medical clinic to be seen by a doctor.

2. These health posts will also provide MCH services, supplementary feeding programmes, oral rehydration corners (with access to a latrine) and EPI services.

3. They will be staffed by a medical assistant and female MCH/FP worker and will be supervised by the medical officer in charge of the camp. They will also identify, train and supervise female refugee volunteers (one per shed - possibly the Traditional Birth Attendant) who will go house to house to ensure that the sick refugees do get assistance from the health post staff.

4. Health Post staff will also be responsible for keeping up to date information on the health situation in their sector, which includes regular reporting of all births, deaths and consultations to the medical officer in charge, using standard reporting guidelines.

5. At least one clinic day per week will be designated for providing care specifically to women and children.

6. Each camp will have a medical officer in charge (MOH) responsible for planning and supervising all health activities in the camp and will be accountable to the Refugee Health Unit in Cox's Bazar. The medical officer in charge will also submit weekly camp statistics (from MOH and NGOs) to the RHU.

7. Each camp will have a central Clinic which can treat more complicated cases (ie has a medical officer and a midwife). It will be open for 10 hours per day and provide an emergency 24 hour on call service. Large camps will also have an in patient facility of 6-8 beds and provide 24 hour care including and obstetric facility for safe deliveries.

8. Each camp (over 10,000) will have a contingency plan for severe diarrhoea outbreaks, including the construction of an emergency severe diarrhoea treatment centre (EDTC), stock piling of essential supplies and a plan of action (eg, staff preparation and training).

9. Each camp will have a camp Health Committee which will meet weekly and consists of representatives of the MOH, NGOs, Camp in Charge, DPHE and refugees. It should be chaired by the Medical Officer in Charge and a record of the meeting (book/ record of minutes) should be kept. It will review the main health and nutrition problems in the camp and take immediate action to resolve these problems. It will also develop a health and nutrition action plan for the camp. It can refer major problems either to the Camp in Charge and RRRC (administrative problems) or the Refugee Health Unit.

10. A Refugee Health Unit will be established in Cox's Bazar:

- to plan, manage/supervise, monitor and evaluate the implementation of Health and Nutrition Programmes in the camps
- to prepare standard guidelines for all programmes (eg MCH, Clinics)
- to prepare standard drug lists, guidelines as to their use and to develop a **Central Pharmacy** to supply the camp clinics (MOH and NGOs) regularly. To monitor and supervise drug use in the camps.
- to standardise training programmes for all levels of staff and to conduct regular training workshops on key issues
- to develop and operate an effective **Health Information System** and provide feedback to those implementing programmes in the camps.
- to use this information to plan interventions to meet the health needs of the refugee population
- to respond to emergencies in the camps (eg epidemics) with both technical support and materials
- to develop an effective system of disease surveillance and control
- to coordinate and supervise the work of the NGOs

11. Referral facilities at Ukhiya and Teknaf will be strengthened to deal with the increased work load, with both additional staff and equipment.

12. There will need to be good laboratory back up for analysis of stool samples, malaria slides etc. The laboratory in Cox's Bazar will be strengthened and facilities at Ukhiya and Teknaf will be improved.

13. An emergency storage facility will also be constructed at Ukhiya as part of the development of a Central Pharmacy.

14. Improved coordination at camp level between the health and sanitation sectors is essential especially in the area of Health Education. A workshop(s) or meeting will be held ASAP to review the situation.

A3/G <u>Nutrition Action Plan</u>

Objectives:

1. To increase the coverage of the existing Supplementary Feeding Programmes [SFP], through active case finding and an integrated approach ie, linked with MCH activities.

2. To expand the programme to include all children with a weight for height [wt/ht] less than 80% of the internationally agreed standards.

3. To expand the programme to include all at risk pregnant and lactating women.

Strategy:

To facilitate the implementation of the programme, UNHCR will make additional resources available (food stocks, finances) and will also be responsible for identifying and field testing a culturally acceptable Blended Food [BF], which can eventually be used to supplement/replace biscuits in the diet.

Organisation and Management:

1. The Non Governmental Organisations [NGOs] and Ministry of Health [MOH], will immediately begin to identify the eligible children through house to house, sector by sector screening. All children 70-110 cms tall (1-5 years old) with a Mid Upper Arm Circumference [MUAC] of less than 13.5 cms, will be referred to the SFP/ Maternal and Child Health Clinics [MCH] for assessment of their wt/ht. Older children and those less than 1 year, will be screened initially on clinical grounds and also referred for wt/ht assessment. Records will be kept of the screening exercise using a tally sheet and MUAC cut off points of 12.5 and 13.5 cms.

2. Eligible children (70-80% wt/ht) will be registered for the Dry SFP [DSFP] and will receive a weekly (or fortnightly) take home ration of high energy/high protein biscuits. The ration will provide a supplement of 500-1,000 kcals/child/per day.

3. The children admitted to the dry SFP will be monitored and reweighed fortnightly. They will be discharged when their wt/ht remains above 85% on two consecutive weighings (ie they will remain in the programme for at least 6 weeks) and they should appear healthy. They will then be followed up through the normal MCH programme.

4. Those children in the dry programme, who persistently fail to gain weight, who are sick or whose wt/ht falls below 70% will be referred to the Therapeutic Feeding Programme [TFP].

5. The attendants/parents of the children admitted to all nutrition/MCH programmes, should be involved as far as possible in the rehabilitation of their child ie the responsibility should remain with the family.

6. Health promotion activities through feeding centres/MCH programme should cover:

- appropriate use of supplementary foods in the home and reasons for the programme
- care of the individual child and causes of malnutrition
- food preparation, personal hygiene and prevention of diarrhoea
- Use of ORS and other home remedies
- how to make better use of health facilities/when to seek medical care

7. Defaulters (those absent from the programme on two consecutive occasions) should be followed up by refugee home visitors.

8. NGOs will be required to provide weekly reports of progress during the first month of implementation. Afterwards, they will report monthly to both the Civil Surgeons Office and to the UNHCR.

9. Food consumption (stocks) will need to be reported and discussed fortnightly with UNHCR during the expansion phase of the programme, to allow for pre positioning of adequate supplies.

10. Pregnant (last trimester of pregnancy) and lactating women (the first 6 months after delivery) will be identified and managed through the normal ante natal programme and will receive a fortnightly dry ration providing 5-800 kcals. Only those lactating women with a malnourished baby, will be referred to the TFP for reassessment. Initially, only the "at risk" mothers can be assisted - the management of all pregnant and lactating women is dependant on the establishment of MCH/Antenatal services.

Annex 4 Consolidated Calendars of Events from Different Paradigms

Table A4.1 Calendars: December 1991 - March 1993

Month	Demography	Epidemiology	Politics	Management
Nov - Dec 91	First refugees arrive in Bangladesh.		UNHCR officially offers assistance to the GOB. GOB declines.	
Jan 92	GOB starts to register refugees for assistance.	Data not available.	GOM insists that the displaced are not refugees but expelled illegal immigrants. GOB maintains they are refugees. Arguments continue over their legal status. BDRCS launches its own international appeal for funds	GOB allocates land and starts constructing shelters. The MOH, one national and two international NGOs start relief work. GOB distributes some food to refugees. and BDRCS starts food distributions.
Feb 92	33,000 refugees are registered with 1-200 new arrivals per day but arrival rate soon escalates to 6,000/day. 5 camps are established. UNHCR carries out a rapid assessment mission, including rapid population estimates based on surveys. Rate of influx exceeds capacity of GOB to cope.	Rapid assessment by UNHCR shows that malnutrition rates vary between camps, and are slightly above the national average for Bangladesh. Mortality rates appear to be within normal limits but a few cases of measles are noted.	GOB invites UNHCR to assist and UNHCR deploys Rapid Assessment Team UNHCR allocates $1.5 million from its emergency fund (soon to be increased to $2.7m). GOB appoints Refugee Relief and Repatriation Commissioner [RRRC] to coordinate activities. Refugees receive some assistance from the local population. Memorandum of Understanding drafted and signed between UNHCR, GOB and WFP.	MOH is overstretched. Large number of GOB administrative and security officials deployed to the camps. Anecdotal reports suggest that nutrition status in the camps is deteriorating. New NGOs arrive and some start nutrition screening. RRRC starts coordination meetings. However Islamic NGOs do not attend coordination meetings Main focus of relief effort is on constructing shelter before the onset of the monsoon. Measles immunisation starts but problems noted obtaining vaccines. It appears that NGO involvement in EPI is not welcomed. Supplementary feeding started in DP2 only by both MSF/F and GK

Month	Demography	Epidemiology	Politics	Management
Mar 92	Influx exceeds 150,000 by mid month. New camps are opened. Many refugees are observed sitting by the road side waiting to be allocated camps, often moving spontaneously or congregating around existing camps remaining unregistered.	Health status appears stable but deaths are under reported so real status is not clear. NGOs and MOH encouraged to start grave watching and standardised routine HIS started. NGOs reporting to their own HQ rather than MOH or UNHCR. Data not accessible to the Civil Surgeon.	UNHCR launches an appeal of $27.5m. Visit to Bangladesh by the UN Humanitarian Relief Coordinator to negotiate for a peaceful settlement. GOB maintains that these are refugees from Myanmar and not expelled/returning illegal Bangladeshi immigrants, as the Myanmar government claims. International media reports the influx.	Services not able to keep up with the rate of arrival. UNHCR says situation is *"chaotic"* and *"running away from us"*. Other NGOs arrive to assist, some are funded by UNHCR. Weekly IINMC meetings started. Attempts to standardise HIS are problematic. NGOs have different reporting requirements. There is duplication and overlap between NGOs. Camp-in-Charges told to check with RRRC before allowing any NGO to start work but GK opens clinic in Dumdumia anyway. Lack of technical expertise in nutrition surveys confirmed and extra NGO assistance in sanitation sector is needed. Delays in measles immunisation due to logistics failures.

Month	Demography	Epidemiology	Politics	Management
Apr 92	Influx reaches 200,000 and 12 camps are operating. Discrepancies noted between GOB statistics and BDRCS food distribution data.	Health status appears to be deteriorating but not supported by HIS data (which is of poor quality with under reporting of deaths. Data analysis very slow so results not available for decision making or lobbying. Real health situation not reliably known. Problems with water, sanitation and flies in selected camps persist and lead to fears about a diarrhoea epidemic.	Repatriation agreement signed between Bangladesh and Myanmar but the influx continues. Lists of those registered in the camps are submitted to the Myanmar authorities in anticipation of repatriation. UNHCR is neither a party to the discussions nor a signatory to the agreement. Friction over land rights between local lease holders and refugees. UNHCR has problems in channelling money to the MOH as its agreement with GOB states all money must go via MOR. No system appears to exist to channel money between MOR and MOH	78,554 children immunised against measles. Civil Surgeon reports shortages of drugs, staff, medical supplies and transportation and is over-extended. The RRRC is reluctant to allow additional NGOs in. Some NGOs arrive uninvited. Construction delayed due to disputes with land lease holders. BDRCS complains that food supplied by GOB is of *"below standard quality"* Health services are curative orientated, centralised and not easily accessible. Health policy discussed with MOH in Dhaka and HNMC. Coordination problematic. Some NGOs report directly to their head quarters, not the RRRC or Civil Surgeon.

Month	Demography	Epidemiology	Politics	Management
May 92	Routine camp activities disrupted by major cyclone alert. Emergency declared for two days until risk subsides. Influx continues and surpasses 250,000, but GOB promotes repatriation. 12 camps are full and more planned but acute land shortages are noted. Discrepancies persist between BDRCS food distribution data and GOB camp population data.	Numbers of malnourished children admitted to feeding programmes increase. High death rates reported in Nayapara camp (grave watching). A similar picture is confirmed from other camps ie a marked deterioration in health and nutrition status and rising mortality rates. MOH passive mortality data shows a near normal situation.	GOB starts promotion campaigns in the camps for "voluntary" repatriation; MOHA insists refugees must go home. Myanmar Government accused of systematic human rights abuses and ethnic cleansing of the Rohingyas (Asia Watch). Refugees insist that it is not safe to return and issue a declaration demanding a UN presence in Myanmar. GOM refuses to consider this, stating that it is unnecessary. GOB insists that *"we have to trust the Myanmar Government ...there is no question of a repeat of what happened in the past"* Curfew imposed in the camps. Riots following repatriation promotion campaign. One refugee killed and others injured in BK 1 camp.	Health services remain centralised with poor coverage, duplication (between NGOs and MOH) and drug shortages. Increasing numbers of malnourished children noted at feeding and health centres. Priorities agreed at the HNMC are basic curative care, measles immunisation, supplementary and therapeutic feeding, diarrhoeal disease control and epidemic continency planning. HKI at UNHCR request, conducts nutrition surveys in 5 camps. Nutrition workshop held in an attempt to standardise policies, criteria, recipes and procedures between NGOS. NGO activities in health and nutrition restricted in some camps by GOB.

Month	Demography	Epidemiology	Politics	Management
June 92	Influx continues but declines to <100/day. 13 camps are in existence. Almost 270,000 refugees have been registered including an estimated 91,000 without adequate shelter - a serious problem as the monsoon starts in earnest, with localised floods.	IIKI survey report shows alarming rates of malnutrition in the camps (up to 39.7% <80% wt/ht). Typhoid outbreak confirmed in Rongikhali camp. Crude mortality rates (grave watching) reach a peak with a average of 1.61/10,000/day. In some camps the rate is much higher (ie 8 per 10,000/day according to MSF/F and MSF/H. CDC epidemiologists arrive and show that death rates three times higher in the camps than for the local Bangladesh population and are rising. International Panel of Experts meet in Dhaka to discuss nutrition situation, mortality and results of HKI survey.	Some Agencies prevented from expanding programmes. RRRC states that *"refugees are too comfortable here"*. Local residents increasingly hostile towards refugees. Local market prices disrupted. Camp markets and some UNHCR offices closed by GOB. Pressure on WFP by GOB to cut food rations for children under 12 years. Attempts by GOB to discredit the IIKI nutrition survey report. International Panel of Experts [POE] meeting convened by UNHCR in Dhaka. Report discussed and endorsed. MOR finally endorses recommendations with reservations - *"repatriation should be as quick as possible/we will not support hindrances"* Refugee leaders arrested for "anti repatriation" activities. Refugees demonstrate. Security forces open fire on refugee crowd at KP camp, 2 killed, 5 injured.	NGOS told not to employ or use refugee volunteers in the camps but to recruit local people, to try to reduce tension between the populations. SCF report problems in finding local recruits. Civil surgeon instructed by RRRC to reduce numbers of NGOs in camps to a minimum. Increasing numbers of malnourished children noted in the camps. NGOs encounter bureaucratic difficulties in attempts to expand their health and nutrition programmes. They are told to re-submit plans to the NGO Bureau in Dhaka for approval as approval is no longer given locally. All NGOs asked to submit a detailed list of employees to GOB for approval. NGO activities are forbidden in selected camps. Permission for NGO to work in Rongikhali camp denied. Shelter, latrine construction and water pump development continue. Construction delayed in Horikhola Camp due to disputes with local landowner.

Month	Demography	Epidemiology	Politics	Management
July 92	Total number of refugees registered at the end of the month is 264,916. No new refugees will be registered and the border is unofficially closed by both GOB and GOM. 16 camps now operating. GOB acknowledges need for census to confirm numbers.	CDC report released to RRRC in Cox's Bazar, which confirms unacceptably high death rates in the camps. Outbreaks of cholera in several camps. However mortality peaks at 1.64 on 3/7 and then falls at the end of the month to 0.62/10,000/day (active surveillance). Only 5,000 children are enroled in the feeding programme. HIS is computerised and a weekly health information bulletin [WHIB] is issued.	MOR finally accepts the need to expand health and nutrition activities in the camps. Ministry of Home Affairs [MOHA] tries to discredit the CDC health report showing high mortality. NGOs accused of gathering data and doing surveys without permission of Camp-in Charges. Divisional Commissioner [MOHA] bans grave watching and instructs RRRC to accept only MOH (passive reporting) death figures which are much lower. Security forces again open fire to disperse protesting refugee crowds in Adarshargram (1 killed, 2 injured). In BK 1, 3 refugees contemplating a voluntary return home are killed by some "anti-repatriation" refugees.	Agreement reached with the GOB and WFP to improve/diversify the general food ration. Nutrition Action Plan NAP] agreed and NGOs asked to start screening and implementation straight away. Some do, some don't - due to lack of technical knowledge, staff shortages, poor logistics etc. Expansion of SFP continues with 6-7,000 children assisted by end of month. Health services remain centralised and do not meet main needs of the population. Health Action Plan [HAP] re-negotiated with MOH and NGOs in Cox's Bazar and confirmed by MOH in Dhaka. A total of 16 NGOs are now involved in the health sector. Coverage between camps remains uneven. Additional NGO involvement in sanitation is required and permission is given. NGOs told they had to get permission from the *"competent authority"*. Who or what this was, was never specified.

Month	Demography	Epidemiology	Politics	Management
Aug 92	Official population figures remain the same, with "shelterless" numbering 59,225. 470 refugees thought to be in prison for their anti-repatriation stance.	CDC report showing rising mortality rates, released by UNHCR in Dhaka, to the consternation of RRRC. Civil Surgeon states that active mortality surveillance (grave watching) is banned because it is against the culture and does not work. He requests NGOs to undertake active (house to house) surveillance. Mortality rates remain below <1/10,000/day in all camps however under 5 mortality rates give cause for concern in several camps as being greater than 2/10,000/day. SCF fails to submit weekly reports to the MOH/UNHCR and only gives them its own HQ in Dhaka. Malaria is acknowledged as a problem, with differing solutions proposed. Civil Surgeon says that permission for insecticide use is needed from MOH in Dhaka.	Security forces open fire on protesting refugee crowd. 3 refugees killed and 7 injured in Haludia Palong. Refugees secretly pass letters to UNHCR, accusing the GOB of arresting and imprisoning refugee leaders who refuse to cooperate over repatriation. Accusations appear in national press that "terrorist" refugees and NGOs are making bases in the camps. NGOs and UNHCR are accused of advising refugees against repatriation. Refugees are accused of disrupting the economy and degrading the environment.	Expansion of feeding programmes proceeds and strengthening of health interventions gets underway. Some NGOs fail to follow standard feeding programme guidelines. Latrine and sanitation programme proceeds apace. EPI training for MOH and NGOs goes ahead. Malaria is identified as a problem and one NGO offers to distribute "a few hundred" mosquito nets.

Month	Demography	Epidemiology	Politics	Management
Sep 92	Refugee census completed and population confirmed at 250,887. Variation between GOB figures (264,916) and census figures was <6% which compares favourably to many other emergencies. On 22/9/92, 49 refugees were repatriated.	Mortality rates remain stable and satisfactory in all camps except Horikhola which receives little assistance. Number of children (<80% wt/ht) enroled in the feeding programmes exceeds 15,000. This figure is thought to represent better coverage rather than an increase in malnutrition. Surveys are planned for November. Malaria continues to cause concern.	More reports in national press concerning environmental damage caused by refugees and their high consumption of fuel wood. First repatriation movement takes place without UNHCR involvement. Refugee anti-repatriation demonstrations continue for several days in the camps. Security forces open fire in Dhua Palong (3 killed) and ?200 refugees arrested. Relations between GOB and UNHCR reach an all time low and UNHCR protests to the GOB. Access to camps restricted for UNHCR and selected NGO staff. They need to travel in convoy. UNHCR denied access to injured refugees in hospital.	Service provision continues but anti-malaria spraying blocked, ostensibly due to lack of consensus regarding insecticides. Recurrent shortages of general rations and supplementary foods hamper programmes. Health services restricted at end of month due to tension and poor security in the camps.

Month	Demography	Epidemiology	Politics	Management
Oct 92	167 refugees repatriated, and 3 transit camps are operating. UNHCR no longer involved in the repatriation process.	Small rise in mortality rates noted, mainly fuelled by an increase in diarrhoea related deaths, yet CMRs remain within normal limits in most camps. 2 cases of diphtheria confirmed in Gundhum 1. Outbreak of cholera confirmed. CMRs cause concern in selected camps including Horikhola. Feeding programme beneficiaries reach peak of 17,422.	National press accuses UNHCR staff of being "anti repatriation". GOB edict restricting UNHCR and NGO access to the refugees. Some newspapers are beginning to question the GOBs handling of the refugee crisis. Compromise between UNHCR and GOB on modalities for UNHCR involvement in voluntary repatriation. UNHCR agrees to assist affected Bangladeshi villages in order to try to defuse tensions. First repatriation with UNHCR involvement takes place and others follow.	No progress on establishment of Refugee Health Unit although approval was given in July - reasons not clear. Permission to conduct nutrition surveys not forthcoming. Civil Surgeon concerned that in some camps NGOs appear to be competing with the MOH by offering more medicines and states at a HNMC meeting *"I will not have competition in the camps"*. SCF prevented by GOB from working in Horikhola as earlier agreed and all new NGO activities refused by MOHA.
Nov 92	Repatriation continues but is temporarily disrupted by a cyclone alert (grade 9) which remained in operation for 2 days. Cyclone missed Bangladesh but some wind damage (to housing mainly) sustained to southern most camps (DD 1 & 2). 932 refugees are repatriated.	Outbreak of renal disease in children. Case control study initiated. Improvements noted in mortality rates, although <5 yrs mortality remains elevated in several camps. Numbers enroled in feeding programmes start to decline. Permission for nutrition surveys with-held but eventually approval given and surveys start. Nutrition surveys carried out.	Security forces open fire to disperse protesting refugee crowds. 2 killed in Shailer Daba, 4 deaths in DP2. 2 wounded refugee children found chained to a bed, under arrest in Cox Bazar hospital. Forced repatriation (refoulement) of some 140 persons and subsequent withdrawal of UNHCR from repatriation process. Relationships between UNHCR and the GOB decline further with mixed reporting in the popular press.	New RRRC appointed. COB receive permission to open health and nutrition programme in Horikhola but only have capacity to assist <31% of population. Still no permission for SCF to work there (LB,15/11). NGOs refused permission to work in transit camps. Meeting held to coordinate nutrition survey methodologies and select camps. Reduction in general food ration despite objections from UNHCR.

Month	Demography	Epidemiology	Politics	Management
Dec 92	4,814 repatriated this month. Total repatriated in 1992 = 5,692. Number of refugees in prison thought to exceed 850. Approximately 30,000 refugees still without adequate shelter, yet sheds vacated by repatriation are demolished in several camps.	MOH and UNHCR reports show unacceptably high death rates in transit camps. Increasing concern about rising malaria (mortality and morbidity) rates [WHIB]. Nutrition survey reports (HKI and UNHCR) released covering 12 camps show general improvement in nutrition status although higher rate (13.9% <80% wt/ht) recorded in Horikhola. Transit camps are not surveyed (no permission). MOH Health Information Officer suspended following report on health situation in transit camps (accused of "spying" for UNHCR). CDC epidemiologist medically evacuated. HIS (data analysis) temporarily breaks down. Scabies survey carried out in Dumdumia 1 & 2.	Security forces open fire in Nayapara 1 & 2 camps. UNHCR denied access so deaths/injuries unknown. UNHCR Health Coordinator has access to camps restricted by GOB. Tactics for repatriation confirmed eg arrest or threat of arrest, beating or threats of beating, confiscation of food ration books. Letter from UNHCR (Geneva) to GOB Prime Minister accusing GOB of coerced repatriation and raising spectre of UNHCR withdrawal from Bangladesh. UK government supports GOB stance but USA makes representations. GOB is disappointed that USA should take the side of UNHCR. Opposition parties accuse GOB of incompetence. GOB insists all repatriated refugees are volunteers and that UNHCR is hindering the repatriation process. Boutros Boutros Ghali intervenes, but no media interest as all attention is on operation "Save Somalia" and the former Yugoslavia	Health Information system breaks down, but nutrition surveys are completed in 12 camps, data analysis starts and report rapidly produced. MSF/H denied access to Nayapara so no nutrition or hospital services operate for one week although limited assistance given by MOH. Still no permission for NGOs to work in transit camps, or Horikhola and Gundhum 3 camps. RHU officially opened but only with part time staff.

Month	Demography	Epidemiology	Politics	Management
Jan 93	12,116 refugees repatriated in January. By 18/1, a total of 17,129 refugees repatriated (but 32,448 removed from the camps so some still in transit). Problems in reconciling numbers transferred, repatriated and census figures.	Measles outbreak in Gundhum, Balukhali 1 & 2 camps. Response delayed due to failure of information system to detect outbreaks. Mortality rates remain within normal limits except in transit camps.	GOB & UNHCR face deepening diplomatic crisis. Repatriation continues apace with still no reply from GOB to UNHCRs letter. Evidence mounts that repatriation has speeded up since UNHCRs protests. New agreement negotiated between UNHCR and GOB. Refugees interviewed by UNHCR in transit (Jumapara) camp, to assess voluntary status for repatriation. All refused to go. Next day many were found to have been beaten over night for refusing. New agreement between GOB and UNHCR breaks down.	Measles immunisation "top up" campaign started but hampered by transfers of families to transit camps from measles affected camps. RHU still not fully operational. Still problems of poor coordination between MOH and NGOs at camp level. Debate continues about strategies for malaria control but no decision reached.
Feb 93	Rate of repatriation slows (3,278 by mid month). By 14/2, 21,3456 refugees have been repatriated, but UNHCR is only involved in 21.6% of cases.	Measles outbreak contained, situation stabilises. Research finishes 14/2.	GOB slows and then stops the repatriation process, ostensibly for technical reasons. World media still focuses on Bosnia and Somalia.	Concern continues regarding poor services in transit camps but no obvious solutions as MOH overstretched and NGOs denied access. Replacement UNHCR Health Coordinator arrives 25/2.
Mar 93			New modalities agreed between UNHCR and GOB for repatriation process with modest targets of volunteers for 1993.	

Annex 5 Data Used for Figures in Chapter 4

A5/A Data used for Figure 4.1[168] (Mid month-figures are used)

Table A5.1 Total of refugees and the rate of population increase

Month	Mid-month figure	Accumulative total
February 1992	33,000	33,000
March	117,083	150,083
April	56,870	206,953
May	49,233	256,186
June	13,675	269,861
July	(-4,974)	264,887

A5/B Data used in Figure 4.4[169]

Table A5.2 Repatriation by month (GOB/RRRC data)[170]

Month	Repatriation per month	Accumulative total
September 1992	49	49
October	167	216
November	932	1,148
December	4,814	5,962
January 1993	12,116	18,078
February	3,278	21,356

[168] Based on daily statistics provided by the MOR via the RRRC Control Room in Cox's Bazar.

[169] Figures are not available for those transferred to hospital or prison. Best estimates by a UNHCR Protection Officer put the total at about 1,000 by January 1993 (Choosin, personal communication).

[170] End of month totals are used apart from February 1993. Data only goes up to Feb 14th, when the research finished.

A5/C Data used for figures 4.6 and 4.7

Table A5.3 Mortality data (expressed as a rate per 10,000 per day averaged over 1 week)

Week beginning	CMR by active surveillance	CMR by passive surveillance	< 5 years mortality (passive surveillance)
14/3/92	0.75	0.5	
28/3		0.45	
11/4		0.5	
25/4		0.5	
9/5	1.35	0.5	1.95
23/5	1.35	0.65	1.85
6/6	1.4	0.65	1.85
20/6	1.6	0.56	1.6
4/7	1.64		
18/7	0.7	0.33	0.33
1/8	0.7	0.4	0.85
15/8	0.5	0.4	0.7
29/8	0.6	0.4	0.5
12/9	0.6	0.3	0.5
26/9	0.5	0.25	0.45
10/10	0.35	0.12	0.17
24/10	0.5	0.4	0.8
7/11	0.65	0.2	0.2
21/11	0.65	0.3	0.45
5/12	0.3	0.2	0.2
19/12	0.4	0.35	0.45
2/1	0.5	0.3	0.35
16/1	0.5	0.2	0.45

A5/D Data used for figure 4.8 (pie chart)

Deaths in children < 5 years during the study period were 1,256 (49.1% of the total deaths). While deaths in those > 5 years during the study period totalled 1,263 (51.9% of total deaths). Passive surveillance data were used as active surveillance data did not cover all camps.

A5/D Data used in Figure 4.9

Table A5.4 Child mortality and NGO capacity/behaviour (passive data/per 10,000/day)

Shailer Daba	Horikhola	Nayapara 1	All camps	date
5.8		1.23	0.85	11/7
5.1		2.46	0.83	25/7
1.94		1.64	0.7	8/8
1.94	2.7	1.64	0.62	22/8
0.65	5.22	0.38	0.46	5/9
3.24	2.61	0.38	0.51	19/9
1.27	2.04	0.38	0.33	3/10
3.17	1.61	0.37	0.53	17/10
0.63	2.68	1.10	0.35	31/10
0.63	0.73	0.75	0.22	14/11
1.9	1.45	0.0	0.37	28/11
2.53	0.72	1.13	0.22	12/12
1.39	0.72	0.38	0.43	26/12
1.92	1.49	0.79	0.38	9/1
11/14 (79%)	8/11 (73%)	6/14 (43%)	0/14 (0%)	% of recordings above the bench mark of 1/10,000/day