

DEVELOPMENT OF MODULES FOR
TRAINING ON INTEGRATED APPROACH TO
DISASTER MANAGEMENT AND
REGIONAL/RURAL DEVELOPMENT PLANNING
(PHASE IV)

Volume 1

Report and Summary of Proceedings of
The UNCRD-CIRDAP Workshop on
Development of Modules for Training on
Integrated Approach to Disaster
Management and Regional/Rural Development Planning

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FOREWORD

This report summarises the proceedings and deliberations of the Phase IV of UNCRD-CIRDAP Workshop on Development of Modules for Training on Integrated Approach to Disaster Management and Regional/Rural Development Planning. This workshop signifies the continued joint venture between UNCRD and the Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) in assisting the developing countries of the Asia-Pacific region in their efforts of disaster mitigation and regional development planning. This workshop was arranged in Dhaka, Bangladesh from 7-11 February 1993 and was participated by experts and resource personnel from Bangladesh, India, Indonesia, Malaysia, Nepal, Pakistan, Philippines, Thailand, Sri Lanka and some distinguished scholars from Japan.

The importance and the necessity of tackling the natural hazards technologically and otherwise through proper planning and management need not be over emphasized. With the increasing frequency and severity of disasters in the Asia-Pacific region there are widespread deteriorating socio-economic consequences. Tremendous amount of resources are diverted from the development programme and spent in post-disaster relief and rehabilitation activities by the developing countries. As a result, the economic growth and social welfare programmes are drastically slowed down. Therefore, there is an urgent need for evolving and formulating appropriate strategies for the mitigation of disasters. In fact disaster management should be an integral part of development planning in the disaster prone countries.

Manpower development and skill improvement through training and education are the most important elements in disaster management and regional/rural development. Preparation of training materials on various aspects of integrated approach to disaster management and regional/rural development planning should basically focus on optimum utilisation of local resources and development potential taking full consideration of socio-economic conditions of vast majority of poor farmers and landless labourers on one hand, and safeguarding vital infrastructures from natural disasters on the other hand.

Developing countries are found to emphasize very much on quick economic growth that will increase per capita gross national product. As a result inadequate attention has been given to disaster mitigation measures. Therefore, the ever increasing

population of the developing countries are exposed more and more to natural hazards. As such the serious disaster problems of the developing countries call for massive actions to combat damage to lives and properties, and environmental degradation. It has often been stressed that the success of disaster management and development programmes requires active community participation for fruitful but cost effective approach in respect of disaster preparedness, disaster fighting, relief and rehabilitation activities. However, the community response has not been as massive and spontaneous as might have been desired. This may be due to the current top down approach that has apparently failed to actively generate awareness and motivate vast mass of common people in disaster mitigation and regional/rural development efforts.

In total 15 papers were presented in 5 sessions followed by elaborate discussions on each paper. The participants also put forward many relevant questions which were answered by the respective authors. Based on the above proceedings the participants gathered in group discussions and came up with a number of valuable suggestions and recommendations which are included in this volume I. These findings, suggestions and recommendations would form the basic elements in the preparation of training modules which will be realized in the form of handbook/manual in due course. In the mean time it is hoped that the disaster prone countries of the Asia-Pacific region would take cognizance of these recommendations and incorporate them into the disaster management and regional/rural development planning process.

UNCRD sincerely acknowledges the tremendous contributions made by the authors, discussants, chairpersons and the participants in making the workshop a success. We express our heartfelt appreciation to the CIRDAP officials for their untiring efforts in arranging and conducting the workshop in the most efficient manner.

We will consider our efforts amply rewarded if this report will generate interest among decision makers, planners, professionals, researchers and community leaders involved in disaster management and regional/rural development planning.

Hideki Kaji
Director UNCRD

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I. INTRODUCTION

BACKGROUND

The Asia-Pacific region has particularly been hit by different natural disasters quite frequently. Most of these natural disasters result from flood, cyclone/typhoon, earthquake, landslide and volcanic eruptions.

Bangladesh is one of the most disaster-prone countries in the world and has been devastated quite regularly by severe monsoon flooding and/or by storm surges generated in the Bay of Bengal due to cyclonic blast of wind. The most recent cyclone in Bangladesh occurred on 29-30 April 1991 and the resulting storm surge of upto 8 metre high overran the off-shore islands and the coastal areas leaving behind a trail of destruction killing about 140,000 people and causing miseries to more than 10 million people. In addition to tremendous human casualties and destruction of properties, there has been severe economic setback due to devastation of Chittagong port and large industrial belt along the coast.

India also suffered from flood, cyclone and drought; there were severe floods and landslides in Thailand; hurricanes, earthquakes and volcanic eruptions in the Philippines caused devastations, and there are many disasters in other countries as well.

Developing countries very much emphasize on quick economic growth and undertake projects that increase per capita income. It has been found that attention given to disaster reduction measures is quite inadequate and with the increase of population they are exposed more and more to natural hazards. In the developing countries the major factors in disaster processes are:

- human vulnerability resulting from poverty and inadequacy
- environmental degradation owing to poor land use and
- rapid population growth, especially among the poor.

The fact remains that the poor are there and seem to increase in number. As the poor people are the potential disaster victims, their conditions need to be improved in order to decrease their vulnerability. Since most of them live in the rural areas, aid

aimed at helping them must be rural-oriented. But a majority of the developing countries have not given enough priority to rural development.

By approaching economic development as an isolated event, the planners have often overlooked the links between disaster, poverty, environment and development.

The serious disaster problems of the developing countries call for, massive actions to combat environmental degradation in order to prevent the disasters from growing even worse. It has often been stressed that the success of disaster management and rural development programmes requires mass participation by people and in some countries voluntary labor has been specifically mentioned as an important form of people's contribution to reduce the cost of disaster preparedness, disaster fighting, relief and rehabilitation activities. The people's response has not been as massive as may have been desired in many of the worst affected areas. This may be due to the current top down approach that has apparently failed to actively motivate vast mass of common people in disaster mitigation and rural development efforts.

Manpower development and skill improvement through education and training are the most important elements in disaster management and rural development. As most of the rural poor in the developing countries have no chance of formal or informal education, training materials and modules should be prepared and training should be imparted recognizing the above facts. Preparation of training materials on various aspects of integrated approach to rural development and disaster management should basically focus on optimum utilization of development potential taking full consideration of socio-economic conditions of vast, majority of poor farmers and landless laborers on one hand and safeguarding the lives, properties and vital infrastructures from natural disasters through disaster preparedness programme and community participation on the other.

Based on the above facts it is considered essential to have an integrated approach to disaster management and regional/rural development planning. But there is serious lack of supporting training materials on such integrated approach stated above. It is, therefore, considered appropriate to arrange some workshops and seminars to develop knowledge base for the preparation of training modules as a programme of the International Decade for Natural Disaster Reduction (IDNDR).

This Project is implemented in several phases. Already one workshop, one seminar and one workshop-cum-seminar have been arranged under phase-I, phase-II and phase-III, respectively. The proceedings and papers of these workshops and seminars have been published and circulated. This has created considerable interest among planners, decision makers, researchers and academicians.

The proposed workshop under phase IV will focus mainly on specific training issues and methodologies which will form the core or the proposed training modules.

OB JECTIVES

The following major objectives will be emphasized under the total project.

1. Explore and gather international experiences on flood and windstorm disaster mitigation through exchange of experiences by arranging workshops and seminars to be participated by national, regional and international experts.

2. Adequate provisions in the development programme through better understanding of disaster and its management utilizing the results of the workshops and the seminars.

3. Adequate provisions in the development planning through better understanding of environmental impacts and its management utilizing the results of the workshops and the seminars.

4. Manpower development with improved conceptual and methodological knowledge on disaster and environmental management f or regional/rural development planning.

5. Assist government and other agencies in developing cost effective strategies and action plans through integrated approach to disaster management and development planning.

6. Develop systematic and efficient institutional mechanism for planning, enforcement of standards, reliable monitoring and more precise evaluation techniques .

7. Develop knowledge base for the preparation of training modules on integrated approach to disaster management and regional/rural development planning.

8. Minimize loss of human lives, bring down damage of properties and infrastructures, and reduce miseries and sufferings through improved disaster management.

II. CONSOLIDATED LIST OF PAPERS AND AUTHORS

Paper 1: Organizing Local Communities in Disseminating Forecasting and Warning; and Managing Evacuation, Disaster Fighting, Relief and Rehabilitation in the Context of Cyclone/Typhoon Disaster

By: Mr. Jose Medina Jr.
Undersecretary
Department of Agrarian Reform
Metro Manila, Philippines

Paper 2: Organizing Local Level Communities and Institutionalizing and Linking Them to Various Tiers of Administration for Disaster Management and Rural Development.

By: Dr. S. Narayan
Deputy Director
Centre on Integrated Rural Development for Asia and the Pacific
(CIRDAP)
Dhaka, Bangladesh

Paper 3: Strengthening of Post-Disaster Rehabilitation and Reconstruction Activities Including Local Level Institutions and Their Roles, Issues and Methodologies

By: Mr. Iqbal Ahmad
Associate Professor
Institute of Business Administration
Dhaka University
Dhaka, Bangladesh

Paper 4: Development of Model for Increasing Family Income of the Small Farmers and Assetless Rural Poor to Lift Them above Poverty Line

By: Mr. Quamrul Islam Siddique
Chief Engineer
Local Government Engineering Department

Ministry of L.G.R.D. & C.
Dhaka, Bangladesh

Paper 5: Achieving Basic Human Needs through Disaster Management and Regional/ Rural Development

By: Mr. Prem Raj Goutam
Kathmandu, Nepal

Paper 6: Planning of Infrastructure Facilities for Integrated Disaster Management, Rural Development and Social Welfare

By: Mr. Kalinga Tudor Silva
Head
Department of Sociology
University of Peradeniya
Peradeniya, Sri Lanka

Paper 7: Education/ Training of Rural Community for Disaster Management and Rural Development.

By: Dr. Salehuddin Ahmed
Programme Officer (Research)
Centre on Integrated Rural Development for Asia and the Pacific
(CIRDAP)
Dhaka, Bangladesh

Paper 8: Development of Academic Curricula for Primary, Secondary and High School Students in the Context of Disaster Management

By: Mr. A.V.S. Reddy
Deputy Director General
National Institute for Rural Development (NIRD)
Hyderabad, India

Paper 9: Training Materials and Methodologies for Continuing Education of

Disaster Management Planners.

By: Dr. Amara Pongsapich
Director
Social Science Research Institute
Chulalongkorn University
Bangkok, Thailand

Paper 10: Training Issues and Methodologies for Integration of Rural Women into the Main Stream of Socio-Economic Life Including Disaster Management

By: Dr. Yulfitra Raharjo
Director
Centre for Population and Manpower Studies
Indonesian Institute of Sciences
Jakarta, Indonesia

Paper 11: Development of Databases, Database Frameworks and Key Indicators for Integrated Disaster Management and Rural Development

By: Dr. Sarwar Jahan
Associate Professor
Department of Urban and Regional Planning
Bangladesh University of Engineering and Technology (BUET)
Dhaka, Bangladesh

Paper 12: Comprehensively Integrated Model for Disaster Management and Regional/Rural Development

By: Mr. Law Kong Fook
Chief Engineer, Hydrology
Department of Irrigation and Drainage
Ministry of Agriculture
Kuala Lumpur
Malaysia

Paper 13: Human and Institutional Development for Disaster Management and Rural Development: Training Issues, Materials and Methodologies

By: Prof. Mian Muhammed Iqbal
Professor
Department of City and Regional Planning
University of Engineering and Technology
Lahore, Pakistan

Paper 14: Procedure to Provide Flood and High Tide Risk Map to Mitigate the Disaster

By: Dr. Yutaka Takahashi
Professor
Department of Civil Engineering
Faculty of Engineering
Shibaura Institute of Technology
Tokyo, Japan

Paper 15: Training Module for Flood Disaster Management and Regional Development by Using Remote Sensing and GIS

By: Dr. Shunji Murai
Professor
Computer Science Division
Asian Institute of Technology (AIT)
Bangkok, Thailand

II. INAUGURAL SESSION

WELCOME STATEMENT

SOMPORN HANPONGPANDH

Director

CIRDAP

Prof. Hidehiko Sazanami. Director UNCRD; Mr. A.T.M. Shaulsul Haque, her of the Planning Commission; Dr. S. Narayan. Deputy Director. CIRDAP; Excellencies; Honourable Guests; Ladies and Gentlemen:

It is my great honour and pleasure to welcome you all to the inaugural session of the UNCRD-CIRDAP Workshop on Development of Modules for Training on Integrated Approach to Disaster Management and Rural Development Planning.

The current workshop is the fourth in its series and emerged as a result of a four-year collaborative effort of UNCRD and CIRDAP. Almost all the countries of the world are known to be vulnerable to both natural and man-made disasters at some time of the year. However, the problems of disasters, especially those of natural disasters, assume great significance in the developing countries of the Asia-Pacific region. This has been due to their frequency and dimensions and the adversity on the economy of the countries affected. The developing countries are not well endowed with enough resources and technologies to combat disasters. Besides, due to the existence of widespread poverty, the people of the developing countries are more vulnerable to natural disasters.

Of such countries, very few are so much subject to the vagaries of weather in the form of natural disasters, like Bangladesh. So we have chosen Bangladesh as the venue of our workshop to highlight the effects of disaster here and study the mitigating efforts. This will help, I believe, in formulating a training module on integrated approaches to disaster management and rural development plannings. We have here experts from 10 different countries in the region including Japan, who have come to share with us their rich experiences in coping with disaster. The exchange of information and techniques among countries of the region will help in evolving training modules which can be commonly shared.

The two workshops and two seminars conducted in Bangladesh during 1990, 1991 and 1992 have provided deep insights into various aspects of disaster management involving community. The workshop being inaugurated today will focus on development of modules for training government functionaries, elected representatives, NGO officials and communities to mitigate suffering from disasters.

Training is an important element in social mobilisation. People at different levels can be involved through proper training in coping with disaster and to organize themselves to mitigate the ill effects of disaster once it has occurred. I am sure that, with so many countries of the Asia-Pacific region who share common threat of natural disasters, taking part in this workshop, new ideas, knowledge and strategies will be generated. I hope they will be developed into practically useful training modules so that the countries of this region may benefit from them.

I am thankful to Prof. Hidehiko Sazanami, Director of UNCRD and his staff for having chosen CIRDAP as their development partner, and for having come so far to jointly conduct this workshop with us. I am also thankful to H. E. Mr. A.M. Zahiruddin Khan, Minister for Planning, Government of Bangladesh, who inspite of his sudden health problem, has kindly allowed us to have Mr. A.T.M. Shamsul Haque, Member of the Planning Commission and former Director of CIRDAP, representing him in the inaugural session of today's workshop. I thank Mr. A.T.M. Shamsul Haque for being with us today. I also thank Dr. S. Narayan, Deputy Director, CIRDAP for agreeing to deliver the Vote of Thanks on our behalf.

I hope the participants from abroad will enjoy their stay in Bangladesh. I thank them and all our other guests for attending the inaugural session, and for showing interest in our programme thereby encouraging us to move closer to the ultimate objective of this workshop.

I thank you.

INAUGURAL STATEMENT

A.T.M. SHAMSUL HAQUE

Member

Planning Commission

Govt. of Bangladesh

Excellencies; Director, UNCRD; Director, CIRDAP; Participants of the Workshop; Ladies and Gentlemen;

Presumably you are all aware that today's Workshop was due to be inaugurated by Mr. A.M. Zahiruddin Khan, Hon'ble Minister for planning, Govt. of the People's Republic of Bangladesh. Owing to sudden indisposition, the minister is unable to inaugurate the Workshop. He has, therefore, requested me to represent him at the inaugural session of this workshop while sending his warm greetings to you and wishing the Workshop all success.

Ladies and Gentlemen,

I feel a little amused at the reversal of my role in today's function. Till phase - III of this project, I represented CIRDAP as its Director in similar functions while somebody else used to participate from the Govt. of Bangladesh. I have the pleasure of representing the host country Bangladesh in this morning's function.

Ladies and Gentlemen,

You are aware that CIRDAP and UNCRD have jointly organised this workshop on 'Development of Modules for Training on Integrated Approach to Disaster Management and Regional/Rural Development Planning'. This is a very appropriate theme for consideration and deliberations given the fact that the economies of several countries of this region, particularly Bangladesh, are affected by natural disasters like cyclones/typhoons, floods, earthquakes and landslides almost every year. The growth potentials of these countries are retarded, in some cases quite severely, by the yearly devastations caused by natural hazards of one kind or the other.

A disaster such as a storm surge or tidal bore coming up along with cyclones, takes a terrible toll of human lives as the Bangladesh facing the Bay of Bengal is very densely populated. Almost 7 million people inhabit coastal areas of Bangladesh. They make their living out of agriculture on the alluvial plains or by fishery. As many as half a million lives were lost in one such tidal surge and cyclone in November 1970. The most recent cyclone of 29-30 April 1991 cost about 150,000 lives. Habitations were destroyed on a large scale and fertile plains were rendered saline and unfit for cultivation.

Against this backdrop, it is indispensably necessary for countries such as Bangladesh to have coordinated disaster management programmes at the national and other levels. People, even at the grassroots level, should be geared for disaster preparedness. Infrastructures should be built and strengthened to withstand the fury and ravages of such disasters. Incidentally, only on 30-31 January 1993, Govt, of Bangladesh organised a National Seminar on Multipurpose Cyclone Shelters in the coastal region of Bangladesh in collaboration with UNDP and World Bank.

Ladies and Gentlemen,

UN has declared the 1990s as the International Decade for Natural Disaster Reduction. Many international and national organisations are executing laudable projects to minimise the impact of disasters and mitigate sufferings therefrom. This is such a gigantic task that GOs, NGOs and UN Bodies have all to join hands to provide meaningful and sustainable succour to the suffering humanity.

UNCRD and CIRDAP embarked upon a four-year project on "Development of Modules for Training on Integrated Approach to Disaster Management and Regional/Rural Development Planning" in 1990. This was initiated at the express request of the Government of Bangladesh. I am glad CIRDAP with support from UNCRD could launch this project well before the 1991 cataclysmic cyclone accompanied by storm surge. My association with all the phases of this project has been richly rewarding and enlightening.

Ladies and Gentlemen,

I hope that the present Workshop will contribute to the development of appropriate modules and thereby help achieve the primary objective of the project. I thank CIRDAP and UNCRD for undertaking this project of great relevance to and Importance for Bangladesh. We look forward to the Expert Group Meeting of November 1993 which should finalise the proposed Training Module-cum-Handbook on the subject. All in all, it has been a well-thought-out project where, over a period of years, various aspects of disaster management vis-a-vis regional-cum-rural development planning have been gone into in great depth by experts drawn from the region. Disaster management and regional-cum-rural development planning are inextricably intertwined. The better the disaster management, the greater the chances of success of regional-cum-rural development planning and vice versa.

Before concluding, on a personal note, I would like to add that I am most thankful to Prof. Sazanami and through him to UNCRD, for having accepted my request for promoting close UNCRD-CIRDAP collaboration.

I wish the expatriate participants a pleasant and comfortable stay in Bangladesh. I thank you all for your attention.

KEYNOTE ADDRESS

HIDEHIKO SAZANAMI

Director

UNCRD

Member, Planning Commission, Government of Bangladesh; Director of CIRDAP; Eminent Experts; Excellencies, Distinguished Participants; Ladies and Gentlemen – Good Morning.

The workshop being inaugurated to-day is phase-IV of our continued activities on the Development of Modules for Training on Integrated Approach to Disaster Management and Regional/Rural Development Planning. This workshop bears special significance because it is the last workshop where we will have input papers focusing mainly on specific training issues and methodologies which will form the core of proposed training modules.

Human Resource Development

Human resource development is the most important point of concern in the developing countries. Disaster management issues as well as the socio-economic constraints related to the growth of human resources are the major factors that have created this concern. Traditionally capital and material resources had been considered as the more important elements in growth and economic development. However, it has been realised that by and large the nature and quality of human skill determine the character of social and economic development in a country. The human elements are the active agents who are responsible for the generation of capital and exploitation of natural resources; for building social, economic and political organisations and for carrying forward national development based on an integrated approach. A country which is unable to develop the skills and knowledge of its people and use them effectively in the national development will not be able to develop and become self-reliant. As such the quality of the people of a nation is the most vital element to its growth and sustainability. Here in this context, our proposed training manual/handbook is going to play an important role.

In most of the developing countries formal education is considered as the main source of human resource development. But the full development of an individual does not necessarily take place through formal education alone. Further the conventional literacy attainment per se is becoming rather less of value in life in the context of vast changes that are taking place in the nature environment and society. To cope with the ever changing circumstances it is felt necessary to arrange more functional and technology oriented training/education. The non-formal education through training is expected to bring changes both at societal and individual levels leading to a new strategy for combating poverty and disaster. Further more, the disadvantaged and the unfortunate people who never had the opportunity to avail any formal education could be developed into a viable force through non-formal education.

FOLLOW UP RESEARCH ACTIVITIES ON FLOOD MITIGATION

During the workshop under phase-I in 1990, a number of recommendations were put forward by the learned participants. There were severe floods in Bangladesh in 1987 and 1988 causing enormous damage to crops and properties. It was considered appropriate to undertake several research activities for flood disaster management and regional/rural development planning. UNCRD sponsored the following six research activities in cooperation with: the Bangladesh University of Engineering and Technology (BUET).

Topic-1: Impact of Dhaka City Flood Protection Embankment on Domestic Waste Disposal and Environment

Topic-2: Impact of Dhaka City Flood Protection Embankment on Industrial Wastes and Environment

Topic-3: Effect of Dhaka City Flood Protection Embankment on Surface Water Drainage Systems and Environment

Topic-4: Effects of Dhaka City Flood Protection Embankment on the Changes in the trend of Settlement Pattern and Landuses in the Fringe Areas of Embankment

Topic-5: Institutional Development Programme for Flood Disaster Management and Rural Development in Bangladesh

Topic-6: Master Plan of Flood Shelter/Evacuation Site Functioning as Community Centre for Disaster Management and Rural Development

For the implementation of these research works UNCRD provided fellowship to six graduate students and honourarium to six guide professors.

I have the extreme pleasure in announcing that research activities on all six topics have been successfully completed by the graduate students who have been awarded Master Degree in their respective fields. The Guide Professors have also written research papers based on these research works and some of these research papers have already been presented at international seminars. Both the Graduate Students and the Guide Professors have come up with a number of findings and recommendations and I trust that Bangladesh and other countries having similar problems will seriously take into consideration these valuable outputs of the research works in disaster management and regional/rural development planning.

RESEARCH PROJECT ON CYCLONE DISASTER MITIGATION

There was a severe cyclone that hit the coastal areas and offshore islands of Bangladesh on 29 April 1991 causing about 140,000 human deaths and colossal damage to crops, properties, and social and development infrastructures. UNCRD organized an international field study and our investigation team comprising of seven members visited the cyclone affected areas and came up with some on-the-spot findings and recommendations. UNCRD in collaboration with CIRDAP followed up the field investigation by arranging a Seminar on Integrated Approach to Cyclone Disaster Management and Regional Development Planning which was held in Chittagong in January 1992. The seminar covered several important issues including;

- Cyclone disaster: Issues of Forecasting, Warning Dissemination, etc.
- Strategies and Measures to Reduce Cyclone Damage and
- Socio-economic consequences and Emergency Responses with reference to Cyclone Disaster.

The international and national experts, field officials and community leaders participating at the seminar proposed a number of findings and recommendations.

As a follow-up of these recommendations and also to fulfill the need of further detail information UNCRD with collaboration of Bangladesh University of Engineering and Technology (BUET) has identified following six topics for study and research.

Topic-1: Cyclone Shelter Planning for Disaster Management and Community Development in Bangladesh: A Case Study of Cox's Bazar area.

Topic-2: Social Forestry Programme for Coastal Protection Against Cyclonic Surge

Topic-3: Institutional Framework for Cyclone Disaster Management in Bangladesh including Awareness Generation, Warning Dissemination and Planned Evacuation

Topic-4: Zonation of Cyclone Vulnerable Areas of the Coastal Region with Specific Reference to Chittagong Metropolitan and Industrial Areas

Topic-5: Coastal Embankments, their Effectiveness against Storm Surges and their Impact on Environment and

Topic-6: Drinking Water Supply and Sanitation to Suit Post-Cyclone Situation in the Coastal Region of Bangladesh

UNCRD and BUET have already identified six Graduate Students and six Guide Professors and the research activities on the above topics have already started from September 1992. UNCRD will be providing financial support for this research programme. We are aware that there have been some studies and investigations in fields related to the above topics. Care will be taken to avoid duplication and our studies should be mutually contributing and complimentary to other studies. I have full confidence in the ability of the Guide Professors and Graduate Students of BUET and trust that they will be able to come up with valuable findings and recommendations that will benefit not only the country and the people of Bangladesh but also other countries and peoples who have similar cyclone/typhoon/hurricane problems.

INTEGRATED APPROACH AND STRATEGIES

Rural development would mean improvement in the quality of life of the rural people and the process would involve development of both economic and social sectors. The economic sector includes development of infrastructures, production, employment and income; and the social sector involves education, health, sanitation, family planning, etc. The economic and social programmes should interact with each other and produce a combined effect on the improvement of the rural life in totality. Disaster management will ensure unhindered implementation and sustained progress of planned programmes.

In most of the developing countries the vast majority of the population live in the rural areas and most of the rural people directly or indirectly depend on agriculture for their livelihood. As such, in an agrarian economy priority for agricultural development must remain. But benefit of agricultural development has mainly gone to the farmers who possess considerable area of farmland. The development of rural infrastructure has also benefitted those more who have access to means of production. The poor and assetless people have received only marginal benefit in the form of temporary employment. As such, appropriate programmes for income and employment generation of the rural poor must be taken up simultaneously for ensuring equity and justice to the disadvantaged groups.

The situation thus calls for a change or redirection of the strategy for rural development. The rural people must have sustained sources of income and the opportunity for self employment. They must have access to production of goods and services needed by the society and opportunity for skill improvement through both formal and informal education/training. It must be understood that by keeping the vast majority of the rural people out of the mainstream of development activities no programme could succeed, and even if it succeeds, it cannot be sustained.

Once the rural poor are organised into groups or cooperatives they must acquire certain skill to be able to produce goods and services required by the community. Formulation of appropriate training materials and methodologies for development of necessary skills is thus considered the foremost requirement in development strategy planning.

The learned paper writers and participants in the past have contributed to many important aspects of integrated approach to disaster management and regional/rural development. But I would like to emphasize the following points once again.

WARNING

Forecasting and warning are generally issued through weather bulletins by the responsible national organisation and communicated to the people by radio and TV. But the main problem seems to be that Information on warning frequently fails to reach the population in danger due to a poor communication system. For a warning system to be meaningful, warning should be issued to the people likely to be affected by oncoming disaster on the basis of a communication system that reaches the appropriate audience and through methods of message dissemination that stimulate the population in taking appropriate measures for avoiding disaster.

In order to elicit desired responses the national warning system needs to be divided into several parallel systems. Warnings based on nationwide forecasting which are disseminated from Headquarters should focus on alerting public officials, managers of important public and private infrastructures, critical facilities and major industrial and commercial enterprises. In the rural areas, warning system must be built on the principle of locally based and village operated monitoring and warning capabilities that will foster traditional societal response.

Based on the above discussion it is considered necessary to develop following 3 warning sub-systems:

- 1) Urban areas warning system
- 2) Critical facilities alert system
- 3) Village based warning system.

As the levels of education, cultural background, social custom and general human up-bringing are different in different countries and even among different regions of the same country, following activities should be carried out before finalizing the warning plan.

- Local societal responses to disaster threats and warnings should be studied in details to develop locally appropriate approaches.
- A series of warning messages should be developed and tested through drills.
- Arrangement to disseminate warning through locally appropriate media.

DISASTER FIGHTING

Disaster fighting includes following Major operations:

1. Patrolling of vital disaster control infrastructures,
2. Erecting emergency protective works for critical facilities, such as electrical power stations, water supply facilities, food godowns, etc.,
3. Stockpiling of strengthening materials and equipment for disaster fighting and
4. Defending vital infrastructures making use of pre-positioned tools and materials.

Working in conjunction with the authorities responsible for the maintenance of various facilities and warning system, following actions may be taken for disaster fighting preparedness:

- identify areas for priority patrolling
- identify local staff to coordinate the programme
- local recruitment and training of monitors
- arrange emergency equipment and supplies in strategic areas
- encourage local people to help in strengthening and maintaining vital facilities

- organize disaster fighting teams to help make emergency repairs of endangered facilities
- erect water level markers to remind public of the height of the past flood/cyclonic surge . These marks may be replaced in permanent structures like buildings, electric poles, etc.

The public information component of the programme needs to be initiated in areas where failure of embankments, roads and railways, bridges, etc. have occurred in the past and is likely to occur in the future. It will increase public awareness of the importance of the structures, demonstrate simple and low-cost ways of maintenance by nearby communities, ways to make emergency strengthening should these be threatened and make repairs when damaged or breached. This programme should better be initiated on a pilot or demonstration basis on selected structures or facilities.

There is an obvious need for improved awareness about the many different aspects of disasters in the developing countries. It will be very difficult to counter disasters and organize people for disaster fighting if the media and public continued to regard natural disasters as effects of climate or acts of God. Many disaster management efforts do not have the required human touch at the grassroots level. An extensive public awareness campaign should be initiated utilizing a variety of media designed to test the effectiveness of various public awareness media concepts. In rural communities where majority of the people have no chance of getting formal education in schools or informal education through radio or television, the best way of educating and generating awareness might be audio visual demonstration. When documentary films containing various aspects of disaster mitigation programmes are demonstrated in the rural areas it is expected that children, young and old men and women comprising the entire cross-section of the people will watch the programme thereby facilitating informal mass education by the cheapest, but most meaningful way.

COMMUNITY PARTICIPATION IN DISASTER, MITIGATION AND RURAL DEVELOPMENT

For systematic approach to disaster mitigation and rural development There should be coordinated efforts among decision makers and planners in the national level, implementation staff in the field and the community leaders at the local level. But ultimate success would depend on how strong is the political will of the respective Government and support and lobbying of the politicians.

It is expected that the community participation would bridge any gap between the national level and the local level by supplying adequate information on the actual situations in the rural areas. At the same time local people can assist the field implementation staff in proper execution of development programmes fixing priority and removing local constraints to development efforts.

The most important aspect of rural development and disaster mitigation should be to involve the people/beneficiaries themselves in the local planning process including objectives, fixing targets, determining priorities; selection, implementation and subsequent operation and maintenance of projects.

Following impacts are expected to be generated by local level involvement:

- Strengthen mutual trust and cooperation among decision makers, planners, field staff and local people

- Improve understanding of the planners about local situation and problems on one hand and availability of local resources and manpower on the other

- Generate confidence of local people about their potential and capabilities

- Encourage local people in operation and maintenance of physical, economic and social infrastructures including disaster management facilities and

- Due to participatory feeling among local people mobilization of local resources and manpower will become much easier.

In case of Bangladesh most of the rural people never had any chance to get any formal education, even those who were lucky to have had such a chance could not keep pace with advance knowledge and modern technique due to lack of facilities for continued education and skill enhancement. Moreover, with the decentralization of administration and realization of community participation in disaster mitigation and rural development activities, more and more emphasis is being put on local level activities, participation in planning, implementation, operation and maintenance. In view of these facts it is suggested that the integrated training for skill improvement of the community leaders should include

- Techniques to prepare local level development plan and community level disaster management programme

- Formation of cooperatives and thereby tapping the dormant energy and channeling this into creativity

- Utilization of credit for increasing income and raise capital out of own saving

- Organise farmers in the use of agricultural inputs, such as fertilizer, high yielding variety of seeds, pesticides, irrigation water, etc.

- Formation of target groups in the development of livestock support services such as good breed, feed, veterinary services and marketing

- Organise professional fishermen into fisheries cooperative for fisheries development involving hatchery, fish meal, fish disease, mechanization of open water fishery, pollution of water bodies due to industrial wastes and use of agro-chemicals and its impact on fisheries, etc.

- Motivate small farmers, assetless people and other disadvantaged groups for income generating activities to make them self reliant and

- Organise special women's programme on cottage industry, domestic poultry, child care, nutrition and family planning.

CONCLUSION

About 45 Papers have been presented during the past two workshops and two seminars by national and international experts. Another 15 papers are going to be presented during the present workshop. Through elaborate discussions on the papers we are having many valuable findings and recommendations which will form the basic materials and methodologies for training.

I express my gratitude to the paper writers and participants for their hard work and contributions. Sincere thanks are due to CIRDAP for their excellent arrangement, cooperation and follow-up. Let me express my heartfelt appreciation to Government and the people of Bangladesh for their continued support. Contributions made by other national and international organisations based in Dhaka are gratefully acknowledged.

Thank you everybody once again for your continued cooperation, contribution and support.

IV. SUMMARIES OF DISCUSSIONS AND DELIBERATIONS

SUBTOPIC - A: ORGANIZING AND STRENGTHENING LOCAL COMMUNITIES FOR DISASTER MANAGEMENT AND RURAL DEVELOPMENT

SESSION I

Date : 7 February 1993 (Sunday)
Time : 10:15 - 12:30
Chairperson : Prof. Hidehiko Sazanami
Discussant : Prof Dr. M.A. Mohit
Rapporteur : M.A. Momin

Paper 1: Organizing Local Communities in Disseminating Forecasting and Warning; and Managing Evacuation, Disaster Fighting, Relief and Rehabilitation in the Context of Cyclone/Typhoon Disaster

By : Mr. Jose Medina Jr., Philippines

Paper 2: Organizing Local Level Communities and Institutionalizing and Linking them to Various Tiers of Administration for Disaster Management and Rural Development

By : Dr. S. Narayan, CIRDAP

Paper 3: Strengthening of Post-Disaster Rehabilitation and Reconstruction Activities including Local Level Institutions and Their Roles - Issues and Methodologies

By : Mr. Iqbal Ahmed, Bangladesh

SUMMARIES

Paper 1

Part I: "Nature of Organizations" introduces in broad and general terms what organizations are.

Part II: "Nature of Cyclone/Typhoon Disasters Occurring in the Philippines" briefly treats the nature and impact of disasters and indicates the frequency and gravity of cyclones/typhoons that normally or perennially hit the Philippines.

Part III: "The Need to Put Up Organized Bodies in Local Communities for Disaster Management" shows and elaborates on the types of disaster management organizations by type and by level; their composition or membership; and their functions.

Part IV: "The Actual Experience" relates the Philippines experience in the Mt. Pinatubo and the Ormoc City disasters with particular focus on the involvement of organized bodies in local communities in the management of such disasters.

Part V: "Analysis of the Experience" presents and comments on the strong and weak points of such organizations as those involved in those disasters.

Part VI: "Recommendations" suggests some ideas and considerations that could serve as guidelines to strengthen the disaster management organizations in local communities in the context of cyclone/typhoon disasters.

Paper 2

Firstly the paper attempts to examine the conceptual issues of participation and target group organization. The following are the forms of participation: Mobilization; Mediation; and Empowerment. The central issue of participation is the distribution or control of resources and power in favour of the target beneficiaries. Participation may be at various levels e.g. (a) decision-making (b) implementation, (c) benefit-sharing and (d) monitoring and evaluation. In the context of existing administrative structure for disaster management and rural development, the possible interlinkages between local level community institutions and the administrative tiers are examined in the context of Bangladesh. The various activities related to the disaster management like (1) overall coordination, (2) pre-disaster preparedness, (3) provision of personal services, (4) livelihood services and (5) infrastructure development, which are performed by different agencies at different levels at different points of time could be as a matrix for determining the levels at which interlinkages are possible and feasible. The paper discusses the necessary actions to be taken to enhance the community

participation at the stages of preparedness for disaster, response and relief, rehabilitation/repair and infrastructure development. In the disaster management activities if along with the government and non-government organizations, role of local community institutions are enhanced and their linkages with the other agencies are strengthened effectiveness of the disaster management will also be increased.

Paper 3

Bangladesh has been experiencing natural and man made disaster for a long time. For this reason development strategy and planning of the country should adjust with the pre and post-disaster periods and reconstruction activities. Relief activities should also be related with the development activities. Poor people including women and children become the worst victim of many disasters both in urban and rural areas. The paper examines the experiences of post disaster activities of Bangladesh. It is suggested that to perform the post disaster activities focusing basic needs problems the people it is essential to frame adequate policies in this connection and implement them properly. For this reason it is necessary to define some of the problems of implementation of policies and methods through which post disaster policies may be incorporated with the development activities. The importance and coordination of various activities. e.g. , communication, NGOs, relief camp, cyclone shelter, afforestation have also been emphasized. Three institutional arrangements: (1) a disaster management centre at the national level under Prime Minister (2) a task force at the district level and (3) a task force at the thana level are suggested.

DISCUSSION

After presentation of three papers, discussant Dr. M.A. Mohit, BUET, discussed these papers. The discussant mentioned that three papers might be discussed integrating two perspectives:

(1) Review and throw some comments on the papers and

(2) Evaluate them within a conceptual framework developed by a BUET graduate student for strengthening local community organization for disaster management (DM) and Rural Development (RD) given below:

- Approach towards strengthening local organization for DM and RD.
- Identify local organizations.
- Identify local organizations.
- Assess their role in disaster management and examine their linkage (s) with national/regional institutions.
- Select potential institutions to strengthened/developed.
- Adopt measures for strengthening/developing the organizations.
- Prepare training modules based on need.

The three papers presented cover 2 country cases - Philippines and Bangladesh. All the three papers are well presented. However, these papers have used descriptive methodology than analytical. Medina's paper is a little different from this stream. It has used case studies to test disaster management organizations of Philippines. Medina 's paper is a comprehensive and well-structured paper. It consists of six parts:

Part - 1: The author attempts to define organizations.

Part - 2: The author explains types of disasters that hit the Philippines

Part - 3: The author explains need for local communities to organize for DM and discusses about the institutional and organizational framework of DM in the Philippines, and their functions, i.e., the National Disaster Coordinating Council (NDCC) and its replication at lower levels - Regions, Provinces, Municipalities, cities and Barangays or villages. Others are disaster operation centres (DOCs), Disaster Action Teams (DATS) by the Philippines National Red Cross (PNRC), DSWD and DIT among member agencies of NDCC. The author also discusses how the enactment of decentralization of LGU bill called the Local Government Code of 1991 has strengthened the disaster response capabilities of the people at the local or community level. Other local organizations for DM are socio-civic organization. For forecasts and warning dissemination these did not play major role. But in evacuation, disaster fighting, relief/rehabilitation play active role because of their training orientation.

Part - 4: The author illustrates two case studies of DM in order to explain organizational efficiencies:

- a. The Mt. Pinatubo volcanic eruption which led to lahars or mudflows and flash

floods became major hazards in the areas affected by the disaster. This case explains how the NDCC through RDCCS and Local DCCs organized its activities with the help of PHIVOLCS into pre-eruption, eruption and post-eruption phases.

- b. The second test case was the Ormoc city flash flood caused by Typhoon Uring. The author's DM measures in this case is not clear. However, it may be ascertained that the local DCCs were involved in the mitigation measures and the disaster was caused by lack of forest cover or vegetation.

Part - 5: The author presents analysis of the case studies. The two case studies provide evidence of success of NDCC and its local level agencies along with local Government and NGOs. However, the author points about the existence of many local community involvement in DM of the Philippines and the misutilization of funds resulting from this. There is a need for rationalization of organizations for DM.

Part - 6: Recommendations: In the concluding section, the author reiterates the need for local community organization for DM and suggests the need for qualified, skilled and committed members in DATs. The need for continuing education and training programmes for local level organization members were emphasized.

There are some shortcomings of this paper:

- It is not clear who is more efficient: Role played by local DCCs and Local Government Units.
- The author does not provide an evaluation of local level organizations about DM and prioritization of their development has remained unattended.

The size of the paper could be reduced if the author could avoid a few parts from his paper.

Dr. Narayan's paper is an attempt to provide inter-linkages between local level community institutions and the administrative structures for DM & RM.

The paper consists of 5 Sections:

- Section 1: the author begins by presenting a model of four kinds of participation. The author comments that types of participation should be project-specific.

- Section 2: the author attempts to explain the nature of rural institutions by emphasizing the recent trend which favours participation of the whole community for all development programmes intended to benefit the community as a whole.

- Section 3: the author reviews different phases of DM and the need for post impact assessment and damage assessment for rehabilitation phase.

- Section 4: the author reviews the existing procedure or organizational structure for DM which involves 21 Ministries and 37 agencies in the national set up. The author also develops a responsibility matrix comprising of 24 agencies in different phases of DM. The author then attempts to inter-link DM responsibilities by community groups through Filipino models (Bayanihan, Ronda and Selda Systems).

- Section 5: the author presents the need of government agencies for fostering community level actions (called institutionalization) at the stages of preparedness, response and relief, short-term rehabilitation/repair and provision of infrastructure.

- In the conclusion, the author himself raised the question which of the local community organisations would better maintain linkages or DM responsibilities. The need for detailed study in this context has been mentioned.

Following observations are made:

- a. It appears that the author has a good knowledge about Bangladesh local community organizations.

- b. What Inter linkage? Did not receive adequate attention of the author.

- c. An analysis of the role of different local level organizations for DM is essential in order to determine local institutional development process and training needs. Unfortunately this has escaped the attention of the author.

Mr. Iqbal Ahmed's paper attempts to provide a subjective effort to look at experience of post-flood disaster activities of Bangladesh within a broad framework of development. This attempt has broadened the scope of the paper. Although the author's main purpose is to examine post-disaster activities and suggest local level institutions, but the broader perspective had led him to bring some pre-disaster issues such as baseline data, GIS, national disaster policy, vulnerability analysis, etc.

- The author divides post-disaster period into 3 categories, viz., immediate (1-2 weeks), mid-term (3 weeks to 6 months) and long-term and mentions the nature of rehabilitation/reconstruction activities in these periods.

- Then the author explains the structure and organization of central Coordination Committee known as National Coordination Committee (NCC) for cyclone and the role of DG of Relief and Rehabilitation in the task of monitoring and implementing all relief and rehabilitation activities.

- In the end, the author explains the need for disaster education and danger marking.

This paper has been presented with lack of wideness and concentration of focus. Issues have been taken up but could not be integrated to post-disaster activities. Moreover, the post-disaster activities could not be linked up to appropriate local level organizations.

In fine, it is appreciated that all the three papers are well-written and have provoked discussions which would provide feedbacks for improvements .

COMMENTS/OBSERVATIONS/QUESTIONS AND ANSWERS

Question on Paper – 1:

Q. In disaster management of the Philippines how an effective collaboration can be established between local people and the Government?

A. In the Philippines there are problems from two sides. The problem from the people is that the mountain people are very much habituated to the mountain life. In any circumstances they do not like to leave the mountain. It is very difficult to convince them to leave the mountain, even during the disaster period. There is also a problem from the Government side. There is a scarcity of land to rehabilitate the disaster prone

area people. Still some government land should be found to rehabilitate the mountain people to rescue them from the disaster. Some of the lands where they can be rehabilitated are owned by the militaries. It is very difficult to convince them to share these lands with other people. In the Philippines some NGOs which are very effective and reliable have organized some rehabilitation programme.

Question on Paper-2:

Q.1 Would any participatory programme require delegating powers to the people? If so, to whom and of what extent? (Because people are mostly suspicious of elected members).

A.1 We must conceive of power resting with the people who are directly affected by disaster and suffer from it and they should be empowered to collectively manage relief in all aspects. External assistance should be supportive, not forced.

Q.2 Do you not think that there is difference between formal structured organisations and the human elements in the context of disaster management? And that focus should be directed at the human element primarily - and structured organizations should provide assistance to human endeavour.

A.2 Yes. The kind of structure relevant for disaster management and rural development could be formal or informal depending on the activity addressed. In either case the organization should focus on the human element as suggested.

Q.3 In Bangladesh context do you think that empowerment is in reality possible at the local level (other than elected leaders at the local level) for effective community participation. If so, how?

A.3 Empowerment can be at stages. For example, management of agricultural services could be left to a farmers' organization which could be a formal or an informal body. In a similar way, management of credit or of community assets could be decentralized. The local bodies could look after infrastructure activities.

- Q.4 For providing linkup to involve the community people who are affected directly by certain plans or projects, which approach is better whether up to supplying informations only or to bring them for detailed discussions to seek their opinions on the types, designs and even modes of implementation. In Malaysia the latter is advocated due to the fact that the projects are initiated for the people.
- A.4 The extent of community participating activity might differ from country to country depending on degree of cohesion, skills and knowledge possessed by the community and on their attitudes.

Question on Paper 3

Observation: While Mr. Iqbal Ahmed's paper has discussed the issues of small, marginal and landless farmers, it has not covered the children and women.

- A. The women and children have been covered in the paper at page No. 9.

**SUBTOPIC - B: IMPROVING SOCIO-ECONOMIC WELFARE THROUGH
DISASTER MANAGEMENT AND RURAL DEVELOPMENT**

SESSION II

Date: 7 February 1993 (Sunday)
Time: 14:00 - 16:15
Chairperson: Prof. Mian Muhammed Iqbal
Discussant: Prof. Dr. Mir Shahidul Islam
Rapporteur: Dr. M. Mahbubur Rahman

Paper 4: Development of Model for increasing Family Income of the Small Farmers and Assetless Rural Poor to Lift them above Poverty Line
By: Mr. Quamrul Islam Siddique, Bangladesh

Paper 5: Achieving Basic Human Needs Through Disaster Management and Regional/Rural Development
By: Mr. P.R. Goutam, Nepal

Paper 6: Planning of Infrastructure Facilities for Integrated Disaster Management, Rural Development and Social Welfare
By: Dr. Kalinga Tudor Silva, Sri Lanka

SUMMARIES

Paper 4

Poverty in Bangladesh manifests itself in low income leading to inadequate food intake, disease prevalence and short life expectancy. The per capita GNP is estimated at US\$ 208. The percentage of small farmers (below 1 ha) increased from 52 in 1960 to 70 in 1984. Forty-four million and seven million people, representing 51 percent and 56 percent of the rural and urban population respectively were below the poverty line in FY 1986.

The Government's policies on poverty alleviation reflect emphasis on two complementary approaches:

- (a) focus on macro-economic and sectoral policies directed at improving efficiency and increasing productivity, especially in those sectors where the poor predominate (agriculture); and
- (b) Expansion of programmes designed to lift people out of poverty. Rural Development

projects will have a combination of three major components:

- (1) Development of physical infrastructure including roads, storage godowns and markets;
- (2) Irrigation, drainage and flood control works; and
- (3) Production and employment programmes for the rural poor (the landless and those having land upto 0.5 acre).

The government's emphasis on women in development and the development of small farmers programmes have been focused. The role of NGOs in the poverty alleviation programmes is highlighted.

In view of the widespread poverty in Bangladesh, the combined approach to face it by all sectors of development is important. The involvement of NGOs in addition to government programmes is considered necessary.

Paper 5

In Nepal disaster means earthquakes, fire, windstorm flood and landslides, excessive rain, draught, famine and epidemic and similar other catastrophies. All these disasters have direct impact on economic development of the country. Effect of disaster on the human basic needs in the rural areas makes impact on the following:

- (a) Requirement of resources for rehabilitation and reconstruction of damaged property which otherwise would have been used for upliftment of the economic condition of the people.
- (b) Destruction and damage of infrastructure mean loss of goods and services required for critical need of the people in the rural areas.
- (c) The infrastructure constructed out of scarce resources in very long period cannot be rebuilt and restored immediately; result would be postponement of production and services for many years to come.
- (d) It causes severe damage to the marginal land in the hills and mountains.

(e) The farmers are pushed out of the villages to the cities and towns which, as a result, are unmanageably crowded and are suffering from social problems. Unemployment among the youths have led crimes to a soaring height.

(f) The disaster stricken people are mostly farmers and laborers who own no asset. Their first attack is on the forest to own the land for livelihood. Cultivation is the only trade and skill what they possess. Therefore the pressure on the forest land is enormous. Massive deforestation has triggered successive ecological disaster in the country.

During the Seventh Plan period (1985-90) basic need approach of development was introduced in Nepal. Such an approach has two prolonged strategy:

- (a) Intensification of growth of production of foods and services
- (b) Expansion of targeted programme through directed investment programmes.

The recently announced Eighth Plan (1992-97) aims at gradual elimination of state direction and control over economy and development through free and market oriented economic system. For sustainability in the rural development the plan proposes human resource development and mobilization of resources at the grassroots.

Disaster has been responsible in undermining the effects of rural development. Man-made disasters have several controllable variables which can be regulated to influence the planning process. With the advent of democracy, NGO's activities have been expanded in Nepal.

Fulfilment of the basic needs of the people and lessening intensity of the disaster have similar connotations in socio-economic development of Nepal. Fragile ecology of mountains and fragile socio-economic fabric of the rural areas need efficient and optimal use of the resources through the people at large. Both measures, basic need fulfilment and disaster mitigation, need full participation and understanding by the people in rural areas. The scope of the basic needs differ from country to country, but in the Nepalese context preservation of physical and natural environment which is the source of basic needs of the people living in the rural areas is also an integral component of the basic needs.

The main goals of rural development including infrastructural development may be broadly defined as follows:

- (a) improving productivity and income of the rural producers with a focus on small farmers, small scale producers and the unemployed;
- (b) improving quality of life; and
- (c) reducing vulnerability of and improving decision making capabilities of the poorest of the poor in rural society with a focus on women, ethnic, tribal, caste or other victims of discrimination.

The main actors in planning of rural infrastructure are: State, NGOs, Community organizations and Private Sector. The principal concerns in planning rural infrastructure are: cost-effectiveness, technical feasibility, social and cultural acceptance, accessibility, skill development, and development and use of required data bases.

Integrated rural development with implications of disaster management is cited in the paper in the context of three projects, for example:

- (a) The Accelerated Mahaweli Development Programmes in Sri Lanka
- (b) Community based Water Supply and Sanitation Schemes; and
- (c) Grameen Bank Project in Bangladesh

The project examples highlight the multiplicity of social, economic, technical spatial and environmental factors that need to be considered in an integrated planning of rural infrastructure.

COMMENTS/OBSERVATIONS/REMARKS

After presentation of all the three papers, the discussant made his brief remarks on each of them. As regards the paper-4 the discussant was of the view that the main point is how the increase of family income of the small farmers and assetless poor

could be linked up with disaster management. He felt that the point should have been elaborated upon in context of the poverty alleviation strategies in Bangladesh. On the paper 5, the discussant stated that the author discussed how the development efforts made to fulfill the basic needs would be eaten up by disaster but it was not clear how his graph was produced to explain the basic needs development- disaster - development benefit after destroyed by disaster configuration (ref./diagram 'C'). The discussant felt that the author should have considered, among other things, clothing as one of the important element of basic needs particularly in the modern world. The discussant appreciated the views as expressed in the paper 6 particularly for the author's citation of three examples, namely, the Accelerated Mahaweli Development Programme in Sri Lanka, Community Based Water Sanitation Schemes, and Grameen Bank in Bangladesh. These projects were cited to show importance of planning of infrastructure facilities for integrating disaster management, rural development and social welfare. However, the author could not establish proper linkages how the infrastructure of these projects could contribute to the disaster management with people's participation.

There were a few questions from the participants particularly on paper 4.

Question 1 on paper 4

Q.1 One participant from Bangladesh enquired, why among other things the author did not mention about medical and health care services as important components of rural development?

A.1 Though not explicitly mentioned in his paper, the author fully agreed that these issues essentially formed part of rural development activities. The author said that he mentioned these issues while talking about the NGOs programme activities side by side with Government efforts.

Q.2 Another participant from Bangladesh asked what should be the model of attaining sustainable development while planning for projects contributing to the increase of family income? He continued to ask that the author should have referred to problems, shortcomings and bottlenecks of implementing projects for family income raise?

A.2 The author responded that he did not venture for critically examining each of the projects to identify the sustainability components and constraints encountered while implementing the project at the grassroots. However, the author said that the NGO initiated projects could well tackle the situation, while he felt that government sector with efficient handling could as well deliver the goods.

Observation

One participant from Bangladesh said that the concept of 'human resource development was increasingly being labeled as 'human development '.

The author agreed with the proposition.

SUBTOPIC - C: TRAINING/EDUCATION IN THE CONTEXT OF DISASTER MANAGEMENT AND RURAL DEVELOPMENT

SESSION III

Date: 8 February 1993 (Monday)
Time: 09:00 - 12:30
Chairperson: Mr. A.T.M. Shamsul Haque
Discussant: Mr. Md. Kayemuddin
Rapporteur: Dr. M. Mahbubur Rahman

Paper 7: Development of Materials and Methodologies for Non-Formal Education/Training of Rural Community for Disaster Management and Rural Development

By: Dr. Salehuddin Ahmed, CIRDAP

Paper 8: Development Academic Curricula for Primary, Secondary and High School Students in the Context of Disaster Management

By: Mr. A.V.S. Reddy, India

Paper 9: Training Materials and Methodologies for Continuing Education of Disaster Management Planners

By: Dr. Amara Pongsapich, Thailand

Paper 10: Training Issues and Methodologies for Integration of Rural Women into the Main Stream of Socio-Economic Life including Disaster Management

By: Dr. Yulfitra Raharjo Indonesia

SUMMARIES

Paper 7

The paper focuses on the needs for non-formal education and training for disaster management and rural development. For any disaster management programme responses at three levels are important: individual, community and national. The salient features of non-formal education are: wisdom of the people and operational issues of non-formal education. Non-formal education has direct linkage with human resource development and development of natural resources.

The use of non-formal education/training methods for rural development and disaster management should take into consideration at least two factors: (1) relationship to the formal education system and replicability of innovative projects. Non-formal education planning can be done by various approaches: (a) socio-economic approach, (b) quantitative approach, and (c) qualitative approach.

Non-formal education can realize its full potential for development, self-determined people and community must play an active part in choosing and giving their expression to their different learning needs. Non-formal education should be linked to all major development themes, namely universalization of education, integrated rural development, education for productive skills relevant to development, education for better health and nutrition and education for environmental preservation.

Paper 8

Sensitizing the school children on various aspects of counter disaster measures goes a long way in managing calamities much more efficaciously, as the younger generation prepares to meet the challenges by the time they come of age. There is an urgent need for revising the school curriculum to introduce disaster management at all the three levels of schooling: primary, secondary and high. Currently the subject of 'Environmental Studies' is being taught. However, it must be conceded that topics dealing with natural hazards seldom find a place in the scheme.

In the elementary school (Class III to V), the objectives concerning the teaching of disaster management could be as follows:

- (a) Improving the students' observational skills and acquiring the habit of authentic information
- (b) Creating an aptitude in the children to understand the nature's secrets intelligently
- (c) Enabling the students to integrate their day-to-day experiences with knowledge of natural calamities, as a sub-section of Environmental Studies.

The curricula related to disaster management should focus on both creating awareness and on dealing with the main causes, scientific explanations and their ability to perceive dangers in advance. This would go a long way in alerting people in time besides organizing them to participate in the disaster mitigation efforts.

The socio-political environment and voluntary action should simultaneously form part of the curriculum so that people from childhood are groomed to face disasters

with exposure and least tension. As a matter of principle, a holistic view must be taken if the damage done by various kinds of environmental disasters is to be mitigated. Such an effort would go a long way in creating a proper understanding about counter disaster preparedness among children who, as future citizens have a stake in the nation's overall development.

Paper 9

Training materials and methodologies for continuing education of disaster management for planners must take into consideration the balance of information between the physical science and social science fields. For training materials it is essential to include basic physical science information on sources and types of disasters, and at the same time basic information on disaster management which is more social in orientation. The disaster management cycle will follow mitigation, preliminary response and recovery phase.

Training packages constitute an important means to disseminate information and prepare the public for disaster management. Activities have to be carried out at both the macro and micro levels. Using the participatory development approach, local people have to be included in the process.

The paper focuses on training materials for planners using the participatory development approach as the concept for disaster management. Presentation is organized according to disaster cycle: (1) mitigation, (2) preparedness, (3) responses, and (4) recovery. Both physical information regarding specific types of disaster and disaster management strategies involving local people have been discussed. Specific disaster types and sources, ecological zones and cultural variations need to be taken into consideration in developing training packages. Meanwhile, more disaster preparedness centres are needed in Asia, while national or sub-national centres are also recommended.

Paper 10

The exclusion of women from development planning results from both their lack of participation in the planning process and also from a general perception that women do not participate in the economic sectors. This is reflected in the tendency to

exclude women or men from programme that deal with particular gender stereotyped activities. Moreover, development and planning activities in the developing countries have had a strong tendency to weaken and marginalize women's roles in general, especially in relation to their economic status and control over the environment. However, in the light of the urgent need to create models of sustainable development, we now urgently need to comprehend women's role in the development process which is frequently ignored. Many global statements about the need for change in attitudes to women's roles in development are not sufficient. We also need action at national and local levels. An understanding of women's status and roles in society is required, since every society has its own specific gender status and gender-differentiated roles.

Development planners and practitioners should consider questions, such as how are these activities (past and present) relevant to development? Can the Productivity be improved? What are the constraints and what are the advantages? Is there any impact on development process, programmes or projects to women's activities? How are their working conditions? How is the sexual division of labour manifested in our daily life inside and outside of home? How do ethically, social class difference affect the sexual division of labour? What is the differential impact of technological improvement on men and women's work?

The gender analysis and gender training project should be planned for the specific needs and contexts of participating countries. A great care should be taken in establishing an appropriate organizational framework. A high priority on gaining political support and general community support are very important.

COMMENTS/OBSERVATIONS/REMARKS

After presentation of all the four papers, the discussant made his brief remarks on each of them. As regards the paper 7, he observed that the author should have elaborated upon the tools/techniques used for the non-formal education. He emphasized on the need for mentioning some of the bottlenecks for implementing non-formal education at the grassroots level. On the paper 8, the discussant felt that topics like demographic situation, river erosion etc. should be added in the curricula on disaster

management. Improvement of productivity under crisis situation, leadership development under crisis condition and crisis management should also form part of disaster curricula for school children. As regards the paper 9, the discussant maintained that use of tools and techniques such as poster, flip chart etc. should be added in the course of continuing education for disaster management. According to him, the paper did little justice commensurate to its title. While making general comment on the paper 10, the discussant stated that the gender issue in development was being taken care in the development process obtaining in Bangladesh. However, very little progress has so far been made not because of inadequate rules and regulations but for implementation problems. He cited from his own experience that in Bangladesh the women credit programme activities were doing quite well compared with that of the male ones.

There were questions from the participants on each of the papers.

Question on paper 7

Q.1 One participant from Bangladesh asked if there was a possibility of having a single education system in Bangladesh by combining formal, non-formal and informal education. He further enquired if it could be possible to have non-formal education only in disaster prone area in Bangladesh?

A.1 The author responded negatively that a single system of education though possible but would be very expensive. However, he emphasized that some sort of flexibility in the non-formal education curricula might be exercised keeping in view a particular disaster prone area in Bangladesh.

Q. 2 The participant from Sri Lanka enquired that sometime rumors complicated the disaster management system, whether this could be incorporated in the non-formal education curricula?

A.2 The author replied that besides rumors even the warning system is not always correct to inform the people exactly what was going to happen in the disaster episodes.

Observation 1 on paper 8

The participant from the Philippines felt that in the school curricula components like property rights should be included. Otherwise, the victims might encounter problems while they go back to their original settlement.

Observation 2 on paper 8

The participant from Sri Lanka maintained that through education in disaster management the young people in the school could also develop a sense of responsibility, community feeling, and awareness of community problem. According to him, topics like role of police and fire fighters during disaster should also be included in the school curricula.

Observation 3 on paper 8

One participant from Japan stated that the indigenous warning system for disaster preparedness as practiced in the primitive societies could also find place in school curriculum on disaster management.

Observation 4 on paper 9

One participant from Bangladesh felt that the rural settlement should not be too isolated and away from the main village settlement. He further added that certain species of trees could be planted in and around the settlement which might be of great use during disasters, particularly during floods.

Observation 5 on paper 10

One participant from Bangladesh observed that the women, children and old people were often the victims of disaster simply because they have to stay back at home in the event of disaster. Such a situation should also be taken care of while discussing the gender issues. Another participant from CIRDAP cited a tragic case in India that some women became the casualty in the event of a man-made disaster while the male folk were away from home.

Observation 6 on paper 10

Another participant from Bangladesh remarked that after the disaster was over, the survived women, children and old people often became the victim of relief distribution because they could not fight with muscle men.

**SUBTOPIC - D: INTEGRATED DISASTER MANAGEMENT AND RURAL
DEVELOPMENT APPROACH**

SESSION IV

Date : 8 February 1993 (Monday)
Time : 14:00 – 16:15
Chairperson : Prof. Dr. Shunji Murai

Discussant : Ms. Humaira Islam
Rapporteur : Mr. D.P. Mazumder

Paper 11: Development of Databases, Database Frameworks and Key Indicators
for Integrated Disaster Management and Rural Development

By : Dr. Sarwar Jahan, Bangladesh

Paper 12: Comprehensively Integrated Model for Disaster Management and
Regional/Rural Development

By : Mr. Law Kong Fook, Malaysia

Paper 13: Human and Institutional Development for Disaster Management and
Rural Development: Training Issues, Materials and Methodologies

By : Prof. Mian Muhammed Iqbal, Pakistan

After the presentation of the papers the discussant made general observations and comments on each of the papers. According to the discussant all the papers were well written and informative. She said each presenter within the context of their own country's framework had perceived disaster in terms of flood and cyclone - the two major natural calamities that caused immense death and destruction in the region. The authors have raised certain issues on disaster preparedness and management - they have assessed the present system of planning management and have also suggested certain recommendations. But all the three papers have ignored the role of women and children in the disaster management and planning process.

Disasters have special implications for poor countries like Bangladesh because each disaster not only brings with it renewed miseries and loss but also puts extraordinary burden on the resources of the country. She also mentioned that she should not discuss at length all about these because these were already explained in the papers. But, she would make one comment on each of the papers.

SUMMARIES

Paper 11

The paper is concerned with the development of database and key indicators for the disaster management and rural development. In the paper it was emphasized that strong information base should be adopted. It dealt with some of the problems, issues and approaches in developing the databases, its frameworks and key indicators. The basic premise of the paper is to suggest that information systems can be useful tools in

developing and implementing disaster prevention measures. Development of a comprehensive database and the framework for its management is essential for proper planning which calls for the creation of a database. Creation of a database would involve the steps like identification of information needs, evaluation of existing data sources, and developing a new database. In this paper, after narrating the steps involved, the author has suggested a framework for database system (DBS). Although most of the developing countries are yet to develop national level comprehensive DBS. There are examples of its application at the local/project levels in Thailand and Sri Lanka. In spite of having much potential, Bangladesh is yet to develop it. In the paper a conceptual framework of a comprehensive DBS has been presented which is supported by figures and illustrations. The conceptual system involves integration of graphic and non-graphic database management and analytical capabilities through the combination of a mapping package, a database management package and a statistical analysis package. The paper also highlights the important uses of DBS, and concludes with a remark that the system would pay in the long run.

Paper 12

Natural disasters in some countries seriously impede national developmental efforts. Compared with other countries of this region, Malaysia has seen less severe natural disasters. As such, in terms of combating disaster, Malaysia may not set a good example. However, in terms of preventing from further aggravation of disaster losses, Malaysian efforts in formulating a reasonably intensive network of governmental and non-governmental organizations could serve as a useful tool to counteract the problem, balance development and disaster management.

The paper highlights Malaysian experience in terms of actions taken by the Prime Minister's Department (PMD) through the Economic Planning Unit (EPU), and also through implementation of various plans and structural measures. This paper concentrates on the structure (including its composition), authority and function of the Natural Disaster Relief Committee (NDRC) to demonstrate how Malaysia combats her natural disaster, in this case, floods.

While presenting the paper, the author introduced a Flood Warning Board, KG Siren, (a typical colour board warning system in use in Malaysia) which has been found to be very effective.

Paper 13

In Pakistan where river flooding is a recurring phenomenon, the paper begins with a scenario of floods. The issues regarding management of flood it suggests among others, river training and preventative structure, as well as mitigation planning, disaster planning, disaster preparedness, systematic and reliable information, emergency response, rehabilitation and reconstruction, as well as training of personnel. In the second part of the paper the author has summarized the overall needs of the training. It has been emphasized that the planners, councilors, field staff and villagers need to acquire training which may involve issues relating to curriculum expertise, finances, venue as well as typology. Moreover, a new planning approach to rural development need to be introduced to ensure distributive justice of resource-input among the rural incumbents. The paper considered the need for improvement of human and institutional base. The paper outlines the training levels and requirements, identifies the issues and describes the materials as well as the methodologies to secure development, promote flood response and reduce the effects of damages. In conclusion, UNCRD and other UN organizations were called for support and help disaster reduction efforts in developing countries, and promote skill development and academic exchange.

DISCUSSANT ' S OBSERVATIONS

Paper 11

In presenting his paper, Mr. Sarwar Jahan has emphasized the need for a database in the preparedness and management of disaster. At present available data are inadequate, spatial and scattered. And, whatever exist, there is a little scope of direct access. Therefore, she joined Mr. Sarwar Jahan to say that inadequate data and lack of accessibility of the existing, data are major impediments in the process of planning and management of disaster. Moreover, the existing ones can hardly promote inter-ministerial data integration or facilitate decentralized planning and decision making. Inaccessibility to data and its proper use have limited the extent and scope of taking measures for disaster management. This can be explained in the context of the flood in 1988 and the cyclone in 1991 in Bangladesh where massive destruction occurred which has had serious consequences. The existing database proved to be too inadequate and weak for handling the situation. This had given rise to a conscientious effort for development of an appropriate database in the country.

In this context Mr. Jahan has suggested a framework of well designed database structure. This will enable the systematic collection, collation and storage of information. It was suggested that the experience and model of other countries in the

region like Sri Lanka and Thailand which had made considerable progress toward developing and implementing database system for decentralized planning should be adopted with necessary modification before trying/experimenting with the recent ones.

Here, emphasis was given on collection of data at the community level through people's participation. In the past, experience shows that outside planning and implementation have alienated local community who have remained quiet bystanders and passive recipients without being actively involved in issues that affect them. In order to involve people, the participatory Rural Appraisal Method could be used. The method enables to collect local community level baseline data, in setting priorities, in planning on the basis of available data and resources, and in turn, implement planned action at the community level. The data also facilitate in; monitoring and help appraising the function at the community level on the basis of data generated. Prof. Iqbal's suggestion to involve students may be applied here.

Although information at community level may be comparatively limited in terms of coverage, but this is the only and most effective method which would promote local initiative in preparing for and in managing disaster in their own way and with their own resources. For additional support, outside assistance may be needed in the form of Infrastructure development, relief and rehabilitation etc. by government and NGOs.

Moreover, data generated at the micro level may be used, stored at one place, and applied at the macro and intermediary levels. Since, disasters in Bangladesh follow a regular pattern, preparing for them and managing them should not be very difficult once data are collected, stored and disseminated in a more systematic and well regulated manner.

Another point is that, Prime Minister's participation in disaster management may activate certain quarters, but at the grass roots level it is likely to have very little direct impact on the disaster-hit people.

Paper 12

On Mr. Fook's paper (No. 12) on Comprehensive Integrated Model for Disaster Management and Regional/Rural Development, the issue of structured organizations and state machineries vs people's organization and community participation can be raised again. While there can be no doubt, that government machineries are best able to tackle disaster issues at the national level given the framework and coverage, still too much reliance always leaves the possibility of cutting out or over looking human factors - that is so vital in facing challenges.

Paper 13

Prof. Mohammed Iqbal in his paper (No. 13) has identified training as a basic skill in preparing for disaster and managing it. Training, according to Prof. Iqbal, should be imparted at three levels: for top policy makers, intermediate functionaries, and community leaders. From experience, he has talked about the importance of integrating local participation in the training curricula. The skill should at least enhance the ability to understand disaster warning and to enable people to take appropriate actions.

But, all the three papers have failed to identify women and children as special categories when preparing for disaster or when managing it. In the context of Bangladesh, as in the case of Pakistan also, these two categories are the worst affected and therefore database should be specially structured to collect information on how to train and prepare women and children before and after they are hit by disaster.

GENERAL DISCUSSION

Paper 11

After the presentation, the Chairman opened the floor for general discussion. Some questions were posed to the presenter of Paper 11 on participatory database management, reliability and effectiveness of database, which were duly responded by the paper presenter:

Q.1 How to make database management more participatory?

A.1 Information should be collected from the people, obviously people should be included in the process.

Q.2 What is the village?

A.2 Village consists of people who live in the village. Planners are getting input from the village.

Q.3 What have you thought about data that are flowing upward and what can be done for data to come down as well? (i.e. data should be interpreted and used at the village level)

- A. 3 This happens only when secondary sources are available where no community level data exist which is not the case here. Local people can be employed to collect local level data.
- Q.4 What happens if the data collected can not be relied on – if there is degree of unreliability – is there any system to screen data on which planning will be based on?
- A.4 This is a problem, and for that collection procedure must be perfected so that if problem arises during interpretation, it can be tried again.

GENERAL COMMENTS/SUGGESTIONS (by Q.I. Siddiqui)

Paper 11

In database, 14 components have been suggested. How this data could be collected and synthesized at the thana (sub-district) level? Conceptually it is fine - the role of local people and local government, but the role of the Union should have been identified in collecting information.

SUBTOPIC - E: TRAINING ON ADVANCED TECHNOLOGY IN DISASTER MANAGEMENT

SESSION V

Data : 9 February 1993 (Tuesday)
Time : 14:00 – 16:30

Chairperson : Prof. Dr. M. Shahjahan
Discussant : Dr. A.M. Chowdhury
Rapporteur : Ms. Shireen Kamal Sayeed

Paper 14: Procedure to Provide Flood and High Tide Risk Map to Mitigate the Disaster
By : Prof. Dr. Yutaka Takahashi

Paper 15: Training Module for Flood Disaster Management and Regional Development
by Using Remote Sensing and GIS
By : Prof. Dr. Shunji Murai

SUMMARIES

Paper 14

The progress of urbanization has rapidly deteriorated the water retention capacity of the land undergoing such changes. Paddy fields which were once the natural water retention areas, have now been converted into areas of habitations thus contributing to the reduction of flood control capacities. Rapid urbanization has affected the hydrological cycle in the Asian region to such an extent that there is now a regular occurrence of floods in the low lying areas every year. Besides structural measures to prevent flood, nonstructural measures such as flood and high tide risk maps can also supplement the effectiveness of warning systems and planning for disasters.

The flood risk maps prepared using hydrological and hydraulic methodologies should also reflect the changes in topography and run off changes due to urbanization and other factors.

The geomorphological approach provides a historical recording of floods and also predicts future trends. Such maps show land form classifications obtained by survey of relief features and surface materials or deposits collected over periods of thousands of years. It studies the valley plain, swamp and delta changes occurring and changes of river courses. Such maps have been used successfully to tackle high tide floods in Kiso river basin in Japan.

In the Asian Monsoon region it is necessary for the administrative authorities in charge of disaster management to interact fully with the people affected by floods to contain the disaster or mitigate it.

The procedure for publication and distribution of risk map as adopted in; Japan involves several steps. A minis try is put in charge of comprehensive Flood

Control Measures", which plans for water retention areas in a flood prone basin and flood risk structures among other things. Feedback is obtained from several autonomies concerned on the effect of public announcement of risk. Maps are drawn to indicate past areas affected floods. Announcement of risk map to inhabitants is done after consultations between the ministry concerned and academicians having learning and experience in flood control. The dissemination is done by putting up the maps at City Hall, the Disaster Defence Department, schools and other local offices. Small warning plates are also displayed on walls, telegraphic poles and notices are pasted on large sign board.

It is necessary to conduct research on appropriate communication media for the inhabitants to evaluate the public mass media's effectiveness in informing the inhabitants at risk. Periodic revision of risk map based on collection of hydrological and hydraulic data is needed for evacuation systems to operate at times of need. Flood-proofing of houses and buildings side-by side with flood fighting practices will help keep the people ready for any flood. It is important for the academic sector to share the Interdisciplinary studies among themselves and convey it to the administrative sector. The later is responsible for relaying the information to the inhabitants for flood prevention.

Paper 15

The most effective way of training is to establish a two-way communication system between the trainer and the trainee. Any high-tech system of a developed country cannot be fully transferred to a developing country. The training has to be cheap and materials selected should conform the region of the trainee and training should be organized with a variety of menu.

The requirements of training are good teachers and trainees knowledgeable in hightech subjects of remote sensing and geographic information system and computers, good materials and facilities as well as a well designed curriculum.

Remote sensing training courses involve work with engineering work stations, development of computer software and programming with PC, various application of data on agriculture, forestry, land use, oceanography, geology, urban environment etc. and technical field visits. Such training are of a duration of 4-6 weeks. Standard softwares used are Micro ASEAN for remote sensing and LANDMAN for GIS and DTM.

The trainers are required to prepare in advance materials on satellite remote sensing data from the country, topo-map for Ground Control Points (GCPS), thematic maps in computer readable format, statistics, annual reports etc. All thematic maps should be digitized for use in an image scanner for acquisition of GIS data. At the end of a two month training, though it is not enough, the trainee is expected to present a technical paper in an international symposium or journal.

A model is constructed after processing of data (Remote Sensing and GIS) and presented in the technical paper. The trainers are also required to produce hazard maps of high risk areas in their countries. Contour maps and digitized map help to show the drainage areas. Together with physiographic, geological and hydrographic maps they are used to prepare hazard maps from raw data and computer readable maps.

DISCUSSANT'S OBSERVATIONS

This evening we had very learned presentations by two eminent professors - two very distinguished personalities Prof. Yutaka Takahashir and Prof. Shunji Murai.

The first paper was on procedure to provide Flood and High Tide Risk Map to mitigate the Disaster by Prof. Takahashi. First, he emphasized the effect of urbanization and the change in the landuse pattern in worsening the disaster due to flood.

He also emphasized the role of non-structural measures in flood mitigations. Flood and high tide risk maps can play an important role by increasing the effectiveness of the flood warning system. They can be useful also in landuse planning against disasters.

Then he has outlined the preparation of flood risk maps. There are two approaches for the preparation of these maps. In the geomorphological approach, flood risk maps indicates flood and high tide risk maps are judged from land forms. From these risk maps inhabitants can identify the flood risk to their residential areas from floods of different magnitudes and floods with various return periods.

From the hydrological and hydraulic approach, length or inundation periods and water levels of the submerged areas are predicted. Prof. Takahashi has given detailed procedure for the publication of these maps. Publication is very important because people for whom they are intended should be trained in the use of these maps and he has rightly pointed out that these maps should not be in the drawer of the planners as in that case the effort will be wasted. Prof. Takahashi talked about the problem of coordination between administration and academicians. He pointed out that

or having a sound disaster preparedness programme even feedback from the public is necessary. He emphasized the display of past records of the submerged areas in the city hall or at appropriate places. Such display will help the people in facing the disaster in an appropriate manner. He also suggested follow-up activities like research on appropriate communication media for the inhabitants and evaluation of public relation activities, revision of the risk maps etc.

The next paper was by Prof. Shunji Murai of the Institute of Industrial Science, University of Tokyo and currently at AIT, Bangkok. His paper was on Training Module for Flood Disaster Management and Regional Development by using Remote Sensing and Geographic Information System (GIS). The author has vast experience in imparting such training at the Murai Laboratory for the last fourteen years. He has rightly pointed out that the most effective way of imparting training is to establish not a one but a two way communication system between the trainer and the trainee. He has been instrumental in establishing bilateral cooperation between Murai Laboratory and five institutes in Asia. The program includes provision of Japanese PC's and complementary software as well as an instructor who stays in the developing country for about one month. He elaborated the training programme at the Murai Laboratory on Remote Sensing and GIS. He illustrated his paper by a case study of the 1988 flood in Bangladesh.

His idea on training on computer is not to teach the trainees how to operate a computer but to grow their ability to develop a software for themselves in order to solve their own countries problem. I think it is very relevant to problems of the developing countries.

Some of his other remarks need to be mentioned. Any system which has been developed in a developed country can not be fully transferred to developing countries. Training should be based on a cheap system of minimum cost hardware and free software for developing countries.

In Bangladesh, utmost importance is given by the Govt. on Disaster Management. A Disaster Coordination and Monitoring Unit has been established which will perhaps evolve into a Disaster Management Bureau, which will look into all the disaster aspects. Feasibility studies on Flood Mitigation under the Flood Action Programme with as many as twenty six components are being carried out (GIS, Flood Forecasting etc.).

I think we have got to learn a lot from the two papers presented here and in particular about the training module being developed by UNCRD-CIRDAP. I have personally benefited a lot from these two papers and from the other sessions, that I have

attended. I would like to thank UNCRD-CIRDAP for giving me an opportunity to participate in this workshop. Thank you .

DISCUSSIONS

Paper 14

- Q.1 In Pakistan, the various departments involved with disaster management are getting a lot of materials, but they do not interact with the various universities which can help in training of the new techniques.

How a cooperation can be brought about between the administrative and academic sectors?

A.1 After the severe flood damages caused by the typhoon in 1959, the Government of Japan established a high academic group in the Ministry of Education and organized a research group to study disaster. It included engineers, hydrologists, geographers and people from relevant disciplines. Later it was reorganized to include all concerned and gradually administrators were brought in, too. Since 1970, the social science groups have also been involved to deal with the social problems in the wake of a disaster and its mitigation. The socioeconomic scientists are also necessary for their contribution to any group planning for disaster management. That is what, is happening in Japan. But each country must prepare in accordance with its necessity.

Q.2

- a) At what scale and level (local or regional) the risk maps should be prepared and published?
- b) Do you think risk map is equally useful for urban area planning where more detailed land information are necessary?

A.2 The urbanization was limited in Japan in regions affected by flood. Risk maps were prepared showing where urbanization is possible and where not. Though it was not always politically possible to abide by these maps, but a consensus was reached between the academicians and administrators after several experiences of disasters.

Paper 15

Q.1 Could you please give actual examples of successful application of GIS or Remote Sensing in Disaster Management?

A.1 The method needs to be employed to find out its efficacy. Even though the development of such maps are expensive but in the view of greater

interest of the safety of the people, it is necessary to prepare them and test them.

Q.2 You have told that you are developing the GIS Software which will be used in IBM Computer. How far is your progress and when it will be available for the user?

A.2 The software will be available in July, 1993.

Q.3 Can you please identify for which areas the trainees are to be taken? Who the good trainees would be-civil officials or local people?

A.3 The good teacher with experience will not give answers but only advise so that the trainee can become a good trainer under the influence of a good teacher. The teacher will first have an understanding of his trainees' level and aptitude. He will prepare his lesson accordingly. This is applicable to any training whether high-tech or grassroots.

COMMENTS ON PAPERS

(Malaysia)

Malaysia differs in practice in the use of risk map from Japan.

In case of Malaysia the risk mapping is the responsibility of the administrator. By 1988, Malaysia had prepared its risk map. The mapping takes a long time and the accuracy of this map is also in question. So it is not given to the public directly as it is not sometimes clear to the academicians themselves.

(BUET, Bangladesh)

Macrolevel variations are not given by satellite images. The field level staff give the feedback to planners for making a more accurate map. It is therefore necessary to support macro level variations with field level data for risk mapping.

(Chairman)

Depending on resource constraints and level of information the flood risk maps can be made. The methodologies are there for us to try. Remote Sensing (RS) and Geographic Information System (GIS) are two tools for using in disaster management.

The Chinese system of flood control goes back about 2000 years. Whether there is flood or not, they spend US\$ 60 million every year in flood preparedness drills at the Yangtse river basin.

In land-hungry countries like Bangladesh where land-man ratio is very low it is very difficult to implement the rules for land use. But the Government has to try to minimize the risk to disaster in spite of that socio economic factors.

SESSION VI

GROUP DISCUSSION ON SUBTOPICS AND DRAFTING OF FINDINGS AND RECOMMENDATIONS

Date : 11 February 1993 (Thursday)

Time : 09:00 – 11:00

GROUP-1
DISCUSSION ON SUBTOPIC – A

**SUBTOPIC – A: ORGANIZING AND STRENGTHENING LOCAL
COMMUNITIES FOR DISASTER MANAGEMENT AND RURAL
DEVELOPMENT**

Chairperson : Mr. Jose Medina Jr., Philippines
Rapporteur : Dr. M.A. Momin, CIRDAP
The participants : Mr. Prem Raj Goutam, Nepal
Ms. Amara Pongsapich, Thailand
Mr. H.T.A. Manan, CIRDAP
Dr. S.I. Khan, UNCRD
Ms. Humaira Islam
Mr. Mohammad Mozammel Hoque, Bangladesh
Mr. Nurul Amin, Bangladesh
Mr. Shafiuddin Ahmed, Bangladesh

GROUP-2
DISCUSSION ON SUBTOPIC – B & D

**SUBTOPIC – B: IMPROVING SOCIO-ECONOMIC WELFARE THROUGH
DISASTER MANAGEMENT AND RURAL DEVELOPMENT**

**SUBTOPIC – D: INTEGRATED DISASTER MANAGEMENT AND RURAL
DEVELOPMENT APPROACH**

Chairperson : Mr. Quamrul Islam Siddique, Bangladesh
Rapporteur : D.P. Mazumder/Dr. Armad S. Abbasi, CIRDAP
The participants : Mr. Law Kong Fook, Malaysia
Dr. Shunji Murai, Thailand
Dr. Salehuddin Ahmed, CIRDAP
Dr. Mohammad A. Mohit, BUET

Dr. A.M. Chowdhury, SPARRSO
Mr. Md. Didarul Anwar, Bangladesh

GROUP-3
DISCUSSION ON SUBTOPIC – C

**SUBTOPIC – C: TRAINING/EDUCATION IN THE CONTXT OF DISASTER
MANAGEMENT AND RURAL DEVELOPMENT**

Chairperson : Ms. Yulfita Raharjo, Indonesia
Rapporteur : Ms. Fahmeeda Rahman Waab, CIRDAP
The participants : Dr. Sarwar Jahan, BUET
Prof. Mian Mohammad Iqbal, Pakistan
Dr. S. Narayan, CIRDAP
Dr. Mir Shahidul Islam, BUET
Mr. Keshab Acharjya, Bangladesh
Dr. A.Q.M. Mahbub, Bangladesh

GROUP-4
DISCUSSION ON SUBTOPIC – E

**SUBTOPIC – E: TRAINING AND ADVANCED TECHNOLOGY IN DISASTER
MANAGEMENT**

Chairperson : Prof. Dr. Yutaka Takahashi, Japan
Rapporteur : Ms. Shireen Kamal Sayeed, CIRDAP
The participants : Mr. Iqbal Ahmed, Bangladesh
Dr. K. Tudor Silva, Sri Lanka
Mr. M.Y. Waliullah, CIRDAP
Mr. Md. Kayemuddin, Bangladesh
Mr. Syed Ahmed, Bangladesh
Mr. Abul Kalam Azad, Bangladesh
Mr. Ahmed Sayeed, SPARRSO

V. CLOSING SESSION

PRESENTATION OF FINDINGS AND RECOMMENDATIONS

**REPORT OF GROUP 1
DISCUSSION ON SUBTOPIC - A**

**SUBTOPIC - A: ORGANIZING AND STRENGTHENING LOCAL COMMUNITIES
FOR DISASTER MANAGEMENT (DM) AND RURAL
DEVELOPMENT (RD)**

FINDING 1

Before organizing local communities for DM and RD there is a need for a thorough understanding of what is an organization and the purpose for which it is being organized. On the other hand, proliferation of organizations lead to problem of coordination.

RECOMMENDATION 1

To ensure orderly and systematic planning & implementation of DM: there is need for continuing formal, nonformal, informal education and training of all sectors involved. Training should be subject matter and clientele specific.

FINDING 2

There is also a need for clear understanding of the nature and impact disaster, their frequency of occurrence specially in point of time & location. Organization for DM and RD may vary from country to country. But the following were found to be common to all:

- (a) The need for formal informal structures are inevitable;
- (b) Government must play a lead and vital role;
- (c) There is need to involve the local population in DM & RD and preferably must be educated and trained to play their roles very well;
- (d) The women and youth must be given key role in DM and RD.

RECOMMENDATION 2

Local communities specially poor farmers and the assetless people must be given more focus and responsibility to take appropriate action for themselves. Rural women, children and other disadvantaged groups should be organized so that they can participate and contribute to the DM and RD. All these programmes should be oriented towards self-reliant approach.

FINDING 3

To ensure success of organizing local communities for DM and RD, there is need to examine the conceptual issues of peoples participation and target group organization.

RECOMMENDATION 3

Infrastructures for DM and RD must be in place and operational at all times:

- (a) safe shelters/evacuation sites
- (b) transport facilities
- (c) warning system
- (d) medical services

FINDING 4

To ensure success of organizing local communities for DM & RD, there is need to examine the conceptual issues of peoples participation and target group organization.

RECOMMENDATION 4

A special fund for DM must be put up by the Government in the national budget every year. The amount should be updated depending on the extent of damage of preceding years.

FINDING 5

On the part of the government, it has to formulate and implement a clear and feasible national disaster policy. The policy must indicate a clear understanding of responsibilities among government agencies on the one hand and the local communities and the people on the other.

RECOMMENDATION 5

There must be dedicated and honest leaders in all sectors; government, NGOS and local communities. A situation should be created to encourage dedicated and honest leaders to emerge and lead the communities for DM and RD. On the part of the government there must be strong political will. The politicians must identify themselves with the people and work towards a unified platform.

REPORT OF GROUP 2
DISCUSSION ON SUBTOPIC – B & D

**SUBTOPIC - B: IMPROVING SOCIO-ECONOMIC WELFARE THROUGH
DISASTER MANAGEMENT AND RURAL DEVELOPMENT**

**SUBTOPIC - D: INTEGRATED DISASTER MANAGEMENT AND RURAL
DEVELOPMENT APPROACH**

FINDINGS

1. Government commitment in rural development to alleviate poverty with complementary approaches, such as:
 - a) focus on macroeconomic and sectoral policies directed at improving efficiency and increasing productivity, especially in those sectors where the poor predominate (agriculture); and
 - b) expansion of programmes designed to lift people out of poverty.
2. Macro-economic and sectoral policies are not clear in the papers.
3. Government efforts are clearly there at macro-economic level e.g. transportation of product, market facilities etc. provided by Govt. to farmers. Computer facilities are to be provided for better information flow and data linkages.
4. Supply of easy availability of inputs by Govt, in Bangladesh are also there to provide such macro-economic activities.
5. Cooperatives - Stress was given on the structure of two-tier level cooperatives at village level and thana level. Also stress was given to focus "Target Group" level cooperatives.
6. Stress has been shifted from traditional "agricultural" sector to that of "non - farm" activities (e.g. construction of roads, irrigation facilities etc.) which may create increased employment opportunities for the landless farmers. Infrastructure development works as a multiple benefit (e.g. marketing, employment opportunities etc.) to absorb such a big number of landless/unemployed people in the economic development process.
7. Question has to be addressed to find out ways how the economic condition of the landless people can be substantially improved. Like in Korea and Japan stages of development took place (e.g. from traditional to take-off stage).
8. This leads to address the problem of restructuring land reform, however, it is a difficult process.

9. In comparison to other countries, land holding in Bangladesh is very small. Most of the land holding are in the private sector, particularly human settlements are in private level. If Government holds very small area of land as opposed to private, how would meaningful policies be adopted at macro level was raised as an issue.
10. Most of the forests and hills are owned by Govt. and should not be given settlement to private owners for agriculture because of deforestation and land erosion etc.
11. Land Owning Law - says that no more than 10 acre could be held by single individual, still, basic question arises that redistribution of land simply by giving it to poor people cannot do much good. Rather, a "collective effort" by giving credit, inputs training etc. may give better results.
12. It was stressed that land use planning and firm Govt. policy should be targeted to these issues and problems.
13. Bangladesh should think of high-priced productions because of availability of human resources. Like in India and other places where land is abundant, Bangladesh should emphasize on Human Resource Development (HRD) capabilities e.g. education and skill development. This would allow Bangladesh to compete with many developed countries. Malaysia is already in advantageous position because of its tremendous HRD emphasis, and rich natural resources.
14. In Bangladesh context, land contingent/land use policy alone will not lead to alleviate rural poverty. Rather, integrated/comprehensive socio-economic approaches/strategies would be needed to alleviate poverty (entrepreneurship development, non-farm activity etc.)
15. Main point is poverty alleviation but the question remains whether it would be 'gradual' or 'rapid' (accelerated) phase.

16. Intensification of agriculture development does not ensure long-term implication to alleviate poverty. Rather emphasis should be on lesser dependence on agriculture and HRD should come to play key role.
17. Data Base Management was considered to be an essential area.
18. Data Management should be a bottom-up approach. Computer application should be at community level.
19. Database do not necessarily only be quantitative, it should also be qualitative information to incorporate social context/issues.
20. As natural disaster cannot be prevented from occurring, one could take measures of 'balancing effects' (like afforestation ensuring, efficient use of ground water etc.) to mitigate losses from disaster.
21. Afforestation is necessary for agriculture. Japanese experience to link agriculture with afforestation can be considered which ensures adequate preservation of ground water.
22. Flood Action Plan in Bangladesh utilizing Chinese experience of creation of embankments may contribute to further formation of siltation which happened to Huang Hoo Basin area, in China. However, self cleansing velocity may offer some corrective measures.
23. There is a need for flow of information from central level to gradually trickle down to other sub-sectors.
24. In Bangladesh, problem remains as to how most effectively the interlinking of all these facets at different levels can be achieved.
25. Macro level policies at national level should be linked up with local level infrastructure in a coordinated fashion to ensure effective participation of different actors in disaster management.

26. People should be properly educated/motivated to take appropriate decisions to respond to disaster signals.
27. Need for community level technology absorption was stressed for building of durable houses, cost-effective technology houses, etc.
28. Special stress must be given on 'non-engineering' aspects to adequately tackle disaster problem.
29. At the occurrence of Disaster Govt, machinery can participate for rightful intervention.
30. It was stressed that there is a need to officially designate State of Emergency situation for 'Disaster Prone' areas at the time of occurrence of disasters.

RECOMMENDATIONS

1. Main thrust will be given on HRD. More emphasis should be given on non-farm employment. Entrepreneurship development in the private sector and improvement in skill development should take place in gradual manner.
2. Most of the disasters come from 'Poverty'. Therefore, emphasize should be given on elimination of poverty otherwise this process would not be able to tackle the problem effectively.
3. Political support and commitment is necessary. LDCS need to stress on High Productive System.
4. Main emphasis should be on HRD - better skill development etc. with special focus on:
 - Poverty Alleviation
 - Land Contingency Policy should be comprehensive/integrated
 - Policy should be 'rapid' not 'incremental'.
5. Development of infrastructure to protect people in the disaster prone areas .

6. Disaster prevention through communication/warning system should be given priority.
7. Data Base Management - Hardware and Socio-economic/Local level Planning components including communication network should be linked effectively.
8. Role of Local Government - To understand local community at the village level is important. Full community understanding is needed.
9. Data Management should come from national to village level and vice versa.
10. In the Warning System - Training is important, so that people could be adequately trained/oriented.
11. Disaster Master Plan Study by World Bank involving local experts in Bangladesh has stressed that building of disaster shelters with multi-purpose facilities (e.g., school, satellite antenna for transmitting information, etc.), same could be tried in other countries. Limitations of resources make it more necessary to incorporate multi-purpose facilities.
12. Country-specific/Local-specific measures should be adopted to tackle the problem of natural disasters.
13. There is a need to enhance the coordinating role of GOs/NGOs, community organizations and private sectors in disaster management.

**REPORT OF GROUP 3
DISCUSSION ON SUBTOPIC – C**

**SUBTOPIC - C: TRAINING/EDUCATION IN THE CONTEXT OF DISASTER
MANAGEMENT AND RURAL DEVELOPMENT**

ISSUES

1. The present curriculum is not adequate for encompassing training and education for disaster management and rural development.
2. Given the socio-economic structure, the formal education may not be sufficient to address disaster mitigation.
3. Social aspects are currently given less attention for disaster management in micro and macro level planning.
4. Appropriate attention is currently not being paid in need of womens' training and education.

METHODOLOGY

1. Gradual incremental exposure of the students to disaster awareness, management and prevention should be ensured.
2. A regular programme of non-formal education should be instituted. The non-formal education should address the specific issues of disaster management and rural development. A specific curriculum should be developed for this purpose.
3. Local plans should be prepared considering the physical and socio-economic setting. Participatory approach should be adopted at all stages.
4. Curriculum for formal/non-formal education and training should specifically be addressed to the identification of the problems and needs of women in disaster situations. Special attention need to be given to women folks while planning for disaster management and rural development.

REPORT OF GROUP 4 DISCUSSIONS ON SUBTOPIC - E

SUBTOPIC - E: TRAINING AND ADVANCED TECHNOLOGY IN DISASTER MANAGEMENT

FINDING 1

There is a lack of communication between administrators concerned with disaster management and the academicians knowledgeable in disaster management science.

RECOMMENDATION 1

For dealing with disaster effectively the administrators should communicate fully with the academicians to have their cooperation in planning for disasters.

Inter-disciplinary cooperation and communication is also necessary between the academicians: not only between scientists and engineers, but they must also include social scientists to deal with the socio-economic problems arising out of disasters which affect the people.

FINDING 2

In the wake of disaster it is found that the resources necessary for fighting disasters are not readily available.

RECOMMENDATION 2

Resources needed for fighting disasters such as manpower, equipment, emergency food and medical supplies etc. should be prepared in advance by the planners and policy-makers.

FINDING 3

In order to mobilize resources for fighting disasters training is essential. Risk maps prepared with the help of GIS methods can be of immense help in the training for disaster management.

RECOMMENDATION 3

The degree or nature of training should be consistent with the nature of risk and the nature of area under risk. The areas of risk should be identified and the probability of risk should be predetermined before preparation of any risk map for a particular region.

FINDING 4

Training for preparation and interpretation of risk maps for disaster preparedness and responses is not generally available.

RECOMMENDATION 4

Training for preparation of risk maps should be organized by relevant authorities for selected technically competent persons involved in disaster planning. Training for understanding or interpretation of risk maps is also necessary for other planners, administrators, and local level officials who will guide the inhabitants of an area under risk.

FINDING 5

There is a necessity to corroborate the information collected through advanced satellite systems and the actual ground situation.

RECOMMENDATION 5

Data should be collected periodically on different variables related to disaster from the inhabitants of the area under study. Field checks for tallying satellite data with ground data should be conducted by the technically competent persons dealing with it.

FINDING 6

Training is necessary for those who will be interpreting those maps.

RECOMMENDATION 6

High-tech training on knowledge of image processing using digitizers, interpretation of features in satellite photos, ground checking of data and damage assessment should be organized by the government for the relevant people.

Needs assessment of the trainees for advance technical training should be the responsibility of the organization in charge of handling satellite information or the concerned ministry.

Once prepared, risk maps should be disseminated among the public for disaster awareness and preparedness.

FINDING 7

Geographers' risk maps are not understandable to the general public. Such maps need to be modified for general understanding.

RECOMMENDATION 7

Features of risk maps should be modified to make them understandable to the general public. The features should be clarified in a simple manner and instructions for reading the maps should be incorporated.

Inclusion of such modified risk maps may be made in the school curriculum for broader dissemination.

Local level planners should organize training for the inhabitants of an area for reading risk maps.

FINDING 8

Various organizations/agencies dealing with remote sensing (RS) and geographic information system (GIS) are unable to exchange information or expertise due to lack of coordination.

RECOMMENDATION 8

A data base should be created which should be available with the government having information on how many organizations (public or private) are using computer based knowledge in advance RS and GIS technology, what are the types of computers and softwares in use and who are the technically competent people dealing with it. This will help in the coordination of information related to disaster management.

FINDING 9

Any high technology system developed in a developed country can not be fully transferred to a developing country. But some mode of transfer needs to be established.

RECOMMENDATION 9

Developing countries should base their training on high technology system on minimum cost hardware. This should be supplemented by a free offer of software from the developed countries and free of cost trainer to impart on-job-training to technical people in the developing countries. Developed countries should not treat the contents of their softwares as restricted materials, but should make them readily available to countries in need of fighting disasters.

FINDING 10

Most often training imparted to trainees from developing countries on high technology systems employs situation and case studies on developed countries which do not reflect the needs of the developing countries.

RECOMMENDATION 10

The trainees from developing countries undergoing high technology initiation on RS/GIS should be encouraged to self-develop software for training needs and situation of their countries and taught to analyze data or information brought by them from their countries.

FINDING 11

It is essential to identify the requirements of training on GIS/RS for the training institutions.

RECOMMENDATION 11

Role of the trainer should be to advise and supervise the trainees' operations. He should not solve their problems or make the trainees follow the system without any thinking on their own.

The trainee must come prepared with data from his own country for developing a model on hazard mapping on his own, he must have basic technical and computer knowledge required for training on GIS/RS.

Materials used for GIS/RS training should not only involve text books, exercises and test data, but also include a variety of spectral classes or features with ground truth data and ground control points. For GIS, a well defined model with necessary geographic data should be prepared in advance.

Training method should include not only lectures, exercises, but also on-job-training, technical field visits and report making. There should be good training facilities with 'users friendly' software systems. Such systems should not be of a type which is not available in the market for the trainee.

FINDING 12

To tackle recurrent onslaught of disasters, modification of training courses are a necessity.

RECOMMENDATION 12

Research and development cell should be established by the government for finding out innovative courses befitting the needs of the specific country/region/area.

Alternative modules for training should be prepared and pilot tested.

FINDING 13

There is a necessity to tackle problems in decentralizing technical training.

RECOMMENDATION 13

Training should be decentralized in the region to help countries which do not have access to satellite technology to share information with the countries having it.

A regional network of organization using GIS and RS data may share softwares to help the developing countries.

CLOSING REMARKS

WOLFGANG FISHER

UNDP

As we all know too well, Bangladesh experiences natural disasters like floods, cyclones, tornadoes in varying degrees every year. Floods are more or less a regular phenomenon in this low lying country situated at the foothill of the Himalayas. For this reason, people have adjusted themselves in many respects as to how to live and cope with floods. But when they reach a magnitude such as the floods of 1987 and 1988, they bring havoc to the lives and the economy of the country. On the other hand although the intensity of cyclones is not very frequent compared to floods, their consequential effect on the economy and people is much higher than the combined loss of a number of floods. The severity of a cyclone in terms of loss can be well understood by the 1991 cyclone in Bangladesh in which 138,880 people vanished and property worth US\$7.2 billion was destroyed.

To the Government of Bangladesh has fully realized the need for an advance planning on disaster management in particular following the 1991 cyclone. A number of positive steps have been taken for its mitigation. Of them, the most important national programme is the Flood Action Plan (FAP) which is a long term step towards flood control in Bangladesh. The Plan encompasses both structural and non-structural components. UNDP, together with other 15 donors, is actively participating in this national programme.

In addition to the above, UNDP has become increasingly involved in other non-structural mitigation programmes. Special mention should be made of an emergency project for the strengthening the Ministry of Relief. This UNDP project is directly involved in the creation of the Disaster Management Bureau (DMB) which will be the focal point for all kinds of activities such as relief, emergency rehabilitation, training, disaster management etc.

Two important aspects of the UNDP's above mentioned project with the Ministry of Relief need special mention. Firstly, this project will formulate the "Support to Comprehensive Disaster Management", the main objectives of which will be to

- (i) increase the capacities of household and local communities in the highly disaster prone areas to cope with cyclones, floods and other potentially disastrous situations;
- (ii) to increase the efficiency and the effectiveness of response to emergencies, and to expedite recovery following disasters, through

enhanced preparedness at all administrative levels based on collaboration between government officials and agencies, NGOs, and other concerned bodies, in all relevant activities (including warning system, precautionary measures, rescue, relief and rehabilitation operations); and

- (iii) to ensure the measures are taken to reduce disaster risks as much as possible, and that such risks are properly considered in general development planning at all levels.

Secondly, the project will develop a comprehensive disaster management training strategy which is directed towards CAPACITY BUILDING. Having recognized that increase of awareness at all levels of the consequences of natural disasters is the precondition for overall development, the training strategy has been developed with four major elements:

- Advocacy/sensitization to inform/educate political leaders, senior officials and other influential people of the importance of a comprehensive approach to disaster management, and to obtain their commitment and support for the Disaster Management Bureau and its programme activities;
- Community mobilization to inform people of the actions (preparedness and proofing) they can take to protect themselves, their households, and their local village communities against known threats of cyclones and floods (and of what to do in the event of a cyclone or flood), and to encourage and help them to organize and take appropriate measures for themselves.
- Disaster Management Training to strengthen the capacities of “middle managers” to fulfill their respective functions in the field of disaster management (including the promotion of community mobilization). The training consists in large part of developing basic management and inter personnel skills;
- Specific Sector Training to improve skills of individuals in their respective fields as they relate to disaster management.

In addition to the extensive training at all levels, training will also be provided to the staff of the proposed Disaster Management Bureau (DMB). The training at the district level and below will be part of the overall integrated disaster contingency plans of those levels and they will be implemented in phased manner, focusing initially on the disaster-prone districts.

Under another Global Programme, UNDP has also undertaken the Country Disaster Management Training Programme (CDMTP) the main objective of which is to enhance the overall capabilities of the people at the central level of the Government in the management of the disasters, mainly during the emergency phase.

I am very happy to note that, not only UNDP, but also a number of organizations, both national and international, have come forward in the recent years to assist the Government in its disaster mitigation efforts. It is recognized by all that enhancing awareness and the capability in the management is the most crucial item on which attention is needed to be given on priority basis. Along this line, UNCRD and CIRDAP have jointly organized this workshop whose objective is to develop a suitable module for training on integrated approach to long term disaster management and regional planning. The workshop is, no doubt, a timely intervention. I trust, the outcome and the recommendations of this workshop can usefully complement through an acceptable training module in the finalization of the proposed long-term training strategy being developed by UNDP. It is gratifying to note that papers from a number of countries have been presented, reviewed and a number of concrete suggestions have been put forward. The practical experience of disaster management training and modules used in different neighbouring Asian countries will certainly be useful in devising a well accepted module for Bangladesh.

At this concluding session, I wish to express my gratitude to the organizers for inviting me on behalf of UNDP to this Concluding Session and giving the opportunity to the UNDP's involvement to this important matter.

CLOSING REMARKS

ISAO TSUKAGOSHI

Senior Disaster Management Planner
UNCRD

Honourable Chief Guest, His Excellency Barrister Abdus Salam Talukder, Minister for Local Government, Rural Development and Cooperatives, Respected Mr. Wolfgang Fisher, Deputy Resident Representative of UNDP, Dhaka, Dr. S. Narayan, Deputy Director of CIRDAP, eminent experts from CIRDAP member countries and Japan, distinguished participants, ladies and gentlemen;

On behalf of the director of UNCRD, I express sincere thanks to all of you for your cooperation to this five day workshop and for your long assistance and support to the entire programme which commenced three years ago. UNCRD is very happy to have successfully finished the four phases of our programme in Bangladesh which is titled as 'Development of Modules for Training on Integrated Approach to Disaster Management and Regional/Rural Development Planning'.

As one of the recommendations of the first phase meeting in 1990, we understood that advanced technology such as remote sensing and GIS will provide us useful measures to cope with disaster problems, and UNCRD started a training programme on remote sensing and GIS in cooperation with BUET, SPARRSO and Prof. Murai's laboratory in the University of Tokyo. In the second phase, UNCRD and CIRDAP held a country seminar inviting community leaders from local areas of Bangladesh. Through this event, we could develop various knowledge on the actual problems at community level.

Responding to the extensive damage due to the 29 April 1991 Cyclone, a part of the third phase programme was implemented in the city of Chittagong, and strategies for reducing the risk of cyclone were discussed among international and national experts and local officials. Upon the basis of the ideas recommended in this meeting, UNCRD prepared a new research assistance programme which Prof. Sazanami explained in his keynote address in the opening session on Sunday.

By the way, before coming to Dhaka, I attended a United Nations' meeting in New Delhi, the 4th Session of the Scientific and Technical Committee for IDNDR (International Decade for Natural Disaster Reduction). In this meeting, Mr. Abdul Hakim, Secretary of the Ministry of Relief of the Government of Bangladesh revealed the Multi purpose Cyclone Shelter Programme currently going on in Bangladesh and I,

myself explained about the UNCRD'S research assistance programme on cyclone disaster management.

Both of the programmes were recognized by the committee as important programmes contributing to the IDNDR.

Back to the training module development programme, in the fourth phase, we discussed how to strengthen local communities, how to improve socio-economic welfare, how to arrange training and education, how to integrate disaster management and rural development issues, and how to incorporate advanced technology in disaster management. As Jose Medina Jr. reported a short while ago, we have obtained the successful and meaningful results including findings and recommendations in various aspects of disaster management and rural and regional development. These results, together with the gained one in the past phases, will make important foundation of the next phase, where UNCRD and CIRDAP will organize an expert group meeting in Japan for obtaining a guideline and an implementation plan towards the compilation of the training module.

In fact, it is not easy to definitely understand the relation between disaster impacts and regional development. I would, however, be able to show you one example through my experience. I visited Bangladesh five times and every time I feel a slight difference from the previous time; this country takes a steady way towards the development, In particular, the difference between last year and this year is evident: looking at the streets of Dhaka and small towns we visited in the field visit programme, could find lots of newly built buildings and vividly shining commercial signs; these peoples were actively working from early in the morning. I am convinced that one of the reasons of this development is the fact that Bangladesh did not meet a severe disaster in 1992. There was an impressive event last year; a cyclone with same magnitude as the one in 1991 happened in the Bay of Bengal and very fortunately disappeared before reaching to the territory of Bangladesh.

I know that the resolution for the IDNDR of the United Nation's General Assembly recommends to believe the capacity of science and to avoid fatalism to disasters. I personally feel, however, that it is sometime necessary to say "God Bless This Country". Without being hit by a severe natural disaster and without being involved in a devastated man-made disaster, prosperity in the future would be promised to this country.

Honourable minister, ladies and gentlemen, at the moment to close this successful programme, I would like to extend my greatest appreciation to chairpersons, the paper-writers, discussants and all of the participants for their active participation to

this event. I also would to express my heartfelt gratitude to the Government of Bangladesh, the Government of Japan, and UNDP. Dhaka, for their continued support to us.

I now would like to conclude this meaningful and fruitful workshop by appreciating the greatest contribution of the CIRDAP and by wishing that peaceful time without a disaster may continue in Bangladesh and other countries in the world.

Thank you very much.

CLOSING REMARKS

S. NARAYAN

Deputy Director
CIRDAP

This is the fourth series of workshop which is being held at Dhaka to develop modules for training on integrated approach to disaster management and regional/rural development planning. These workshops conducted jointly by UNCRD and CIRDAP have attempted to focus on issues which are most vital to the management of disaster in these developing countries. It is appropriate that the workshop held at Dhaka, Bangladesh which is one of the most disaster prone countries in the world and has been devastated quite regularly by monsoon flooding and cyclones. Similar experiences have occurred in India and Thailand; and in Philippines volcanic eruption caused devastations .

These problems call for action not only for disaster prevention but also to reduce the human suffering that follows such disaster. Mere provision of relief is inadequate to compensate the poor and they continue to remain vulnerable to the next disaster. Long term mitigation has to focus on improving the socio-economic conditions of the poor in such a manner that they can combat and manage such problems.

In the past three workshops over 45 papers addressing various issues have been presented. In the current workshop there have been 15 papers addressing issues of (1) Organising and strengthening local communities for disaster management and rural development; (2) Improving socio-economic welfare through disaster management and rural development; (3) Training/education in the context of disaster management and rural development; (4) Integrated disaster management and rural development approach and (5) Training on advanced technology in disaster management. These papers have drawn upon past experiences as well as the developments in the earlier workshops.

In this workshop representatives from Philippines, India, Bangladesh, Nepal, Sri Lanka, Thailand, Indonesia, Malaysia, Pakistan, Japan as well as experts from technical institutions in Thailand and Bangladesh participated. Other participants include representatives from the concerned Ministries. BUET, BRDB, SPARRSO, University of Dhaka, Planning Commission as well as international organisations and NGOs. CIRDAP has been proud to cohost this international workshop. This exposure has not only enlarged technical capacities in CIRDAP but have also been responsible for putting together CIRDAP member countries experiences in this vital area of development planning. CIRDAP now feels itself confident to take up and assist in the development of training modules for both senior level planners as well as grassroot

functionaries in the field of disaster management and rural development. It is important that these training modules should be country specific and relevant to specific individual countries. We hope that CIRDAP would be able to work together with UNCRD in the development and field testing of these modules.

I would like to thank UNCRD for the confidence that they have reposed in CIRDAP in agreeing to this joint collaborative effort. We hope that CIRDAP has adequately fulfilled the trust that the UNCRD has placed on us. I would also like to thank LGED and Mr. Quamrul Islam Siddique, Bangladesh for organising the field visit which enabled us to see infrastructural rural development and poverty alleviation programmes in the field. I am sure that the participants have found this a rich experience.

Thank you.

ADDRESS BY CHIEF GUEST

H.E. BARRISTER ABDUS SALAM TALUKDER

The Honourable Minister for Local Government
Bangladesh

Excellencies; Representatives of UNDP and UNCRD; Ladies and
Gentlemen:

I am glad to have this opportunity to address you on the occasion of the closing session of UNCRD-CIRDAP Workshop on Development of Modules for Training on Integrated Approach to Disaster Management and Regional/Rural Development Planning (Phase-IV). The topic chosen for discussion in the workshop is a very important one in the context of the economy of Bangladesh.

The development efforts of Bangladesh are often slowed down among other factors, by natural disasters like flood, cyclone and river erosion. A substantial portion of our own resources and resources from abroad are utilised just to protect the poor people from the hazards of various natural disasters, leaving little amount of resources for real development through agricultural, industrial and other productive activities. We have seen the devastations caused by the floods of 1987 and 1988 in Bangladesh. Several thousand tons of crops were damaged, infrastructures like roads, highways, schools were destroyed, valuable human lives were lost, diseases spread, all of which greatly affected the already impoverished people of the rural areas. The flood problems of Bangladesh are complex and multi-faceted. It is important to realise that all parties: the government, NGOS, the community and above all the people must make a concerted effort to mitigate the hazards of disaster. The experiences of Bangladesh have shown that if all of us join hands, we can overcome the problems of disasters. This has again been exemplified~ by our efforts after the devastating cyclone and tidal surge which affected the coastal areas of Bangladesh in April 1991. I take this opportunity to call upon all the national and international agencies to help us come out with a comprehensive and well-coordinated plan of action to combat the ills of disasters in Bangladesh.

It is commendable that organizations like UNCRD, UNDP, CIRDAP, OXFAM, etc. are working towards formulating training manuals for community participation in disaster preparedness and management. I am told that this was the fourth such workshop organized by UNCRD and CIRDAP jointly. It has been a four year exercise for them and hopefully they will prepare the training manual by the end of this year.

I am happy to know that ten countries from Asia-Pacific region participated in this workshop, I believe the sharing of experience and expertise among the nations of the region will go a long way toward furthering the cause of regional development.

One important factor taken into consideration during this workshop was people's participation. By people we mean the people at the very grassroots level who should be involved in the planning and management of any programmed geared towards disaster mitigation. There is a need for the grassroots people to be involved in any disaster mitigation planning. Community participation should not only be for disaster mitigation efforts after on set of disaster. But, the community and people should be taken into confidence and consulted at each stage in sharing in planning and managing for disaster in order to get their total interest and support. The importance of consulting the community arises for making an assessment of their training needs In this area. Only a need-based training module can actually contribute in mitigating the ill effects of disaster.

The Government of Bangladesh have undertaken a project, with UNDP assistance of strengthening the capability to coordinate and monitor disaster and to integrate and expand existing organizational structures. There have been significant improvement in disaster preparedness. The participation of local communities is essential in ensuring effective relief and rehabilitation.

The recommendation given by the workshop participants are very pragmatic and I congratulate UNCRD and CIRDAP and wish them success in their efforts in coming up with the final products of the training modules.

I thank the participants for contributing to the success of this workshop. I hope the participants from abroad have enjoyed their stay in Bangladesh and I wish them a safe journey home.

Thank you all.

ABOUT THE CIRDAP

The Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) is a regional, inter-governmental and autonomous institution: it was established in July 1979 by the countries of Asia and the Pacific Region at the initiative of the Food and Agriculture Organization (FAO) of the United Nations and with support from other concerned UN bodies and donors. Starting with six members, CIRDAP has now 11 members. These are: Bangladesh (Host State), India, Indonesia, Lao PDR, Malaysia, Nepal, Pakistan, The Philippines, Sri Lanka, Thailand, and Vietnam. Operation in member countries through designated Contact, Ministries and Link Institutions, CIRDAP has access to government policy-makers, research and training institutions, and non-governmental organizations.

The main objectives of CIRDAP are to (i) assist national action; (ii) promote regional co-operation; and (iii) act as a servicing institution for its member countries for promotion of integrated rural development through research, training, and information dissemination. Amelioration of rural poverty in the Asia-Pacific region has been the prime concern of CIRDAP. The Centre is committed to the WCARRD Follow-up Programmes. The programme priorities of CIRDAP are set under the four Areas of Concern: (1) Agrarian Development (2) Institutional/Infrastructural Development; (3) Resource Development including Human Resources; and (4) Employment.

CIRDAP acts as a bridge among the countries of the Asia-Pacific region, and between regions through sister centres, such as CIRDAFRICA. It promotes technical co-operation among nations of the region. CIRDAP plays a supplementary and reinforcing role rather than a competitive or parallel one in supporting and furthering rural development in the Asia-Pacific region.

ABOUT THE UNCRD

The United Nations Centre for Regional Development was set up in 1971 in pursuance of the terms of ECOSOC resolutions 1086C (XXXIX) and 1141 (XLI) which called for global action to promote regional development, and resolution 1582 (L) that provided guidelines for its establishment. The principal aim of UNCRD is to enhance the capabilities of the developing countries in local and regional (subnational) development and planning.

Towards this aim, UNCRD organizes training courses, promotes collaborative research on substantive issues in regional development, extends technical advisory services, serves as a forum for exchange of experiences, and fosters exchange of publication and information on local and regional development and planning.

In 1986, UNCRD recently reorganized its programmes into seven major operational units. UNCRD also launched a new programme known as its Strategic Assistance Programme. Although the projects focus primarily on research and training, they also include advisory services and information dissemination components.

The seven operational units provide a framework within which UNCRD can identify, design, and manage research and training projects. These units include: (a) Urban Development and Housing Unit (UDHU); (b) Regional Development and Management Unit (RDMU); (c) Environmental Planning and Management Unit (EPMU); (d) Regional Disaster Prevention Unit (RDPU); (e) Information Systems Unit (ISU); (f) Social Development Unit (SDU); and (g) Industrial Development Unit (IDU).

The Strategic Assistance Programme provides support for specific activities in local and regional development and planning that are of demonstrated importance to the developing countries. Current projects include: (a) Development of Training Modules on the Integrated Approach to Disaster Management and Regional/Rural Development Planning in Bangladesh; (b) Transformation of Regional Economies and Modernization of Enterprise and Village Management in China; (c) JIF/UNCRD Joint Training Programme on Regional Development Planning Techniques and Management for Indonesian Local Government Officials; (d) Local-Level Planning and Management in Papua New Guinea; (e) Training Programme on Earthquake Engineering and Disaster Management for Establishing a Building Administration System in the Philippines; (f) Social Forestry and Community Development in Southeast

Asia; (g) Local and Regional Development in Eastern and Southern Africa; and (h) Management of Metropolitan Living Environments in Latin America.

For further information, please write to:

The Director
United Nations Centre for Regional Development
Nagono 1-47-1, Nakamura-ku, Nagoya 450, JAPAN

Phone : (052) 561-9377
Fax : (052) 561-9375
Telex : J59620 UNCENRE
Cable : UNCENRE NAGOYA
