EVALUATION REPORT

EV555

EVALUATION/REVIEW OF THE ODA-FINANCED RELIEF AND REHABILITATION PROGRAMMES IN BANGLADESH FOLLOWING THE CYCLONE OF APRIL 1991.

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PREFACE

Each year the Overseas Development Administration (ODA) commissions a number of ex post evaluation studies. The purpose of the ODA's evaluation programme is to examine rigorously the implementation and impact of selected past projects and to generate the lessons learned from them so that these can be applied to current and future projects.

The ODA's Evaluation Department is independent of ODA's spending divisions and reports direct to the ODA's Principal Finance Officer.

Evaluation teams consist of an appropriate blend of specialist skills and are normally made up of a mixture of in-house staff, who are fully conversant with ODA's procedures, and independent external consultants, who bring a fresh perspective to the subject-matter.

For this evaluation the team consisted of the following:

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Yasmin H Ahmed, Health Specialist

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The evaluation involved the following stages:

- initial desk study of all relevant papers;

- consultation with individuals and organisations concerned with the project, including a field mission to collect data and interview those involved;

- preparation of a draft report which was circulated for comment to the individuals and organisations most closely concerned;

- meeting of ODA Projects and Evaluation Committee with Evaluation Department and the lead evaluator to discuss and agree the main conclusions and lessons to be learned from the study on the basis of the draft report;

- agreement with the evaluation team on the final report, which is published together with a summary sheet (EVSUM).

This process is designed to ensure the production of a high quality report which draws out all the lessons.

Johnny Morris

Head, Evaluation Department

ACKNOWLEDGEMENTS

The Evaluation Team would like to thank the many staff members of NGOs, in Bangladesh and UK, who spared their time for discussions. Thanks are also extended to Sir Colin Imray, the British High Commissioner in Bangladesh and his colleagues in the High Commission, and to Mr Steven Chard and members of his staff at the Aid Management Office, for their generous support to the Team during its visit to Bangladesh.

ABBREVIATIONS, ACRONYMS AND GLOSSARY

AA Action Aid

ADAB Association of Development Agencies in Bangladesh

AMOD Aid Management Office, Dhaka

BCL Bangladesh Consultants Limited

BHC British High Commission

BIDS Bangladesh Institute of Development Studies

BMS Breast Milk Substitutes

BNPS Bangladesh Nari Pragati Sangstha

BNSB Bangladesh National Society for the Blind

BPHC Bangladesh Population and Health Consortium

BRAC Bangladesh Rural Advancement Committee

BRCS Bangladesh Red Crescent Society

BUET Bangladesh University of Engineering

BWDB Bangladesh Water Development Board

C/E Cost/Effectiveness ratio

CA Christian Aid

CAFOD Catholic Development Agency in UK

CCDB Christian Commission for Development in Bangladesh

CDL Community Development Library

CDR Centre for Development Research

CHCP Community Health Care Project

Chira 'flattened rice'

CI Corrugated Iron (sheeting)

CPP II Cyclone Protection Project (II)

Dal Lentils

DP Development Programme

DPHE Department of Public Health Engineering

DRU Disaster Relief Unit

DUS Dwip US (Bangladesh NGO)

EC European Community

ECHO UK health NGO

ECOSOC Economic and Social Council

EEC European Economic Community

EPI Expanded Programme on Immunization

ERD Economic Relations Department

FFW Food-For-Work

FPCO Flood Plan Coordination Organization

FPSTC Family Planning Services and Training Centre

FTG RFA Fort Grange

GI Galvanized Iron (sheeting)

GK Gonoshasthya Kendra

GOB Government Of Bangladesh

GSS Gonoshajjo Sangstha Sangsad

HDP Human Development Programme

HKI Helen Keller International

HMG Her Majesty's Government

HoMSPS Heads Of Missions Small Projects Scheme

ICDDR, B International Centre for Diarrhoeal Diseases Research, Bangladesh

IEAD Information And Emergency Aid Department

IFAD International Fund for Agricultural Development

IV Intra-Venous

IVDC Integrated Village Development Centre

JIBON Bangladesh NGO

KfW German Development Bank

Khichuri Rice and *Dal* cooked together

Killa Raised earthen mound constructed in coastal areas to provide refuge for people and livestock from storm surges

MCPS Multi-purpose Cyclone Shelter Project

MP Member of Parliament

MUAC Mean Upper Arm Circumference

NEMAP National Environmental Management Action Plan

NGO Non-Government Organization

ODA Overseas Development Administration

ORS Oral Rehydration Solution

PACT US NGO in Bangladesh

PM Prime Minister

RCSB Royal Commonwealth Society of the Blind

RDI Relief and Development Institute

RFA Royal Fleet Auxiliary

RIC Resources Integrated Centre

SAD II South Asia II Department

SCF Save the Children Fund

SCI Service Civile Internationale

SEADD South East Asia Development Division

SEBA Society for Economic and Basic Advancement

SETA Belgian consultancy company

SMEC Snowy Mountain Engineering Corporation Ltd.

Thana 'County'

UCEP Underprivileged Children's Education Project

UK United Kingdom

UNDP United Nations Development Programme

UNDRO United Nations Disaster Relief Organization

UNICEF United Nations Children's Fund

Upazila Administrative area below the *Thana*

USAID US Agency for International Development

VAC Vitamin A Capsule

WFP World Food Programme

WPT Water Purifying Tablet

WV World Vision

Y-CARE UK based NGO

YMCA Young Men's Christian Organization

YWCA Young Women's Christian Organization

EVALUATION SUMMARY

THE PROJECT

1. The ODA response to the devastating cyclone that hit the Bangladesh coast on 29 April 1991 was to finance both relief and rehabilitation programmes. A total of £11.5 million was allocated: £6.5 million for relief and £5.0 million for rehabilitation. In the end, £10.2 million (88% of funds) were spent, £4.26 million on relief and £5.94 million on rehabilitation.

2. The overall objectives of the relief programme were minimising further loss of life and reducing

human suffering through the provision of emergency relief, including food, shelter, clothing and medicine.

3. The overall objectives of the rehabilitation programme were not stated by ODA, but were inferred by the evaluators to consist of supporting the rehabilitation of communities devastated by the cyclone, by rapidly responding to local needs.

4. An early decision was taken to channel assistance mainly through NGOs, rather than government, in view of their better record in delivering and targeting relief supplies effectively. Some money was also given to international organisations (UNDRO, EC, League of Red Cross and Red Crescent Societies) and to the Ministry of Defence for deploying a Royal Fleet Auxiliary vessel with helicopters to assist in the relief efforts.

THE EVALUATION

5. The evaluation was undertaken in February 1993 by a team consisting of a socio-economist (also team leader), a civil engineer, and an institutions specialist, all from Britain; and a health specialist, civil engineer and economist from Bangladesh. The team was required to evaluate ODA's relief programme and review the on-going rehabilitation programme.

OVERALL SUCCESS RATING

6. The ODA relief programme was judged to have been **successful** in terms of its objectives. It is estimated to have met the needs of about 8 percent of survivors in the worst-affected areas numbering roughly 33,000 families or 200,000 individuals. The rehabilitation programme is still being implemented and mainly involves construction of multipurpose cyclone shelters and houses. The rehabilitation projects may prove to be broadly successful, though there have been shortcomings in appraisal, monitoring and implementation. Insufficient account was taken of people's need for employment and income generation in the months after the disaster.

MAIN FINDINGS

7. The speed and effectiveness of ODA's relief programme was impressive, and more rapid than those of most other donors.

8. Overall, the NGO programmes financed by ODA were successful in preventing starvation and reducing suffering in some of the worst-affected areas. Almost all people received relief supplies within a week and there were no significant shortages while the relief programme lasted.

9. The decision to channel most of ODA's relief finance through large NGOs with proven records in disaster management was appropriate and resulted in rapid implementation of efficient and generally well-targeted relief programmes. The programmes of smaller NGOs were not as effective in targeting relief supplies to women and other vulnerable groups.

10. It was difficult to assess the relative cost-effectiveness of different NGO programmes, although it is clear that there are wide differences in the unit costs of relief commodities charged to ODA and in transport and management overheads.

11. The UK military intervention "Operation Manna" was an effective, if expensive, way of supplying Government food and other provisions to off-shore islands and of ferrying relief workers. It would have been even more effective if the vessel had arrived earlier, during the

survival relief phase.

12. Rehabilitation Projects financed by ODA were mainly longer-term (e.g. multipurpose cyclone shelters, housing). Short-term employment and income generating projects, which were urgently needed in the six months following the relief phase, accounted for only a small part of the programme.

13. For many rehabilitation projects the design stage gave insufficient attention to technical and social aspects. Thereafter, appraisal was inadequate and monitoring was not systematic. For all these reasons the impact of many rehabilitation projects is likely to be less than it would otherwise have been.

LESSONS LEARNED

(a) **Bangladesh - specific**

14. NGOs in Bangladesh provide a generally effective relief delivery system and are likely to continue to do so.

15. In the longer term, the Government of Bangladesh needs to develop its capacity to respond quickly and effectively at times of disaster.

(b) **General**

16. ODA and NGOs need to work together to improve the framework for, and quality of, the proposals and reports submitted by NGOs. Feedback is also required on actual impact and cost effectiveness.

17. Better understanding is needed of the coping strategies of people living in cyclone-prone areas in order to improve the design of relief and rehabilitation programmes.

18. Restoring safe water supply from groundwater after a cyclone or similar disaster is the most important step towards averting a large-scale outbreak of diarrhoeal diseases. Water purification tablets do not have an important role and disinfecting with bleaching powder may not be effective.

19. For maximum effectiveness in responding to sudden onset disasters, UK military resources, if lthey are to be used, need to be deployed quickly after the event. Given the time and cost of mobilisation, an early but informed decision needs to be taken on whether to deploy such resources.

20. After the relief phase of a disaster, special attention needs to be given to short term employment and income generating activities.

21. Where ODA is to be involved in rehabilitation, NGOs need guidance on ODA's strategy for the particular disaster and individual proposals need greater technical, social and economic appraisal and monitoring than took place in this case.

EVALUATION SUCCESS RATINGS

The Overall Success Rating for a project is allocated on a scale from **A+** to **D** according to the following rating system:-

Highly Successful (A+): *objectives completely achieved or exceeded, very significant overall benefits in relation to costs*

Successful (A): *objectives largely achieved, significant overall benefits in relation to costs*

Partially Successful (B): *some objectives achieved, some significant overall benefits in relation to costs*

Largely Unsuccessful (C): *very limited achievement of objectives, few significant benefits in relation to costs*

Unsuccessful (D): *objectives unrealised, no significant benefits in relation to costs, project abandoned*

The judgement on the Overall Success Rating is informed by a tabulated series of judgements on individual aspects of performance, including the project's contribution to achievement of ODA's **priority objectives** (listed in the upper section of the table). First an assessment is made of the relative importance in the project of each criterion or objective, which may be **Principal** or **Significant**; or, if not applicable, it is marked " **-** " . Where no specific objective was established at appraisal, the importance assessment is given in **brackets**. Each performance criterion is then awarded a rating, based only on the underlined sections of the five-point scale above. An asterisk (*) indicates a provisional rating.

Project Performance Criteria	Relief	Programme	Rehabil.	Programme
	Relative Importance	**Success Rating**	**Relative Importance**	**Success Rating**
Economic Liberalisation	**-**	**-**	**-**	**-**
Enhancing Productive Capacity	**-**	**-**	**-**	**-**
Good Governance	**-**	**-**	**-**	**-**
Poverty Impact	Principal	A	(Principal)	B
Human Resources: Education	**-**	**-**	Significant	B*
Human Resources: Health	(Principal)	A	**-**	**-**
Human Resources: Children by Choice	**-**	**-**	**-**	**-**
Environmental Impact	(Significant)	A	(Significant)	B
Impact upon Women	(Principal)	B	Significant	B*
Social Impact	(Principal)	A	Principal	B*
Institutional Impact	(Significant)	B	(Significant)	B
Technical Success	**-**	**-**	(Significant)	B
Time Management within Schedule	Principal	A	(Principal)	B
Cost Management within Budget	Significant	A	(Significant)	A

Adherence to Project Conditions	(Principal)	A	(Principal)	B
Cost-Effectiveness	(Significant)	B	(Significant)	A
Financial Rate of Return	-	-	-	-
Economic Rate of Return	-	-	-	-
Financial Sustainability	-	-	(Significant)	C*
Institutional Sustainability	(Significant)	B	(Significant)	C*
Overall Sustainability	Significant	B	(Principal)	B
OVERALL SUCCESS RATING		**A**		**B**

MAP

1.**BACKGROUND**

INTRODUCTION

1.1 This report presents an evaluation/review of the ODA-financed relief and rehabilitation programmes undertaken after the 1991 Bangladesh cyclone. It is divided into five chapters. This chapter describes the cyclone's effects and the response to it, in Bangladesh and internationally, with particular reference to the aims, character, and extent of the ODA's response to this disaster.

THE CYCLONE

1.2 The cyclone on the night of 29 April was one of the most severe storms to hit the coastal areas of Bangladesh this century. Winds gusting up to 225 km/hour, torrential rains and a tidal storm surge, over 6 metres deep in places, lashed a 150 km stretch of coast from Hatiya in the north to Cox's Bazar in the south (see Map). Rising waters submerged densely populated offshore islands such as Sandwip, Kutubdia, Moheshkhali, Matarbari and Dalghata, and the Government estimated that 138,000 people perished, mainly by drowning. The storm came at night and much of the area was inundated for over 6 hours.

1.3 The cyclone affected a population of over 10 million people in 19 upazilas (sub-districts) and

destroyed or damaged more than 1.75 million homes, over 5,000 primary schools and nearly 1,700 secondary schools. Damage and loss of life was greatest in Chittagong and Cox's Bazar districts. Extensive damage was caused to coastal embankments, roads, fishing communities and shrimp farms. About 250,000 tonnes of 'winter' *boro* and 'spring' *aus* rice production was lost together with an estimated 244,000 cattle (about 60% of the bovine population), 218,000 goats and sheep (70%) and 2.4 million poultry (81%). Approximately 70% of fishing boats and nets were lost, as also was a large part of the season's production of salt from salt pans which had been stored, to await sale.

1.4 Industrial areas and port and other facilities in the coastal city of Chittagong were severely affected. The airport was closed for six days, which hindered movement of relief supplies, telecommunications links with Dhaka were cut for a week, and Chittagong port was partially blocked by sunken vessels. A main bridge across the Karnafuli River at Chittagong was seriously damaged. Indications are that the direct impact on the balance of payments due to export losses and additional import requirements was of the order of ,400 million and the total budgetary impact due to lost revenues and increased expenditures was close to ,350 million, or about 25% of the annual Government budget.

1.5 Despite the great loss of life, substantially fewer people perished than in the last devastating cyclone in 1970. Credit for this must go first to the Cyclone Preparedness Programme, run jointly by the Government of Bangladesh (GoB) and the Bangladesh Red Crescent Society (BCRS) and staffed by volunteers, which warned people in coastal areas about the cyclone two to three days before it struck. Since 1970, also, some 200 cyclone shelters have been constructed in the affected area. It is estimated that about 350,000 people fled to cyclone shelters and to other brick buildings, and others sought refuge in trees or on distant higher ground. About 75% of people, however, did not leave their houses, either because they did not believe the warnings or feared that their houses would be looted, or their rights in land lost, if they left. Many people survived using fragments of wood as floats and often ended up over 20 Km away from their villages.

1.6 After the cyclone, many people were in a severe state of shock and more than 6 million people were homeless. Children had been particularly vulnerable and accounted for about 70% of deaths, followed by women (20%) and men (10%). More women died than men because they tended to stay at home until the last minute and took more responsibility for children and livestock. In exposed areas such as Kutubdia, Chakaria, Matarbari, Dalghata and Kalarmarchara, about 30-40% of the population perished. The devastating impact of the cyclone was felt by rich and poor alike.

1.7 For the survivors, their urgent needs were food, clothing, shelter and drinking water. Food stocks were largely destroyed, clothes were badly torn or lost, houses were blown down or washed away and cooking utensils lost. Drinking water was a problem since many of the tubewells and ponds used for water had become polluted with salt water, fallen trees, human corpses and animal carcasses. Some people had taken the precaution of burying food and water, but most had to survive for the first few days on green coconuts. Thousands of people sought shelter in relief camps or in Government and other buildings for anything from a few days to a few weeks. In some low-lying areas water remained ponded behind coastal embankments for up to a week after the cyclone.

1.8 Few people died after the cyclone from injuries sustained in the disaster or from starvation or

disease afterwards (see para 2.31 and Annex D).

RESPONSE

1.9 At the time the cyclone struck, Bangladesh's new democratic Government had only been in power for about 40 days and the previous regime had not left in place any disaster management plan.

1.10 For the first few days after the disaster, the Government and others outside the devastated area did not know the extent of the destruction wrought by the cyclone because telecommunication links were cut and it was difficult to move around the area, due to stormy seas and blocked roads. When the scale of the disaster became apparent, GoB acted rapidly to assess the damage in the affected area, coordinate relief operations and ensure the balanced distribution of relief supplies.

1.11 The Government's disaster management operation was known as 'Operation Sheba', which means 'service to humanity' in Bengali. Three national coordination committees were established - policy decisions were made by the PM's Relief Committee, a Coordination Cell in the Economic Relations Department (ERD) of the Ministry of Finance coordinated economic assistance; and another committee in the Ministry of Relief and Rehabilitation was responsible for day-to-day coordination. The area hit by the cyclone was divided into two zones, each headed by a senior official, appointed as Zonal Coordinator, and co-ordination cells were established at sub-zonal, district, upazila (now thana) and union levels. Ministers, MPs and Government officials were posted to districts and upazilas to ensure effective coordination among Government officers, the military forces and NGOs. The military forces were operational from the outset and played an important role in assessing need, transporting relief supplies, burying corpses and carcasses, running health camps and maintaining law and order. Many NGOs started work within days and the Government NGO Bureau introduced special procedures to approve NGO requests to accept foreign funds within 24 hours. A study undertaken by the Bangladesh Rural Advance Committee (BRAC), indicates that, in the affected upazilas, 85-100% of people had received emergency relief within seven days of the catastrophe.

1.12 The international community was also quick to react to the crisis, with bilateral and multilateral donors and international NGOs sending money and supplies to Bangladesh. Within days of the catastrophe ODA, the EC and other major donors made substantial commitments to the relief and rehabilitation effort, despite some confusion about whether GoB had formally declared an emergency and appealed for financial assistance. It is estimated that bilateral and multilateral donors committed about $150 million. The main donors were the USA, Germany, Japan, UK and the EC. Most donors channelled their relief contributions through NGOs or international organisations. Few resources were given direct to Government because most donors considered NGOs more effective in providing resources to the most vulnerable and needy.

1.13 Misappropriation of relief supplies seems to have been less than it was in the floods of 1988, although banditry was a problem in parts of mainland Chittagong, where armed gangs occasionally highjacked lorries with relief supplies. There was some import of unnecessary relief supplies (eg high calorie biscuits and medical supplies which were available in Bangladesh) but

this, too, occurred less frequently than in 1988.

PROGRAMME OBJECTIVES

1.14 The overall objectives of ODA's relief programme were to minimise further loss of life and reduce human suffering, through the provision of emergency relief, including food, shelter, clothing and medicine. The overall objectives of the rehabilitation programme were not explicitly stated but it can be inferred from the statements of Ministers in the House of Commons and from discussions with officials that they were as follows:

1. to support the rehabilitation of communities devastated by the cyclone, by a rapid response to local needs;

2. to enhance the preparedness of communities by constructing multipurpose cyclone shelters.

1.15 ODA made an early decision to follow its usual practice in Bangladesh of channelling its disaster relief and rehabilitation assistance mainly through NGOs, as these have a better record than Government in the effective delivery and targeting of relief supplies.

PROGRAMME COSTS AND FUNDING

1.16 ODA committed a total of ,11.5 million to the programme, of which ,6.5 million was for relief and ,5.0 million for rehabilitation. The allocation and flow of funds is shown in Figure 1.

1.17 Of the ,6.5 million of relief funds, ,5.606 million were spent by:

- NGOs (,3.040 million - 54%),

- international organisations (,1.950 million - 35%)

- a UK military task force (,0.616 million - 11%).

1.18 The remaining ,0.894 million at the disposal of the Disaster Relief Unit (DRU) was not spent. (See Fig 1). The international organisations funded were the EC (,1.2 million), UNDRO (,0.5 million) and the League of Red Cross and Red Crescent Societies (,0.25 million).

1.19 Of the ,5.0 million of rehabilitation funds, ,4.592 million was allocated to NGOs, the remaining ,0.408 million was earmarked by SAD II for projects which did not materialise and so was not spent.

1.20 Of the ,3.040 million allocated to NGOs for relief, ,1.697 million was used for relief activities and ,1.343 million was transferred to rehabilitation programmes, bringing the total allocation for rehabilitation to ,5.935 million, and the overall allocation to ,10.165 million (88% of the funds allocated by ODA).

1.21 In addition, ODA offered to bring forward some commodity aid previously agreed for 1992 but, as it turned out that the 1991 commodity aid provision was sufficient to cover direct requirements, including rehabilitation, the offer was not taken up.

1.22 The cost of the UK share of EC food aid to Bangladesh was attributed to ODA. ODA did not provide any bilateral food aid.

LOCATION

1.23 The relief and rehabilitation activities were concentrated on the coastal strip and off-shore islands in Chittagong and Cox's Bazar districts, although some projects were located in greater Noakhali, Barisal and Patuakhali districts.

PROGRAMME SCHEDULE

1.24 The relief and rehabilitation activities can be grouped into four phases:

Phase 1: Survival relief : emergency distribution of cooked food and fielding of medical teams to ensure that survivors did not starve or die from disease (weeks 1 and 2);

Phase 2: Emergency relief : ensuring that people, especially the poorest and most vulnerable, had sufficient food and water, access to medical care and shelter, and that preventative health measures (eg, burial of corpses and carcasses) were carried out (weeks 3 to 8);

Phase 3: Short-term rehabilitation : assisting people to re-establish their livelihoods and ensuring that they regained access to such basic needs as food, shelter, water and health care (months 3 to 6).

Phase 4: Long-term rehabilitation : assisting individuals and communities to reconstruct rural infrastructure and make them less vulnerable to disasters, for example by constructing multipurpose cyclone shelters (from month 7).

1.25 In many areas, there was some overlap between phases, especially between phases 3 and 4.

1.26 The project calendar is shown in Figure 2. A chronology of the main events and activities undertaken in the relief phase is given in Annex B.

2. THE RELIEF PROGRAMME : NGOs AND INTERNATIONAL ORGANISATIONS

OVERVIEW OF THE RELIEF PROGRAMME

2.1 The Disaster Relief Unit (DRU) within the Information and Emergency Aid Department of ODA is charged with coordinating the British Government's response to natural and man-made disasters worldwide. In managing the Government's response to this disaster it worked in close coordination with the British High Commission in Dhaka.

2.2 The relief programme had three components :

- **Grants to NGOs**, including (a) grants by the DRU to British NGOs either for their own relief programmes (eg, Concern, SCF) or on behalf of partner NGOs in Bangladesh (eg, Christian Aid for Gonoshasthya Kendra (GK)), and (b) Grants to Bangladeshi NGOs via the British High Commission (BHC), within the framework of the Heads of Mission Small Projects Scheme

(HoMSPS) or via the ODA-funded Bangladesh Population and Health Consortium (BPHC);

- **Contributions to international organisations**, including the European Community (EC), the United Nations Disaster Relief Organisation (UNDRO), and the League of Red Cross and Red Crescent Societies;

- **Physical support from Her Majesty's Government's armed forces ('Operation Manna')** comprising the supply of a Royal Fleet Auxiliary (RFA) vessel equipped with helicopters, and a squadron of Royal Marines with flat-bottomed boats.

The programme was designed in consultation with ODA's South Asia II Department, which covered Bangladesh.

FINANCIAL INPUTS

2.3 The UK Government made ,6.5 million available for the programme, which was announced by the Minister in three tranches on 2 May (,2.5m), 3 May (,2.0m) and 5 May (,2.0m). The total allocation made against this was ,5.606 million. The breakdown of allocations between the programme components is shown in Table 1. These funds were additional to the normal bilateral country aid programme.

SPEED AND FLEXIBILITY OF ODA'S RESPONSE

2.4 The Bangladesh cyclone was one of the most severe natural disasters this century and received massive media coverage in Britain and internationally. The Government came under strong pressure in Parliament to respond quickly and its performance was criticised on a number of occasions by the Opposition. British NGOs provided information from their sources in Bangladesh to ODA and the media, and the NGOs' Disasters Emergency Committee launched a national appeal for the victims of the disaster.

2.5 The DRU responded quickly and flexibly to the disaster. Within five days of the cyclone, it had made an assessment of the scale of the catastrophe based on reports from the BHC, NGOs, UNDRO and the media; orally agreed a first tranche of grants to four British-based NGOs; responded to appeals from international organisations; authorised the British High Commission to make grants of up to ,300,000 to local NGOs; and, with the Ministry of Defence, identified possible contributions which HMG's armed forces could make.

2.6 In the following month, the DRU continued to monitor the situation and approved a further tranche of proposals from British NGOs and an increase in the allocation of funds to the BHC to be used by the Bangladesh Population and Health Consortium (BPHC), to support the relief activities of its partner NGOs. The DRU also worked closely with SAD II in planning the transition from relief to rehabilitation funding, including the reallocation of unused DRU relief funds to SAD II's rehabilitation programmes. The DRU maintained flexibility in its programme by deferring the commitment of part of its financial alterations, in case relief needs changed.

2.7 The DRU's speedy appraisal of relief proposals and sanctioning of expenditure was appreciated by the NGOs. The first two tranches of grants were approved orally in two to three

days and written approval was faxed to the NGOs in four to five days (see Annex B, Table 1). This early notification to NGOs of the level of provision likely to be made to them greatly assisted their planning.

2.8 The speed and effectiveness of the DRU's response was all the more impressive considering that, at the time, it was responding to two other disasters - famine in the Horn of Africa and the Kurdish refugees in Iraq. NGOs reported that ODA's response was more rapid than that of most other donors.

2.9 In Dhaka, the BHC delegated responsibility for day-to-day management of the disaster to the First Secretary (Aid); established close liaison with its main NGO partners in Bangladesh; set up a special office to manage relief grants outside the BHC, in order to be more accessible to local NGOs; and within days made its first grant to a local NGO with a proven track record of disaster relief (Gonoshasthya Kendra - GK). During the first month, BHC took part in coordination meetings called by UNDP, liaised with other donors and the Government of Bangladesh, kept in touch with the Dhaka offices of the ODA-funded NGOs, and advised DRU on new developments. By the middle of May the BHC was in touch with ODA in London and Bangkok concerning rehabilitation planning, and in the second half of May it provided back up to the British naval task force. The BHC competently managed the British Government's response to the disaster and helped ensure the effective use of ODA's relief funds, within its staffing and resource constraints.

EVALUATION OF ODA-FUNDED NGO PROGRAMMES

Identification, Design and Appraisal

Identification and Design

2.10 The NGO programmes which ODA funded were identified and designed by the NGOs, generally following a brief visit by one or more senior staff members to the area to assess the situation and discuss with those Government officials coordinating the relief effort. They then each submitted to DRU or BHC a proposed programme, including location, proposed activities, the expected number of beneficiaries and a budget. In some cases, NGOs sent an initial request by fax or letter and followed up with a detailed proposal. Some Bangladeshi NGOs submitted their reports via British NGOs. Requests to the BHC for small grants under the HoMSPS were submitted on the regular form. Few of the NGOs indicated how their programmes would be organised, how they would ensure that the most vulnerable groups were covered (eg, female-headed households), or the steps they would take to ensure cost-effectiveness.

2.11 Proposals submitted to DRU were appraised within the Unit and a summary was sent by fax to BHC for comment (the full proposal following by diplomatic bag). Decisions were not taken until BHC's comments on the fax were received. A total of 22 requests were received by DRU (see Annex B, Table 2). Only one request was rejected (a proposal to air freight high-calorie biscuits to Bangladesh). Two NGOs were given less than they requested either because, at that time, the BHC was not sure about their capacity to implement their proposals or because the proposed programme cost per beneficiary was too high.

2.12 Proposals submitted to BHC under the Heads of Mission Small Projects Scheme (HoMSPS) were screened by the Programme Officer, with the help of an informal group of advisers, and appraised by the First Secretary (Aid) and the High Commissioner. A total of 81 NGOs wrote to BHC requesting grants and 18 grants totalling ,0.181 million were approved. In appraising proposals under the HoMSPS, the High Commission assessed the NGOs' capacity to implement the programme using criteria such as the NGO's past experience and performance, whether it had on-going programmes in the area and whether it was registered to accept foreign grants. The normal HoMSPS grant ceiling is ,10,000, but this was waived and grants of up to ,20,000 were made. In addition, the BPHC received via the BHC finance for the rehabilitation programmes of five of its partners, at a cost of ,170,000. The ODA Health and Population Adviser in Dhaka commented on some DRU proposals, but other advisers in London, Dhaka and the South East Asia Development Division, Bangkok (SEADD) were not consulted.

2.13 In notifying the NGOs that their requests had been approved, the DRU reminded them that the grant 'was subject to the usual accounting arrangements as already agreed between [the NGO] and this Unit'. There was no requirement to produce a narrative report. For HoMSPS grants, NGOs were required to provide the BHC with 'detailed information on the use of the grant and furnish original bills and vouchers, and an audit report'.

Implementation

Financial Inputs

2.14 The ODA made grants totalling ,2.678 million to NGOs, of which ,2.140 million was given to 15 British-based NGOs, to finance their own or partners' programmes, and the BHC made grants of ,0.549 to local NGOs. Details are given in Annex B, Table 3. A total of 34 NGOs in Bangladesh implemented relief programmes financed, in part, by ODA. ODA did not give any food aid, other than that provided through its contribution to the EC.

2.15 The breakdown of ODA's contribution to NGOs in Bangladesh by size of grant was as follows:

Size of Grant No of Total Per Cent

NGOs allocated of total

(,)

Over ,250,000 5 1,773,700 66.2

,100,000-,249,000 3 343,590 12.8

,25,000-,99,000 8 386,261 14.4

Under ,25,000 19 174,718 6.6

TOTAL 35 2,678,269 100.0

(Note: Excludes grants for tornado relief).

2.16 The largest eight NGO programmes in Bangladesh (those of Concern, GK, World Vision-Bangladesh, SCF, CARE, Action Aid-Bangladesh, OXFAM and Salvation Army) accounted for 79% of the ODA grants to NGOs. Another 27 NGOs received the remaining 21% of ODA grants. A more detailed breakdown is given in Annex B, Table 4.

2.17 Five British NGOs, allocated ,1.266 million (48% of the total), implemented their programmes direct (Concern, SCF, CARE, OXFAM and Salvation Army) and another three (Action Aid, Marie Stopes and World Vision), allocated ,0.499 million (19%), did so through Bangladeshi affiliates of their organisations. A total of ,0.856 million (33%) was channelled through local NGOs, some via British NGOs such as Christian Aid and CAFOD.

2.18 The international response to the disaster was generous, with many NGOs receiving financial assistance from a number of donors. Most of the NGOs which ODA supported received 10%-50% of their relief from ODA, although this figure was over 80% for some smaller local NGOs. Many NGOs received more funds than they ultimately needed for relief activities and diverted unused financial assistance to rehabilitation. Some NGOs supported by ODA asked permission to do so, others 'used' ODA grants for relief and 'transferred' more flexible resources (eg from public appeals in the UK) to rehabilitation. The fact that not all allocated relief funds were used was due both to the NGOs' abilities to absorb fully the funds allocated and, probably more important, the fact that the relief needs of people in the most devastated areas were adequately met by the large number of NGOs and Government organisations in the area.

Physical Inputs

2.19 The emergency relief programmes funded by ODA involved the following:

- supply of relief goods, such as food (initially cooked food such as flattened rice and molasses, later rations of rice, *dal* and other foods), clothing (*sarees, lungis* and children's clothes), emergency shelter (e.g., plastic sheeting, blankets), utensils (cooking pots, lanterns, matches), and other items such as water purification tablets;

- public health measures such as burial of human corpses and animal carcasses, dewatering of ponds contaminated by salt water or dead bodies; and repair or sinking of tubewells for drinking water;

- provision of medical facilities by teams of doctors and paramedics and medicines.

2.20 It is difficult to specify exactly how ODA resources were used because most NGOs did not keep separate accounts of the funds received from different donors. It is estimated, however, that ODA's funds were used mostly for shelter and housing (41.4%), followed by food (17.8%), hygiene, health and water (16.5%), clothing and utensils (6.1%), transport and administration (8.6%) and other uses (13.3%) (see Annex B, Table 5).

2.21 The reason for the high proportion of resources allocated to 'shelter and housing' and to 'other uses' is that the DRU approved relief proposals from the NGOs which involved activities (eg, house construction, large scale tubewell development, loan programmes) which are strictly rehabilitation and were not completed until a year or more after the cyclone. In addition, the DRU gave permission, at the end of the Emergency Relief phase, for a number of transfers of funds

from relief to rehabilitation (see Table 2, and Annex B, Table 6).

2.22 Out of ,3.040 million allocated for relief direct to NGOs (excluding tornado relief), an estimated ,1.697 million (56%) was used for that purpose, while ,1.343 million (44%) was used for house construction and other rehabilitation activities.

2.23 Generally, the relief grants made to Bangladeshi NGOs by the BHC were used for emergency relief, mostly food and clothing. With one exception, funds were used for emergency shelter and not for house construction.

2.24 In addition to the grants to NGOs, the BHC diverted staff who were already working in Bangladesh to assist with relief work. The BPHC set up an office in Chittagong which assisted the overall ODA effort, while staff from the Deep Tubewell II project helped CARE and OXFAM to repair wells. The BHC also put three of its workshop Landrovers and drivers at the disposal of one NGO.

Speed of Response

2.25 The large NGOs in Bangladesh responded rapidly to the disaster and had senior staff in the area within two to three days. They were able quickly to assess the scale of the disaster, the needs of the survivors and the logistical feasibility of reaching remote areas, especially the islands. By 5 May a number of NGOs, including Gonoshasthya Kendra, BRAC, Concern, World Vision and SCF, had started relief programmes using their own resources and were well placed to expand their programmes as they learned more about the needs in the area and as financial assistance became available.

2.26 Most NGOs purchased food and other relief goods in Dhaka, and other parts of the country, and transported them to the area by truck. The decision to purchase outside the area was made both because of emerging local shortages and the desire to avoid increasing prices in local markets. Some NGOs set up large warehouses in Dhaka and Chittagong for the packaging of relief goods before they were taken to the area. Prices of a number of key commodities such as chira (cooked flattened rice) started to rise in Dhaka too and a number of NGOs made special arrangements to procure from other parts of the country. The cost of hiring boats in Cox's Bazar went up by 50-150%.

2.27 In the survival relief period to about 15 May, NGOs gave survival rations to all people in the areas where they worked. During the same period, most of the larger NGOs carried out household surveys so as to be able, in the next phase, to target emergency relief effectively. With some exceptions, the NGOs assisted by ODA responded effectively and flexibly to the needs of the people in the areas where they worked. A number of NGOs extended their feeding programmes when it became clear that people were not able to find work locally (and in some cases started cash-for-work and food-for-work programmes), while others withdrew when it was clear that other organisations were working effectively in the same area.

2.28 Small NGOs were somewhat slower to start relief activities and many of their efforts were of short duration. The first grants were given around 9 May, with another tranche on 14 May. Approval of ODA financing of the BPHC partner NGOs was given on 10 May. Many of the smaller NGOs, like the larger ones, started work with their own resources before having grants from ODA confirmed.

Monitoring and Evaluation

2.29 There was little monitoring of the activities of individual NGOs by DRU or BHC. During the relief phase, BHC staff made some brief trips to the stricken area, but these were more for reconnaissance than for monitoring, The NGOs all had to submit specified reports to ODA but few did so in a timely fashion and there was little effort to press for missing reports. DRU and HoMSPS files are kept chronologically, which makes it difficult to follow through on correspondence, proposals and reports relating to individual grants. No record seems to be kept on which reports have been received. An estimated 7 out of 15 financial reports due for HoMSPS projects on grants given in May-June 1991, have yet to be received (Annex B, Table 12). Although financial reports on almost all of the DRU grants via British NGOs have been received, many of these have only come in recently. Narrative reports submitted by NGOs do not seem to be reviewed and there is little feedback from them into the planning and practice of emergency relief. There is no attempt to assess how effective relief grants have been in terms of their cost-effectiveness or in key areas of concern to ODA, such as gender and poverty. A number of NGOs, however, have evaluated their individual performances and, as a result, are strengthening their own disaster preparedness.

Assessment of Coordination

2.30 It is difficult, two years after the event, to make an assessment of the effectiveness of coordination, since many of the key people involved in the relief effort have changed jobs and many are now working outside Bangladesh. The Evaluation Mission was, however, able to interview the High Commissioner, the then First Secretary (Aid), the Zonal Relief Commissioner for Chittagong and heads of a number of NGOs. The main conclusions are:

- Governmental coordination of the relief effort, after a difficult first few days, was generally effective. Coordination in Chittagong Zone (covering Chittagong, Noakhali and Cox's Bazar) was good with the Zonal Coordinator, supported by senior officials posted to districts and upazilas, able effectively to coordinate civil, military and NGO relief efforts and avoid duplication. Generally, a good working relationship developed between the administration, the military and the NGOs. The main problems were in Dhaka where, despite the existence of three coordination committees, different ministries and government bodies often made conflicting statements. The impact of these government bodies was very limited and donors questioned the practice of simultaneously sending out the same funding requests to different donors.

- NGO coordination through ADAB (the Association of Development Agencies - Bangladesh) was partly effective, though some of the bigger NGOs and the Bangladesh Red Crescent Society were reluctant at first to be coordinated by ADAB and not all NGOs were Association members. ADAB established coordination offices in Chittagong and Cox's Bazar, close to the zonal and sub-zonal offices, and aimed to act as a focal point for donor queries and avoid duplication between NGOs. At the local level, NGOs coordinated their activities well (eg, the adoption of a single ration card for relief distribution in Hatiya) and ensured that overlap was minimal.

- Coordination among the donors was entrusted by Government to UNDP. Seven meetings were

held between 1 May and early June at which information was exchanged. A common view among donors, however, was that UNDP was less effective in its assessment of need and coordination of donor resources than it had been in the 1988 floods. Many donors commented on a lack of regular briefings from Government, which UNDP should have been able to arrange. Indeed, UNDP did not even coordinate the UN's component parts: UNDRO, FAO and UNICEF all made separate appeals, despite donor requests for a consolidated appeal. The Council of Ministers of the EC made a joint pledge to provide financial assistance for relief and rehabilitation, though most member states made their contributions bilaterally.

- Coordination between ODA, London and the BHC was generally good, with prompt replies to queries and good sharing of information.

Assessment of Impact

2.31 Overall, the national relief effort, in which the NGOs played a key and leading role, was successful in preventing starvation and reducing suffering. Almost all people had received survival food rations within a week of the disaster and continued to receive relief supplies for two to six weeks (extending to another 10 weeks in some places). Interviews with beneficiaries in Kutubdia, Dalghata and other areas indicate that they did not suffer any shortage of food after the first few days, although there were difficult periods in the second half of 1991 when food rations had ceased and employment was not always available (see Annex D).

2.32 Few people died after the cyclone from injuries sustained in the disaster or from disease afterwards. Fears that thousands would die of diarrhoea or other epidemics (eg shigellosis and cholera are both endemic) were not realised. There was also a fear of disease due to the large number of human corpses and animal carcasses which littered the area, but this did not occur. Many health teams were sent to the area by the Ministry of Health, the military and NGOs, which is one possible reason for the low incidence of disease, although there are doubts about the training and experience of some of the health workers (see Annex D).

2.33 While it is possible, however, to assess the overall impact of the national relief effort, it is difficult to estimate accurately the specific impact of ODA finance since most NGOs were assisted financially by a number of donors and in any case few kept the kind of records needed to assess impact.

Numbers of Beneficiaries

2.34 It is difficult to estimate the total number of people who benefited from ODA assistance because not all NGOs recorded or reported the numbers of beneficiaries. Furthermore, different types of relief were given (eg survival relief, emergency relief, clothing, utensils, medicines etc) and any one household may have been a beneficiary of more than one relief 'package'. Thus the total number of beneficiaries reported by NGOs overstates the number of households being covered. The numbers of beneficiaries, as estimated by selected NGOs in their reports, are given in Annex B, Table 7. From this list it can be seen that the total number of beneficiaries is recorded as over 100,000 families, which is almost certainly too high.

2.35 An alternative way to estimate the number of beneficiaries is to take the total value of food supplied (the main relief good supplied) and to divide this by the cost of a basic weekly food

ration for a household. The total value of food distributed by NGOs using ODA grants was Tk 25.450 million and the average cost of a basic one week food ration for a family in 1991, as supplied by GK, was about Tk 130. Thus a rough estimate would be that ODA funded about 196,000 family weeks of basic food rations. Given that food relief was given, on average, for about 6 weeks (though more in some places), it can be concluded that ODA's relief sustained about 33,000 families (or 200,000 people). The population of the 11 worst-affected upazilas after the cyclone was estimated to be about 2.6 million (Haider et al, 1992); thus ODA funds may have fed up to about 8% of the population most in need. Of course, the actual picture was more varied, with some families receiving rations for 8 weeks and others for just one week, but this gives an indication of the scale of ODA's contribution. A similar exercise for clothing (sarees and lungis), indicates that about 30,000 families benefited from clothing paid for by ODA.

Targeting

2.36 The extent to which NGOs effectively targeted ODA's funds on the most vulnerable households is also difficult to assess. While a few NGOs mentioned the importance of targeting in their proposals and reports, most did not. Some NGOs were aware of the particular problems women in a conservative society have in obtaining relief supplies after such disasters, and designed their food distribution systems (eg door-to-door distribution of food packages to women-headed households) and other services (eg health care) to cater for the needs of women. A number of others, however, were less careful. Some of the smaller NGOs used the local government lists of the most needy, which were generally unreliable, and distributed relief supplies only at a central point, to which women would, probably, have found it difficult to come. There is clearly a need for monitoring of the relief distribution procedures of NGOs in order to understand the problems involved in targeting aid and the lessons that can be learned.

2.37 Spatial targeting was quite effective, in that most of ODA's financial assistance was used by the large NGOs in the worst-affected and often remote areas. A list of the programme areas of the different NGOs in given in Annex B, Table 8. Some of the more experienced NGOs made efforts to ensure that they covered all communities in the area in which they had agreed with the local administration they would work in. They also followed up rumours of villages that had not been reached, which sometimes resulted in special distribution programmes in the most remote areas. Generally speaking, there was little duplication of effort. The upazila authorities and NGOs agreed on where different NGOs should work and, after the first week, there was little overlap. However, because the Bangladesh Red Crescent Society and the Government were also distributing relief supplies, households would often get supplies from more than one source. From discussions in the field, it would seem that even where people did take supplies from more than one source, few families accumulated more than they needed. Some NGOs received assistance to work in their existing programme areas (eg World Vision), even though these were often not located in the most severely devastated unions.

2.38 One area that could not be served by NGOs was that of the Chittagong Hill Tracts. The area reportedly suffered extensive wind damage to houses and crops. Because of the security situation, however, NGOs are not generally allowed to work there. Nevertheless ODA did manage to channel two grants to projects serving Hill Tracts people.

Cost-effectiveness

2.39 This is also difficult to assess, since NGOs generally do not keep accountancy records in a form that makes it possible to analyse cost-effectiveness. It is clear though that there are considerable differences between NGOs in: (a) the unit costs of key relief commodities, and (b) the transport and management overheads for which they charge ODA.

2.40 Unit costs of food stuffs and clothing are shown in Annex B, Tables 9 and 10. In the case of food, for example, the highest prices charged by an NGO are 20-30% greater than the lowest. In the case of *sarees*, the difference is even higher (47%). While some differences in price are to be expected, (eg an NGO may have chosen to purchase at higher price in Chittagong rather than pay the freight charge from Dhaka), these differences are still considerable. Moreover, the bigger NGOs are not necessarily the most cost-effective purchasers of relief goods.

2.41 Transport and management overheads are shown in Annex B, Table 11. From a sample of 11 NGO programmes, it is clear that the larger NGOs (eg BRAC, GK, Concern and World Vision) all have higher transport and management overhead charges than smaller NGOs. These charges average 28% of the cost of the relief goods supplied by the large NGOs, compared with 10% for those supplied by the small ones. This is to some extent to be expected, since the large NGOs generally undertook big, multi-activity programmes in more remote areas and were committed to staying there as long as needed. The smaller NGOs, on the other hand, often undertook short programmes and were willing to cover their management overheads themselves. The transport and management overhead of one NGO, however, was as much as 40% of the relief goods supplied. There is a clear need for closer scrutiny of the cost-effectiveness of different NGOs but to do so would involve lengthy research on the accounts (eg vouchers and receipts) of the selected NGOs. This was beyond the evaluation's scope.

2.42 The contents of different 'packages' of survival relief (SR) and emergency relief (ER) which NGOs delivered to recipients varied. For SR most NGOs gave chira (processed flattened rice) and gur (molasses), but the allocation per day varied as did the other types of commodities given (eg shelter materials, water purification tablets, soap etc). For ER most NGOs gave a basic ration of about 6 kg of rice, 1 kg of pulses, 0.7 kg cooking oil, salt, some spices and potatoes which cost about Tk 125 - Tk 135 per family per week which with the average transport plus overhead charge of the larger NGOs of 28% comes to roughly Tk 160 - Tk 170/week (,2.60 - ,2.80 per week at 1991 exchange rates). In addition, about 30% of households were given new clothes (at a cost of about Tk 300/family) and another 30% (maybe but not necessarily the same households) cooking utensils and lanterns worth about Tk 400 per family. An indicative cost of providing 2 weeks SR and 4 weeks ER to 1000 families is Tk 1,070,000 or at a cost per family of Tk 1,070 (,17.50). In addition, there are the costs of public health measures (eg burying corpses and carcasses; dewatering contaminated ponds), health teams and repair or sinking of tubewells, but these are highly variable and difficult to estimate.

Institutional Impact

2.43 The DRU has established a close relationship with the main British NGOs over the last decade in responding to disasters in developing countries, including Bangladesh. DRU chose to channel a large part of its resources through British NGOs because it was confident that its

resources would be effectively used by them or their partners in Bangladesh, although some funds were also channelled direct to local NGOs via the BHC. About half of the NGOs financially assisted had worked in the affected area prior to the cyclone, although few had programmes in the most devastated unions and upazilas. Because of this, many NGOs linked up with local NGOs and voluntary organisations to plan and implement their programmes. For many of the smaller NGOs, supported by ODA, the relief funds received from different donors was more than 50% of their normal annual turnover. Even large NGOs found that their management resources were stretched in implementing the relief programme. BHC also found it difficult to manage the large number of schemes under the HoMSPS. NGOs will continue to be key organisations in the delivery of post-disaster relief over the next decade, although this is a task that Government might eventually be expected to perform, and the on-going attempts to establish a Disaster Management Bureau in the Ministry of Relief and Rehabilitation could be a significant step in that direction.

REVIEW OF ODA CONTRIBUTIONS TO INTERNATIONAL AGENCIES

2.44 The ODA made contributions to appeals by UNDRO (,500,000) and the League of Red Cross and Red Crescent Societies (,250,000). UNDRO covered the costs of two UNDRO consultants (costed by UNDRO at $25,000) to assist with damage estimation. The UNDRO consultants did not visit the BHC when in Dhaka and no report is on file from either UNDRO or the League on the use of the ODA contribution. As was noted earlier, donor coordination by the UN was not effective and the report on rehabilitation needs produced by UNDP for the Geneva conference in July 1991 was widely regarded as overstating the requirements. Most donors waited until the more authoritative World Bank report in August before deciding priorities. The Bangladesh Red Crescent Society had a large relief operation but was often not prepared to coordinate effectively with other NGOs.

2.45 The ODA also made a contribution of ,1.2 million to the EC's 10 million ECU relief programme. This was channelled through five large and experienced NGOs and the WFP's vulnerable group feeding and emergency rehabilitation programmes. The EC learned lessons after its 1988 floods programme when it assisted financially a large number of NGOs, which the Delegation found it difficult to manage. In 1991, the EC was unusual in having audit clerks in the field as the relief operation was under way. On balance, the EC's programme was well designed and effective.

3. THE RELIEF PROGRAMME : DEPLOYMENT OF UK MILITARY FORCES

OVERVIEW

3.1 Moving relief supplies to the areas devastated by the cyclone was a major problem in the weeks after the disaster. Roads and jetties had been washed away and many boats lost in the cyclone, and the seas remained very rough. The Bangladesh armed forces were active in relief operations, but their capacity was limited and, within a week, GoB appealed to other countries for help with transport, including heavy lift helicopters.

IDENTIFICATION, DESIGN AND APPRAISAL

3.2 Over the first few days, as the scale of the disaster became clear, enquiries were made through posts in India, Thailand and Malaysia about the likelihood of regional countries providing helicopters. The Indian Government offered the services of an amphibious task force, helicopters and engineers based across the Bay of Bengal at Cuttack. But, after some delay, this offer was declined, for political reasons. By 7 May, only three foreign helicopters (from India) were operating in Bangladesh, with another two (from Pakistan) expected two days later.

3.3 On the day after the disaster, ODA contacted the Ministry of Defence to discuss the potential contribution the UK military forces could make. A Royal Fleet Auxiliary vessel (the RFA 'Fort Grange'), which was in the Gulf, was identified as the closest appropriate vessel.

3.4 On 2 May, HMG was pressed in the House of Commons to employ the services of the UK military for assistance to the GoB in its relief activities. On 8 May it was announced by the Minister for Overseas Development that the 'Fort Grange' would be sent to Bangladesh. The vessel was to carry four Sea King helicopters (two more than usual) and six flat-bottomed, Rigid Raider boats, plus a detachment of Royal Marines. The Rigid Raiders were flown out from the UK to the Gulf and the Royal Marines and aviation fuel were loaded at Colombo. It was decided not to include medical teams and large stocks of medicine, since this would have delayed sailing. It was considered that these resources could be flown out later to Bangladesh, if needed. The Fort Grange arrived off Cox's Bazar on 20 May and carried out relief operations until 3 June. The UK operation was code-named 'Operation Manna'.

3.5 A larger US Joint Task Force, with four C-130 fixed wing aircraft, 5 Black Hawk heavy lift helicopters, smaller helicopters and a number of naval vessels, arrived on 15 May and stayed until 28 May. The US operation was code-named 'Operation Sea Angel'. The UK and US military forces worked closely, but the Fort Grange remained under UK command. All foreign military forces were coordinated by the Bangladesh Military Supreme Command. Additional helicopters were also provided by other countries, including India (another two) and Thailand.

3.6 Detailed planning of 'Operation Manna' was undertaken by a Senior Naval Officer (SNO) who arrived in Dhaka three days before the 'Fort Grange' reached Cox's Bazar. He discussed the operation with the High Commissioner and Defence Attache at the BHC, the Bangladesh military, the Commander of the US Task Force and the Zonal Relief Coordinator at Chittagoing. It was decided that the 'Fort Grange' would position itself about 20 km off Cox's Bazar and ferry resources by helicopter and Rigid Raider boats to the islands of Moheshkhali, Matarbari and Kutubdia. The US Task Force would operate to the north and locate off Chittagong. In view of the political sensitivity in Bangladesh to having foreign military forces in the country, both the US and UK task forces operated mainly from their ships. The 'Fort Grange', however, established a Mobile Air Operations Team ashore at Cox's Bazar in order to coordinate with the Sub-Zonal Coordinator and arrange the tasking of the helicopters and boats.

SPEED OF RESPONSE

3.7 The decision to send the 'Fort Grange', which was taken nine days after the disaster, was made at a senior level in ODA, in consultation with the Ministry of Defence. Neither the DRU nor BHC was directly involved, although their views were sought. The BHC supported the decision, since it was still difficult to reach off-shore islands and the Bangladesh military had just established helicopter landing grounds. No field assessment of the need for enhanced logistical capability was carried out by the High Commission. The BHC also reported to London that many NGOs considered that the survival relief phase would be over by the time the vessel arrived and that better use could be made of the financial cost to ODA. The vessel was not sent earlier because ODA wanted to be sure about local requirements and how far helicopters and other military resources would be provided from neighbouring countries. Once it became clear that insufficient helicopters would be available from other sources, the vessel was deployed.

3.8 On the other hand, the decision to deploy the 'Fort Grange' appears to have been taken before ODA was aware of the United States' decision to send its own task force.

3.9 The vessel arrived in Bangladesh waters on 20 May and intensive relief operations commenced on 21 May. This prompt start was possible because of the advanced planning and management undertaken by the Senior Naval Officer. The operation proceeded smoothly for 14 days and the Commanding Officer and crew were able to respond flexibly to demands from Government and, to a lesser extent, NGOs.

3.10 The vessel was withdrawn after two weeks because the Government's programme was moving into the rehabilitation phase and there was no further need for its services.

FINANCIAL INPUTS

3.11 ODA paid the Ministry of Defence a total of ,615,609 to undertake 'Operation Manna'. In line with UK Government policy on inter-departmental charging, this represents the extra costs involved in performing the services (ie, the costs directly incurred in carrying out the relief tasks).

3.12 At the time the decision was taken to send the 'Fort Grange' to Bangladesh, the only cost estimate which the Ministry of Defence could provide was the fuel cost involved in travelling from the Gulf to Cox's Bazar and back, which was ,160,000. However, anticipating the high costs of helicopter operations, the DRU reserved ,750,000 of the total funds available for relief for this particular component.

PHYSICAL INPUTS

3.13 'Operation Manna' involved the use of the following physical inputs: the RFA 'Fort Grange' (16,049 gross tons) with a crew of 157 officers and men, 2 Sea King Mk 5 helicopters, 2 Sea King Mk 4 helicopters, 6 Rigid Raider craft and 1 Rigid Inflatable Boat. Two packs containing relief supplies valued at about ,85,000 each were also carried, one of which was partly used. One helicopter was lost on 1 June after ditching in the sea.

3.14 The British helicopters were particularly effective because they are able to carry loads in under-slung nets, which could be detached while hovering above the ground. The US and

Bangladesh military carried their loads inside and either had to land to unload or, if this were not possible, had to throw the relief packages out of the helicopter, which often resulted in damage on impact. The Rigid Raider boats were also well suited to their task.

MONITORING AND EVALUATION

3.15 Comprehensive daily situation reports were telexed from the 'Fort Grange' to the British High Commission and to London. The British High Commissioner and First Secretary (Aid) visited the vessel on 21 May.

ASSESSMENT OF IMPACT

3.16 The Sea King helicopters and Rapid Raider boats mainly moved relief supplies which the Government had stockpiled at Cox's Bazar. In total 405 tonnes were lifted, of which helicopters moved 309 tonnes and the boats 96 tonnes.

3.17 The helicopters ferried supplies, in loads of about 1.6 tonnes, to landing sites secured by the army or police in Moheshkhali (57%), Kutubdia (31%), Chakaria (9%) and Dalghata (3%). About 75% of the tonnage moved was food (rice, wheat, potatoes and cooking oil), with mechanical equipment, soap and bleach making up the remainder. In addition, 500 passengers were carried, including:

- medical workers from NGOs and from the US Task Force, whose helicopters were not always available because they were frequently tasked to carry VIP visitors;

- NGO workers (eg from CARE) on reconnaissance trips to remote areas where it was thought immediate relief might still be needed (eg to Sanadia island off south Moheshkhali, where 400 people needed relief).

3.18 Passenger flights accounted for about 15% of helicopter flying hours.

3.19 The Bangladesh Air Force had laid out 19 helicopter landing sites in Moheshkhali, Kutubdia and Chakaria, but almost all the supplies were flown to the upazila HQs in the first two upazilas. The Rigid Raider boats were used mainly to shift food supplies to remote areas that were not served by helicopter, including the island of Dalghata, off the north coast of Moheshkhali.

3.20 The cost of delivering relief supplies by 'Operation Manna' was about ,1338 per tonne (see Table 3), which was more than 30 times the cost of delivery by local 'country' boat. The operation was useful in ensuring that Government food warehouses on Moheshkhali and Kutubdia were adequately stocked, at a time when there was a risk of further cyclones and before the monsoon, but the same operation could have been carried out using local boats and labourers to tranship and off-load on the islands. This would, however, have taken considerable organisation and, at a time when the management capacity of both Government and NGOs was over-stretched in dealing with the emergency, it would undoubtedly have taken much longer. Most of the food supplied was to be used by Government in its ration programmes for vulnerable groups.

3.21 NGO opinion is divided about the usefulness of the helicopters (whether British or

American). Some NGOs (eg Gonoshasthya Kendra and Nijera Kori), which had implemented their relief operations on the islands using country boats, considered the helicopters unnecessary; others (eg BRAC, CCDB) considered them important in getting supplies quickly to the islands, which had a positive impact on people's sense of security.

3.22 'Operation Manna' had a public relations value and demonstrated the UK Government's commitment to provide humanitarian aid to disaster victims. The Navy had a Quick Reaction PR team on board and journalists from the international media and Bangladesh visited the vessel. In Britain, the media impact would have been greater in the absence of other major international events which occurred at the same time. In Bangladesh, two years after the cyclone, whereas the US Task Force is remembered, the UK's contribution is mostly not.

3.23 It is unlikely that 'Operation Manna' saved many lives, but it did help to improve the security of the most vulnerable survivors of the cyclone.

4. THE REHABILITATION PROGRAMME

INTRODUCTION

4.1 ODA's rehabilitation programme comprised grants to NGOs for projects. These included multipurpose cyclone shelters, and house building and income-generation schemes. The total sum allocated was ,5.935 million, of which ,4.092 came from SADII and ,1.343 million from the DRU (see Fig 1 and Table 2). No assistance was channelled to international agencies, though requests were received, including one to co-finance the EC Primary Schools-cum-Cyclone Shelters Project. The decision to allocate all the funds through NGOs was made in order to ensure that all funds were used during the 1991/92 financial year.

IDENTIFICATION, DESIGN AND APPRAISAL OF REHABILITATION PROJECTS

Identification and Design

4.2 Rehabilitation projects were identified by NGOs with little guidance from ODA. On 23 May 1991, ODA organised in London an exploratory meeting with leading British NGOs to discuss the rehabilitation programme, although no specific proposals had been formulated at this stage. The NGOs were asked to submit their first requests by mid-June. Most proposals were received between mid-June and the end of September, although a few requests for additional funding were received as late as March 1992.

4.3 Most rehabilitation proposals submitted by NGOs were for long-term projects, such as multipurpose cyclone shelters or housing. Few NGOs requested funds for short-term activities: eg employment generation schemes, provision of seeds or loans to replace fishing equipment, and credit schemes for agricultural and small business loans. A number of proposals included requests to fund other activities: eg water and sanitation facilities, repair of schools, and health programmes.

4.4 The technical information included in the proposals for the construction of shelters, houses and infrastructure was extremely limited. Key issues such as the criteria to be used in site

selection, the design and specification of new or rehabilitated buildings, and the methods to be used in purchasing construction materials and managing construction were rarely mentioned. Only two proposals for cyclone shelters included technical drawings. None of the housing proposals set out the kinds of construction methods needed for houses in cyclone-prone areas.

4.5 Most proposals stated that rehabilitation projects would be targeted on the poor, the landless and female-headed households but it was not always clear how the proposed activities would be undertaken to ensure the participation of these groups. The methods to be used for promoting community development around project facilities (eg cyclone shelters) were often not given. Some proposals were based on sound principles and proven experience of community development, while others were very vague on how community development groups or credit programmes would be organised. The question of long-term sustainability of activities was not addressed.

Appraisal

4.6 Project proposals were appraised by ODA less rigorously than is the norm for development projects. Advice was provided by SEADD but as many of the SEADD specialists were fully committed to other work, they did not have time to subject the proposals to systematic appraisal. This was especially so for the main group of proposals; those received later were looked at more closely. In appraising the projects, there was little technical assessment but social and economic issues were partly considered. For the larger grants, approval seems to have been based mainly on ODA's past experience of working with the particular NGO. There was a tendency to approve infrastructure projects (cyclone shelters and housing) rather than income generating activities, which are more complicated and need more information for appraisal.

4.7 The Government's NGO Bureau screened project proposals and sometimes required changes. For example, the NGO Bureau insisted, in most cases, that houses constructed under the rehabilitation programme should have galvanised iron (GI) sheet roofing and that cyclone shelters should use the Red Crescent design (see Annex C).

APPROVAL OF PROJECTS

4.8 Project proposals from British NGOs and large local NGOs were sent to ODA in London and administered by SADII. Those from smaller Bangladeshi NGOs were sent to the BHC in Dhaka and financed out of an allocation of ,652,000 sanctioned by SADII.

4.9 NGO proposals received by SADII were sent to SEADD and BHC, Dhaka for comment. Proposals made by local NGOs to BHC were subject to the scrutiny and agreement of SEADD. In the BHC, project proposals were processed by the First Secretary (Aid) and one Aid Programme Officer, and approved by the High Commissioner. Projects were generally approved within two months of receipt of the proposal.

4.10 Clearance for NGOs to receive financial assistance for rehabilitation activities had to be given by the NGO bureau and this often took two or more months. In one case, ODA transferred money to an NGO's account before approval had been given, which caused problems for the

recipient NGO. In another case, the amount approved by ODA was greater than the amount submitted for approval by the NGO; the NGO Bureau would not sanction the larger amount and the NGO had to reduce the size of its programme.

PROJECT FINANCING

4.11 The approach followed by ODA to the identification, design and appraisal of projects resulted in a wide variety in those approved (see Annex C, Table 2). A total of 27 NGOs received grants for 33 rehabilitation projects at an overall cost of ,4.592 million from rehabilitation resources and ,0.251 million from reallocated relief resources, as follows:

Number of Amount

Activity projects , (million)

Housing 20 0.955

Shelters 8 2.265

Income generation 13 0.531

Other activities 16 0.529

Administration & overhead All 0.563

TOTAL 4.843

4.12 In addition, another ,1.092 million of relief resources were used by NGOs, with DRU's agreement, for what were effectively rehabilitation activities (eg housing, income generation schemes). A breakdown of rehabilitation grants by size of grant is given in Table 4.

4.13 Financial assistance was apportioned as follows: construction of multipurpose cyclone shelters (47% of funds), housing (20%), employment-related activities (11%), other activities (11%) and NGOs' overhead and management activities (11%). In addition, NGOs reallocated to rehabilitation activities ,1.343 million of funds originally received for relief activities, of which housing accounted for 80%, income generation 10% and water supplies 10%. Thus, the total funds used for rehabilitation activities by NGOs was ,6.004 million.

4.14 Five project proposals, including three from UK NGOs, one from a UK consulting firm and one from a UK research organisation, were rejected either because insufficient detail had been given, or because the benefits were unclear. About 80% of requests made to BHC for funding of rehabilitation projects were rejected.

4.15 GoB made two direct requests for financial assistance. The first was for financial support for its rehabilitation programme and the second was for agricultural commodities. After some time, ODA informed GoB that ODA's rehabilitation funds had been allocated to NGOs but that the Government could request the use of commodity aid to finance the import of commodities. In the event, the ,15 million accelerated commodity aid grant made available to GoB was not used.

4.16 Of the ,4.35 million available to the ODA geographical department, ,3.94 million was disbursed. One reason for the underspend of ,0.41 million was that ODA held funds in reserve for projects which failed to materialise.

TERMS AND CONDITIONS OF THE GRANTS APPROVED

4.17 Standard approval letters stating the amount, and the terms and conditions of the award were sent to all NGOs receiving rehabilitation grants. NGOs had to accept in writing the terms and conditions prior to funds being transferred to them by ODA. After August 1991, ODA and the BHC used the same standard approval letter. The approval letters for rehabilitation grants issued by the BHC before August 1991 did not contain any terms or conditions for receipt of the grants. Documentation related to the request and approval of finance was not always available on project files.

IMPLEMENTATION

Progress of Projects

4.18 The rate of implementation of the different projects has varied. By February 1993, all the housing projects and 9 out of the 51 shelters had been completed. Another 29 shelters were due for completion by mid-1993, with construction of the remaining 13 shelters due for completion by mid-1994. The income generation projects were in various stages of completion. Projects involving loans for replacement of assets (such as fishing boats) had been completed, while several projects involving other income generating activities (such as poultry) were still being implemented. Most projects concerned with activities such as replacement of school materials and health programmes, were complete.

Project Costs and Disbursements

4.19 All but one NGO received their grants within weeks of approval. Only in one case was payment of the grant conditional on progress being made. By February 1993, two projects worth ,0.697 million (16% of the funds) had yet to start. In one case, the funds have been placed in an interest-bearing account and the accrued interest will be spent on project activities. No clear instructions were given to NGOs on how or where grant payments advanced by ODA should be kept until spent.

4.20 Most NGOs had not submitted interim or final project accounts at the time of the Evaluation Mission, so it is not possible to determine whether the sums allocated were adequate to meet the project objectives set. The internal financial management of NGOs is of variable quality and it is often difficult to determine the specific uses to which ODA grants were put, especially when ODA only financed a small part of a larger programme.

GEOGRAPHICAL COVERAGE

4.21 Most projects were located in the worst-affected areas but 6% of funds were assigned to greater Barisal district, which was affected by tornadoes rather than the cyclone. Shelter locations were approved by the local administration, although specific sites were selected by the NGO, in consultation with local communities. Most of the shelters are in rural areas severely

affected by the 1991 cyclone, although a few are being constructed in urban areas and in Patuakhali and Barguna districts, which were little affected by the cyclone. The housing projects were also mainly located in the worst-affected coastal areas. There were two cases where the Government directed NGOs to build houses in specific areas. In some of the areas selected for housing projects, such as Banskhali, Chakaria and Moheshkhali, almost 100% of houses were either severely damaged or destroyed during the cyclone.

4.22 Extensive wind damage to housing in the Chittagong Hill Tracts was reported, but since NGOs are discouraged by the Government from working in that area, the opportunities for ODA to fund rehabilitation projects were extremely limited. Only one small grant was made for the repair of housing at a hospital in Chandraghona.

DESIGN AND CONSTRUCTION OF PROJECT COMPONENTS

Shelters

4.23 Although the Government's NGO Bureau stipulated that NGO cyclone shelters should use the Red Crescent design, five different designs are being used for the 51 shelters being constructed with ODA grants. Only two of the eight NGOs constructing shelters submitted details of their proposed designs with their proposals. All shelters have been designed with reinforced concrete columns and floors. Some have reinforced concrete walls while others have brick walls. One was not designed as a refuge against storm surges. The shelters have been designed to accommodate between 600 to 1,500 when used as refuges, assuming people can also take shelter on the roof. The 51 shelters being constructed have a combined capacity of 38,800 people.

4.24 The ground conditions in coastal areas are variable and the deep sedimentary soils often have low bearing capacities. Shelters are heavy buildings and their foundations have to be designed on the basis of soil investigations carried out at each specific site. The foundations required can vary from pad footings to piles, depending on specific ground conditions. The cost of a shelter increases by about 15% (,10,000) if piled foundations are required. Few of the NGOs made provision for the uncertainty in the cost of foundations. One NGO requested and received an increased ODA grant to cover the higher cost of foundations.

4.25 None of the NGOs specified in their proposals how the proposed shelters would be constructed. Transport of materials to site was a major cost, as there are few roads or vehicles in the area and materials had to be hand-carried or head-loaded from the nearest landing stage for distances of up to a mile to the site. The shelters are generally being constructed by contractors supervised by consulting engineers. The contractors are responsible for procuring materials, delivering them to site, managing the construction of the shelter and organising the supply of skilled and unskilled labour. Contractors are paid as they complete different stages of the work; some are paid for materials delivered to site, others are paid either in the area or in Dhaka. One NGO adopted a different approach and used its own Construction Management Unit for purchasing and delivering materials to site, with contractors supplying only the labour for the construction work. An external consultant was employed to check the quality of the work.

4.26 NGOs generally employed consulting engineers to supervise construction and control the

quality of work. The consultants are responsible for reviewing the design, ensuring materials meet specifications and checking that the building is constructed to specification and design, and the quality of the completed work. All consultants sampled and tested materials delivered to site. In addition, concrete cubes were taken and sent for testing in Dhaka. The records of the testing carried out are not always clear, but the quality of materials and workmanship is generally satisfactory.

Houses

4.27 The size and type of materials used for ODA-financed houses varies considerably. 11,195 houses were built, providing shelter for about 67,000 people. Floor areas vary from 8.9m^2 to 14.72m^2 and, although most projects used GI sheeting for the roof, some used straw thatch. Concrete, bamboo or timber were used for supporting columns, timber for roof trusses, and bamboo matting for the walls. Some NGOs only provided beneficiaries with building materials, while others performed the construction. The NGOs did not take the high risk of cyclones in the area into account in the design of houses, and there is a risk that GI sheeting used for the roofs will blow off in a cyclone and cause serious injury.

4.28 In most cases, families receiving houses were selected by the NGOs in consultation with the community. NGOs generally carried out a needs assessment survey of potential beneficiaries and checked the results with local officials and elected representatives (particularly the union or upazila chairman) before preparing lists of intended recipients. As most NGOs did not plan to carry out long-term development programmes in the area, houses were given to beneficiaries as grants. To have done otherwise would have required a long-term presence in the area.

4.29 NGO proposals did not explain how the materials used for house construction would be purchased or how the houses would be constructed. As with shelter construction, supervision of construction and quality control are very important because of the remoteness of some of the locations. Some NGOs used their own staff to purchase materials and organise labour for house building, others paid contractors to supply materials and construct the houses.

4.30 In one case, the NGO Bureau insisted that an NGO use contractors to construct its houses since the contractors' prices would be about 20% lower than the prices paid for direct construction by the NGO. The community involvement in house construction, which the NGO had hoped to promote as a way to improve community cohesion, was thus not possible. The NGO did, however, manage to construct more houses with the cost-saving. In general, construction of housing was delayed by a number of factors, including the slow approval of housing projects by the NGO Bureau, and the very heavy rains throughout the monsoon period.

Schools

4.31 As with the houses, the schools rehabilitated under the programme were not always designed to withstand high winds and there is a danger that the GI sheeting used may blow off in future cyclones. One NGO gave responsibility for school rehabilitation to school committees who selected and awarded the contract and supervised construction. Staff of the NGO checked the

standards of construction, and generally assisted the school committee with overall design and management of construction activities. This approach seems to have worked well and a reasonable standard of construction has resulted.

UTILISATION OF MULTIPURPOSE CYCLONE SHELTERS

4.32 The cyclone shelters will be used for a range of purposes from secondary schools and colleges, to primary schools, health centres, and community centres. No NGO adopted a participatory approach in which local communities were fully involved in the planning and design of proposed shelters. Most shelters are still in the process of construction, or have only recently been completed, and the final use for the completed buildings has yet to be decided. At a few sites, however, NGOs started activities with the communities while the shelters were being constructed.

OTHER ACTIVITIES

4.33 Income generating activities financed by ODA involved providing credit to existing groups and giving loans and agricultural inputs to selected individuals, after an assessment of need. Communities in the area are conservative and this has created problems for several NGOs. Most NGOs, however, are sensitive to the local situation and have found pragmatic ways to overcome problems. For example, one NGO which had difficulty starting an income generation scheme for women, found funds to rehabilitate a mosque as a shelter, with the result that the women's scheme was able to continue.

MONITORING

Project Management

4.34 At the time of reporting very few progress reports had been submitted by NGOs to ODA and none of the larger NGOs had submitted the Completion Report requested in the Letter of Approval. Some British NGOs undertook to monitor their partners' programmes in Bangladesh, but few reports had been received by ODA. One British NGO working with local NGOs in Bangladesh stated that they would undertake 'two monitoring visits annually' which they did. In contrast, two other NGOs stated in their proposals that they would 'monitor the progress and provide up-dates and financial reports of progress', but in neither case had a progress or financial report been submitted. Some NGOs evaluated their own programmes (for example, CONCERN 1992, World Vision 1992), one such evaluation having been financed by ODA out of the NGO's rehabilitation grant.

4.35 Many NGOs monitored their own activities and adjusted their programmes accordingly. For example, one NGO found that the houses it constructed under the first phase of its programme were unpopular because receipients considered them too small. The size was based on the NGO's experience of house construction in urban slums but people in rural areas tend to live in larger houses. The NGO constructed larger houses in a subsequent phase and the new houses'

structural integrity also improved in this phase.

ODA Monitoring

4.36 ODA's role in monitoring the rehabilitation projects was discussed internally during project appraisal and the need for close monitoring was stressed in a number of cases. There has, however, been very little monitoring by ODA. It is the view of the Evaluators that a number of the problems encountered by NGOs during implementation could have been avoided had there been regular monitoring missions.

4.37 SAD II assigned responsibility for monitoring to the BHC, with support from SEADD advisers "when available and as required". Even though the BHC was meant to be responsible for monitoring, however, the Desk allocated additional funds to projects, apparently without looking into issues raised in the monitoring reports received or requesting information from BHC on the progress of those projects for which additional funds had been requested. Comments on shelter design and tendering procedures raised by BHC and advisers were not followed up by the Desk.

IMPACT OF REHABILITATION PROJECTS

Introduction

4.38 As some projects are still being implemented, any assessment of impact can only be preliminary. The following analysis is based on an assessment of the activities that had been undertaken by February 1993, when the Evaluation Mission visited Bangladesh. At that time, the housing projects were complete but only 9 shelters had been constructed and some of the employment rehabilitation projects and other activities were still being implemented.

4.39 The impact of each of the main activities of the different projects is discussed in turn, together with the corresponding cost aspects.

a. SHELTERS

General

4.40 The NGOs have been generally successful in implementing their shelter construction programmes and related activities, and have managed to overcome many of the problems of constructing such buildings in remote locations. In contrast, the larger EC-funded Primary Schools-cum-Cyclone Shelter Project has been slower to start, with the first construction of shelters only in March 1993.

4.41 The shelters will save lives and contribute to a sense of security for those communities devastated by the cyclone. All available shelters were fully used during the cyclone and again during a cyclone warning in November 1992. Design capacities were exceeded as people

crammed into the shelters, with some shelter buildings being used by double the number of people for which they were designed. It is likely that the ODA-financed shelters, which have been designed as refuges for 38,800 people, will be used by even more people.

4.42 It is the evaluators' opinion, however, that because the NGOs financed by ODA to construct cyclone shelters did not consider fully a number of key issues, the success of their efforts has been impaired.

Planning, Design and Implementation Issues

4.43 The planning and design of shelters need to take a number of factors into account. These include the availability of other buildings nearby, ease of access to shelters when water levels are starting to rise, the siting of the shelter relative to the communities to be served, and the operational and maintenance requirements of the shelters. The NGOs, however, have tended to focus on issues specific to the planning of their own shelters and have tended to ignore broader planning issues. One NGO, for example, constructed its shelters as extensions to existing schools, some of which are in urban areas where there are a number of other buildings suitable for use as shelters. Another NGO sited its shelters in an area where many others were being constructed, which might undermine its efforts to develop community uses for its own shelter. The potential problems of inadequate planning can be seen in projects financed by some other donors, where some newly constructed shelters have been taken over by members of the local Jlite as cattle sheds.

4.44 Sound building design requires detailed analysis of all proposed uses so that the building will function adequately. As the number of uses increases, building design becomes more complex. The sustainability of cyclone shelters and their effectiveness during infrequent emergencies will depend on the effectiveness of their normal-time use. Shelters must be integrated into the community and accessible to all. They should be designed for their primary use and modified for use as shelters when required. All the proposed shelters are intended for either dual or multiple use but only seven of 51 being constructed have been designed principally for other intended uses. In many cases the other uses of the shelters have not yet been decided.

4.45 Many of the buildings have redundant design features. For example, the 'arrow shape' of the Red Crescent design and the 'eye-shape' of the BRAC design have no particular advantages as winds can come from any direction, not only from the seaward side as these designs assume.

4.46 Only one of the NGOs financed by ODA had had substantial previous experience of constructing buildings in remote places, where strict site supervision and quality control are essential. Several NGOs encountered problems with contractors which should have been anticipated. BRAC is the only NGO with a construction management cell which has an established way of working and this is reflected in the speed with which its shelters have been constructed and the quality of its finished buildings. In the BRAC schemes, the responsibilities of the various parties involved in construction are clearly defined, payments are made promptly to contractors, and an independent system of quality control is used.

Maintenance

4.47 The question of the sustainability of the completed shelters was not addressed adequately by any of the NGOs. The saline environment in which the shelters have been constructed is very

destructive of concrete, and the fabric of the building will deteriorate unless adequate maintenance is carried out. Estimated maintenance costs of shelters range from 0.5 to 1.5% of the construction costs (BUET/BIDS 1993). This means that the annual maintenance budget will be about ,250 to ,750 - equivalent to the annual salaries of one to two teachers. The plans of several NGOs unrealistically assume that there will be no maintenance costs during the first few years after shelter construction. It is unlikely that GoB will have the long-term resources to maintain shelters effectively.

4.48 All NGOs propose to retain ownership of the shelters they construct and thus will need to make provision for the long-term funding of maintenance. One criterion in assessing the demand for a shelter was the willingness of the community to donate the land. However, as many of those who need a shelter may not have the resources or influence to provide the land needed, the most vulnerable communities may not have been targeted.

Economic Issues

4.49 The principal aim of cyclone shelters is to save lives. Since a monetary value cannot easily be put on a life saved, standard cost benefit analysis cannot be used. To overcome this problem, the Multipurpose Cyclone Shelter Project estimated cost-effectiveness ratios (the average Government expenditure per life prolonged) in economic prices for multipurpose cyclone shelters and alternative ways of reducing mortality in Bangladesh (BUET/BIDS 1993). The benefits of other uses of shelters (eg schools) were taken into account.

4.50 The estimated cost effectiveness (C/E) ratios indicate that cyclone shelters are not the best life-saving interventions in economic terms, as the following table shows:

Programme C/E Ratio

Expanded Programme on Immunization (EPI) 37

Safe drinking-water deep tubewells 222

Treatment of Jaundice 491

Construction of Multipurpose Cyclone Shelters 977

Treatment of Tuberculosis 1474

4.51 In the aftermath of the cyclone, however, investment in cyclone shelters was justifiable on the basis of providing security for the survivors and allowing them to rebuild their lives without fear of being swept away by a subsequent storm surge. The economic benefits of providing such security cannot be quantified.

4.52 The cost of the shelters varied from ,317/m^2 of floor space provided to ,678/m^2 and the cost per life saved by the different shelters ranged from ,47/person to ,98/person (see Annex C, Table 2). The variation in costs is mainly due to differences in overheads (one NGO allowed for expatriate supervision of construction) and in the strength of foundations required for the shelter. Technical appraisal of the design and construction methods proposed by the NGOs would probably have helped shelter costs to converge.

b. HOUSING

General

4.53 Provision of housing is an extremely difficult intervention as it generally involves the transfer of significant resources to a relatively small number of beneficiaries, while others are excluded. Furthermore, as funds are usually limited, replacing all houses to a very high standard is not usually an option, and compromises have to be made on the quality, location, and distribution of the housing provided. These problems in the design of house building projects were raised in the 1990 evaluation of ODA's support to post-flood rehabilitation, but regrettably many of the same mistakes were made after the 1991 cyclone.

Technical Issues

4.54 The design requirements for houses located in cyclone-prone areas were not considered by NGOs. GI sheet was provided for roofs to make them more durable and thus reduce maintenance costs, but the need, in areas prone to high winds, to fasten roofs securely, was not considered, and suitable materials for roof trusses and lateral bracing for the support frame were generally not provided. GI sheet can be lethal during high winds if it is not properly attached to a strong roof truss.

Social and Economic Issues

4.55 The main social issues in the provision of housing are:

- the difficulty in targeting the programme on those most in need, given the high demand for replacement housing,

- the fact that such programmes raise expectations about the type of relief that will be available in future disasters, thus reducing people's self-reliance and increasing their dependency.

4.56 Neither of these issues was adequately addressed by the ODA-financed NGOs.

4.57 Most of the houses provided were significantly better than those owned by the beneficiaries before the disaster. The cost of the houses provided varied from ,12.5/m^2 of floor space to ,20.1/m^2, which is approximately double the cost of traditional housing in affected areas (about ,6-10/m2). The variation in cost was mainly due to the construction materials used. As with shelters, improving the housing stock can contribute to the wellbeing and security of communities and permits survivors to concentrate on re-establishing their livelihoods. However, rehabilitation grants are not intended to make beneficiaries better off than they were before the disaster.

4.58 The houses built were targeted on a variety of groups including the elderly, female-headed households, those with no income source, and those whose houses had been completely destroyed. Some NGOs were rather vague about the intended beneficiaries but all tried to screen the recipients. GoB and a number of NGOs discouraged the giving of houses to those who had already received some form of housing assistance. As the poorest would have the least material to salvage from their old homes, they were the people most likely to need relief housing materials. By accepting such materials, however, many were excluded from more durable houses and were left with tarpaulins and tents which rotted after about one year.

4.59 Some NGOs discouraged beneficiaries from selling the materials from the houses provided (eg GI sheeting from the roofs) in times of hardship and it is possible, in the case of some NGOs, that the poorest households were excluded because it was feared that they would act in this way.

4.60 While most ODA grants were used to provide complete houses, some NGOs only gave GI sheeting and a grant towards construction costs, which meant that recipients had to find significant additional cash to construct a sound house. Most recipients could not use the materials to construct a sound structure by themselves.

4.61 Most NGOs gave ownership of the new houses to the head of the household, whether male or female. Only in one case did an NGO propose to give ownership to the senior woman of the household as a way of increasing the woman's security and reducing the potential for divorce. After some initial resistance, the proposal was accepted by the recipients.

4.62 The provision of relatively expensive houses in some locations caused problems for other NGOs who were providing lower cost houses at other sites, as the people receiving the lower cost houses questioned why they did not receive the more expensive type of house and accused the NGO of diverting rehabilitation funds away from their area. This happened on Kutubdia where mainly thatched houses were provided, while in the neighbouring upazilas of Chakaria, Banskhali and Moeshkhali, whole communities were provided with houses with GI sheets, some of these from ODA-financed projects.

c. OTHER ACTIVITIES AND ISSUES

Occupation Rehabilitation

4.63 About 11% of ODA funds were used for the occupational rehabilitation programmes of NGOs which were either working in particular areas before the cyclone (for example DWIP and SEBA) or had a sound record of implementing employment generating activities elsewhere (BRAC). It is difficult to assess the impact of these schemes so long after the event, but many survivors mentioned that jobs were hard to find in the months after the cyclone. Indeed many people mentioned that lack of employment was the key factor which delayed their own personal recovery. In some areas, the shortage of employment resulted in local populations becoming malnourished after relief programmes ceased (see Annex D).

4.64 The World Food Programme (WFP) Food-for-Work (FFW) schemes were used to repair parts of the coastal embankment by constructing temporary 'dwarf' embankments and played a significant part in helping households to reestablish their livelihoods. WFP provided 34,590 tonnes of wheat for the schemes and funds to provide tools and baskets, which many of the workers had lost during the cyclone. The schemes provided about 5.9 million workdays of employment when none other was available and the re-constructed embankments prevented about 123,000 ha of agricultural land from flooding during high tides in the monsoon. In addition, about 14,690 ha of land used for salt production and 2,000 ha of land used for shrimp cultivation were given temporary protection. Fortunately, the tides were not particularly high in the following monsoon and the embankments served their purpose even though construction standards were poor because they were built during the wet season. (In Bangladesh, embankments are constructed only in the dry season, and the WFP proposal was unprecedented). An independent evaluation of the schemes concluded that without FFW schemes, 'neither the Government's rehabilitation programme nor the efforts of local farmers could have met with much success'. The

aman rice harvest after the monsoon was very good, and aided economic recovery in many areas.

4.65 Livestock is the main economic asset of many households, and the widespread mortality of livestock during the disaster was a serious loss for many families. Only a few rehabilitation programmes targeted the need to replace livestock. The IFAD/EC Livestock Services Project is providing the rural poor with sheep, goats and cattle at subsidised prices (50 to 100% subsidies) and BRAC is successfully implementing a poultry programme.

School Rehabilitation

4.66 Other activities included rehabilitation of general infrastructure such as schools, for which there was a clear need as about 7,000 school buildings were damaged or destroyed. As with the houses, use of GI sheet as a construction material made no allowance for the high winds that can occur in the coastal areas. Support for schools may not benefit the poorest who cannot usually afford to attend.

Institutional Issues

4.67 ODA rehabilitation funds were allocated only to NGOs, even though only a few of these had a strong presence in the affected areas. Although ODA rehabilitation grants were not supposed to expand NGOs' programmes, several NGOs did use the grants either to increase the scale of their activities or to establish their programmes in new locations. In the view of the Evaluation Mission, the establishment of some national NGOs in the area is a positive development and is likely to be to the advantage of the poor, as has been the case elsewhere in Bangladesh.

4.68 Several NGOs undertook rehabilitation activities of which they had limited experience. Because multipurpose shelters and housing projects are logistically very demanding and require sound supervision and quality control they can put a great strain on project staff. Most NGOs have been able to adjust their management systems and overcome the problems, with only limited delays in implementation. Periodic monitoring of the projects, however, by suitably qualified staff could have assisted some NGOs to overcome their problems more quickly, and would probably have resulted in the use of a more participatory and broader approach to planning.

4.69 The NGOs' overhead costs for implementing their rehabilitation projects averaged about 11% of the total. They ranged from 7% to 15% for housing projects and from 5% to 18% for the multipurpose cyclone shelters. By comparison, the estimated overhead cost in the EC's Primary School-cum-Cyclone Shelter Project is 22%. Although these figures on overhead costs should be taken cautiously as NGOs allocate their management costs differently, it would appear that their overhead costs are reasonable.

4.70 Coordination by NGOs of their rehabilitation activities was reasonably effective. NGOs working in any area are aware of each other's activities but generally distance themselves from one another because of their different methods of working and different overall agendas. Although not prominent in rehabilitation, ADAB organised some meetings to discuss rehabilitation. After one such meeting, one NGO changed its proposed rehabilitation activities.

Environmental Impact

4.71 The impact of the projects on the local environment will generally be neutral, as the structures (shelters, houses and schools) being built are small, and most construction materials are being imported from elsewhere. The projects, however, are likely to have significant positive impacts on social welfare.

5. **CONCLUSIONS AND LESSONS LEARNED**

RELIEF PROGRAMME : NGO PROGRAMMES

Overview

5.1 The NGO relief programme financed by ODA involved allocations from DRU direct to British-based NGOs (,2.140 million) and via the BHC to smaller local NGOs (,0.549 million). A total of 34 NGOs operating in Bangladesh were financed, but the eight biggest grants (to Concern, Gonoshasthya Kendra, World Vision-Bangladesh, SCF, CARE, Oxfam , Action Aid-Bangladesh and the Salvation Army) accounted for 80% of the funds. Most recipient NGOs obtained financial assistance from a number of donors and ODA's contribution generally ranged from 10% to 50% of the total.

5.2 NGO relief proposals were identified and designed by the NGOs and submitted to DRU or the BHC. Most proposals gave details of the objectives of the programme and a budget but few indicated how their programmes would be organised on the ground or how they would be targeted to meet the needs of the most vulnerable people. The BHC sought some advice from its Health and Population Adviser in appraising projects but, in general, ODA advisers were not involved in appraisal.

5.3 ODA's relief funds were used for shelter and housing (41%), food (18%), hygiene, health and water (17%), clothing and utensils (6%) and other uses, including administration and transport (22%). The reason for the heavy expenditure on shelter and housing is that a number of big relief grants approved by DRU had large rehabilitation components. These accounted for about 45% of the relief programme.

5.4 The large Bangladeshi NGOs financially assisted by ODA responded rapidly to the disaster and were able to mount relief programmes within a few days. The first 15 days or so involved 'Survival Relief' (ensuring that survivors did not starve or die from disease) and the following month, 'Emergency Relief' (ensuring that people had sufficient food and water, and access to health care and shelter). Small NGOs were generally slower than large NGOs in starting relief programmes and these usually only lasted for one or two weeks.

5.5 Overall, the national relief effort, in which the NGOs played a key and leading role, was successful in preventing starvation and reducing suffering. Almost all people had received relief supplies within a week and there were no significant shortages while the relief programmes lasted. Few people died after the cyclone from injuries sustained during the disaster or from disease afterwards. There were no epidemics.

5.6 It is very difficult to estimate the number of beneficiaries of ODA-financed programmes

because most NGOs were assisted by a number of donors and NGO record-keeping and reporting does not focus on this aspect. The Evaluators estimate, however, that ODA financing may have provided the equivalent of food for about 33,000 families (200,000 people) for a period of six weeks, as well as other supplies (eg clothing) for some of the same beneficiaries. This is the equivalent of about 8% of the population of the 11 worst-affected upazilas.

5.7 The extent to which NGOs were able effectively to target the most vulnerable households is difficult to assess. While a few NGOs mentioned targeting in their proposals, most did not. Some NGOs were aware of the problems women, in particular, would have in gaining access to relief supplies and implemented their projects accordingly. However, others may not have done the same. Spatial targeting was quite effective in that most of ODA's resources were used in the worst-affected areas, although the Chittagong Hill Tracts had for the most part to be excluded for security reasons. There was generally little overlap or duplication amongst NGOs, but those which already had programmes in the Chittagong area worked in the same locations, which were usually not in the worst-affected belt.

5.8 It is difficult to assess the cost-effectiveness of the different programmes, although there are considerable differences amongst NGOs in (a) the unit costs of key commodities, and (b) the transport and management overhead which they charge ODA. Unit food prices charged by some NGOs are 20-30% higher than those of others, and - somewhat surprisingly - the bigger NGOs are not always the most cost-effective purchasers of supplies. Transport and management margins range from 10% of the cost of the relief supplied for small NGOs to 28% for large NGOs implementing multi-activity programmes. One NGO's margin at 40% seems excessive.

Lessons Learned

5.9 Although NGOs provided a generally effective relief delivery system, stronger linkages between ODA and NGOs, especially Bangladeshi NGOs would be beneficial.

5.10 In order to provide a basis for informed assessment by ODA, projects proposals and reports submitted by NGOs need to be more specific and provide fuller information on practical aspects of project design. Progress and final reports by NGOs should highlight the lessons learned in order to provide feedback in the design of future projects.

5.11 The NGOs' financial reporting need to be more detailed and include the key data needed to assess the cost-effectiveness of the operation (eg unit costs of supplies and transport, breakdown of management overheads, numbers of beneficiaries for each type or 'package' of relief delivered).

5.12 Attention to beneficiary selection is necessary in order to ensure that women, children and other specially vulnerable groups receive a fair share of relief supplies and services.

5.13 NGOs need to establish their own disaster management units and train selected staff so as to be better prepared to respond quickly and effectively when disaster strikes.

5.14 NGOs will continue to play a leading role in relief programmes, but there is also a pressing need for an improved Government capacity to respond quickly and efficiently.

5.15 As relief programmes are the first step towards the rehabilitation and subsequent further development of the communities, the r^le of ODA advisers in considering relief proposals and reports is vital.

5.16 NGOs implementing large relief programmes are the most effective in targeting and responding to need, despite their higher unit transport and management costs.

5.17 Given the frequency of disasters in Bangladesh, ODA's office in Dhaka needs to develop its own disaster preparedness strategy.

RELIEF PROGRAMME : DEPLOYMENT OF UK MILITARY FORCES

5.18 The cost of the operation was high, but, as DRU's relief allocation was not fully used, 'Operation Manna' probably did not involve diversion of resources from other uses. The helicopters and Rapid Raider boats were appropriate for the tasks involved. The operation could have been more effective if the vessel had arrived earlier, during the survival relief phase.

Lessons Learned

5.19 The decision to deploy military resources is best based on a thorough local assessment, including a review of alternative comparable resources. For maximum effectiveness in responding to sudden onset disasters, UK military resources, if they are to be used, need to be deployed quickly after the event. Given the time and cost of mobilisation, an early but informed decision needs to be taken on whether to deploy such resources.

REHABILITATION PROGRAMME

5.20 The projects financed contributed mainly to the long-term rehabilitation and development needs of communities, rather than meeting their short-term rehabilitation needs. Short-term employment and asset replacement for fishing and farming households was desperately needed in the six months following the relief phase's ending in June, in order to help households re-establish their livelihoods. Few NGOs, however, emphasised this in their proposals.

5.21 Inadequate appraisal by ODA resulted in the approval of an unstructured assortment of projects. Separate projects with similar activities were approved with a plethora of differing technical standards, social objectives, and costs. As a result, many of the projects are less cost-effective than they could have been.

5.22 The projects involving the construction of multipurpose cyclone shelters have been successful to the extent that most of the shelters are completed or under construction. Community development activities related to the use of the shelter buildings at times other than cyclones and disaster preparedness, are also being implemented by the NGOs. The full impact of the shelter projects will only be apparent after they have been completed and are in use.

5.23 The planning of the housing projects was weak. Technical, social and economic issues related to housing - many of which were pointed out in the RDI 1988 Post-Flood Rehabilitation Evaluation - were not adequately addressed.

5.24 The employment rehabilitation activities were also successfully implemented but the demand for loans and grants far exceeded the supply planned by the NGOs. Other activities financed, including school building reconstruction, supply of school materials, health programmes and provision of water supply and sanitation facilities, have generally been of benefit.

5.25 The EC-funded food-for-work project to construct temporary embankments to keep out the high monsoon tides was a successful project. It created considerable employment in the six months following the relief phase, helped to secure a bumper *aman* rice crop in November 1991, and stimulated the area's economic recovery.

5.26 The worst-affected areas were not locations where NGOs had previously had a strong presence. The tendency of NGOs to propose long-term rehabilitation projects (eg housing, cyclone shelters) was related to their need to establish their operations in new areas before being able to undertake economic rehabilitation activities.

5.27 If the ODA rehabilitation programme had included more short-term rehabilitation activities, it probably would have had a stronger impact on overall welfare than did the immediate provision of houses and shelter. If adequate employment had been available, survivors would have been able to make their own choices about the type and standard of the houses they wanted to build. The problem of replacement housing being superior to the original would not then have occurred to the same extent.

5.28 Many issues related to the planning and design of shelters require further study because there is only limited information available on how they are used during and after emergencies. Existing designs are expensive and more appropriate and cost-effective ways of protecting people from cyclones and storm surges need to be developed. Ways of protecting individual and community resources from cyclones also need to be addressed, in order to reduce their requirement for subsequent relief and rehabilitation programmes.

Lessons Learned

5.29 Guidelines are required to assist NGOs and ODA staff in the identification and design of appropriate rehabilitation projects.

5.30 After the relief phase of a disaster, special attention needs to be given to short term employment and income generating activities.

5.31 Proposals for rehabilitation projects are best appraised together (or, if this is not possible, in batches) so as to ensure that the best projects are selected and funds used most efficiently.

5.32 There is a need for an overall strategy for rehabilitation targeting specific sectors and geographical areas, so as to provide the framework for individual NGO projects.

5.33 The terms and conditions of grant awards to NGOs need to make ODA's requirements and NGO responsibilites clearer.

5.34 Rehabilitation programmes should take account of the wider requirements of affected areas, since NGOs often take too narrow a view of overall development needs.

5.35 Guidelines are required for housing rehabilitation programmes, to avoid recurring problems (eg equity issues, durability, technical standards).

5.36 Routine monitoring of both existing and future rehabilitation programmes is needed, especially when NGOs are undertaking new activities or starting work in new areas.

5.37 Research is needed on the coping strategies of people living in cyclone-prone areas, in order to improve the targeting of short and long-term rehabilitation, within the context of the overall development of affected areas.

TABLES 1-4

APPENDIX 1

TERMS OF REFERENCE FOR AN EVALUATION/REVIEW OF THE ODA-FUNDED RELIEF OPERATIONS AND REHABILITATION PROGRAMMES IN BANGLADESH FOLLOWING THE CYCLONE OF APRIL 1991

OVERALL OBJECTIVES

A.1 To assess the appropriateness, cost-effectiveness, efficiency and impact of (i) the emergency relief operations, and (ii) the subsequent rehabilitation programme, which were funded by the UK in Bangladesh following the cyclone disaster of 29 April 1991. The evaluators should take due account of the background conditions which existed at the time the operations were mounted. In addressing these objectives the evaluation team should cover the aspects listed below.

A.2 An evaluation of the immediate **relief** operation which provided food and medical supplies. This should be undertaken through (i) a desk study drawing on reports received by the Disaster Unit from the NGOs directly involved, and (ii) on a sample basis, visits to local leaders and beneficiaries. This should have special regard to the following factors:

a. speed of response;

b. whether the location of the relief operations and choice of target beneficiaries were correct in relation to those most in need;

c. numbers of beneficiaries assisted;

d. total cost of supply and delivery of relief package at point of consumption, where such information is available or can be estimated;

e. description of impact on beneficiaries;

f. effectiveness of monitoring;

g. overlap/complementarity with other donor activities.

A.3 Included in this part of the evaluation should be a broad assessment, for comparative purposes, of the performance in the field of those multilateral bodies among the channels of ODA

relief assistance (ie the EC and UNDRO); this assessment will be carried out through the field visits in Bangladesh.

A.4. A specific evaluation of the use made of the Royal Navy Fleet Auxiliary ship **Fort Grange** which was diverted from Gulf operations to assist the relief effort, individual aspects to include those listed in '1 (a-g)' above.

A.5. An evaluation of the **rehabilitation** programme funded by the UK, through both deskwork and a field visit. The visit shall include BHC Dhaka, a representative selection (or all) of the NGOs involved locally in the implementation of the programme, and such other local organisations as can throw light on progress and impact. The aspects to be included in the study should include the following:

a. assessment and approval process;

b. type of activities promoted, including building of cyclone shelters;

c. whether the location of the rehabilitation operations and choice of target beneficiaries were correct in relation to those most in need;

d. numbers of beneficiaries assisted;

e. speed and effectiveness of implementation;

f. total cost of provision of each component (where such information is unavailable it should be estimated);

g. detailed description of the short and long-term impact on beneficiaries of each component;

h. level of participation of beneficiaries and their community;

i. adequacy of management, accounting, reporting and monitoring procedures both by the NGO and by ODA;

j. overlap/complementarity with other donor activities;

k. capacity of NGOs to implement this type of programme including whether additional activities were undertaken or whether resources were used for their existing programmes;

l. effectiveness of the Bangladesh Population and Health Consortium/NGO Office.

A.6. On the basis of findings obtained under '1' - '3' above:

a. Make an **assessment** of:

- whether the costs of each component of the operation have been, or are likely to be, justified by the actual or expected benefits (where costs have not been recorded an attempt should be made to estimate them, qualitative analysis on its own only being resorted to where quantification proves totally impracticable);

- the comparative effectiveness of the rehabilitation programmes of the expatriate NGOs, on the one hand, and the local NGOs, on the other;

- whether operational experience suggested any special strengths or weaknesses in the internal workings of the ODA post-disaster relief and rehabilitation procedures operative at the time of, and relevant to, the Bangladesh disaster;

- overall, whether the NGOs had channelled the relief and rehabilitation funds provided by ODA efficiently and appropriately, and any implications for future ODA management of this type of programme;

- (in general terms) the standard of coordination of the activities of the various contributors to the operation, including the Government of Bangladesh, donors and relief agencies.

b. set out the **lessons learned** for each phase of the operation;

c. make any **recommendations** (*separately* from the report) which the findings suggest are appropriate, including comments on the possible role of the forthcoming local Aid Management Office in future disaster relief and rehabilitation work.

COMPOSITION OF THE STUDY TEAM

A.7 The study team should include:

i. From the **United Kingdom**:

- a **socio-economist** with experience of post-disaster and emergency organisation and logistics, as **Team Leader**;

- an **NGO expert** with knowledge of health issues;

- an **engineer/architect**;

Both the NGO expert and engineer/architect should have some experience of disaster and emergency issues.

ii. From **Bangladesh**:

- a **socio-economist** with knowledge of the NGO sector;

- a **health specialist** with knowledge of the NGO sector;

- an **engineer** with knowledge of relief and rehabilitation work.

RST DRAFT

ANNEX A

TERMS OF REFERENCE FOR AN EVALUATION/REVIEW OF THE ODA-FUNDED RELIEF OPERATIONS AND REHABILITATION PROGRAMMES IN BANGLADESH FOLLOWING THE CYCLONE OF APRIL 1991

OVERALL OBJECTIVES

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h. level of participation of beneficiaries and their community;

i. adequacy of management, accounting, reporting and monitoring procedures both by the NGO and by ODA;

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a. Make an **assessment** of:

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- whether operational experience suggested any special strengths or weaknesses in the internal workings of the ODA post-disaster relief and rehabilitation procedures operative at the time of, and relevant to, the Bangladesh disaster;

- overall, whether the NGOs had channelled the relief and rehabilitation funds provided by ODA efficiently and appropriately, and any implications for future ODA management of this type of programme;

- (in general terms) the standard of coordination of the activities of the various contributors to the operation, including the Government of Bangladesh, donors and relief agencies.

b. set out the **lessons learned** for each phase of the operation;

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Both the NGO expert and engineer/architect should have some experience of disaster and emergency issues.

ii. From **Bangladesh**:

- a **socio-economist** with knowledge of the NGO sector;

- a **health specialist** with knowledge of the NGO sector;

- an **engineer** with knowledge of relief and rehabilitation work.

ANNEX B

RELIEF PROGRAMME

PROJECT CHRONOLOGY

1991

28 April People in path of cyclone given warning.

29 April Radio warnings of cyclone. BHC notifies ODA.

29/30 APRIL - CYCLONE STRIKES

30 April Government puts death toll at 1200, but expects it to go higher.

1 May UNDP chairs first meeting to coordinate donor relief programmes.

2 May Prime Minister Begum Zia chairs first meeting with donors and NGOs. Appeals for helicopters. No formal declaration of emergency but UNDP interprets disaster statistic declared by PM as a call for donor assistance. Official death toll now 37,500.

A number of NGO assessment teams reach stricken areas and plan programmes. DRU and BHC receive a number of NGO requests.

Announcement in House of Commons that UK will contribute ,2.5 million to disaster relief.

Official death toll now 92,000 but unofficial reports say 150,000.

UNDRO calls for helicopters and flat-bottomed boats. Chittagong airport opens to fixed winged aircraft for limited operations.

BHC receives summaries of NGO proposals from DRU and gives comments.

Further ,2.00 million announced in House of Commons for international appeals and NGO programmes.

4 May Official death toll reaches 125,000. Three helicopters arrive from India; Pakistan promises another two.

6 May Limited telecommunications re-established between Dhaka and Chittagong. Donor local consultative group on NGOs appoints ADAB as focal point for donors. ADAB establishes coordination offices in Chittagong and Cox's Bazar.

7 May Poor weather conditions (only ocean-going boats and helicopters reach off-shore islands) and fuel shortages hampering relief operations. DRU seeks advice of BHC on logistical support. UNDRO repeats request for helicopters. Tornado hits Gazipur district north of Dhaka - 16 to 18 people killed.

Disaster Emergency Committee, comprising chairs of five major NGOs, launches appeal.

DRU approves first tranche of grants to UK NGOs. Further ,2.00 million announced in House of Commons.

8 May Minister for Overseas Development Chalker announces in House of Commons that UK Government is sending RFA Fort Grange equipped with two helicopters (later increased to four). Total UK contribution increased to ,6.5 million.

Tornado hits Ghorshhal in North east Bangladesh - 20 people killed.

9 May Reports of Indian Government offer of a military task force to assist relief and rehabilitation.

Flooding in Sylhet. 100,000 people stranded.

BHC informs ODA of first tranche of small grants to local NGOs.

12 May Official death toll rises to 138,000.

DRU approves second tranche of grants to UK NGOs.

13 May ERD chairs meeting with donors and World Bank chairs first meeting on rehabilitation.

14 May Reports that NGOs have reached their administrative capacity to absorb emergency aid.

EC Council of Ministers announces total EC (ie bilateral plus through Commission) funds of 60 million ECU, obliging UK to increase its contribution to ,7.85 million.

15 May US Task force arrives in Bangladesh.

18 May UNDRO reports extensive diarrhoea outbreaks.

19 May BHC meeting with leading NGOs confirms that most are working to capacity.

20 May RFA 'Fort Grange' arrives off Cox's Bazar and starts operations.

Announcement is made in House of Commons of further ,5.00 million for rehabilitation.

23 May Meeting of NGOs in London to discuss rehabilitation projects.

BHC reports that phase of immediate relief is coming to an end and focus shifting to rehabilitation.

29 May Main body of US Task Force leaves Bangladesh.

UK announces availability of ,15 million in commodity aid to assist with rehabilitation.

31 May One Sea King helicopter from Fort Grange ditches in sea and is lost.

3 June Second cyclone crosses Bangladesh coast. Little damage.

4 June RFA Fort Grange leaves Bangladesh.

15 June Government announces end of relief phase.

ANNEX C

REHABILITATION

INTRODUCTION

C.1 The 1991 cyclone caused extensive damage to agriculture, fisheries and salt production, and to housing and other infrastructure (see Para 1.3). After the first two months of emergency relief, the priority shifted to:

a. Short-term rehabilitation : assisting people to re-establish their lives by ensuring availability of employment and other income generating opportunities (months 3-6);

b. Long-term rehabilitation: assisting individuals and communities to rebuild houses and rural infrastructure, and construct multipurpose cyclone shelters (month 7 onward)

C.2 ODA's rehabilitation programme is reviewed in this Annex. Because of the lack of any comprehensive report or proposal for the programme, it was necessary to undertake a detailed review of the files in ODA HQ, the BHC and SEADD.

C.3 The first section of the Annex provides background information on the damage to infrastructure and the response of other donors. This is followed by a review of the main activities financed by ODA : multipurpose cyclone shelter construction, house building and occupational rehabilitation.

BACKGROUND

Damage Assessment

C.4 Soon after the disaster, GoB set up a Joint Task Force with UNDP to assess the overall damage and rehabilitation needs. The draft report of the Task Force was completed in late June

(GOB/UNDP 1991) and the final report was presented to a special session of the UN Economic and Social Council in Geneva on 16 July 1991. The Task Force estimated damage to be about ,1.04 billion ($1.78 billion) for all sectors including agriculture, industry, infrastructure etc.

C.5 In June 1991, GoB requested the World Bank to coordinate donor rehabilitation activities. The Bank engaged consultants to assess the damage caused by the cyclone to general infrastructure. The consultants were financed by USAID and submitted their draft report in August 1991 (SMEC/BCL 1991). Based on field surveys, the consultants estimated the damage to general infrastructure to be ,152.42 million ($259.11 million). The most severely damaged infrastructure were schools (39% of total damage) and roads and bridges (39%), followed by power facilities (9%). The consultants concluded that damage was exacerbated by the poor quality of materials and workmanship of many projects and that, because the repair of the cyclone damage would not improve the infrastructure's preparedness for future cyclones, additional measures were required in conjunction with the rehabilitation work. After the presentation and discussion of the SMEC Report in September 1991, the World Bank took no further role in coordinating rehabilitation activities as it considered further coordination to be the responsibility of the government. Various donors indicated that they would support about $240 million of infrastructure rehabilitation.

The EC's and Other Donors' Rehabilitation Programmes

C.6 In June 1991, the EC sent a mission to Bangladesh to identify rehabilitation projects that could be funded by the EC. The mission identified three new projects and recommended two projects be revised in the light of the Government's new priorities after the cyclone (SETA 1991). The new projects proposed were:

1. Cyclone Shelter-cum-Primary School Project to construct 200 buildings to be used as shelters during cyclones and as schools and community centres at other times (project co-financed by Germany (KfW), Spain and Greece, estimated cost ,10.94 million;

2. Emergency Food Aid Project to reconstruct productive infrastructure (eg embankments and roads) in the affected areas through Food-for-Work and a supplementary Vulnerable Group Development programme for the most adversely affected households (estimated cost , 5.83 million);

3. Cyclone Protection Project II (Priority Programme) under which the EC would provide technical assistance consultants to plan and supervise the construction of high priority coastal embankments and related structures financed with a World Bank Loan (estimated cost ,2.08 million).

The revised projects were:

1. Improved Food Storage and Handling Systems Project for repair of the barge loading facility at Chittagong, the central and local foodgrain storage depots and a jetty at Mangla Port (,1.22 million);

2. Livestock Services Project to co-finance the livestock component of the proposed IFAD Project for poverty-oriented poultry projects in cyclone affected areas (,1.11 million).

The EC's Post Cyclone Rehabilitation Programme was approved in September 1991.

C.7 The World Bank and the Asian Development Bank both made rehabilitation loans to the Government to repair damaged projects financed by them. Other major works undertaken in the coastal area included the construction of cyclone shelters financed by the Saudi Fund for Development.

BACKGROUND TO MAIN COMPONENTS OF PROJECTS FINANCED BY ODA

Cyclones and Bangladesh

C.8 Cyclonic storms form in the Bay of Bengal during April/May (pre-monsoon cyclonic storms) and September to December (post-monsoon cyclonic storms). Of the cyclones formed, about one-sixth make their landfall in Bangladesh and since 1900, about 70 cyclonic storms have made their landfall along the country's coastal region.

C.9 Cyclones are characterised by high winds in excess of 63 km/hr[1] and storm surges which can raise sea water levels up to 10 metres above mean sea level. As extensive areas of coastal Bangladesh are densely populated and lie only a few metres above mean sea level, many settlements are vulnerable to devastation from high winds and inundation by salt water to depths of several metres. The loss of life and disruption caused when cyclones hit Bangladesh results mainly from the high water levels of the storm surge. The high winds of a cyclone are less threatening to human life as most people are able to find shelter from flying debris but the winds can cause extensive damage to buildings and vegetation including trees and crops.

C.10 When the high water levels of the storm surge and the accompanying surface waves make landfall, the absence of high ground in coastal areas results in many people being swept away and drowned. Even though the high winds and rise in water levels last only a few hours, the magnitude of the wind speed and the rate of rise of water levels make cyclones extremely destructive to individuals and communities in their path. When cyclones make landfall during the night their impact is much worse as those affected have great difficulty in determining what is happening.

C.11 The cyclone on 29/30 April 1991, was followed by a second one on 2 June but this was less intense and as its landfall was made at low tide its effect was diminished. Damage caused by this second cyclone was negligible.

C.12 In November 1992, another severe cyclonic storm approached the Chittagong coast and the highest warning signal (signal 10) was issued to coastal communities. Fortunately, 24 hours before it was due to make landfall, the cyclone dissipated into a severe depression and moved southward to cross the coast south of Cox's Bazar.

C.13 People in the coastal areas were generally unprepared for the April 1991 cyclone, and few households took precautionary measures until the winds were high and water started to enter housing compounds (BRAC 1991). In November 1992 when cyclone warnings were issued, the memory of the April cyclone was still strong and many people moved to shelters or to higher ground inland in anticipation of flooding from another storm surge.

Shelters

C.14 The need to construct buildings to serve as shelters in coastal areas has been recognised since the early 1960s when the government constructed two- storied, concrete framed, union parishad offices. In 1992, 132 of these shelters were still standing (BUET/BIDS 1992).

C.15 After the destructive cyclone in 1970 when over 200,000 people died in greater Noakhali, Patuakhali and Barisal Districts, an additional 238 cyclone-resistant shelters were constructed by the Public Works Department with funds from the World Bank. The shelters were two-storied concrete-framed buildings with the first floor of the building raised above the level of potential storm surges. The project was originally formulated in 1970, but implementation was delayed due to the disruption following the War of Independence in 1971 and was not completed until 1979.

C.16 Responsibility for the utilisation and maintenance of shelters constructed in the 1970s was not clearly defined. Some of the shelters are now being used as schools, others are used as grain stores by private individuals, and some have fallen into disrepair and been abandoned. The problems of maintenance and long-term use of shelters were recognised by NGOs and recent programmes insist on construction of dual-use buildings which can function as community centres in normal times.

C.17 In 1985, following another severe cyclone in the greater Noakhali district which claimed 30,000 lives, the need for additional cyclone-resistant shelters was again recognised, and 70 shelters were constructed by the Bangladesh Red Crescent Society (62) and Caritas (8). Construction of these shelters were accompanied in most cases by community development activities based on the shelter building.

C.18 During the April 1991 cyclone, cyclone shelters made a significant contribution to saving lives in those communities which were fortunate enough to have a shelter nearby. An estimated 350,000 people took refuge in cyclone shelters and other concrete or brick buildings. Occupancy of some shelters were reportedly 3-5 times their design capacity as people crowded in to avoid the rising water. There were no reports of shelters collapsing during or after the cyclone.

C.19 Along with shelters, there has been discussion of providing raised earth mounds or *killa* on which livestock such as cattle, goats etc can take refuge. Livestock are the main economic asset of many families and are the key component of domestic economies. In the 1970s and 1980s several *killa* were constructed in different locations but many were poorly maintained. The 1991 cyclone's devastating effect on livestock numbers (see para C.1 above) has renewed interest in *killa* and the possibility of locating shelters on *killa* has been investigated (BUET/BIDS 1992). In addition, some families have moved their houses onto existing *killa.*

C.20 A GOB/UNDP/World Bank study to review the planning and design of multipurpose cyclone shelters was started in January 1992 and the draft final report was submitted in July 1992 (BUET/BIDS 1992). The Study gave a comprehensive review and analysis of the planning and design of shelters, an inventory of existing shelters and *killas* , and an analysis of the future shelter requirement, is part of the preparatory work for possible World Bank funding of a multipurpose shelter construction programme.

C.21 Since the 1991 cyclone, about 540 shelters are either under construction or being planned by various organisations including the Facilities Department of the Ministry of Education (200 shelters financed by EC and 50 shelters financed by the Saudi Fund), the Local Government Engineering Bureau (10 shelters funded by IFAD), and several non-government organisations. Of the ODA-financed NGOs engaged in shelter construction, CARITAS has a programme for 142 shelters (12 of which are financed by ODA), Red Crescent has a programme for 149 shelters (7 financed by ODA), Gonoshasthaya Kendra has a programme for 15 shelters (6 financed by ODA) and BRAC has a programme for 15 shelters (3 financed by ODA). Proposed uses for the shelters under construction include health and community centres, schools and mosques.

C.22 At present there is no clear government policy on the construction and utilisation of shelters.

Housing

C.23 Houses in coastal areas are traditionally made with bamboo frames and rafters, thatched roofs and bamboo matting or mud walls. These houses are not very durable and the thatched roofs need annual replacement or extensive repairs. The houses are not strong structurally and are often damaged even by normal seasonal winds. During cyclones, the high winds damage all houses except those that are well-made and of such durable materials as bricks, concrete, or CI sheet on timber frames. In the 1991 cyclone, all but a few houses were destroyed in more exposed coastal areas by the winds and the storm surge. Surveys after the cyclone found that good design and construction practices had contributed significantly to the durability of houses and other buildings (BRAC 1991; SMEC 1991).

C.24 Immediately after the 1991 cyclone, government and NGOs distributed plastic sheet, tarpaulins and tents for emergency shelter. Later, GoB also distributed CI sheet (2 bundles of 9 sheets of 8 ft length) and cash (generally Tk 1,000) to help selected households rebuild their houses. The cash was, however, insufficient to rebuild and beneficiaries had to use their own money.

C.25 The larger NGOs have traditionally focused on interventions in other rural sectors and housing has not been a prominent feature of many NGO programmes. The one exception is the Grameen Bank which has promoted housing loans for its members. The loan covers the supply of 4 concrete pillars, CI sheet and roof timber. A few NGOs are involved in housing in urban areas.

ODA Contribution to Rehabilitation

C.26 ODA allocated , 5 million of new funds for rehabilitation activities. ODA also proposed to bring forward ,15 million of commodity aid scheduled for 1992 to be available to Government for rehabilitation activities. In addition, the unspent balance from the funds allocated to relief were re-assigned to rehabilitation activities. The rehabilitation funds were added to SAD II's Bangladesh Aid Framework for the financial year 1991/92 which meant that any funds unspent could not be carried over to the next financial year.

C.27 The Minister for Overseas Development, Baroness Chalker, visited Bangladesh in November 1991. The Minister met Government officials and visited some ODA funded rehabilitation activities in the worst-affected coastal areas.

C.28 In addition to the contributions from ODA, British NGOs channelled substantial donations from private individuals and organisations in Britain direct to Bangladeshi government and non-government organisations for rehabilitation activities.

IDENTIFICATION, DESIGN AND APPRAISAL OF ODA-FINANCED REHABILITATION PROJECTS

Identification of Projects

C.29 Although the ,5.0 million for rehabilitation were not allocated to specific activities, consideration was given to using the allocation for 'a coherent, systematic disaster preparedness programme' or a '5-year area development programme' but these proposals were not taken up, and it was decided to finance rehabilitation activities only through NGOs. Identification of specific rehabilitation projects was left to NGOs and no objectives or guidelines were prepared as a framework for project identification. The decision to allocate all the funds through NGOs was in part due to the necessity to use all the funds before the end of the 1991/92 financial year.

C.30 ODA organised an exploratory meeting on 23 May 1991 with leading British NGOs in London to discuss rehabilitation programmes but the attending organisations had not formulated specific proposals at this stage. The NGOs were asked to submit their initial requests by mid-June on a standard project proposal form which had been prepared on the recommendations made in the Evaluation Report of the 1988 Flood (RDI 1990). Most proposals were submitted over the period from mid-June to the end of September, although a few requests for additional financing continued to flow in until March 1992 (see Table 1). Many of the proposals were submitted in the required format.

C.31 In July 1991, ODA was asked to consider co-financing the EC's Cyclone Shelters-cum-Primary Schools Project. Although ODA agreed that the project was suitable for financing from the EC's regular budget, it decided not to co-finance it. One of the main reservations expressed about supporting the EC's project concerned the likely delays in project implementation.

C.32 ODA funds were not made available to multilateral agencies. The possibilities of ODA financial support for UNICEF activities in health, education and water/sanitation were discussed in Dhaka, but, as UNICEF appeared not to be short of funds for its programme and no specific project was readily identifiable, these possibilities were not pursued.

Design

C.33 Most of the proposals submitted by NGOs requested funding either for multipurpose cyclone shelters or for housing. The emphasis in many proposals on the need for shelters was a response to the great loss of life during the cyclone. Similarly, the numerous requests for housing

were a response to the large number of people who had lost their houses and to the torrential rains which hampered the survivors' efforts to rehabilitate their lives for weeks after the cyclone. Only a few proposals requested funds for employment rehabilitation activities such as provision of seeds, provision of loans to replace fishing equipment, and credit schemes for agricultural and small business loans. Several proposals also included requests to finance the reprovision of general infrastructure, eg schools, water supplies, and sanitation facilities, and to the establishment of health programmes.

C.34 The objective of the proposed cyclone shelters projects was the saving of lives by providing refuges for people in the low-lying coastal areas from the storm surges that accompany cyclones. As cyclones only occur intermittently, NGOs proposed additional uses for the buildings to make more efficient use of the relatively large investment needed. In addition, some NGOs proposed to promote the use of the BRCS warning system to inform people of an approaching cyclone to provide time to move to the safety of the shelter. A few proposals also identified the need to improve the resources available to vulnerable people living in coastal areas. Some NGOs proposed to use the shelters as a base for implementing more general development programmes.

C.35 The technical information included in the proposals to construct shelters or houses or to undertake other infrastructure projects was extremely limited. Such key issues as the method of site selection, the design and specification of new or rehabilitated buildings, the methods of purchasing construction materials and managing the construction, were usually not mentioned. For example, only two proposals for cyclone shelters contained technical drawings of the proposed shelters, and no housing proposal discussed the requirements for building houses in cyclone-prone areas.

C.36 The rehabilitation projects were targeted generally towards 'the poor, the landless and female-headed households' but it was not always clear how this would be done or how the proposed activities would confront the underlying reasons for rural poverty and lead to sustainable improvements in the beneficiaries' lives.

C.37 The methods to be used to promote community development around project facilities were often not specified. Some proposals were based on sound principles and proven community development experience, while others were very vague about the way community development groups or credit programmes would be organised.

C.38 In project proposals, there was very little analysis to show the way proposed activities would make their impact on local economies. No proposal addressed the question of maintenance of the facilities constructed or the long-term development plans of the NGO. The question of the sustainability of activities was not addressed.

Appraisal

C.39 Project proposals were not appraised by ODA with its normal rigour. The projects were appraised mainly by SEADD specialists but as many of these were fully committed to other work, they did not have the time to subject the proposals to systematic appraisal. This was especially so for the main group of proposals; those received later were looked at more closely. Social and

economic aspects were partly considered, but there was no technical appraisal of projects prior to the approval of financing assistance. Social issues discussed during appraisal included the selection of beneficiaries and methods of group organisation. The unit costs of some of the housing projects was questioned but no follow-up action was taken and projects were still approved without the issue being discussed with the prospective recipient NGO. Some of the local NGOs were asked to clarify their costs and to submit more detailed information prior to BHC approval. For the larger grants, approval seems to have been based mainly on ODA's past experience of working with particular NGOs. There was a tendency to approve infrastructure projects (cyclone shelters and housing) rather than income generating activities because the latter are more complicated and need more information for appraisal.

C.40 The NGO Bureau screened project proposals and sometimes questioned the type of activity being proposed. For example, the NGO Bureau did not always approve the construction of low-cost houses that did not have provision for GI sheet roofing and, where such houses were proposed, NGOs were instructed to construct houses made from more durable materials. Similarly, the NGO Bureau encouraged NGOs to use the Red Crescent design for cyclone shelters.

Approval of Projects

C.41 Project proposals were received from British-based and large Bangladeshi NGOs by ODA in London and from smaller Bangladeshi NGOs by BHC in Dhaka. BHC Dhaka requested and received approval to allocate ,650,000 direct to local NGOs. SAD II allocated finance for British-based NGOs, as procedures for approval were quicker.

C.42 Financing of rehabilitation projects was approved as follows:

a. NGOs' proposals invited by SADII C

Proposals submitted by UK NGOs to SADII were sent to SEADD and BHC Dhaka for comment. Following positive comments on proposals from SEADD and BHC Dhaka, approval of allocations was granted by Head of Bangladesh Section of SAD II and a standard letter of award was sent to the recipient NGO.

b. Local NGOs -

Proposals made by local NGOs to BHC Dhaka were subject to screening and agreement of SEADD. Allocations were granted under delegated authority by BHC. A standard letter of award was issued to the recipient NGO. In the BHC, project proposals were processed by the First Secretary (Aid) and one Aid Programme Officer.

C.43 Projects were generally approved within about 2 months of submission of the proposal (see Table 1). Proposals submitted in the first quarter of 1992 were approved within a matter of days,

in order that work could start during that dry season and possibly also to ensure that the funds would be disbursed before the end of the financial year.

C.44 Local and foreign NGOs working in Bangladesh and receiving financial support from foreign sources have to obtain clearance from the government's NGO Bureau before they can receive and utilise it. Clearance for the financing of rehabilitation activities often took two or more months. In one case, when money was transferred by ODA into an NGO's account before approval had been received from the NGO Bureau, this caused some problems for the recipient NGO. In another case, the amount approved by ODA was larger than that submitted by an NGO for approval. The NGO Bureau would not sanction the larger amount and the NGO had to revise its programme accordingly.

Projects Financed

C.45 The approach followed by ODA to the identification, design and appraisal of projects resulted in a wide-ranging assortment of projects being approved (see Table 2). A total of 27 NGOs received assistance for 33 rehabilitation projects at a total cost of ,4,592,243 from rehabilitation grants and ,250,859 from reallocated relief grants. In addition, NGOs reallocated ,1.34 million received for relief activities to rehabilitation activities (see Annex B). Thus, the total allocated to relief was ,6.004 million. The main types of projects were the construction of cyclone shelters (49% of total cost), housing (21%), employment-related activities (11%), other activities (8%) and overhead and management charges of the NGOs (11%).

C.46 The ODA financial assistance was often for parts of larger projects being implemented by several NGOs. The percentages of ODA's contribution to UK NGOs' total project costs ranged from 11% to 100% (see Table C.3).

C.47 Two or 3 projects proposals from UK NGOs, including one from a UK consultancy firm and one from a UK research organisation were not approved because of insufficient detail in the proposals and unclear benefits.

C.48 Numerous oral and written requests for approval of rehabilitation projects were made to BHC but most were rejected.

C.49 GoB made two direct requests for financial assistance. The first was for financial support to the government's rehabilitation programme and the second was for agricultural commodities. After some time, ODA informed GoB that ODA's rehabilitation grants were being allocated to NGOs and that the Government could apply to use the commodity aid grant to fund the second request.

C.50 In the event, the ,15 million accelerated commodity aid was not used by GoB. Some steel bridges trusses were purchased to replace bridges used by the Roads and Highways Department after the cyclone, but finance for the bridges came from other commodity aid commitments.

C.51 Of the ,4.35 million available to SAD II, ,3.94 million was disbursed which meant that ,0.41 million was not spent. One reason for this underspending was that SAD II kept some funds in reserve for projects which eventually failed to materialise.

Terms and Conditions of the Grants Approved

C.52 Standard grant approval letters stating the amount, and the terms and conditions of the award were sent to all NGOs receiving rehabilitation funds. NGOs had to submit written acceptance of the terms and conditions prior to the transfer of resources to their accounts by ODA.

C.53 For those letters sent out by SAD II in July 1991, the first paragraph of the Terms and Conditions stated that

"this grant may only be used for the purpose of replacement of items lost or damaged as a result of the disaster and may not be used for the purposes of enhancing or extending your existing programmes".

C.54 For the Award letters sent out by SAD II after August 1991, the first paragraph was changed to

"Funding provided under this grant may only be used for the purposes outlined in your project application and may not be used for the purposes of enhancing or extending your programme".

C.55 The other terms and conditions related (a) to not on-lending the funds received; (b) to explaining the detail required for project accounts; (c) to allowing the National Audit Office and ODA's Internal Auditors access to project books and accounts; (d) to the requirement that final discharge of the grant be dependent on receipt of annual audited statements prepared by an independent firm and accounts showing the ODA grant as a separate item of income; (e) to the amount of the advance payment which would be paid on acceptance of ODA's Terms and Conditions; (f) to the 'project completion date' by which time all funds received under the ODA grant had to be disbursed; (g) to the requirements of the final project completion report; and (h) to unspent funds from the grant.

C.56 An additional paragraph allowing access to the project for ODA monitoring purposes was added to the approval letters sent after August 1991. BHC used the same standard approval letter for projects approved after August 1991. The approval letters for rehabilitation grants issued by BHC before August 1991 did not contain any terms or conditions for receipt of the grants.

C.57 The dates on which the approval letters were sent to the recipients are shown on Table C.1, along with the project completion dates and the amount of the advance. Documentation related to the request and approval of some of the grants was not always available on project files (see Table 1).

IMPLEMENTATION AND MONITORING

Implementation

INTRODUCTION

C.58 In this section, the general approach and methods used by the NGOs to design and implement project components are described and discussed. Specific examples are given where there was significant variation from these general methods. As the appraisal of projects was extremely limited, a number of issues which were not addressed during the appraisal stage are also discussed in this section. The Evaluation Mission visited the field projects of 7 NGOs (accounting for 43% of ODA funds) and met with the staff of another 8 NGOs in Dhaka (see Annex F).

C.59 The rate of implementation of the different projects has been very variable, as shown in Table C.1. By February 1993, all the housing projects and construction of 9 out of the 51 shelters had also been completed. Another 29 shelters were due for completion in mid-1993. Construction of 13 had not started but was planned to start in November 1993 with completion by mid-1994.

PROJECT COSTS AND DISBURSEMENTS

C.60 All but one NGO received 100% advance of its grants. The NGO which was given only partial payment in the first year was given the balance of funds after one year when progress was shown to have been made. Out of the ,4,483,102 allocated to NGOs, two projects worth ,696,922 (16% of the funds) have not yet started. In one case, the grants have been placed in an interest-bearing account and the accrued interest will be spent on project activities. No clear instructions are given to NGOs by ODA concerning how or where grant money should be kept until spent.

C.61 Few NGOs have submitted interim or final project accounts, so the adequacy of the resources provided to meet the objectives of respective projects cannot be determined. Of the NGOs which submitted accounts, however, two organisations are likely to overspend significantly if specified targets are to be reached. Conversely, one NGO has completed a project and underspent by about ,8,000. Internal financial management of the different NGOs is very variable and it is often difficult to determine how ODA grants were used, especially when ODA has provided only a small part of a larger programme. Some NGOs have focused on meeting specified targets, without confirming that the finances allow these targets to be met. Other NGOs have not separated relief activities from rehabilitation activities.

C.62 The estimated and revised costs of the shelters are shown in Table C.4. The construction costs and the overhead costs for each shelter are also shown, along with the cost/unit area of shelter available during cyclones and the cost/life saved. The overhead cost was in some cases difficult to determine as NGO staff were often involved in other activities and the amount of time spent on shelters was not always apparent. The increased construction costs for many of the shelters are due to more expensive foundations being required. The cost per unit area of floor space provided is variable and reflects the lower cost of the larger structures.

C.63 The costs of the houses constructed are given in Table C.5. Costs per unit area of houses provided ranged from about ,10 to ,20 per square metre. The difference in cost was mainly due to the materials used for the roof. The NGO Bureau stopped the provision of thatched roofs and would approve only GI sheet as a roofing material.

GEOGRAPHICAL COVERAGE

C.64 The geographical location of the projects funded by ODA grants are given in Table C.6. Most of the projects were located in the worst-affected areas but 6% of funds were assigned to Barisal which was affected by tornados rather than the cyclone.

C.65 The general location of the shelters was discussed in project proposals. The general location of each shelter was subsequently approved by the local administration although the specific site was left to the NGO to negotiate with local communities. Most of the shelters are in rural areas that were severely affected by the 1991 cyclone, although a few shelters are being constructed in Patuakhali and Borguna districts which were less affected by that cyclone.

C.66 The housing projects were also primarily located in the worst-affected coastal areas. In some of the areas selected for housing projects such as Banskhali, Chakari and Moheskhali, almost 100% of the houses were either severely damaged or destroyed during the cyclone.

C.67 Wind damage to housing in the Chittagong Hill Tracts was reportedly quite extensive, but as NGOs are discouraged by the government from working in that area, the opportunities for ODA-financed rehabilitation projects was extremely limited and only one small grant was made towards the repair of housing at a hospital in Chandrighona.

C.68 The NGOs generally selected the areas for their housing programmes on the basis of their own sets of objectives. However, there was two cases where the government made specific requests about where NGOs should supply houses. One NGO was directed to supply housing to an area where it had no experience of working and encountered serious problems when allocating the houses. Another NGO was requested by government to provide housing to a remote area that had received little assistance for housing rehabilitation from other sources.

DESIGN AND CONSTRUCTION OF PROJECT COMPONENTS

a. Shelters

C.69 Although GoB's NGO Bureau has indicated that the Red Crescent design is the only acceptable one for shelters constructed by NGOs, five different designs are being used for the shelters being constructed (see Table C.7). Dimensions of the shelters constructed by Public Works Department in the 1970s are given for comparison. Only 2 out of the 8 NGOs constructing shelters submitted design details with their proposals. All the shelters were designed with reinforced concrete floors supported on reinforced concrete columns. Some of the shelters also had reinforced concrete walls, while others had brick walls. Doors and window frames were made of timber.

C.70 The ground conditions in coastal areas tend to be very variable and the deep sedimentary soils often have low bearing capacities. Shelters are heavy buildings and the foundations have to be designed on the basis of soil investigations carried out on each specific site. The foundations required can vary from pad footings to piles, depending on specific ground conditions, and the cost of a shelter can be increased by about ,10,000 if piled foundations are required. Few of the NGOs made provision for the uncertainty in cost of foundations. One NGO requested and received additional ODA assistance to cover such an increased cost.

C.71 The NGOs generally selected the design consultants by direct appointment rather than by

tendering. Specialist firms were employed separately to investigate soil conditions and recommend suitable foundations.

C.72 None of the NGOs, in their proposals, explained how the proposed shelters would be constructed. Quality control is the key management requirement for construction in the remote coastal areas in which the shelters are located. For example, the surface waters or shallow groundwaters which are readily available are usually too saline to use for concrete. At most sites, prior to construction, a deep tubewell had to be installed to several hundred meters to obtain suitable water. The tubewell could be used subsequently by those using the shelter. Similarly, to meet the required specification, sand and gravel had to be purchased and transported by ship from Dhaka, while reinforced concrete and cement was purchased and transported by ship from Chittagong. Transport of materials to site was a major cost, as often there were no roads or vehicles and materials had to be hand-carried or head-loaded from the nearest landing stage to the site over distances of up to a mile. Furthermore, some contractors experienced difficulties in finding shippers willing to transport materials to the more remote offshore islands because of potential security problems. NGOs generally employed consulting engineers to supervise the construction and control the quality of work. All the consultants sampled and tested materials delivered to site. In addition, concrete cubes were taken and sent for testing in Dhaka. The records of the testing carried out were not always clear but, generally, the quality of materials and workmanship was satisfactory.

C.73 With one exception, NGOs arranged for shelters to be constructed by contractors supervised by consulting engineers. The contractors are responsible for procuring materials and delivering them to site, and managing the construction of the shelter, including the supply and organisation of skilled and unskilled labour. The consultants are responsible for checking that the design, and materials used meet specifications, that the building is constructed to specification and design and that the quality of the completed work is satisfactory. Contractors are paid as they complete different stages of the work. Some contractors have been paid for materials delivered to site. Some contractors are paid in the upazila where the shelter is being constructed while others receive payments in Dhaka. The one NGO which adopted a different approach used its own Construction Management Unit for purchasing and delivering construction materials to site and the contractor supplied only the labour for the construction work. An external consultant was employed to check the quality of the work.

b. Houses

C.74 The floor area and construction materials used in the different housing projects varied considerably (see Table C.8). The NGOs did not address the technical issues related to houses, particularly the structural requirements for houses and requirements for using GI sheet, in a cyclone-prone environment.

C.75 In most cases, the recipients for housing projects were selected by interaction between the NGO and the community. NGO staff carried out a needs assessment survey of potential beneficiaries and checked the results with local officials and elected representatives (particularly the union or upazila chairman) before preparing a final list of recipients. The characteristics of Bangladesh rural society, where extended families are a feature, makes this method of identifying and selecting beneficiaries a difficult task, especially after a disaster when many people are not living in their own homes.

C.76 All NGOs gave the houses as grants to the recipients. As none of the NGOs had other development programmes in the affected areas, there was no option but to give the houses as grants as alternatives would have meant a longer-term commitment to the area.

C.77 The proposals submitted by NGOs did not contain details of how the materials used for house construction would be purchased or how the houses would be constructed. As with shelter construction, supervision of construction and quality control are very important because of the remoteness of some of the locations. Some NGOs used their own staff to purchase materials and organise labour to construct the houses, while other NGOs paid contractors to supply materials and construct the houses. One NGO whose staff purchased construction materials initially had problems with the quality of materials delivered to site. The NGO managed, however, to revise its purchasing system and the materials subsequently delivered were of an acceptable quality. Skilled labour was usually brought in from Chittagong or Dhaka.

C.78 In one case, the NGO Bureau insisted that an NGO use contractors to construct its houses and the contractor's price was about 20% less than the price paid for direct construction by the NGO. The community involvement in house construction was being promoted by the NGO as a way to improve community cohesion and by using contractors this aspect of community development became impossible. The NGO did, however, manage to construct 20% more houses with the funds saved. In general, construction of housing was delayed by a number of factors, including the slow approval of housing projects by the NGO Bureau and the very heavy rains experienced throughout the monsoon period.

Other Activities and Issues

C.79 One NGO passed the responsibility for school rehabilitation on to the school committee which selected and awarded the contract and supervised construction. Staff of the NGO checked the standards of construction and generally assisted the school committee with overall design and management of construction activities. This approach seems to have worked well, the standard of construction being reasonable. As with the houses, the rehabilitated schools were not always designed to withstand high winds.

Utilisation of Project Facilities

C.80 The proposed non-emergency uses for the completed shelters range from the accommodation of secondary schools and colleges to health centres and community centres (see Table C.9). Some NGOs are developing community activities whilst the shelter is being constructed. No NGO has involved local communities in all aspects of the planning and design of proposed shelters. As most shelters are still in various stages of construction or have just recently been completed, NGO plans for using the completed buildings are at a formative stage.

Other Activities

C.81 Other development activities being undertaken by different NGOs, and shown in Table C.10, are in various stages of implementation. The societies in many of the remote locations are very conservative, which has created problems for several of the NGOs, but those affected seem to be sensitive to the situation and have found pragmatic solutions to overcome the problems. For example, one NGO had severe difficulties when it introduced an income generation scheme for women. To overcome the problems, the NGO found funds to rehabilitate a mosque as a shelter and the scheme was able to continue. Many of the schemes for income regeneration have been completed.

MONITORING

Project Management

C.82 The extent of NGO monitoring of their own projects was variable but reporting by NGOs to ODA has been minimal (see Table C.1). No major organisation has submitted the Completion Report requested in Section (f) or (g) of the Letter of Approval. Some NGOs have evaluated their own programmes (for example, CONCERN 1992, World Vision 1992). ODA paid for the evaluation of World Vision's project as part of its rehabilitation grant to that NGO.

C.83 Many NGOs monitored their own activities and adjusted their activities accordingly. For example, one NGO found that the size of the houses it had constructed under the first phase of its programme was unpopular because it was considered too small. The size selected was based on the NGO's experience of house construction in urban areas but people in rural areas tend to live in larger houses. The NGO constructed larger houses in a subsequent phase. The structural integrity of the houses constructed in the second phase was also improved.

ODA Monitoring

C.84 ODA monitoring of the rehabilitation projects was discussed by the various parties involved in project approval and, even though some of the appraisal comments indicated that close monitoring was needed, the overall approach was that the physical monitoring of projects by ODA should be kept to a minimum as support to these projects was intended to be largely a 'hands-off' exercise.

C.85 Responsibility for monitoring all the rehabilitation projects was assigned to BHC Dhaka with support from SEADD advisers 'when available and as required'. SAD II suggested that BHC Dhaka institute a 'spot-check' monitoring system. Even though BHC was meant to be responsible for monitoring all projects, SAD II allocated additional funds to projects, apparently without looking into issues raised in the monitoring reports received or requesting information from BHC on the progress of those projects for which additional assistance had been requested.

IMPACT OF REHABILITATION PROJECTS

Introduction

C.86 Some of the projects, particularly the shelters for which most of the grants have been allocated, are still being implemented and therefore this analysis is based on an assessment of the activities that had been undertaken by mid-February 1993 when the Evaluation Mission visited Bangladesh. At that time, only 9 shelters had been constructed and the remaining 42 were in various stages of planning, design and construction. The housing projects were complete but some of the employment rehabilitation projects and other activities were still being implemented. The lack of monitoring has contributed to the delays in completing the shelter construction projects. Some of the problems encountered by NGOs during implementation could have been averted by monitoring missions or routine monitoring by ODA.

C.87 Most of the ODA funds have been used for long-term rather than short-term rehabilitation projects. Many housing projects which had the potential for being implemented within months after the disaster, were delayed for a number of reasons including heavy rains throughout the monsoon and delays in approval of projects by ODA and the NGO Bureau.

C.88 The Government did not make use of the rescheduled commodity aid grant, and therefore the grant made no impact or contribution to the rehabilitation phase.

Impact of Shelters

General

C.89 The NGOs have generally been successful in implementing their shelter construction programmes and related activities and they have managed to overcome many of the problems of constructing such buildings in remote locations. In contrast, implementation of the EC-funded Primary Schools-cum-Cyclone Shelter Project has been slower, and construction of the first batch of shelters was scheduled to start in March 1993.

C.90 The shelters constructed which will contribute to saving lives in the local communities, and the contribution of the security offered by shelters makes to those communities devastated by the 1991 cyclone should not be underestimated. Shelters provide a significant resource for the communities fortunate enough to receive one. During the cyclone warning in November 1992, people living in the coastal areas responded to the warnings of the approaching cyclone and many moved to the new shelters. Where shelters were either not available or oversubscribed, people moved to higher land away from the sea.

C.91 The provision of multipurpose shelters only partially addresses the problems of living in exposed coastal areas. The people are vulnerable to disasters because of their poverty and lack of resources. The more wealthy have the resources to reduce the effects of disasters and to recover more rapidly after disasters. Indeed, one consequence of shelter provision may be that as more people will survive the cyclone there will be an increased demand for relief following the event.

C.92 For several decades, cyclone shelters have been provided as refuges for people who are vulnerable to the storm surges that occur in the Bay of Bengal. The impact of previous shelter construction programmes has often been less than expected, and a number of lessons have been learned about what is required to optimise the use of shelters both in times of disaster and in normal times. Unfortunately, NGOs which received ODA financial assistance to construct

cyclone shelters have not always considered fully the following issues which may jeopardise the success of their efforts.

Planning Issues

C.93 Planning of shelters should be based on a number of factors including the resources available in nearby communities, access to shelters when water levels are starting to rise, the distance from communities served by the shelter and the operational and maintenance requirements of the shelters. Some NGOs, because they have had other agendas for constructing cyclone shelters, have not always considered fully these siting issues. This is unfortunate as in most rural communities the shelter is by far the largest public investment. The factors which may undermine the subsequent efforts by the NGO to develop community activities based on their shelter include the following:

- some have been located simply on the basis of where land is available, without fully considering the factors that will affect the building's performance and its usefulness to local communities;

- even though the siting of a particular shelter has been cleared by the local administration, few NGOs have considered alternative resources in the surrounding communities, including existing and proposed buildings which could be used as shelters. Kutubdia and parts of Moheshkhali seem to be particularly oversubscribed with shelters. NGOs have not considered rehabilitating existing shelters even though they used such buildings as temporary headquarters for their relief activities after the cyclone.

C.94 The potential problems of inadequate planning can be seen on an adjacent shelter construction project, where a newly constructed shelter was reported to have already been taken over by the local elite for their own personal use, including storage of their cattle. In contrast, during the November 1992 cyclone warning at another location, the staff of an NGO tried to keep one area of the shelter for themselves, but the demand from the local people for space in the shelter was such that the staff had to give over their room and move to another refuge nearby.

C.95 In addition to providing shelters, loss of life (and property) can be reduced significantly by constructing coastal embankments, subsidizing the construction of shelter quality private housing, afforestation and investment in transportation facilities (such as roads, jetties etc) to facilitate the movement of people during storm surges. It may have been a missed opportunity to broaden the impact of its contribution that ODA did not contribute to the longer term planning and development of the coastal areas. In the short-term however, construction of shelters may be the most straightforward intervention for both the government and ODA.

Design issues

C.96 Sound building design requires detailed analysis of all proposed uses so that the building will function adequately for all subsequent users. As the number of uses increases, building design becomes more complex. The sustainability of cyclone shelters and their effectiveness during infrequent emergencies will depend on the effectiveness of their normal-time use. Thus

shelters should be designed for their primary use (and modified for use as shelters when required). All the proposed shelters are intended for either dual or multiple use but only seven of 51 shelters being constructed have been designed principally for other intended uses (see Table C.9)

C.97 Many of the buildings have redundant design features. For example, the 'arrow shape' of the Red Crescent design or the 'eye-shape' of the BRAC design have no particular advantages as winds can come from any direction, and not only from the seaward side as the designs assume. Other design problems include some shelters where standard designs have not been modified for local conditions. For example, the height of the first floor above ground level has not always been adjusted to be above the probable peak storm surge water level.

Construction issues

C.98 Apart from BRAC, the NGOs have limited experience of managing construction of buildings in remote places where strict site supervision and quality control are essential. Several of the NGOs have encountered problems with contractors which should have been anticipated. BRAC is the only NGO with a construction management cell that has an established way of working and this is reflected in the speed with which their shelters have been constructed and the quality of the finished buildings. In the BRAC schemes, the responsibilities of the various parties involved in construction were clearly defined, payments made promptly to contractors and an independent system of quality control established. One NGO had problems with its contractor at the beginning of their programme but learnt from its mistakes and modified its working practices accordingly.

Economic and social issues

C.99 The question of the sustainability of the completed shelters does not seem to have been addressed adequately. One of the main problems with shelters constructed in the past has been the lack of clear responsibility and the availability of resources for operating and maintaining the shelters. This has led to some shelters being abandoned or taken over by private individuals for their own use. Already some shelters constructed by other NGOs are controlled for the local elite's benefit.

C.100 Estimated annual maintenance costs of shelters ranges from 0.5 to 1.5% of the construction costs (BUET/BIDS 1993). This means that the annual maintenance budget will be about ,250 to ,750 (Tk 12,500 to Tk 37,500). The maintenance requirement is significant given that teachers are paid about ,30 (Tk 1500) per month. Many of the NGOs consider that there will be no maintenance costs during the first few years after shelter construction which will clearly not be the case. To assume that government has the resources to maintain shelters effectively is also probably erroneous.

C.101 All NGOs propose to retain ownership of the shelters constructed but they need to make provision for the long-term financing of maintenance. Donation of land was taken as evidence of a community's demand for a shelter, but those who really need a shelter may lack the resources or influence to provide the land required.

C.102 The principal aim of cyclone shelters is to save lives. As a monetary value cannot easily be put on a life saved, cost benefit analysis cannot be used. To overcome this problem, the Multipurpose Cyclone Shelter Project estimated cost-effectiveness ratios (the average government expenditure per life prolonged) in economic prices for multipurpose cyclone shelters and alternative ways of reducing mortality in Bangladesh (BUET/BIDS 1993). The benefits of the alternative uses of shelters (eg schools) were taken into account.

C.103 The estimated cost effectiveness (C/E) ratios indicate that, in economic terms, cyclone shelters are not the best life-saving interventions, as follows:

Programme C/E Ratio

Expanded Programme on Immunization (EPI) 37

Safe drinking water-deep tubewells 222

Treatment of Jaundice 491

Construction of Multipurpose Cyclone Shelters 977

Treatment of Tuberculosis 1474

C.104 In the aftermath of the cyclone, however, when so many people were killed in a twelve hour period, investment in cyclone shelters was justifiable as a means of providing security for the survivors and allowing them to rebuild their lives without fear of being swept away by a subsequent storm surge. The economic benefits of providing such security cannot be quantified.

Impact of housing

General

C.105 As with the cyclone shelters, the provision of houses was beneficial to those who were lucky enough to receive one. Those who were left out were often understandably bitter about having to provide a replacement house from their own resources. Provision of housing is an extremely difficult intervention as it potentially involves the transfer of a significant resource to the recipient. As traditional houses are often not too robust or durable, there is always the problem of deciding the type and standard of house to be provided. Funds are usually limited so replacing all houses to the optimum standard is not usually an option, and compromises have to be made about the quality, location and distribution of the housing provided. These questions about housing were raised with respect to ODA's rehabilitation support after the 1987 & 1988 floods (RDI 1990) but it seems that many of the same mistakes have been repeated.

Technical issues

C.106 The floor area of the smaller houses was unpopular in several rural areas because it was based on what was acceptable in urban areas but was considered to be too small for rural areas.

C.107 The NGOs did not address the design requirements for houses located in cyclone-prone areas. CI sheet was provided for roofs to give a more durable material and thus relieve the recipient of having to replace a thatched roof within a short period of time. The requirements for fixing CI sheet securely in areas prone to high winds were not considered, especially where CI sheet was provided without materials for the roof truss (Palmer Jones and Rutherford 1992). CI sheet can be lethal during high winds if it is not properly attached to a strong roof truss. For those houses where trusses were provided, lateral bracing for the support frame was not provided.

Social issues

C.108 The social issues arising from the provision of housing are the significant asset transfer that is taking place and the inevitable problems of selecting recipients, given the large demand for improved housing. Neither of these issues was adequately addressed by the NGOs. The asset transfer can raise expectations about the form of relief that will be available after future disasters and increase the poor's dependency. Some of the NGOs actively discouraged distress sales of housing materials but this may be a flawed policy if individuals are to be allowed to make their own decisions about how best to use their own assets.

C.109 Most of the houses provided were significantly better than the houses recipients owned before the disaster. As with shelters, improving the housing stock can contribute to the well-being and security of communities and allow survivors to concentrate on rehabilitating other parts of their lives. Recipients, however, were clearly made 'better off' in some respects than they were before the cyclone, contrary to the rehabilitation grants' objective.

C.110 The houses constructed were targeted towards a number of different groups which included: the elderly, female-headed households, those with no income source, and those whose houses had been completely destroyed. Some NGOs were rather vague about the intended beneficiaries but all tried to screen the recipients. Unfortunately, there were cases where those most in need had taken shelter materials (tents or plastic sheet) as relief soon after the cyclone. Replacement housing programmes did not start until several months later and, because they had already received housing materials some of the most needy were not selected.

C.111 Those people who received only CI sheet roofing materials and a grant towards construction costs usually had to find significant additional cash to construct sound houses. Most recipients could not use the materials to construct sound structures by themselves.

C.112 Most NGOs actively discouraged recipients from selling the housing materials. Pressure not to sell housing materials may mean that the poorest and perhaps who are those most likely to sell did not receive housing materials.

C.113 Several NGOs and the government discouraged giving houses to those who had already received any form of housing assistance. As the poorest would have least materials to salvage from their old house, they were the people most likely to need relief housing materials. However, by accepting such materials they were excluded from more durable houses and left with tarpaulins and tents which rotted after about one year.

C.114 Most of the NGOs gave ownership of the new houses to the head of the household, whether male or female. However, one NGO proposed to give ownership to the senior woman of

the household to increase the woman's security and reduce the potential for divorce. After some initial resistance, the proposal was accepted by the recipients.

C.115 The provision of relatively expensive houses in some locations caused problems for those NGOs which were providing lower cost houses at other locations, as the people receiving the lower cost houses would question why they could not receive the more expensive ones and accuse the NGO of diverting rehabilitation funds away from their area. This tended to happen on Kutubdia where very few higher cost houses were provided whereas in the adjacent upazilas of Chakaria, Banskhali and Moheskhali, whole communities were provided with more expensive houses, some by NGOs through ODA projects.

IMPACT OF OTHER ACTIVITIES

Occupation rehabilitation

C.116 About 11% of ODA allocations were used for occupational rehabilitation projects of NGOs which were either working in affected areas before the cyclone (for example DWIP and SEBA) or which had a sound record of implementing employment generating activities elsewhere (BRAC). It is difficult to assess the impact of these schemes so long after the event but many survivors cited lack of employment as the key factor which had delayed their own personal recovery in the months after the disaster, even in the upazilas served by the ODA projects. In some areas, the shortage of employment caused local populations to be undernourished in the months between the end of the relief phase and the end of the year, when the *aman* rice crop was harvested and the large-scale food-for-work projects in the 1991/92 dry season began (see Annex D).

C.117 The WFP Food-For-Work (FFW) Schemes to repair parts of the coastal embankment by constructing temporary 'dwarf' embankments to prevent salt water flooding paddy fields during monsoon storms played a significant part in helping communities to restart their economies. The schemes were substantially financed by EC Food Aid (see para C.1). WFP provided 34,590 metric tons of wheat for the schemes which were implemented by BWDB. Tools such as hoes and baskets were also provided as many of the workers lost their own implements during the cyclone. The schemes provided about 5.9 million workdays of employment over the period from mid-May to the end of August. About 123,000 ha was provided with temporary protection which resulted in 170,000 tons of *aman* cultivation. In addition, 14,692 ha of land used for salt production and 2,000 ha of land used for shrimp cultivation were protected.

C.118 The schemes provided employment when little else was available. Fortunately, in 1991, the monsoon storms were not particularly severe and the embankments served their purpose, even though construction standards were poor because of monsoon rains. In Bangladesh, embankments are constructed only in the dry season, and the WFP proposal was unprecedented. An independent evaluation of the FFW schemes concluded that without these, 'neither the Government's rehabilitation programme nor the efforts of local farmers could have met with much success'. The *aman* harvest after the monsoon was very good, and aided economic recovery in many areas.

C.119 Livestock is the main economic asset of many households, and the devastation of livestock during the disaster was a serious loss for many families. There were only a few

rehabilitation programmes for the replacement of livestock. BRAC is successfully implementing a poultry programme. The IFAD/EC Livestock Services Project, which involves providing small livestock (sheep and goats) and cattle to the poorest households is also proceeding well.

School rehabilitation

C.120 Other activities undertaken were rehabilitation of general infrastructure, including the rehabilitation of schools, for which there was a clear need as about 7,000 school buildings were damaged or destroyed. As with the houses, use of CI sheet as a construction material did not take into account the high winds that can occur in the coastal areas. Support to schools may not benefit the poorest who cannot usually afford to attend.

Institutional issues

C.121 ODA rehabilitation funds were only channelled through NGOs, even though NGOs did not have a strong presence in the affected areas. The result has been that, even though the purpose of the grants was not to enhance or expand NGOs' programmes, several NGOs did use the opportunity either to increase their activities or to establish their programmes in new locations. This may be a positive factor as there is considerable poverty in remote coastal areas and NGOs may stimulate economic activity to the advantage of the poor, as they have done successfully elsewhere in Bangladesh.

C.122 Several NGOs proposed rehabilitation activities of which they had limited experience. Both multipurpose shelters and housing projects require careful management and sound quality control. Both factors can place great strain on project staff. Most of the NGOs have been able to adjust their management systems and overcome the problems with some delays resulting in the progress of implementation. Periodic monitoring, however, of the projects by suitably qualified ODA staff could have assisted some of the NGOs in overcoming their problems more quickly.

C.123 The NGOs' overhead costs for implementing their projects averaged about 9% of the total cost, with a range of 7-15% for housing projects and 5-18% for the shelters. For comparison, the estimated overhead cost in the EC's Primary School-cum-Cyclone Shelter Project is 22%. The figures of overhead costs should be treated cautiously as NGOs allocate their management costs differently, but it would appear that NGOs' overhead costs are reasonable.

C.124 Coordination by NGOs of their rehabilitation activities also seems to have been reasonable. NGOs working in the same area were aware of each other's activities, although they generally distanced themselves from each other because of their different methods of working and different overall agendas. Although not prominent in rehabilitation, ADAB organised some meetings to discuss it. After one such meeting, one NGO changed its proposed rehabilitation activities.

C.125 Only two of the NGOs implementing rehabilitation projects directly were UK-based. Three other UK-based NGOs gave their grants to local NGOs to implement the projects. Both the UK-based NGOs implementing projects have undertaken evaluations of them, which many of the local NGOs have not done. There were no discernable differences between the performance of

UK-based and local NGOs.

ANNEX D

HEALTH AND NUTRITION

INTRODUCTION

D.1 This annex reviews the impact of the cyclone on health and nutrition, and sets out the lessons learned.

IMPACT ON HEALTH

Post-cyclone morbidities

D.2 The major morbidities observed after the cyclone consisted of casualties; diarrhoeal diseases; other medical/psychological problems, such as acute respiratory infections, fever due to undetermined causes, breast engorgement, breast abscess, and psychological trauma; nutritional problems, including undernutrition and micro-nutrient deficiencies.

Casualties

D.3 The casualties that were observed following the cyclone could be divided into three major types: minor cuts, wounds and bruises; extensive cut injuries; injuries requiring reconstructive surgery.

D.4 The absolute number of casualties in the cyclone was far less than might have been expected following an event of this magnitude, although it was found following the 1970 cyclone also, that the casualties were so few as not to need extensive surgical care (Sommer and Mosely, nd). In 1991 the total number of injured persons was reported to be 138,849, maximum numbers being in the district of Cox's Bazar (133,500) and Chittagong (2,600). About 75% of these casualties were minor, about 20% had more extensive injuries and the remaining 5% required reconstructive surgery. The largest number of people reporting for treatment did so during the first five days following the cyclone and comprised about 40-50% of all cases reporting to medical camps (Venire, 1992).

D.5 **Minor cuts, wounds and bruises** included injuries used by corrugated iron sheets used as roofing material for the houses. When dislodged by the cyclone storm, these sheets inflicted sharp cut injuries on impact with the victim, the extent varying from small cuts to more extensive wounds. Lacerated wounds, bruises and abrasions were caused by impact with such obstacles as trees and housing structures, when victims were swept off by the tidal surges. Most of these injuries required simple first aid management.

D.6 **Extensive cut injuries** were caused mostly by flying corrugated iron roofing sheets. The

injuries consisted of sharp cut wounds, more often sustained on the extremities and causing bleeding. The number of victims who sustained such injuries was greater in the areas where CI sheets were used more extensively as a roofing material. In Kutubdia, for example, with a population of about 80,000, where most houses had thatched roofs, the number of such injuries was estimated by physicians working in the area as around 100.

D.7 **Injuries requiring reconstructive surgery** were few, only a few cases of major lacerated wounds, multiple fractures of long bones with accompanying extensive soft tissue injuries, major dislocation of joints, and one case of the loss of a part of the skull bone, were reported.

Diarrhoeal diseases

D.8 Although a larger number of diarrhoeal disease cases than other morbidities were reported the number was less than expected. The proportion of diarrhoeal diseases patients, however, varied from 20% of all cases who reported to the medical teams of one NGO to about 90% for another one (Ministry of Health and Family Welfare, 1992; Venire, 1992). According to government statistics 525,759 cases were reported, about 199,890 cases during the first 3 post-cyclone weeks, in an affected population of about 12 million.

D.9 The two major types of diarrhoeal diseases reported after the cyclone consisted of watery diarrhoea and dysentery. These diseases showed a rising trend from the fourth day following the cyclone (Venire, 1992). As shown in Fig D.1, dysentery was more frequently reported during the first ten days following the cyclone. After that period, the incidence of watery diarrhoea became greater.

D.10 A longitudinal surveillance initiated in June among children under five in affected areas found that the prevalence of diarrhoeal diseases among these children continued to increase until June and decreased thereafter. Initially, dysentery accounted for a large proportion of the cases. From September however, prevalence of this problem decreased sharply (Fig D.2).

D.11 The International Centre for Diarrhoeal Diseases Research, Bangladesh (ICDDR, B) undertook pathological examination of a large number of stool samples from victims of post-cyclone diarrhoeal diseases. Most of the dysentery cases were of shigellosis; vibrio cholera was isolated from rectal swabs of a number of patients having watery diarrhoea, indicating the occurrence of cholera.

D.12 Although the government surveillance system reported a 100-fold or more increase in diarrhoeal incidence in the weeks following the cyclone, the absence of consistent reporting systems for pre-cyclone and post-cyclone periods makes comparison difficult. The presence of a large number of health workers in the cyclone affected area may have resulted in increased reporting of diarrhoeal disease (Benish and Ronsmans, 1992). There were, however, increases in inpatient admission for diarrhoea disease, and hospital records indicated outbreaks of vibrio cholera and shigella dysentery (UNICEF, 1991). Whether transmission of these organisms was increased because of the effects of cyclone in impossible to say. It may be noted that both organisms are endemic in Bangladesh, and cause epidemics in the absence of natural disasters.

Other medical and psychological problems

D.13 Some cases of acute respiratory infections were reported, especially among young children. Most of these were upper respiratory tract infections which responded well to the broad spectrum of antibiotics provided by the relief agencies. Among adults, episodes of high fever were reported, the diagnosis of which were impeded by lack of laboratory investigation facilities. These types of disease, however, are endemic and, even in the post-cyclone period, the slightly increased prevalence did not reach alarming levels. Skin infections, particularly among children, were reported; scabies and infected scabies were commonly seen. Due to a lack of facilities to carry through all the treatment measures for scabies eradication, the disease persisted among a large number of people even two months after the cyclone. With resumption of normal living patterns and regular functioning of health care centres, the prevalence gradually decreased.

D.14 The cyclone caused the death of a large number of young children, many of whom were being breastfed. The loss of these children resulted in breast engorgement of their mothers. At about the same time, cases of breast abscess among such women were also reported, presumably related to the engorgement. In one centre of Kutubdia alone, 21 abscesses were drained between June-August 1991. The cyclone also resulted in a few miscarriages among women in the last trimester of pregnancy, probably due to the physical and psychological stress experienced. None of these cases appears to have been reported to a health centre. The magnitude of the problem, however, never reached the level of being a public health concern.

D.15 In the absence of any adequate effort to determine the nature and extent of psychological traumas among the affected population, it is difficult to assess the situation. Few cases of post-traumatic shock and emotional disturbances have been reported by survivors. In general, however, the population seemed to have recovered well from the initial shock. The situation of the children who had been orphaned by the cyclone deserve special mention. Only a few of these children have been taken in by local orphanages; most are living with relatives or neighbours. Some have been forced into begging to support their own livelihood, or to find work. The physical as well as emotional stress these children are undergoing is likely to be severe.

IMPACT ON NUTRITION

D.16 Although the large scale food relief distributed immediately after the cyclone averted death due to starvation, limited availability of food during the subsequent months did result in nutritional problems, including undernutrition and micronutrient deficiencies, including deficiency of vitamins A, C and B complex.

Undernutrition

D.17 Although there was no apparent increase in the prevalence of undernutrition among the affected children during the first few months following the cyclone, subsequent surveys showed a considerable increase (Fig D.3). Nutritional surveillance carried out on children under five in the affected areas shows that although in general the prevalence of severe malnutrition actually decreased during the first five months following the cyclone, it increased thereafter, and by December about one-fifth of the children had MUAC (Mean Upper Arm Circumference) of less

than 125 mm (which indicates severe undernutrition). The mean MUAC showed a similar trend, decreasing from about 135 mm in October to 133 mm in December. Spatial variations were present. In all upazilas except Kutubdia, the mean MUAC was below the cut-off point for moderate undernutrition - ie 135 mm. This may be an indication that the situation was under control in Kutubdia, which was a major recipient of relief and food aid. Nutritional surveillance programme data of October for disaster prone areas of the country, other than the cyclone-affected areas, showed undernutrition to be prevalent among 10% of children under five in those areas.

D.18 The Evaluators did not find any evidence of widespread undernutrition during the visit to some of the affected areas in February 1993, due, possibly, to improvements in household economic status resulting from a resumption of normal livelihood patterns. Household food security has been identified to be the major determinant of child nutritional status. The major determinant of household security, in turn, has been identified to be the household's socio-economic status, either from agricultural production or other income generation activities (Helen Keller International, 1991).

D.19 Prevalence of night blindness, which indicates mild vitamin A deficiency, remained low in the affected areas up to December 1991 (Helen Keller International, 1991). Except in Kutubdia and Sandwip, where about 20% of the children had been brought under coverage of vitamin A capsule (VAC) distribution before the cyclone, and in Hatiya (about 80%), the coverage in other affected areas was virtually nil. Intensive VAC distribution was carried out following the cyclone, resulting in an increase in coverage to about 20% in all areas. Spatial variations, however, were apparent (1.8% in Chakaria and 33.1% in Moheshkhali).

D.20 Signs of other vitamin deficiencies (eg angular stomatitis, cheilosis, bleeding gums) were reported from a few isolated areas. These resulted mostly from lack of vegetables in the diet. Following the winter harvest of vegetables that year, these manifestations of the vitamin deficiencies subsided.

POST-CYCLONE MEDICAL INTERVENTIONS

D.21 This section describes the activities of ODA-financed organisations related to health.

Service delivery strategies

D.22 Medical care was provided through house to house visits by health teams, by setting up camps, and through the pre-existing health service (upazila health complexes, family welfare centres). It is estimated, from interviews with members of various medical teams, that about 40% of the services were rendered through home visits. In almost all areas, these modes of service delivery complemented each other, and resulted in almost complete coverage of the population. In some of the areas, the medical team of the US Task Force operated, mostly providing surgical management to more complicated injuries, as well as treatment of health problems. In a few cases, referral to tertiary medical care centres, most often the Chittagong Medical College Hospital, or the Christian Mission Hospital in Chandraghona, was also carried out.

Major medical interventions

D.23 The major medical interventions carried out by organisations which had received ODA financial assistance consisted of: management of casualties, management of diarrhoea, management of other morbidities, and health education.

D.24 **Management of casualties** involved first aid treatment for minor injuries and surgical management for more extensive injuries. First aid was dispensed through home visits and static centres, surgical management was carried out in static centres only, and more complicated cases were referred to hospital. In the absence of effective communication and the overall weakness of the referral system, the effectiveness of such referrals should be questioned. The role of the medical team of the US Task Force in managing some of the complicated cases was appreciated.

D.25 **Management of diarrhoea** consisted of oral rehydration therapy (ORT) for compensating water and electrolyte loss, and specific drug treatment for dysentery. Some organisations distributed ORS as part of the family relief package, while others distributed it during home visits/treatment at centres. There seemed to be a high level of knowledge regarding preparation and use of ORS among the affected people even before the cyclone, which contributed to widely successful use of ORT. However, in view of the smaller than anticipated number of diarrhoeal cases found, there was a low utilisation of ORS and IV fluids. Five to ten day courses of metronidazole, cotrimoxazole, and other antibiotics were also dispensed, based upon the complaint of the victim, with adequate instructions. In some cases there was no consistent pattern for prescribing the drugs in relation to the types of diarrhoea - a fact which points to the need for training on diarrhoeal case management. Some severe cases (5-10%) were reportedly given intravenous saline.

D.26 Although adequate numbers of health workers were present, their lack of training and experience in diagnosing the type of diarrhoeal disease, instituting the appropriate strategy for fluid and electrolyte replacement and dispensing the right drug for the particular problem, at first often hindered their effectiveness in managing such cases. Practical orientation by trained physicians of ICDDR, B was helpful. The number of deaths from diarrhoea ranged from an estimated 15-20 in Kutubdia to 100-150 in Sandwip.

D.27 **Management of other morbidities**. Adequate quantities of drugs seem to have been available for treatment of respiratory tract infections and fever. These were dispensed by physicians and accompanied by proper instructions. The need to drain engorged breasts with a breast pump was felt by many physicians but could not be done as no pumps were available. Other means (eg wet nursing of other infants) was not feasible under the existing conditions. Treatment of skin infections, especially scabies, proved to be difficult, due both to an inadequate supply of drugs and inability to maintain the required level of personal hygiene.

D.28 **Health education**. Many of the organisations providing medical aid also gave health education. The health education messages were conveyed through interpersonal communication, either through home visits or through group discussions. Most of these messages concentrated on safe water, sanitation, personal hygiene, use of ORS etc. These sessions were mostly conducted by paramedics; one organisation included separate teams to

disseminate health messages.

Inputs: drugs and personnel

D.29 **Drugs**. The large numbers of drugs available in the immediate post-cyclone period, included antibiotics, analgesics, anti-dysentery, antiseptics, and ORS, most of which were procured from existing stocks of the government, NGOs and others, or from local purchase and imports. The expectation of a diarrhoeal epidemic did lead to the procurement of a large number of ORS sachets, some of them imported, due to scarcity in the local market. For example, 250,000 sachets of ORS were imported from the UK by SCF. In the absence of an initial survey to assess the types and quantities of drugs required, it is possible that procurement exceeded the actual requirement. As mentioned earlier, 0.52 million cases of diarrhoea were reported in government statistics. If each case required, on average, 5 sachets of ORS, the requirement would be 2.5 million packets. In contrast, an estimated 30-35 million ORS sachets were procured for post-cyclone distribution.

D.30 **Personnel**. Large numbers of health personnel were deployed by various organisations in the affected areas. Together with the existing government health workers, they ensured adequate coverage of almost all the affected areas. The approximate number of health teams mobilised by some of the larger NGOs after the cyclone were as follows: BRCS (100 in month 1, reducing to 33 in month 2 and 9 in month 3), CARE (40) and GK (17).

PREVENTATIVE INTERVENTIONS

D.31 Preventative interventions of several kinds were undertaken by organisations with ODA support.

Provision of safe water

D.32 Work was undertaken to restore water supply from the estimated 25% of tubewells that had become inoperative or had suffered saline water intrusion. For the first few days after the cyclone, there was a scarcity of drinking water but most of the tubewells were brought back into operation by pumping out the saline water and others were mended by mechanics. The situation was further eased by DPHE (Department of Public Health Engineering) staff who repaired other tubewells that had been inoperative prior to the cyclone and installed new sets.

D.33 **Water Purifying Tablets (WPT)** were distributed in the erroneous belief that survivors could only obtain pure water by using these tablets. This did not prove to be the case since WPT does not remove salinity from water, and tubewell water is considered to be safe without additional treatment. Moreover, the correct use of these tablets is also difficult in such a situation, since these tablets can purify a specific volume of water, based upon the strength of the tablet. Tablets were distributed in various strengths, (eg for 1,5,10, 20 litres) which was not easily understood by local people.

D.34 **The Dewatering of ponds** was important in providing safe water for household activities

other than drinking. This was recognised early and efforts to dewater ponds were initiated as early as 2 May by Gonoshasthaya Kendra. By mid-May, large scale dewatering was initiated, and by the end of May a sufficient number of ponds were dewatered to provide adequate amounts of safe water for household use for most families. The dewatering carried out by the US Task Force was additional to widespread national efforts. The US Task Force also did some desalinisation, though this had limited impact.

D.35 **Sanitation**. A number of NGOs attempted to improve sanitation following the disaster by burying dead bodies and carcasses; digging pit latrines in the relief camps; installing sanitary latrines; and spraying bleaching powder as a disinfectant on large bodies of stagnant water and debris. Burial of dead bodies and carcasses was an urgent need in which the military and some NGOs (eg Gonoshasthaya Kendra) took the lead. However, while local people were prepared to bury corpses, they were often reluctant to bury carcasses, and these remained a health problem for some time in a number of areas. The digging of pit latrines was important and in some cases, insufficient were dug. Disinfecting with bleaching powder and digging sanitary latrines (which are not used in Bangladesh in normal times) were of doubtful utility and probably not cost-effective.

Other interventions

D.36 **Distribution of Vitamin A capsules**. Immediately prior to the cyclone, the coverage of distribution of vitamin A capsules was very low in almost all the affected regions, except Sandwip and Hatiya. Following the cyclone, when sources of vitamin A in the diet became scarce, distribution of vitamin A capsules was undertaken by several organisations. Among the ODA assisted organisations, SCF (UK) distributed these capsules to all children under ten years living in camps on 18 May in Banshkhali upazila. Efforts by different organisations resulted in an overall increase in coverage. There still remains, however, the need to intensify vitamin A distribution to coastal areas.

D.37 **Measles immunisation**. In view of the crowded living conditions in camps and other temporary shelters, and the damp weather, several organisations, with vaccines provided by the government, took up intensive measles vaccination programmes. SCF (UK) carried out mass immunisation for children aged 6 months - 10 years.

DISCUSSION

D.38 The larger NGOs, which are experienced in responding to disasters, made generally timely and effective medical interventions after the cyclone. The lack of information about the seriousness of the disaster and transport difficulties meant that a few days were lost initially, but within one week medical intervention programmes had been launched in most areas.

The appropriateness of response

D.39 This may be examined from the point of view of assessment, targeting and logistics.

D.40 **Assessment**. An initial, rapid assessment of the situation immediately following the event

is crucial, in order to determine priorities. An evaluation of the response to the 1970 cyclone indicated that there was a risk of overestimating medical and water problems (Sommer and Mosely, nd). This also happened in 1991. Many ORS sachets were distributed but utilisation was low, since the number of diarrhoea cases was less than anticipated. The number of water purifying tablets procured also exceeded requirements, for reasons already mentioned.

D.41 **Breast Milk Substitutes (BMS)** were received by some organisations as donations. Since there was a lack of safe water for preparing children's feeds, and inadequate facilities for cleaning and washing feeding equipment, the use of BMS was potentially dangerous. The organisations receiving these BMS however, as far as the evaluation team was able to assess, distributed it after preparation and targeted lactating or pregnant women.

D.42 **Targeting**. The targeting of beneficiaries for medical aid was, in general, effective since target beneficiaries either approached the service providers for help or were individually identified through house to house visits of medical teams. The only exception to good targeting seems to have occurred for distributing water purifying tablets and ORS sachets, which were included as components in relief packages by a few organisations.

D.43 **Logistics**. Following the initial transport difficulties encountered there were few hospital problems and adequate numbers of health personnel. Some difficulties were encountered in procurement of ORS and bleaching powder which had to be imported.

D.44 A number of pharmaceutical companies in the country produce ORS and it should have been possible, with adequate coordination, to increase their production capacity. It is also possible to produce ORS at local level, as was done by Gonoshasthaya Kendra, which used volunteers to prepare a large number of ORS packets using local materials. The use of indigenous facilities would have avoided the cost of such importing. The necessity of bleaching powder can also be questioned, since the powder is spread indiscriminately over various sites and, in the absence of specific instructions for use, its effectiveness as a disinfectant cannot be relied on. Moreover, the use of bleaching powder as a disinfectant needs to be reviewed, on the basis of available literature and knowledge.

Role of government health infrastructure

D.45 It is estimated that 431 health institutions in 80 upazilas under 15 districts were damaged to varying degrees as a result of the last cyclone, (Ministry of Health and Family Welfare, 1991). Although none of these institutions was totally destroyed, the structural damage and the damage and loss of medical equipment and supplies caused these health facilities to operate far below their operational capacity. This was aggravated by the fact that many of the personnel were also affected by the cyclone, and were themselves in need of help. By mid-May, however, most of the centres had started limited operations and, by July, almost all were working normally. The government health infrastructure played a largely supportive role for implementation of relief activities by other organisations. The physicians and field personnel of the government supported the Bangladesh Armed Forces in medical camps and field hospitals and, to a limited extent, carried out their normal health, family planning and mother and child healthcare activities.

LESSONS LEARNED

D.46 Restoring tubewell water supply after a cyclone disaster is the most important step to averting a large scale outbreak of diarrhoeal diseases.

D.47 Water purification tablets do not have an important role in providing safe water after a cyclone disaster.

D.48 Disinfection with bleaching powder may not be effective.

D.49 Health carers likely to be assigned to post-disaster work need training in the diagnosis of different types of diarrhoeal disease and strategies for treatment (for example, rapid replenishment of water and electrolyte for cases of severe diarrhoea/cholera, instituting intravenous fluid therapy for those in shock).

D.50 There is a need for long-term ongoing surveillance after a cyclone in order to assess the long-term health and nutritional

effects of the events, and to gauge the time required for the status to return to a 'normal' level.

ANNEX E

ITINERARY OF MISSION'S VISIT TO BANGLADESH, FEBRUARY 1993

4-6 Feb Arrive Dhaka

Team Meetings, Dhaka

7 Feb Meeting with AMOD (Steven Chard/Sylvia Islam), British High Commission

Meetings with ADAB, BRAC, OXFAM

8 Feb Meetings with European Commission, CARITAS, CONCERN

Meetings with SCF, CCDB

9 Feb Meetings with UNDP, Ministry of Relief, Gonoshastya Kendra, SEBA, B'desh Nari Progati, Nijera Kori

10 Feb Meetings with CARE, Sylvia Islam, BHC

Reading Files, BHC

11 Feb Meeting with 12 Small Local NGOs at BPHC

Meeting with Sylvia Islam,BHC

Reading Files, BHC

13 Feb Meetings with World Food Programme,

Meeting with Mokammel Hoque, Planning Commission (formerly Zonal Relief Coordinator)

Travel to Cox's Bazar

Meet with Gonoshasthaya Kendra, Christian Aid

Stay Cox's Bazar

14 Feb Travel to Kutubdia

Visit Gonoshasthaya Kendra's field activities

Stay Kutubdia

15 Feb Visit BRAC's field activities

Visit Gonoshasthaya Kendra's field activities

Stay Kutubdia

16 Feb Travel to Banskhali

Visit CONCERN's field activities

Stay Cox's Bazar

17 Feb Team Meeting

Meeting with CCDB

Stay Cox's Bazar

18 Feb Group I Travel to Moheshkhali

Visit CCDB's Field Activities

Stay Cox's Bazar

Group II Travel to Chittagong

Visit JIBON, UCEP, ADAB,Mamata, CARE

19 Feb Group I Meeting with Gonoshasthaya Kendra

Travel to Chittagong

Stay Chittagong

Group II Visit CARE's field activities

Meeting with Nijera Kori

Return Dhaka

20 Feb Group I Return to Dhaka

21 Feb Team Meetings, Dhaka

Meeting with BPHC

22 Feb Meetings with World Vision, Red Crescent, PACT, USAID, FPCO

Meetings with Mokammel Hoque, Planning Commission

Meetings with NGO Bureau, CONCERN, GSS

Phone discussion with World Bank

24 Feb Meetings with Cyclone Protection Project II(Kampsax)

Meetings with Community Development Library

Meeting with Sylvia Islam, BHC

Reading Files, BHC

25 Feb Meetings with BDPC, UNDP

Reading Files, BHC

Team Meeting

26 Feb Reading Files, BHC

Depart Dhaka

ANNEX F

LIST OF PEOPLE CONSULTED

a. ODA LONDON

Richard Manning Under Secretary

Terry Pike Chief Engineering Adviser

John Morris Head, Evaluation Department

Simon Robbins Evaluation Department

Barry Hefferon International Department

Peter Burton IEAD

John Hoy Economics Adviser

b. BRITISH HIGH COMMISSION, DHAKA

Sir Colin Imray High Commissioner

Graham Longdon Military Attache

Steven Chard Head of Aid Management Office

Eomoinn Taylor Deputy Head of Mission

Wayne Evans Second Secretary

Philip Harding Social Development Adviser

Peter Grant Economics Adviser

Rod Mathers Engineering Adviser

Sylvia Islam Programme Officer

c. GOVERNMENT OF BANGLADESH

Mokammel Hoque Member, Planning Commission

Nurul Huda Flood Plan Coordination Organisation

F R Chowdhury Director General, NGO Bureau

Md Aminullah Joint Secretary, Ministry of Relief

Komol Baidoya Upazila Nirbahi Officer, Kutubdia

d. OTHER DONORS AND INTERNATIONAL ORGANISATIONS, BANGLADESH

Paul Hubbard World Bank

Rosalie Fanaley Director, USAID

Herbert Smith Programme Officer, USAID

Steven Robinson Military Attache, USAID

Gaston Eyben Director, World Food Programme

Masood Hyder Adviser, World Food Programme

Wolfgang Fischer Deputy Resident Representative, UNDP

Khondakar A Hafiz Assistant Resident, UNDP

A K Siddique Senior Scientist, ICDDR,B

Mary Roodkwosky Chief Field Operations, UNICEF

Nick Roberts European Commission

e. OTHER ORGANISATIONS IN BANGLADESH

Abdul Ghafur Bangladesh Institute of Development Studies

Md Akram Director Disaster Preparedness, Bangladesh Red Crescent Society

Md Siddiquer Rahman Lead Consultant, UNDP Disaster Management Project

Marijke Wijnoks Technical Advisor, Helen Keller International

Fiona Duby Director, BPHC

Bjarne Mathesen Kampsax/(CPP II)

f. NGOS, BANGLADESH

Rasheeda Chowdhury Director, ADAB

F H Abed Director, BRAC

Saidur Rahman Director, Bangladesh Disaster Preparedness Centre

Sherin Banu Programme Officer, Bangladesh Nari Progati

Nick Ritchie Deputy Director, CARE

Terry Ratigan Adviser, CARE

Abu Md Habubullah Acting Administrator, CARE

Jeffery Periera Director, CARITAS

Susanta Adhikary Director, CCDB

Ramzan Ali CCDB

Alfred Roy Director Programmes, CCDB

Harun Ur-Rashid CDL

Ranjan Karmaker CDL

Paul O'Brien Director, CONCERN

Md Mobin Emergency Coordinator, CONCERN

Parimal Kumar Roy CONCERN

Ali Ahmed Dhaka Ahsania Mission

Md Rafiqul Alam DWIP-US

Quasem Chowdhury Gonoshathaya Kendra

Golam Mostafa Gonoshathaya Kendra

Shandhya Roy Gonoshathaya Kendra

Mahmud Hasan Gonoshajjo Sangstha (GSS)

Md Ekhlasur Rahman FPSTC

Milon Bikash Paul FPSTC

Debashish Roy IVDC

Lorna J Salisbury Das JIBON

Rafique Ahmed President, Mamata

Rafique Ahmed Mamata

Swapen Talukder Mamata

Khushi Kabir Director, Nijera Kori

Mark Goldring Director, OXFAM

Gawher Nayeem Disaster Management Officer, OXFAM

Richard Holloway Director, PACT (Bangladesh)

Kazi Giasuddin Deputy Director, SCF

Md Iman Sharif Director, SEBA

Md Umra SHED

Abul Basher Coordinator, Under Privileged Children Programme

Shoumbu Chowdhury Uttaran

Matiur Rahman Uttaran

Md Obaidul Islam UCEP

Md Yakub Hossain VERC

Simon Munshi World Vision

Sylvester Halder World Vision

g. NGOS, UNITED KINGDOM

Carrie Turk Desk Officer, Action Aid

Peter Rees-Gildea Asia and Pacific Desk, British Red Cross

Cathy Corcoran Head of Projects, CAFOD

George Gelber Policy Unit, CAFOD

Tony Hardiman Head of Cofinancing Section, CAFOD

Steven King Head of Asia/Pacific Section, CAFOD

Sally Austin Disasters Desk, CARE

Julian Hopkins UK National Director, CARE

Alexander Erawar Overseas Director, CARE

Ea Perera Assistant Desk Officer, CARE

Anna Wrench Asia Desk, CARE

Kevan Bundell Project Officer, North India, Bangladesh & Nepal, Christian Aid

Mary Todd ODA Cofinancing Officer, Christian Aid

Radha Wickremasinghe Assistant Project Officer, Christian Aid

Howard Dalzell Head Asia Division, CONCERN

Garry Willis DEC Coordinator, Disasters Emergency Committee

Graeme Jackson Asia Programme Manager, Help the Aged

Cathy Squire Disaster Response Desk, Help the Aged

Diana Crocombe Emergency Officer, OXFAM

Marcus Thompson Director of Emergency Unit, OXFAM

Pramod Unia South Asia Programme Officer, OXFAM

Tony Vaux Coordinator, Emergency Unit, OXFAM

Dierdre Healy Save the Children Fund

Dr John Seaman Policy Unit, Save the Children Fund

Jez Stoner Programme Officer for Asia, Save the Children Fund

Terence Wylie Asia Desk, Salvation Army

Susan Barber Manager of Overseas Division, World Vision

Sue Birchmore Asia and Latin America Programme, World Vision

Justin Byworth Former Bangladesh Projects Officer, World Vision

Richard Forsythe Bangladesh Projects Officer, World Vision

Geoff Thindwa Head of Overseas (Manager), World Vision

h. OTHER ORGANISATIONS, UNITED KINGDOM

Dr Paul Shears Liverpool School of Tropical Medicine

Julian Lob-Levyt London School of Hygiene and Tropical Medicine

Cliff Kemball National Audit Office

J M Pearce Director, National Audit Office

John Burton Overseas Development Institute

ANNEX G

DOCUMENTS CONSULTED

ADAB (Association of Development Agencies in Bangladesh) (1992) The 1991 Apocalypse: Role of NGOs in Emergency Cyclone Relief, ADAB, Dhaka.

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