ALTERNATIVE FLOOD PROTECTION

PROCEEDINGS OF A WORKSHOP, HELD AT THE EUROPEAN PARLIAMENT IN BRUSSELS, BELGIUM, IN DECEMBER 1996
Alternative Flood Protection

Proceedings of a Workshop
held at the European Parliament in Brussels, Belgium,
on December 7, 1996
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We are also grateful to all the participants who contributed their experiences and ideas to the workshop. It is according to their wishes that a record of this day has been drawn up.

Our aim in publishing the proceedings of the workshop is to provide, as accurately as possible, a record of the different viewpoints expressed by the speakers and the participants of the workshop.

Hanna Schmuck & Heike Wilhelm
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INTRODUCTION

by Hanna Schmuck

At their annual meeting in Paris 1989, the G-7 nations defined floods as being a “major problem” in Bangladesh. In order to find solutions to this problem, the ‘Flood Action Plan’ (FAP) was launched. The FAP aims to protect the people and the infrastructure of Bangladesh from floods and, moreover, to raise agricultural production through various restructuring measures. Besides studies on the feasibility of future projects, construction work is also being undertaken (such as under FAP 1, FAP 3.1, FAP 20, and FAP 21/22). Most of the projects are based on Western scientific knowledge and techniques and are carried out by expatriate engineers in cooperation with local companies. The necessary elements of Western knowledge and materials in the above projects make them among the most expensive in the FAP.

The FAP does not yet acknowledge floods as being a ‘normal’ or fixed part of the annual cycle and does not treat them as an expected occurrence in Bangladesh. Knowledge and skills developed by the rural Bangladeshi population to help them protect themselves from floods and erosion are not always apparent to outsiders and are ignored by the Plan. Such strategies include the planting of trees and reeds, the construction of houses on mounds, the building of portable cookers, the storing of food and fuel, and the adherence to a special diet during floods. In addition to these concrete measures, the rural population have developed general strategies to enable them to live with the floods. For instance, they cultivate traditional rice-species, which have adapted to natural conditions. In some areas, rice which is able to grow with drastically rising water levels is cultivated. Such species, however, are being replaced more and more by High Yielding Varieties which the FAP (especially FAP 20) promotes.

Many of these traditional strategies are applied only in specific areas, while others are part of the store of common knowledge of the rural people. The FAP-planners are generally unfamiliar with such indigenous techniques. Consequently, discussions between FAP-planners and critics often end in a request for information about alternatives. To date no concrete alternatives have been proposed. Although a large number of individuals and organisations are discussing the issue, the necessary exchange of knowledge and experience has been minimal.

The purpose of the workshop was to start this process of sharing knowledge of strategies and technologies which provide an alternative to the traditional engineering approach. Hence the presentations dealt with local strategies of coping with hazards around the world in general, and with floods and erosion in Bangladesh in particular.

About 50 people participated in the workshop, most of whom had working or research experience in Bangladesh. During the morning session, five papers were presented:
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Gilles Saussier, a French photographer who lived in Bangladesh from 1993 to 1995, started with a slide presentation on the Jamuna chars. They ranged from pictures of the landscape during the monsoon season and the dry season to the daily life of the char-dwellers and helped to put faces and people to the anonymous statistics which we are talking about. Susanne Zumstein opened the paper session. She is a Geographer who graduated from the Institute of Geography, University of Bern, Switzerland with research into erosion processes at the Brahmaputra/Jamuna and the strategies of local people in coping with them. The paper from Fazlul Huq Ripon, representative of the Bangladeshi NGO 'Jamuna Char Integrated Development Project' (JCDP) dealt with the flood proofing project they have undertaken on the Jamuna-chars in the Jamalpur area. Dr. Saleemul Huq from the Bangladesh Centre for Advances Studies (BCAS) moved to the mainland with his presentation and showed a case study 'Wetland Management with People’s Participation'; as did Dr. Aminul Islam from UNDP in his presentation ‘Fisheries Management and Habitat Restoration’ which showed a pilot project implemented by the Centre for Natural Resource Studies (CNRS). Nick Hall from Intermediate Technology London moved to other countries and other continents. He explained IT’s theoretic concept of community participation and indigenous knowledge in disaster management with examples from Africa and South America.

In the afternoon session, two working groups were formed. Working group I discussed ‘Local and Technical Strategies for Flood Protection’, Working group II dealt with ‘People’s Participation’. In the following plenary discussion, general issues were discussed, as summarised below.
In the last two years I have been working intensively in the remote fringe areas of the delta of Bangladesh: the chars of the Jamuna, the islands of the Bay of Bengal and the haors of the north east. There my project 'Living in the Fringe' developed, with the support of ICCO, Action Aid Bangladesh and Oxfam Bangladesh. I am now going to present this project in form of a slideshow.

The project has two main objectives. First, to make visible those millions of people who are living in the corners of the delta, to make them visible because even from the statistical point of view we do not know how many people there are and so they are very much neglected. They are neglected by the central administration in the sense that they do not get the facilities and the infrastructure in terms of health, in terms of schools, and in terms of law and order. Yesterday I was talking about the fisheries in the northeast, saying that there are huge areas in Bangladesh which are outlawed areas and which I believe are kept in the status of outlawness by businessmen and officials in order to make illegal profits, such as some of the haors fisheries (e.g. Tangua haor). They are also neglected by the international donors. We all remember that the char dwellers were not incorporated in the first document of the Flood Action Plan but it is the same with the Jamuna Bridge; usually those people are not targeted so although we are talking about poverty alleviation in the big projects. And they are also neglected by the NGOs themselves. I know that there are some logistical problems but there are very few NGOs working in these regions. The density of NGOs one hundred kilometres around Dhaka is much greater than in the fringe of the Bay of Bengal. I am not a social scientist, just a photographer, so my work is more allegorical than purely descriptive, but I want at least make visible the people who do not statistically exist. The second objective is to work on the link between poverty and natural calamities. One should understand that people in Bangladesh are not poor because of natural calamities but that they are poor from a structural point of view. Many have no other alternative than to settle in areas where they will face natural calamities, thus we should start with the poverty and end with the calamities considering them as a gravitating factor but not as the initial factor of poverty.

The slides I am going to show you are only taken on the Jamuna chars. The basic idea was to put faces on the statistics and to use these faces as maps. We are always talking about the people in general. When there are calamities we see in the newspapers that ten thousand people have died but we do not know these people, we do not know their names, we do not know their faces, they are totally anonymous, so I have decided just to show some faces.
The morphology of the chars is always moving and if you look at the maps there is every five to ten years a huge difference. Sometimes you return after two or three months to the same place and you will not recognise anything. For me the only valuable map is those visages of the people. They are the only thing which retain the difficulty of life because otherwise the landscape, the belongings and everything is changing all the time. So the only scars you can find are the scars of the faces of the people. I have done many portraits with elders, with people who are in-between sixty and one hundred years old who have spent their whole life on the chars going through the difficulties and the calamities.

Flooding is obviously a problem for these people but when they have flood shelters it helps them a lot as they are able to save all their belongings and wait for the water to recede. Erosion and drought are even greater calamities for the char dwellers than flooding. There are no shops or markets on the chars so the people have to go regularly to the mainland and the distance, especially when the water becomes shallow or dry, can be very far to walk. Most people have to shift their house ten to twenty times in their lifetimes as a result of these calamities. Programmes like the planting of catkin plantations run by NGOs such as JCDP in Bhuapur attempt to slow down erosion or to reclaim some land.

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Bangladesh: Local Strategies to Cope with a Hazardous Environment

by Susanne Zumstein

Institute of Geography Bern, Switzerland

My presentation deals with local strategies in response to flooding and erosion in the area of the Jamuna riverside. It shows that farmer families have developed many ways to deal with the hazardous environment in this area. They take action before any help from outside is available, and their capacity for self-help is crucial for survival in this environment. I learned about these strategies from farmer families themselves concerned by the hazards of the river. So, the results which I present in this paper stem from my fieldwork in Bangladesh at the beginning of 1994, where I interviewed women in their houses and farmers in their fields.

Characteristics of the Region

The research region covered some villages north of Sirajganj which lies on the west bank of the Jamuna, about 150 kilometres north of Dhaka. The villages are immediately on the riverside of the Jamuna and are therefore exposed to hazards caused by the river.

The Jamuna-Brahmaputra is a 'braided river' whose river arms are shifting continuously. The river has a westward trend and tends towards widening (ISPAN, 1993). For the villages and the surrounding fields in the research area this means that part of the riverbank is continuously eroding, less during the dry season and more during the monsoon. The erosion rate can be up to 300 to 450 m a year (this result is taken from the comparison of a 1994 GPS measurement and a 1990 SPOT satellite image). There can also be zones of deposition, where new agricultural land may be gained. The islands, the so-called chars, are very instable. The monsoon causes seasonal flooding which is of unpredictable intensity.

Generally it can be said that it is the risk culmination in this riverside area that has forced people to develop strategies for coping with flooding and erosion. In the villages north of Sirajganj, around 600,000 people were affected by the erosion problem, as a poster indicated.

Local Strategies for Protection from Erosion and Floods

Working in the villages and interviewing people, it was on first sight difficult to find out details of their strategies. Sometimes resignation to conditions was prevalent, but it was
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clear that people had in some way adapted, even when they no longer consciously recognised these adaptations.

There are various strategies for dealing with flooding and riverbank erosion, which I will discuss now. One strategy is the method of building houses, even if this is not perceived as a strategy: People would never specially mention it, but it is typical for this region.

The houses are constructed with bamboo sticks and bamboo or reed mats, sometimes with corrugated iron for the roof or the walls. One advantage of this construction is that the walls of the houses can be removed during floods, so that water can flow through the house and the house frame is not destroyed. Some farmers told me that they had taken away the walls of their houses during the disastrous flood of 1988. After the flood, there was sand in their houses, but the houses were not destroyed. This construction also allows people to build down their houses within around one hour; a great advantage when riverbank erosion can endanger a plot within a short time period and the shifting of the household is thus inevitable.

Another strategy for coping with floods is to put the house on a mound, but because of the work and the needed land it is a costly measure, and poor people cannot afford it.

Another possibility to prepare for flooding is by building a mancha, a platform where people stay during floods and where they can keep food and fuel as dry as possible.

During the dry season, a chula, a hearth, is made in pottery. It is portable and can be used as a fireplace for cooking in any place during the monsoon. If possible, firewood is stored.

If the water level is rising or if a plot is endangered by riverbank erosion and people cannot stay in their houses anymore, they will shift. When a family has to shift, they go to relatives, or to former neighbours, or to the school building to look for a better place later, or to the embankments. To go to the embankments is a common reaction. During floods, they are useful because they lie two to three meters higher than the surroundings. After shifting because of riverbank erosion, the embankments offer the possibility to stay because they are government and not private land.

Further possibilities for coping with flooding include adapted landuse. Examples which are typical for this environment with monsoonal flooding are described here. The first is to sow dunicha, a leguminose. It is sowed during the dry season in sandy areas on the riverbank. This fast growing plant reaches the height of approximately 2m before the monsoon starts. During flooding it is partly under water and, when the flood waters are receding, this plant serves as a sediment trap for silt and clay. It is not only used for improving the soil quality, but it can be used as a material to build fences etc. The farmers are very knowledgeable about the different soil qualities of their fields and along the riverside. On more sandy soils, groundnut may be cultivated. In depressions with a high clay concentrations in sandy areas rice seedlings are grown.
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To be able to react in time careful observation of the river is necessary. What were the villagers' perceptions of the river, what did they observe during daily life? The answers showed many facets: They include the comparison of the river during different seasons or over a longer period as well as descriptions of the current. I will illustrate some of these points with quotations from the villagers:

"The waves go on during dry season, too. During borsha (monsoon), they are much stronger."

"Erosion has been more severe and faster for the last twenty years."

"It started to be strong at 11 pm last night, until 4 am this morning. Today it's less, maybe tomorrow it will increase again."

"At most time, during big flood, there is also big current and that means erosion."

"In two days, the char (island) was washed away from both sides, at the beginning of the monsoon."

"If the cows cry at night, the water level will raise, if it is flood or not."

That the riverbank erosion is different in the dry and in the rainy season was an observation mentioned several times. Farmers often compared today's situation with the situation in their childhood, and could give an idea of the former distance of the river to the village. In the above-mentioned example, a time period of 20 years was taken into consideration. But differences can be observed even in the very short time period of one day!

The power or the direction of the current were frequently described as an important cause of erosion. Riverbank erosion can be a violent and sometimes unexpected event, as the example of the endangered char illustrates.

Observing the animals is another characteristic of all the observations. Especially on the chars, the islands, people mentioned several possible types of animal behaviour which could be signs for erosion or flooding.

During one interview, a woman even told us to listen to the sounds of the river: she could hear the soil falling into the river.

All these observations contribute to knowledge of the characteristics of the river. That can be useful for prevention, but it is more: along the riverside of the Jamuna it is vital to allow timely reaction in periods of growing danger.

Farmer families have developed different capacities and skills to cope with their hazardous environment. One point is "to keep going under difficulties", which means that even in a difficult and unpredictable situation people persevere using the adjustments and strategies described above. RICHARDS calls such actions in these situations a "completed performance", comparing it to a musician's performance (Richards, 1989: 40f).

The villagers' self-help is remarkable, e.g. when shifting houses. In another context, Akhter (1991: 20) was talking of the vision of the future which people had when reacting in a desperate situation. This vision of the future could also be recognised in many situations during my fieldwork.

The villagers have an attitude of acceptance of loss (see Haque, 1991: 206 ff): Here this attitude can be seen in the sense that nature cannot be totally controlled. This acceptance
Susanne Zumstein

contributes to an awareness of the dangers and is in contrast to the attitude of people of industrialised countries, who regard the risk of natural disaster as minor, and who may therefore behave ill-advisedly when danger does arise.

Conclusion

The whole set of local strategies and of the attitudes of farmers can be considered as adjustments to the hazardous environment of the Jamuna. The people's knowledge of the river characteristics enables them to cope with both erosion and flood risks when demanded. The cycle of being endangered, shifting and building-up again and again is however likely to continue along the Jamuna and can probably not be prevented totally.

It is my opinion that the confidence the villagers have in large scale projects can lead to an attitude of passivity which can endanger the local strategies. When people forget to be aware of the risks of their environment, this can lead to the loss of important skills. To avoid this, their own strategies should be respected or even promoted by small-scale projects, e.g. supporting schools or promoting home-jobs for women.

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3 Discussion

Harun Rasheed:

*The erosion on the Jamuna has been on a larger scale in the last 20 years in your tested area. So my question is, what is your explanation for this and what do the local people perceive about the reasons?*

Susanne Zumstein:

*There are various geomorphological reasons and it is difficult to produce a definite explanation though we discussed a lot about it. It is a general westward shifting of the Jamuna. And people only say that it is the current that has shifted, but without explanation.*

Keith Pitman:

*There are several reports written about the erosion. We analysed satellite pictures from 1974 to 1993. One thing what we found was that the width of the Jamuna had almost doubled over the last twenty years. The water area had stayed the same. Why it had widened is that the number of chars had increased and, if we look at the mass balance of the sediments in the river, the riverbanks have been eroded away and the sediments dumped into the river. The river then tries to work its way around the chars and it cuts more of the embankment away. And so it is a continuous process. Since 1830 the river has moved 15 km towards the west while continuously widening. One of the justifications for doing the riverbank-protection-project was based on the argument that if the erosion is causing more charland every year and about 300,000 people are made homeless because of the erosion one should try to stop the riverbanks collapsing into the river and so reduce the sediment load and so hopefully stop the river from widening and hence stop the erosion.*

Aminul Islam:

*I was involved in riverland-charland studies of FAP 16. There are some cultural dimensions of coping. Caring and sharing at community level exist in the Jamuna charland. Nobody comes to help those people, no government program, most of the chars are remote areas. But anybody who lost their land can find any place to live. The landlord knows that tomorrow he will be the landless and the landless knows that he will become the landlord. It is the history and process of charland. And also there are economic and social aspects. There are physical dimensions of coping mechanisms. But we can go on with it in the working groups.*

Shapan Adnan:

*Even if the project Mr. Pitman described is successful in saving the embankment, we are still talking about a hundred miles or more of continuous westbank there.*
river could easily outflank: either by FAP 1, or by FAP 21. In other words I am really asking if you are looking at it in terms of its long term implications. These short term fortifications at selected points may or may not succeed, because the river can outflank it at innumerable points. In which case is this kind of investment really worthwhile as compared to the coping mechanisms of people against erosion?

Keith Pitman:

*It is not as if you have to have a continuous armouring of the embankment. The way in which it works is that you put groynes in - similar to those at the beach - and they basically break up the energy and stop the erosion. There is a maintenance program that is part of the project and that basically would attempt to dredge the channel to stop char forming offshore and endangering the works upstream. It is a big effort, also economic effort, but on the other hand not to do it, does consign more than a hundred thousand people every year to losing their land.*

Shapan Adnan:

*The more important point on the economic side are the opportunity costs or what could be done with the 120 Mil. Dollars that are going to these fortifications. We do not know enough about river morphology. Even if you might protect the Jamuna it could shift in other places to link up with other distributories and the justification simply does not make sense in terms of the long term historical scale. We do not have adequate scientific knowledge to counter any of these things. The question of making Bangladesh aid dependent on these projects is extremely controversial. Secondly, there are alternative ways of making people much more capable of coping with the hazardous effects, but which does not lock them into any of these dependency ties.*
Alternative Flood Protection Measures: A Critical Outlook

by Fazlul Huq Ripon

Jamuna Char Integrated Development Project (JCDP), Bangladesh

Jamuna Char Integrated Development Project (JCDP) has emerged as a forum for the char dwellers. Since 1990 the organisation has been working in the Jamuna char region in order to support these people. The activities of the organisation can broadly be categorised into socio-economic and economic partnership programs, lobbying and advocacy and action research programs.

JCDP is working in the Jamuna char belt. This area is inaccessible and affected with flood and erosion. The unique characteristics of this area lie in its strong social bondage, the mode of life and the survival mechanism developed and practised in order to cope with the constant process of erosion and accretion of the charlands. The char people are faced with combined effect of the Jamuna bridge and the other FAP components. Since the beginning these people have been active in bringing the issues relating to FAP and their lives together.

Apart from the socio-economic development programs JCDP has thrived on designing strategic goals for the char dwellers. Over the last couple of years there has been substantial effort directed towards coming out with innovative and eco-friendly solutions to issues like erosion and disaster management. The catkin plantation and land stabilisation programs have drawn together people's knowledge and our research.

The Flood Action Plan (FAP) has caused substantial debate concerning overall water management strategies in Bangladesh. There are various structural and non-structural components under the FAP. The traditional philosophy and paradigms of development are confronted with alarming social and environmental deterioration that warrant our immediate attention. The people have lost their confidence in large dams because these projects have failed to yield the promised benefits for them. Over the last two decades the rate of dam construction has slowed down in the wake of criticism to the effect that these projects have caused irreversible damage to rivers and the eco-system.

Jamuna Char Integrated Development Project has been providing support to the char people through the Flood Proofing Program. It has been an exciting experience for us since we have been in touch with the people who are used to coping with the flooding and erosion and have tried to understand the diversified means they adopt to withstand the impact flooding. We consider this program as one of JCDP's main achievements gained
through its struggle against the effect of the structural interventions of the FAP. Since the beginning we have protested against the structural measures of the Flood Action Plan and advocated the alternative flood protection measures which are mechanisms based on the people's knowledge and practices. To a certain extent, we consider this a subtle combination of people's knowledge and engineering solutions.

**Introduction to the Concept of Alternative Flood Protection Measures**

Investigating possible social and technical ways of accommodating sustainable management of the environment has been an imperative. The concept of alternative flood protection is based on understanding how the people cope and manage to live with flooding. It is however important to realise not all alternative flood protection measures are suitable for all regions, as analysis of the magnitude and extent of the flooding shows. For instance, flood proofing is one of the many options of alternative flood protection measures. This includes not only micro-physical interventions but it also emphasises social components like flood safety networking, local warning system development, etc. These issues are linked to an understanding of the coping strategies and the role of the community in local water management.

As the coordinator of the people's participation component of Jamalpur Priority Project I had the opportunity to study these issues closely. Moreover, JCDP was commissioned to design the methodology and action programs for the CARE Bangladesh flood proofing project. I will elaborate some of the experiences gathered from my interaction with people of different regions. Our experiences show that the knowledge and practices of people rely on inter-generational knowledge, and that the diversified wisdom of people from different regions could compliment each another. This is not a theoretical proposition or hypothesis: it could be implemented and visualised. We find it easy to talk about sustainable development for other sectors and should also be enthusiastic about alternative sustainable flood protection measures as they are eco-friendly and viable.

**Conceptualisation of the People's Knowledge: Elements for Devising Alternative Flood Protection Measures**

The people have the right to use their knowledge for their own betterment. We find expression of this knowledge through their mode of life and nature conservation and management strategies devised by the people themselves. An extensive investigation into these knowledge systems is the key to devising sustainable projects.

The process of drawing up sustainable alternative flood protection measures is likely eventually to culminate in a process that minimises the contradictions between the new technology and the traditional way of living. The technology is not neutral. It interacts essentially with factors relating to social changes. The values of a society must be acknowledged and incorporated into the planning and development of development projects in general and water development projects in particular. The contradiction between the value system and the technology is rooted deeply in systematic limitations which ignore the people's role in the development. In the absence of a system that takes a critical look at the impact of the technology itself, the technology will not accrue many benefits to the society for which it has been designed.

How should we conceive the people's knowledge for the design of our future strategies for alternative flood management? The point of departure for this issue is what the FAP
entails upon the people of Bangladesh and what attitude we should take towards overall water management in Bangladesh. The impact of water sector and agricultural development projects should be reviewed critically and genuine process with people's participation should be ensured. I will cite an example that gives us an idea about the extent of people's knowledge which in turn can determine their flood proofing strategies. The main causes of flooding identified by people are 'encirclement of the river', overbank spillage of rivers and canals due to excessive rain, sudden influx of water from the hill, siltation of the river and blockage of the internal drainage etc. Identification of these causes proves that the people are aware of the situation. People of Bhupur, Jamalpur, Kurigram and Netrokona area perceive the intensity of the flood in different ways. The same rise in water level might not be regarded by the Jamuna char people as flooding while the mainland people may consider it to be an excessive rise. The people also recognised that the upper Brahmaputra, mid and lower Jamuna region are characterised by a complex river system. The decrease or increase of the water discharge in a river or channel affects the whole region. It is interesting to note that the people showed us how a village was connected with the regional water system.

**What the Essential Elements of Alternative Flood Protection Measures are: Why Alternative Flood Protection is our Agenda**

The implementation of the river training works in the unusual river system of Bangladesh will have alarming and long-lasting impact on the people and the environment. The impact of these projects on the local hydrology could be irreversible. JCDP has concentrated its activities around the study and the action project on alternative flood protection / flood proofing. Our experience is unique in this field; because we are working in an area where the people are experiencing the combined effect of different FAP components. The river training activities bring about changes in the bank morphology and the bed morphology. The people observe these changes through the behaviour of the river. Whenever they find that the river is behaving in a way that is not familiar to them they begin to analyse the reason. They live within the river and they cope with the river. They know how the fine sediment deposition creates the char. Their ability to forecast the shifting of the channel of the Jamuna river is amazing. They can easily forecast the erosion trends. People can analyse the relationship between the river, their lives and their livelihood.

The necessary alternative flood protection measures include a sustainable disaster management project tuned to the behaviour of the rivers and the improvement of the local hydrological scenario. It is of paramount importance at this moment for all of us to devote ourselves to designing a strategic and practical program without wasting our time and
energy. Looking ahead to the possibility of designing such a program we have made an extensive effort to determine what the main elements should be. JCDP has been working in the char region and we have come to think about the viability of the flood proofing program on the basis of our experience with the Land Stabilisation and Catkin Plantation Program. This program demonstrates how local knowledge can be used to reduce the erosion and predict flooding as well.

In a recent study on the Flood Proofing JCDP has keenly observed the coping pattern of the people and found that the exploration and strengthening of coping strategies lays out a possible option for environmental management, empowerment and sustainable development. So, it is necessary to devise people-oriented and community-controlled alternative flood protection measures on the basis of the understanding of the flooding scenario of different regions. That is why the flood proofing calls the FAP components into question. Flood proofing demonstrates how the people can actively participate in the process of identifying and choosing the options for reducing the effect of flooding.

The following issues will have to be taken into account when devising the alternative flood protection measures:

• analysis of the nature, intensity and the duration of flooding in different agroecological and hydrological zones
• enumeration of the flood damage and determination of the causes of the flood
• critical analysis of the physical data in order to devise a local knowledge oriented planning
• the socio-economic setting of the people
• determination of the role of the people and the setting up of an appropriate institutional framework to strengthen the capacity of the people
• inventory of the indigenous techniques adopted and practised for coping with the flood
• assessment of local facilities which could be used for the reduction of the flood damage
• analysis of the settlement pattern, demographic composition and social aspects etc.
• development of a supportive local flood warning system on the basis of understanding of the social-communication and networking system
• categorisation of the damage type to devise the short-term and the long-term plan
• the design of the institutional tools and implementation and monitoring indices
• an in-depth analysis of the people’s response level to the flood and identification of different social categories – both occupational and socio-anthropological groups – in order to assess the need

Our Experiences: Flood Proofing as an Alternative

The Flood Action Plan has raised considerable concern among the environmentalists and the development planners. Though the action plan lays emphasis on integrated and sustainable water management in Bangladesh, the arguments against this plan seem to have emanated from its failure to set up a participatory mechanism to make use of the
people's understanding about water as a resource and as the way of life. I consider socio-anthropological aspects as the most vital elements for the realisation of the concept of alternative flood proofing, although flood plain fisheries and natural vegetation also play an important role. The kinship pattern, the social safety networking and agricultural practices are the key issues for devising such a project. The daily sustenance system of the overwhelming majority of the people is based on the short term credit, labour exchange etc. The social fabric of the char areas is characterised by mutuality and reciprocity. It is conceded that noticeable changes have taken place in the traditional social system and the form of participation of different social groups in water management varies from one area to another but we can not isolate social aspects from the water management plan. People know the causes of and reasons for floods. During implementation of the flood proofing program we found that the local analysis of the flooding scenario coincides with the experts' opinion. For example, the people living in the Brahmaputra river belt said that the main problems encountered by them were the scarce water and erosion; the project's experts have drawn the same conclusion. That is why hydrographic analysis in an indigenous manner is very important.

There are some issues to be learnt from the flood proofing program such as:

- The institutional arrangements for the sustainable use of the micro-structure need to be researched. We are going to hand over the micro-structures to the community through setting up a Management and Maintenance Committee which should be given adequate power to make decisions for proper maintenance and management and also make sure that the benefit sharing mechanism will not be disrupted.

- Apart from the interventions aimed at alleviating physical suffering, economic stress and livelihood disruption the ideal deals with the transformation of the social coping mechanism into a institutional form. The strengthening of local initiatives is of vital importance in order to ensure the sustainable management of water resources. Community and individual efforts need be supported properly.

- The flood solidarity fund could be created and the community based disaster management capacity building needs to be explored and strengthened. The flood safety networking along with income diversification contribute an added impetus. Besides this the post-flood scenario should be considered as well.

- At some sites, a shortage of labour had been experienced and land transfer agreements had been delayed. There are areas where the interventions were located on land owned by absentee landlords. Landlords also instructed their labourers not to cooperate with us. All this had a counter productive influence on the implementation process. However, the more interesting and important point is, the beneficiaries made an effort to liquidate the stiff resistance of the local elite. All this amply demonstrates that at the initial planning stages many socio-strategic issues were not identified and thus not taken into consideration. Gradually we entered into the depth of the socio-political and anthropological issues with a view to making people active in the decision making process, which worked miracles. This has widened the scope to include pondering over the other development projects. For example, in an area called East Rouha some of the interventions faced the above difficulties and later had to be relocated where people donated land voluntarily solving the most critical issue, namely the community land acquisition. Motivation and sensitisation has always been instrumental to the attainment of our goals. The major experience upon which further planning in this field could be based is that people are able to manage their own projects. Our experience
Case Studies

tells us that the poverty alleviation strategies are to be linked to the flood proofing and
other water management strategies.

- Another vital issue is the environmental friendliness of the project. The very process of
involving the people and making use of their indigenous knowledge has made the plan
environmentally compatible. They just can not afford to destroy or injure their very
means of existence and survival.

Peoples Participian: A Process of Devising Programs

I will now describe one of my enlightening experiences gained from the people. One of
the interventions of the flood proofing is house plinth raising. Under this scheme it is plan­
ned that the plinth level of the houses will be raised above the highest flood level (HFL).
The HFL has been determined by using historical data and in consultation with local
people on a general basis for each of the mouza. The precise height to which the indivi­
dual house plinth was to be raised was left to the house owner. In Char Jhamira, a compa­
ratively low lying area, to our utter surprise, the house owners did not allow us to raise the
homesteads above the present level. They said that whatever measure were undertaken
should be compatible with the changing weather. Flooding is not their only problem. They
make their houses to withstand the force of the cyclone and the wind. So, house plinth
raising is not a simple matter of just keeping the houses above flood level. The major
floods do not occur every year and rendering oneself homeless with a wind-torn house in
the effort of remaining dry during the occasional high floods failed to make any sense.
While explaining the necessity of the minor adjustments people said that this year cy­
clones razed the houses to the ground, there was no trace of life in many parts of the area.
Throughout the project area people have closely cooperated with the designing and plan­
ning. Many changes have been made imminent as a result of interaction with the people.
A few of these changes are:

- The group formation. This was quite an interesting experience for us because, as a
NGO, we considered ourselves experts in group formation. However, the traditional
mechanism of group formation did not work very well because this was no simple
business like getting a little credit or a few poultry birds. Here groups are involved
in intricate and delicate issues like sharing a toilet, tube well or kitchen. It is the issue
of living together with others in harmony. People suggested we take into account the
socio-anthropological factors and we have accepted and rationalised keeping in
perspective the sustainable organisational mechanism.

- Role of the local government down to the ward level in a mouza was defined and
emphasis was placed on the re-articulation of the role of the union council as an
institution. People committed to participate in the project through providing land and
labour and a motivation program was designed to realise this objective. Through
animation the question of control over resources was addressed and the realisation of
the commitment has enhanced the process of developing people's own institutions to
take over.

- The selection of the interventions was made on the basis of a comprehensive needs
assessment survey. The physical data - the hydrological, erosion and stabilisation
of the land fed into the people's need and the justification and the viability of each
of the interventions was determined critically. It is pertinent to mention that the flood
proofing, conceptually speaking, does not underline any assumed intervention and
what kind of intervention would be appropriate depends on various factors – both
social and technical. For instance, cluster settlements may be appropriate for the newly accreting chars while they may seem ineffective and irrational for the stable chars. The settlement pattern of an area encompasses various aspects apart from the geometrical composition of the houses. Cluster settlements have contributed to resolving the existing housing problems though they raise wider issues for discussion and debate. The multi-sectoral-communal flood shelters are aimed at providing people pre- and post-flooding support.

- Careful attention should be paid to selecting the sites for intervention. Often the selection gets dominated by the donation of the land. We have learnt from our on-going experience that the program must be enumerated carefully and presented before the people so that they can decide the options within the fixed budget. One of the major constraints we have faced, is a lack of harmony with factors other than strategic, such as social and economic criteria. The existing land acquisition mechanism, widely practised on the basis of the existing laws, does not comply with standard guidelines devised by the development institutes. These guidelines have underlined the issues relating to the resettlement and rehabilitation of the people who get little benefits from the project.

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Bangladesh has some of the biggest and most important wetlands in the world, some of which are of international importance. They range from lakes, coastal wetlands, mangrove forests to rivers and floodplains. They are home to over two hundred species of fish and other aquatic animals as well as hundreds of species of aquatic plants and birds including migratory birds. Although laws exist for the protection of plant and animal species, particularly birds, these are by and large ineffective in stopping the loss of biodiversity, specially wetland biodiversity (BCAS, 1994). It is therefore being more and more recognised that the only way to effectively conserve and protect biodiversity is to involve people and get them to become the protectors of the biodiversity around them. In order to get people to become involved it is necessary to show some benefit to them in such protection.

The National Environment Management Action Plan (NEMAP)

The Government of Bangladesh, through the Ministry of Environment and Forest had carried out a participatory environment planning exercise called the National Environment Management Action Plan (NEMAP, 1996) in 1995/96 through a series of participatory workshops in different agro-ecological zones of country in which people from different walks of life were invited to give their own opinions regarding environmental problems and their solutions. Although the exercise was primarily for national level planning nevertheless it was able to identify a number of problem areas, one of which was loss of biodiversity in the wetlands of Bangladesh.

As a result a number of initiatives have been taken at local level by both the Government through the National Conservation Strategy as well as Non-Government Organisations (NGOs). The Bangladesh Centre for Advanced Studies (BCAS) which is one of the leading research and policy NGOs in Bangladesh working on environment related issues was involved in assisting the Government with the NEMAP participatory planning exercise. As a result of its involvement in NEMAP and also its own ongoing activities in an important wetland called Chanda Beel in Gopalganj District about a hundred kilometres south of Dhaka, BCAS decided to set up a Wetlands Research and Training Centre (WERTC) at Chanda Beel where it is currently carrying out a participatory wetland management planning exercise as a follow-up to NEMAP.
Chanda Beel

The Chanda Beel is a natural depression and part of the floodplain of the river Modhumati which is a distributor of the river Ganges. It is approximately 8,600 ha in size and is seasonally inundated from the beginning of the monsoon season around late June to the beginning of the dry season around October. The water depth in the wetland can be up to five meters deep and during the monsoon period practically the whole area is inundated with only a few mounds with households above the water level. During that period practically all the people in the area carry out some form of fishing activity.

Over 100 species of fish and prawns and other commercially important aquatic animals have been identified in Chanda Beel most of which have commercial value and are caught for either consumption or sale. Over 50 different fishing gears have been identified ranging from large fixed nets to spears and small traps. The total fish production for the Chanda Beel area has been estimated at around 3,000 megatons a year. Besides fish and prawns over 50 different species of birds have been identified in the area most of which are indigenous but many of which are migratory and overwinter in the Beel.

There are approximately 44 villages situated in and immediately around Chanda Beel with a total population of approximately 50,000 people. Most of the population are Hindus with a significant number of Christians and only a minority of Muslims. The whole area is relatively backward with very little infrastructure like roads, or other facilities like schools, colleges or hospitals. Mainly due to the poor communications inside the Beel it has remained off the beaten track and also out of the mainstream development activities that have taken place elsewhere in the country. However, there have been quite a few NGOs active in the Beel for sometime with different kinds of group development activities for the poor.

Third Fisheries Project

One of the major Government development projects undertaken recently in Chanda Beel was the Third Fisheries Project (TFP) undertaken by the Department of Fisheries (DOF) under the Ministry of Fisheries and Livestock (MOFL) with funding from the World Bank. The project aimed to enhance fish production by stocking fingerlings of a few species of carps at the onset of the monsoon season and allowing them to grow during the monsoon flooding period to be caught afterwards. The project stocked approximately 15 megatons of different species of carps each year in 1991, 1992 and 1993. Thereafter the stocking was discontinued for several years and then again in 1996 another 120 megatons of carp fingerlings were stocked.
The purpose of the floodplain stocking program under the Third Fisheries Project was to enhance the fish production of the floodplains which had become depleted over time due to a number of reasons including over-fishing and loss of habitats. It also had a poverty alleviation objective in that the fishermen who were expected to be the main beneficiaries of the stocking program are some of the poorest people living in the area.

BCAS was engaged on behalf of the project to monitor the impact of stocking mainly on the total fish production for which it carried out an intensive monitoring program in the Chanda Beel area from 1991. However, after 1994 the contract for Monitoring was over and BCAS decided to stay in the area and set up the WRTC and try to develop a participatory wetland planning and management of the Chanda Beel wetland. The reasons for doing so were partly the NEMAP experience described above, but also the experience gained in the TFP where it was clear that, although the fish production could certainly be enhanced by stocking fingerlings, the way in which it was being done by the TFP was unsustainable both in financial as well as social terms as they were doing it in a totally top-down mode with practically no participation by the local people. In fact, in some cases the local poor fishermen were positively dis-benefited by not being allowed to fish during the flood season as the Department of Fisheries guards were protecting the stocked fish. Thus by the time the fishermen were allowed to start fishing the flood waters had receded and the fish accumulated either in canals or in kuas (natural ponds on private property) to which the poor fishermen had little or no access.

Participatory Plan Preparation

The methodology of preparing the participatory wetland plan for Chanda Beel consists of a number of components which are being undertaken simultaneously by different teams of researchers and field workers of BCAS and its partner NGOs in the area. These consist of:

(i) Stakeholder Analysis and Meetings: The main stakeholders in the area are the fishermen, boatmen, farmers, women, children, locally elected people's representatives, local government officials, local representatives of central government agencies, NGO representatives and group members, teachers and other influential local persons. Each of these groups are being met with separately to determine with them (women and men in separate groups).

(ii) Land Use Mapping: The main land uses are for one monsoon rainfed rice crop (Aman) with some Aus followed by fishing during the monsoon when the area is almost entirely flooded. Land use maps are being prepared showing where most of the activities occur and when. The data are being digitised and put on Geographical Information Systems (GIS) for easy presentation.

(iii) Hydrological Study: The water levels in the Beel are being monitored regularly and the hydrology of the surface water systems is also being studied. The level of fish catch is directly proportional to the flooding period and depths and thus the hydrology of the Beel is an important parameter in the overall productivity of the ecosystem.

(iv) Biodiversity Study: A survey of the important plant and animal species in the Beel is being carried out. The most important are the more than 50 fish species, all of which have commercial or subsistence value. Other species of animals include frogs, molluscs and snails. A number of aquatic plants are also harvested for their commercial and food value. These are being documented and those species which have become rarer or are being over exploited are being particularly identified.
(v) **Fisheries Study and Monitoring:** The production of fish in the Beel has been monitored by a team of field investigators of BCAS every year for a period of 6 years starting from 1991 through a regular household fish catch monitoring program. This monitoring system has been tested very rigorously against different parameters and has been found to be quite robust. It allows a very good assessment of the fish catch and what factors determine the catch.

(vi) **Participatory Rural Appraisal (PRA):** A series of PRA exercises are currently being undertaken in the Beel in different villages to determine people's perceptions of what the important resources are and their constraints to optimal utilisation.

**Conclusion**

Once the above studies and exercises are completed by early 1997 it is envisaged that a series of participatory management development meetings will be held with all the different stakeholder groups represented in order to share with them the results of the above exercises and also to develop a management plan for the Beel or parts of it which will have the support of the a majority of the stakeholders and in which the local people themselves would be able to manage.

**References**


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Fisheries Management and Habitat Restoration: A Case Study

by Dr. Aminul Islam

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The Centre for Natural Resource Studies (CNRS) is a non-governmental research organisation. The principal objective of CNRS is to address the issues relevant to development, management and conservation of natural resources. The centre works closely with local communities in resource management and its sustainable use. The centre is involved in community-based research and monitoring activities and provide for technical services to community organisations, NGOs and government agencies.

Project

The community-based “Fisheries Management and Habitat Restoration” project has been implementing since July 1994. The broad objective of the project is to test an alternative method of increasing fish production and species diversity in floodplain beels through re-establishing ecological system which communities can manage themselves. The project as a pilot case, also aimed at ensuring poor people’s access to common property resources such as wetlands/beels in Bangladesh. However, the specific objectives of the project are:

• to create awareness among the local community about conservation of habitats and biodiversity;
• to strengthen organisational and functional capacity of community groups and NGOs in environmental management of aquatic resources.
• to promote community-based management and protection of fisheries resources.

Participatory Planning Process

Local stakeholder including Proshika (local NGO) group members of the project site were involved in the project planning and implementation processes. At first, the project team had discussion with the local fishers and other resource users of the wetlands and identified the problems that need to be addressed. Later discussions were held with the members of the local government institution (Union Parishad) regarding the importance of khal desiltation and its benefit on fish, agriculture and navigation. The UP members were very supportive in the project.

A community level meeting was held locally where local people gathered including, local UP Chairman and members, Proshika group members and others of different occupational
groups. Project objectives and activities were clearly discussed in the meeting. In the meeting a common consensus was developed that the khal would be desilted to re-establish the linkage between river and floodplain beel to facilitate fish migration. It was also mentioned that the khal will also benefited for agriculture crop production through increasing soil fertility due to regular surface inundation by river water and providing irrigation water.

Fisheries Conservation

Like other parts of the country, there is a declining trend of fisheries production and loss of species diversity in the floodplain beel. Increased fishing activities using various types of fine mesh nets and traps identified as a factor for declining fish production. Fishing through dewatering of beels and other water bodies is mentioned detrimental to fish population as this type of fishing leave no parent stock in the floodplain for next year's recruitment. Having discussed the issue in detail with the communities including fishermen, necessity of small scale fish sanctuary was raised. With a view to demonstrate and generate awareness among the local people about the necessity of conservation of parent fish, a small water body of about 25 decimal located in the floodplain was taken on lease from the project and kept as mini sanctuary for conserving the brood stock of beel resident species. The villagers voluntarily took the responsibility of protecting the pagar sanctuary by themselves.

Based on monitoring data, about 80 kg of parent stock of varieties of fish species was there in the mini sanctuary which dispersed on the floodplain at the on set of early monsoon rains and release millions of eggs even before the entry of river water through canals. As per community decision another measure has been taken to control specific fishing gear such as seine net and lines (not completely stopped) for the first couple of months of flooding (late June - late August) to allow the young to grow bigger and the adult to spawn in the floodplain. Positive indication was observed from the fishing people that they mentioned more fish they get in the catch.

Wetland Utilisation and Management

The wetland is treated as a resource-base in the area and used for multiple purposes by the local stakeholder. Like other areas, people of the locality use the wetlands for irrigation, bathing, washing, jute ratting, fishing, collecting food and fodder and other purposes.

Ownership and Fishing Arrangement

The perennial portion of the wetland (rakh) is annually leased out for fishing purposes. Despite leasing, fishing goes on almost round the year by both the professional and subsistence fishermen living in and around the area. The leaseholder does not impose any regulation on subsistence fishing done by the poor people even not for commercial fishing except using ber jal (seine net) during monsoon. The professional fishermen who mostly operated jhaki jal and current jal (monofilament nylon gill net) said that they can fish freely in the wetland. However, there exits fishing regulation, during post-monsoon when flood water is receded from the rakh and chawk. Fish at that time accumulated in deep areas of rakh, pagars and kathas (brush pile). The owners do not allow others to fish in the areas where their kathas and pagars are located. However, they allow gleaning the leftover fish by the poor after final harvesting of kathas and pagars. The children and women observed picking leftover fish from fished out pagars.
Conclusion

Based on two years of action-research in a wetland situated in central Bangladesh, preliminary data indicates a tremendous potential for community-based and community-managed wetland habitat rehabilitation. Broad-based consultation and consensus building on design and operating mechanisms during the very early stages encouraged greater participation and continuing community interest in the wetland habitat rehabilitation project. By recognizing the structure of local power politics and attempting to be inclusive rather than exclusive, the project helped the community identify and implement a possible “win-win” strategy for managing the wetland on which they all depend to varying degrees. Pragmatic solutions to conflicts as they arose and tangible employment benefits during the crucial stages of implementation added fuel to this interest.

The actual participation of community members in monitoring the social and biological impacts of the project intervention has proven to be a cost-effective means of reliable data collection and a channel for sharing information with the community. Preliminary data indicate increased productivity and fish species diversity in the wetland following the re-establishment of the main fish migration route between the wetland and the proximate river system. The increased productivity was matched by increased intensity of fishing by all types of fishers. However, the increase in productivity apparently exceeded the increase in fishing effort. Thus far, the intervention, which served to expand fish habitats temporally and spatially, seems to have been overwhelmingly beneficial from the biological point of view. Moreover, the benefits seem to have been broadly distributed among fisher groups and social classes.

Based on data catch monitoring, it is estimated that the conservation mini sanctuary would yield about 80 kg of parent stock of a variety of fish species. With the onset of early monsoon rains, this stock would disperse to the floodplain and release millions of eggs even before river waters enter the floodplain through the canals. Hopefully, with the help of information generated by the project, the community can continue to develop and gradually institutionalise participative and negotiated approaches to the management of their floodplain fisheries.

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Appropriate Disaster Mitigation: Community Participation, Appropriate Technologies and Indigenous Knowledge

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Introduction

In terms of loss of life, physical damage and economic cost, the global impact of natural hazards such as earthquakes, volcanic eruptions, floods, landslides, drought, fire and cyclones is massive. Countries in the South (or Third World), which are at risk from a wide range of natural hazards and often poorly equipped to deal with them, are hit particularly badly.

The damage that disasters cause to infrastructure and livelihoods may set Southern countries' economic and social development programs back by years. Disasters also force donors and international agencies to spend large sums of money on emergency relief that could be used to support long-term development. Disaster mitigation and preparedness is demonstrably more cost-effective than paying out for emergency relief, and the donor community now generally accepts the need to invest in them; yet donor agencies still tend to keep them relatively low on their list of priorities. Effective counters to disaster can be achieved in many cases through community-based projects, drawing upon the wealth of local expertise in coping with disasters, and using appropriate technologies. Large-scale infrastructure-based protection schemes which do not take into account the lifestyles, livelihoods and priorities of local people are very likely to fail. Intermediate Technology's (IT) own experience bears this out. However, such approaches are still insufficiently used by agencies of all kinds.

This paper explores the rationale for an alternative approach to disaster management. It concentrates on probing the validity of development strategies and disaster management practices and proposes how an alternative approach may lead to increased security and more cost effective development initiatives.

Development at Risk

Expensive development projects are put at great risk if they do not take natural hazards into account. A housing program can be shattered by an earthquake; a farming scheme ruined by a hurricane or flood. And inappropriate disaster mitigation schemes may contribute to increased vulnerability both to hazards and to other risks for marginalised popula-
Further Afield

tions. Much, if not most, of the world’s investment in disaster mitigation has gone into scientific and technical research. This includes studies of natural hazards and how to predict them, for example satellite monitoring systems that give warning of cyclones. It also includes the development of sophisticated technologies for protection such as the elaborate systems of canals and dikes employed for flood control in some countries or advanced methods of securing high-rise buildings against shaking from earthquakes.

While this has often helped to protect people in wealthier societies – California, for example – many of these technologies are either not applied or are even inapplicable to poor and vulnerable communities in the Third World. Ensuring the construction industry follows guidelines for earthquake-resistant buildings is relatively simple in California where there is wealth enough to cover the cost of new designs and additional measures to strengthen existing structures, or when there are strong institutions to monitor and enforce compliance; but much harder in less wealthy countries where government institutions are already stretched to the full to address other social and economic problems. The general argument in favour of appropriate technologies geared to communities’ needs, skills and resources can be used just as much in the context of disasters as in the field of development.

Technical Limitations

Some disaster specialists now recognise the need for a more balanced view of the power of modern science and technology to protect us against natural hazards. The key lies in knowing when it is useful and what its limitations are. If we take earthquakes as an example, we know that scientific knowledge has been invaluable to architects and engineers in designing safer buildings and revising building codes. On the other hand, the old belief that seismic tremors would be predicted before long is now coming increasingly into question. There is a host of hypotheses but there are few answers.

Volcanology shows a similar picture. A great deal of investment in monitoring and forecasting likely eruptions has improved understanding and to some extent increased our capacity to predict some kinds of volcanic activity, but scientists still cannot predict the timing of large, explosive eruptions reliably. Writing on this subject in *Nature*, two specialists from the US Geological Survey noted: “We emphasise that technological refinements and new discoveries in volcanology alone provide no panacea.” They call for more effective co-operation between scientists, civil authorities and the public. It is certain that Mount Popocatepetl in Mexico is likely to erupt – and from its history we know that it will explode in dramatic fashion – but nobody knows when that explosion will be. This inability to predict has led to a public row between, on the one hand, Mexican scientists and disaster authorities who fear their credibility will be undermined if they sound the alarm too soon, and on the other a US scientist who has called for more open debate on the risks.

Drought forecasting has also become increasingly sophisticated thanks to masses of meteorological data and new techniques of computer modelling. Research has shown that drought in Africa is linked to the shifts of the El Nino current in the Pacific Ocean, and can therefore be predicted to some extent. These discoveries make good articles in northern newspapers: northern institutions tend to be the ones doing the computer modelling. They do not in themselves enable us to predict whether the drought will cause a famine because that depends on social and economic factors such as the effectiveness of local methods for finding food during droughts, the availability and price of supplies and people’s purchasing power. A more sophisticated computer model designed by Save the
Children incorporates wider data about the local economy and food security practices, allowing agencies to work out which groups are most at risk. Moreover, averting the consequences of drought depends not on information, be it from the physical or social sciences, but on decisions made by people - on politics, economics and the behaviour of institutions.

**Nature Fights back**

In some cases expensive technologies may even increase risk. Let us take the example of flood control measures in northern Europe and North America, which are perhaps the most sophisticated systems in the world. Civil engineers generally maintain that the best way of dealing with flooding rivers is to drain the water as fast as possible by straightening bends and meanders, creating channels or canals, building dikes and raising banks. These are the measures that have been applied for decades along the Mississippi River in the USA and the Rhine and its associated river systems in Germany and the Netherlands. Planners, confident that flooding could be prevented, allowed flood plains to be concreted over for other development such as housing, roads and trading estates.

Events in recent years have brought this approach into question. The Mississippi floods in 1992 caused more than $30 billion worth of damage while the spring floods in the Netherlands in 1995 forced 250,000 people to abandon their homes. Artificial channels lead to fuller and faster flows of water, controllable perhaps in some cases but arguably dangerous in the great river systems. On the Mississippi ever more complex schemes have had to be introduced over the years to control the new problems created by earlier efforts. New scientific thinking suggests that it is better to allow some flooding - in effect, imitating the natural floodplain - than to seek full control over the flow of waters.

The debate over flood control is fierce in Bangladesh where there has been much opposition to the Flood Action Plan, a massive scheme (or set of schemes) to control the country’s rivers through dikes, dams and embankments. Many believe not only that such measures are incapable of taming the natural forces involved - some of the world’s greatest rivers - but are also making things worse in many places. There is great concern too that their disruption of drainage, water flows and pathways for migrating fish would harm the many poor people who catch fish in floodplains during the monsoon.

**Technology versus People**

The biggest danger with advanced technologies may be that people place too much faith in them. After all, science and technology are only as effective as the use that is made of them, which depends on people: institutions, politics, cultures and attitudes. This point has
been made on many occasions with regard to famine early warning systems in Africa: they are of no use if their warnings are disregarded, for whatever reasons. Similarly, the value of cyclone shelters diminishes if people at risk are reluctant to use them for other reasons, such as wanting to protect their homes from looters.

The biggest recent jolt to technological complacency was the Kobe earthquake in January 1995. Sophisticated transport, communications, water and power systems collapsed, hampering relief operations greatly. Evacuation and emergency procedures were not followed by many of the population, who had also overlooked many basic precautions. A professor at the Department of Architecture in Kobe University commented that while 100 universities in Japan taught earthquake engineering and architecture, he knew of only one or two that taught anything about wooden house design — yet 80% of Japanese people live in wooden houses.

Comments of earthquake survivors quoted by the IFRC's World Disasters Report 1996 showed that the disaster had brought home to many the value of self-help, of families and communities working together in the aftermath of the earthquake, rather than relying on official institutions.

The Community-based Approach

Cost-effective strategies for disaster mitigation can be built on the knowledge and skills that vulnerable communities possess and the practices they have already adopted in confronting the risk of disasters. Appropriate technologies, traditional and new, have a role to play in disasters just as much as in development. Sustainable mitigation must be managed by local people. This can be achieved in projects by working through community organisations and other grass-roots agencies. By recognising the value of these resources and capacities, governments and aid agencies can begin to rethink their own role in coping with crisis, and apply their money and expertise more effectively. This approach is now a feature of the international agenda, although many agencies have yet to translate words into deeds. Successful community-based disaster mitigation requires Northern agencies and experts to address the nature of their relations with Southern organisations and vulnerable communities.

Working with the Community

Most development agencies now recognise that field projects will only be successful and sustainable if the beneficiaries are fully involved in planning and implementing them. ‘Participation’ and ‘partnership’ are the words in vogue, ‘community-based’ or ‘bottom-up’ projects are the fashion. Reality does not always measure up to the rhetoric, but the concepts are firmly established. They are no less valid in disaster work.

Andrew Maskrey (coordinator of the Latin America La Red disaster management network) summed up the case for community-based disaster mitigation succinctly. Local people’s efforts, he writes,

- respond to their real priorities, in the context of all the constraints they face (including social, economic and political pressures), whereas outside experts never see the full picture;
- maximise the use of the resources that are available, locally and from governments and aid agencies, and ensure these are put to use by the beneficiaries, thereby avoiding manipulation and corruption.
Nonetheless, people's own efforts are hamstrung by the lack of resources, inadequate technologies and forms of social organisations, difficulties in negotiating with governments and agencies on equal terms, lack of control over structural forces such as the markets in land and agricultural produce. Conventional wisdom in disaster management still pays all too little attention to local, or indigenous, knowledge as a basis for prevention and mitigation, although in many cases it may be more cost effective and sustainable than imported technologies and methods. Natural hazards are not new and people have been living hazard-prone areas for centuries - in some cases for thousands of years. They have, inevitably, devised their own methods for protecting themselves, based on their own skills and resources.

In recent decades the rush for sophisticated technological methods of overcoming disasters has led specialists both to undervalue and overlook the effectiveness of local 'coping strategies' and technologies. Now, though there is a better appreciation of their merits in some quarters, they are still under-utilised by agencies, including many NGOs.

The IDNDR's Yokohama Conference endorsed the view that a bottom-up, community-based approach making the fullest possible use of local knowledge and skills offers the most potential for improving performance in a cost-effective manner.

Old technologies, designs and methods are not inherently inadequate; new technological approaches are not automatically superior. The Alternative Technology movement has been making this point for years and it has just as much weight in discussions about disaster mitigation as it does in other subjects. We must not fall into the opposite, romantic, trap of assuming that older ways are always better than the modern, but must look for what is appropriate in given conditions.

**Intermediate Technology's Experience**

**IT in Zimbabwe**

The Chivi District in Zimbabwe was severely affected by drought in 1991-92. IT worked with community organisations (farmer's clubs and garden groups) to introduce alternative technologies and farming methods. The techniques included farming methods that would require less water, use water more effectively, greater use of traditional seed varieties which are better adapted to drought than many modern types, and organic pesticides made from local plants. The community chose techniques; visiting local research stations and testing methods in the field. Farmer to farmer exchange visits were a highly effective method of sharing knowledge and promoting the best methods. Seed fairs were organised. Over 2000 members of farmers clubs and garden groups are now involved, and they were able to withstand the effects of particularly low rainfall in 1994-5.

**IT working in Peru**

When an earthquake devastated the San Martin region in the eastern foothills of the Andes, in Peru, in 1990, it claimed hundreds of lives and destroyed homes and livelihoods in many towns and villages. International aid flowed in and many agencies got involved in rebuild-
Further Afield

ing programs. Their priority was to rehouse people fast. Intermediate Technology took an innovative approach, looking for ways to reduce long term vulnerability. Staff had been working in the region for a year and had built up good relationships with the local people. Neighbourhood committees were formed to discuss local priorities, including upgrading houses which had survived the earthquake. Together they devised reconstruction plans and building schedules. Based on traditional building techniques, improved quincha relies on a flexible bamboo frame and is earthquake resistant. Unlike original quincha, the frame is anchored in a concrete foundation and the walls are protected with a cement mortar. A second earthquake struck the improved quincha buildings stood the test. Since work began in 1990 a further 4,000 quincha structures have been built. Quincha technology is appropriate to specific geographical regions; the process and the rationale for the rebuilding work in Alto Mayo is applicable everywhere. Consultation, in partnership with local people, combined with technical support and the means to acquire materials results in sustainable housing and greater long-term security for communities.

Conclusion

Disaster and development agencies are still biased towards imported expertise and expensive technologies instead of building on people’s own capacity, skills and resources. Many large scale technology projects are designed to protect a few but often, it seems, at the long term expense of the majority. We need to change this approach, through advocacy and networking. First, more effort must go into sharing experience from different situations, to help understand these issues better and to implement projects more effectively. There is a lot of expertise on this subject, especially at the local level, but most people are too busy to share it. To be really effective, we must work together. IT is trying to create networks to do this. In South Asia IT has set up a network, called Duryog Nivaran, and in Latin America IT coordinates a regional network on disaster management called La Red. Both are raising awareness of wider issues such as vulnerability, and promoting community-based approaches for effective disaster mitigation.

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8 Discussion

Tahmina Rahman:

Well, Nick ended his talk on the note that developing models need to be changed. I can only speak from my experience with OXFAM. In emergency situations and disasters we try to take a development approach to relieve all rehabilitation. By that we mean local capacity working with partners and with the consultation participation of the local communities. And the examples that you gave in your discussion have a very critical impact. But also I think we are fallible in certain things that we say ourselves. For instance, when we say 'community' or 'people'. These comprise though a large cross-section of people and their power-dynamics and power-relations differ from one to the other. The power dynamics of the community level are different from dynamics at the family level and the house level. We can have a maximum consultation which takes into consideration and takes into account some of these power relationships.

We can also underlay our programs with social relations analysis, gender analysis as part of consultation processes. I can give some examples from flood rehabilitation in Bangladesh and some other places. We found that when we talk about consultations we have local partners working with us at country level or at local level but we also need to see how gender sensitive those consultative mechanisms are. What is the composition of the consultative mechanisms? In gender terms they comprise mostly of men. If we look at our partners, the NGO partners, the directors or leaders of them are mostly men. And therefore we need to be much more sensitive about how to bring gender perspective into our consultation processes. Just to give you one example: On one of our flood rehabilitation programs we had a component of agriculture input. And in Bangladesh, if broadly classified, agriculture could be kitchen gardening, horticulture and field crop production. Activity analysis shows the participation of men and women in these three categories are very different. And therefore in the distribution of inputs we also need to take that into consideration. Otherwise we would be probably providing seeds only for field crop production where the participation is mostly of men. And therefore not taking into account the economic interest of women. Or let us say gendered interests of the community. So I just wanted to draw your attention to some of these issues which are part and parcel of changing developing models. Thank you very much.

Nick Hall:

Well, I can say to that thank you very much indeed because I agree with you entirely, I do not think that there is anything I could disagree with. This consultation process has to be sensitised, you have to be sensitive to the very different power relations. Not only power relations within communities themselves from the household level up but it is from outside of one community to the local authority to the NGO
itself. I was working in Andhra Pradesh earlier this year in the same region where a cyclone hit it and we were working with a local NGO. Now it became evident during that research project—it was a research project about participate methods—that the local NGO was really not an unbiased bystander in the process. It was very concerned about the political status of the director of the NGO. Everybody has a stake and the NGO certainly had a stake in that situation and all NGOs have got a stake and all development agencies have got a stake and it is really time to set up a process which is honest and transparent, where people do have an opportunity to put their cards on the table. Although very rarely will people do that. Most people have got an agenda, if it is only their own personal one to stay in a job. And somehow recognise that this bias is going to, inevitably, come into any consultation process however clever and smart you are, whatever mechanism you use. Recognising that is maybe a pessimistic note but the reality is there. Everybody has a stake and all stakeholders are going to have a particular view. I am trying to desegregate those and come out with a sensible intervention. It is a big challenge for any agency.
Working Group I spoke about the controversy or complementarity of traditional knowledge systems versus modern knowledge systems.

On the basis of the discussion the following findings were summarised, reflecting the characteristics of traditional versus modern knowledge systems as well as important aspects that need to be taken into account while comparing/choosing between both systems.

In Table 1 the main characteristics of both—traditional knowledge systems and modern knowledge systems—are shown as well as important aspects for attention.

In summary the following *main conclusions* were drawn:

1. There is no single-best approach (traditional versus modern, small scale versus large scale, top down versus bottom up);
   in relation to the wider socio-economic context political alternatives need to be sought, whereas at other (lower) levels local solutions need to be sought (leading to diversity of solutions);
   depending on the scale of the problem either a political or a local/technological solution may be applicable.

2. Proper communication (in the sense of fine-tuning between the various levels of decision making) as well as accountability are conditional factors.

3. The concepts of accountability and transparency need to be redefined.

4. There should be room for flexibility in approach, which may result in the necessary level of diversity.

5. There is a need for subsidiarity as well as transparency especially in the larger scale projects.

6. The status quo needs to be challenged and a longer term perspective in decision making needs to be secured in order to arrive at proper cost benefit analyses (including social and environmental consequences).
### Results of the Working Groups

**Table 1:**

<table>
<thead>
<tr>
<th>Traditional knowledge system characteristics</th>
<th>Important aspects for attention</th>
<th>Modern knowledge system characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>good communication</td>
<td>advanced solutions</td>
<td></td>
</tr>
<tr>
<td>local solutions</td>
<td>imbalances in power structures/relationships</td>
<td>top-down, inflexible, technocratic</td>
</tr>
<tr>
<td>bottom-up, flexible, democratic</td>
<td>decision making process and methods of analysis</td>
<td></td>
</tr>
<tr>
<td>cost effective (preventing mistakes)</td>
<td>expensive (compensating for mistakes)</td>
<td>accountibility and transparency regarding decision making process</td>
</tr>
<tr>
<td>small scale, household/local level</td>
<td>large scale, national level</td>
<td>subsidiarity (i.e. decision making at appropriate levels)</td>
</tr>
<tr>
<td>careful dealing with traditional knowledge (focusing on the roots and the context)</td>
<td>looking for appropriate modern knowledge</td>
<td>multi-level definition of vulnerability (national versus local level): fine tuning/interface</td>
</tr>
<tr>
<td>local solutions to local problems (diversity)</td>
<td>problems (diversity) uniform approaches (universal)</td>
<td></td>
</tr>
</tbody>
</table>

During the discussion the following remarks/concerns were also noted:

- existing solutions may seem less profitable to Westerners but are as such not worse;
- technical issues are not the main problem, but rather the communication between different levels of decision making;
- people need to deal carefully with traditional knowledge systems; indigenous knowledge is not necessarily good in itself but may reflect social wrongs in society; the
level of local appropriateness can only be derived from communication with the people concerned;

- one can not forget about the system and all the participants in it; local solutions do have a relationship with their socio-political context;
- local people can have a very different view of a problem to outsiders; it is necessary to establish useful communication with them;
- local knowledge systems and skills should not be romanticised;
- one can not localise too much; local people are also tied up with the existing power structure and decision making structures;
- local solutions do not solve international/regional problems;
- diversity is beauty;
- there is not just one local solution that should be applied to every local system; there may exist many more good local solutions;
- more attention is needed for the issue of accountability: who is accountable to whom and for what;
- transparency in the decision making process is a prerequisite;
- decision making processes need to take place at the most appropriate level;
- local people need to be enabled to define their own problems, which requires a bottom-up approach by decentralising problems; communication is required to achieve this;
- problems are getting more and more globalised;
- real participation challenges the existing power structures;
- subsidiarity in decision making is required.
Working Group II spoke about the need of the participation of the people. On the one hand it is nowadays generally accepted in the ‘development community’ that people’s participation is the key to successful development projects and overall development. Not surprisingly everybody in the working-group endorsed the concept of people’s participation. On the other hand however, it became evident during the discussion that the phrase people’s participation means different things to different people. So one of the conclusions of the workshop was that a precise operational definition is still needed.

The discussion in the group evolved around this question and also around the question of how a participatory approach could be implemented in specific projects and development in general.

The members of the group agreed to defining people’s participation as “a kind of animation process dealing with common problems”. People’s participation can not be restricted to individual events (seminars, workshops, discussions), certain areas (project area) or certain people. It must be comprehended as a problem identification and solving process which includes every group of society.

To ensure people’s participation on the project level the following main conclusions were drawn in summary by the members of the working group:

- a bottom-up approach is needed: What is the perception of the people?; what are the needs of the people?
- empowerment of the people through:
  - animation (Identification of problems and solutions through animation process);
  - awareness building
- identify people’s priorities: Interviews with stakeholders; interviews with homogeneous groups of population (fishermen, women, landless, children etc.), so that everybody is free to express their opinion, attention to marginal groups (landless, women, ethnic minorities etc.)
- careful selection of interview teams: sensitivity to class and gender differences, sensitivity to local power structures
- project cycle: people must be participated and involved at all levels and in all phases (early involvement e.g. before the actual project has started, is crucial); needs assessment will guide the mode of people’s participation; involvement of both formal and informal social organisations is crucial; consultation is not participation
Results of the Working Groups

- NGOs: representation of the organisations of the peasants, farmers, fishermen and occupational groups need to be involved in people's participation process; NGOs can play the role in mobilising the people and articulating their priorities, NGOs can play a role in conflict resolution, but NGO participation is not people's participation

- local knowledge: it is essential to integrate local knowledge and experience with professional expertise in a participatory process

The following remarks were noted as well during the discussion:

- to realise people's participation, the lack of information must be overcome, specially for the poorest who are illiterate and cannot afford other possibilities of getting information (radio/TV)

- only involvement of the local people in a very early project phase guarantees that their expectations and opinions will be integrated

- never forget that the decision-makers are only a few at the top but the people who are affected at the bottom represent the bulk of the population

- in cases where the decision-maker and the majority of the people agree with the necessity of the project there is still a problem in getting the people's participation. There is a group in the middle, which is very happy that there is no people's participation, because this allows them to exercise more authority, to play illegal games etc. To reduce their power, the masses must be organised and the decision-makers have to go along with them.
11 Discussion

Hanna Schmuck:
What do you do if people do not want to participate? This is the case in FAP 20, I think. People are not interested in participation, because they have other things to do than going to group-meetings. They have to go to the fields and harvest crops.

Paul van der Leij:
We discussed that in the working group and we came to the conclusion that people should be taken into account from the very beginning of the project. People should be aware of the problem and from that point start with the project and not be asked about the project at a point where a lot of alternatives are already made for them and they have to choose between the alternatives. And that is the case in FAP 20 as I understand it.

Marlies van der Kroft:
I would like to add something to that. I think that we said not that the people should be aware of the problem but that they should be able themselves to define the problem. So it is one level below. It is important to define before the project planning process is starting. People must have the possibility to come together to define a problem and then step by step participate.

Hanna Schmuck:
Many people have many problems but its very hard to find a common problem.

Dirk Frans:
No. In Tangail actually the program originally started with the people defining their own needs. When it worked out that those needs and the solutions conflicted with what the Bangladesh water development board wanted then the traditional approach was reintroduced and the team was told to basically inform the people in the area why the compartmentalisation pilot project was necessary. But the people were very well able to define their own problem. Very well.

Saleemul Huq:
I was not a member of that working group but I would like to make a comment on this issue: how do you get people to participate? I think it depends on the agenda, if it is being done by a particular agency which has a very clear agenda of its own. Then you open yourself up to manipulation of the process, as in the case of the Tangail consultation for instance. I understand that in some cases there were demands from the people to enhance drainage but since the water development board is not the agency concerned with doing that, that was not an option they could
respond to, as they were the agency who were undertaking the exercise. Which is why in my view the initial inputers doing the consultation should not be with a specific agenda but be on a much broader issue of natural resource management. And that should be specific to the needs of the area, so if it is a wetland area you go and you ask about a variety of activities that are taking place in the wetlands. They are maybe flood problems, maybe many other problems. You have to allow all the problems to be discussed and addressed by the different groups who are affected by them. And then on the basis of that come up with some strategies which respond to their needs and their requirements. And then go back to them with more projected interventions if you like, based on what they had suggested. The example I gave of NEMAP was an attempt to try and do that, that is not to pre-empt the answers but to seek what they see as the problems. And then it is a matter of iterations. You have to keep going back again with possibilities which they have every right to reject at any point in time. So it is a matter of going out without a fixed agenda to seek information and knowledge on the basis of which planners can then come back again with possible plans that are as responsive as possible to their demands. One should not romanticise this either - there will be conflicting demands. You know there are bound to be conflicts in a complex resource management situation. The question is putting in adequate mechanisms to respond to the conflicts to enable everybody who is a stakeholder and is likely to be affected to have their say. And at the end of the day a project or intervention is identified which has broad agreement but has a minority disagreement. Then that minority must be taken care of. They must be persuaded, they must be compensated, they must be assured in some form or the other that they will not be dis-benefited from whatever intervention is contemplated.
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Resources, Contacts and Networks

This section lists information and documentation centres which do not directly deal with alternative flood protection measures in Bangladesh, but rather with disaster mitigation and management and using local knowledge in general all over the world. The descriptions have been left as way the sources present themselves.

Natural Hazards Centre

The National Hazards Centre, located at the University of Colorado, USA, is a national and international clearing house for information on natural hazards and human adjustment to hazards and disasters. The Natural Hazards Centre carries out its mission in four principal areas: information, dissemination, an annual workshop, research, and library services. The centre's prime goal is to increase communication among hazard/disaster researchers and those individuals, agencies, and organisations that are actively working to reduce disaster damage and suffering.

The Natural Hazards Centre Information Centre has a considerable amount of information available on-line (a complete publications list - approximately 200 items, a list of sources of information on NGOs, university programs and centres, government agencies, and overseas organisations) regarding hazards and disasters, as well as a list of useful periodicals:

http://adder.colorado.edu/~hazctr/Home.html

There is also the bimonthly Newsletter available as well as the publication Disaster Research (DR). The Disaster Research newsletter comes out usually every two to three weeks. DR is currently sent directly via the Internet to approximately 1200 researchers, hazards managers, and other interested persons in the US and abroad. In addition, it is re-posted on many other networks and bulletin board systems and reaches a considerably larger number than those on the direct mailing list.

DR is more than a newsletter; it is a means for all subscribers to communicate with one another and to discuss, in an informal manner, issues of common interest. Thus, anybody working on a related issue should feel free to use this network at any time. Messages for the newsletter should be sent to hazctr@colorado.edu.

Floodplain Management Association

The Floodplain Management Web Site is provided and maintained by the Floodplain Management Association on behalf of all sectors of the floodplain management community. Despite concentrating on events and associations within the US, they are worth a look at:

http://www.floodplain.org
IDNDR

The United Nations’ *International Decade for Natural Disaster Reduction* (IDNDR) is promoting concerted international action to reduce the impact of natural disasters, particularly in the South. The IDNDR aims to improve countries’ capacity to predict, manage, or prevent disasters. This is to be achieved by sharing technologies, skills, and information, carrying out research, setting up education and training programs, and running technical assistance and demonstration projects. The IDNDR newsletter *STOP Disasters* is published every two months in several languages. It contains information on new initiatives, events, publications, networks and agencies. Subscription is free.

Contact: A. Mauro, STOP Disasters, IDNDR Secretariat, Palais Des Nations, CH-1211 Geneva 10, Switzerland. Fax: +41 22 733 8695. E-mail: dhagva@un.org

Intermediate Technology (IT)

Intermediate Technology has been instrumental in setting up two regional networks on disasters and vulnerability: LA RED and Duryog Nivaran.

LA RED (The Network for Social Studies on Disaster Prevention in Latin America), established in 1992, now has 12 member organisations in nine countries, with over 50 associated researchers involved in projects throughout Latin America. It carries out research into a wider range of disaster issues, shares information with agencies at all levels, and provides advice and support to organisations working in the field. Members are putting research findings into practice by implementing community-based disaster prevention and preparedness projects at local level. The network is now moving into a new phase with greater emphasis on training.

Based on the example of LA RED, a new network covering South Asia was established in 1994 to promote alternative approaches for dealing with disasters.

Called Duryog Nivaran, the name means, roughly speaking, ‘disaster mitigation’ in Sanskrit – the network is collecting information to improve understanding of natural and man-made disasters, together with methods of protecting against them. The results is shared through training courses, handbooks for fieldworkers, seminars, books and articles, videos, and other suitable methods of communication.

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Members of the Network in Bangladesh

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Tel.: +880 2 817 164/816157
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On Indigenous/Local Knowledge:

The most valuable one might be the Homepage of CIRAN/Nuffic (Centre for International Research and Advisory Networks). The Centre established a network between indigenous knowledge centres around the globe. Their publication *Indigenous Knowledge and Development Monitor* promotes the exchange of information on indigenous knowledge as it relates to sustainable development. Since December 1996 the network maintains a homepage under

http://www.nufficcs.nl/ciran/ik-pages/

Recent Publications

There exists a huge amount of literature on disaster related issues. The best way to obtain information about a specific topic is to contact a specialist documentation centre:

Asian Disaster-Preparedness Centre, Asian Institute of Technology, GPO Box 2754, Bangkok 10501, Thailand. Fax: +66 2 524 5360. E-mail: adpc@cs.ait.th. Contact: G.Gustafs.

Books:

- ‘At Risk: Natural Hazards, people’s vulnerability, and disasters’ by Piers Blaikie, Terry Cannon, Ian Davis, and Ben Wisner

- ‘Disasters, Development and the Environment’ by Ann Varley

- ‘Living with the Floods. Survival Strategies of Char-Dwellers in Bangladesh’ by Hanna Schmuck-Widmann
  228 pages, English/German, DM 9,80
  (can be ordered from the publisher LN-Vertrieb., fax: +49 30 692 65 90, e-mail: la_nachricht@link-b36.berlinet.de., or from Intermediate Technology Publications London, fax: 44 171 436 97 61, e-mail itpubs@org.uk)
### Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ADPC</td>
<td>Asian Disaster Preparedness Centre</td>
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<td>BCAS</td>
<td>Bangladesh Centre for Advanced Studies</td>
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<tr>
<td>BPSC</td>
<td>Bangladesh People's Solidarity Centre</td>
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<tr>
<td>CBDM</td>
<td>Community Based Approaches in Disaster Management</td>
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<tr>
<td>CIRAN</td>
<td>Centre for International Research and Advisory Networks</td>
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<td>CNRS</td>
<td>Centre for Natural Resources Studies</td>
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<tr>
<td>FAP</td>
<td>Flood Action Plan</td>
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<td>FIVAS</td>
<td>Association for International Water and Forest Studies</td>
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<td>GAB</td>
<td>Generic Association of Bangladesh</td>
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<td>IAO</td>
<td>Information, Alternatives and Opposition, International Network for Environment and Development Bangladesh</td>
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<tr>
<td>ICCO</td>
<td>Interchurch Organisation for Development Cooperation</td>
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<td>IDNDR</td>
<td>International Decade for Natural Disaster Reduction</td>
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<td>ISPAN</td>
<td>Irrigation Support Project for Asia and the Near East</td>
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<td>IT</td>
<td>Intermediate Technology Development Group</td>
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<td>JCDP</td>
<td>Jamuna Char Integrated Development Project</td>
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<td>MIN</td>
<td>Mensen in Nood</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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<td>UST</td>
<td>Unnayan Shahojogy Team</td>
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IAO Network International in Brief

The IAO Network was founded in 1992 on the fundamental principle that the development policy by the nations of the North very often has detrimental - if not disastrous - effects on the nations of the South. With this understanding, the IAO Network has focused its work on advocating for change within the development policies and to support the overall concepts of sustainable development. The IAO Network believes in the benefit of shared experience and information, and the strength gained from coalition of like-minded partners - be they individuals and NGOs from the North or the South. IAO Network believes that as citizens and taxpayers of their countries they have the right to criticise, and when necessary, lobby for change in the development policy of their country.

History

IAO Network started its work in early March 1992. The name should reflect the tasks of the new formed NGO: "Information, Alternatives and Opposition (IAO) Network International to monitor the Flood Action Plan Bangladesh". While some NGOs requested more information, others were asking for alternatives to FAP-projects. Still others were well aware of the issues involved and were willing to express opposition to their Government’s participation. In 1994, the name changed to reflect a slightly broader interest in issues: "IAO International Network for Environment and Development Bangladesh".

Activities from 1992 to 1996 on the Flood Action Plan (FAP):

- In May 1993 IAO Network organised in Strasbourg, together with the Bangladesh People’s Solidarity Centre and the Green Group in the European Parliament, the ‘First Conference on the Flood Action Plan’. At this conference, an international ‘NGO Campaign Coalition’ was formed.
- The conference was preceded by a lobby tour for Bangladeshi experts to the German Ministry of Development Cooperation and the German Parliament.
- The involvement of the German funded FAP projects was discussed by the ‘Working Group for Development Cooperation’ of the German Parliament. IAO Network prepared the MPs for this discussion.
- As consequence, a delegation of German MPs visited the German funded FAP projects in Bangladesh in summer 1993.
- In autumn 1993, the IAO Network organised the ‘First Campaign Coalition and Strategy Meeting’ in Berlin.
- From January 1994 onwards IAO Network published the bi-monthly ‘FAP Newsletter’ which was transformed into a homepage on the Internet since June 1996.
- In summer 1994, IAO Network organised a one-day workshop on FAP at the NGO-meeting in September in Madrid parallel to the meeting of the IDA and the Worldbank.
- In February 1996, the German Minister for Development Cooperation, Carl-Dieter Spranger, visited Bangladesh. IAO Network facilitated a meeting between the Minister and people who are affected by the German funded FAP 20 project.
Annexures

• In April 1996 IAO Network formulated together with the Green Party a catalogue of questions to the Ministry of Development Cooperation on the German funded FAP projects FAP 20 and FAP 21/22.
