

From Flood to Scarcity of Water

WATER is one of the most precious resources on earth. It is indispensable for all human activities and for the sustainability of the ecosystems on which we depend. Without water there would be no life. Water resources, present as surface stocks such as ponds or lakes, flows (rivers) or groundwater reserves (acquires or soil moisture) are all used directly in activities undertaken to sustain livelihoods or to support ecosystems which in turn support a variety of livelihood activities. The utilisation of these sources by a variety of resource users or 'stakeholders' means that multiple interests may be operating at any one time on a given water resource. These uses often occur in harmony but can be incompatible, as one use lessens the resource's utility for others downstream.

These resource-use combinations take place within a local social and institutional setting that is crucial in defining how the resources are managed and allocated, and in particular the form that the rights and entitlements of access to the resources held by different sections of the community take. It also defines norms, customs and obligations that may be as important as the formal institutions in moulding the patterns of resource use and management.

Growing Awareness of the Water Crisis

As a result of the unexpected recent slowing of population growth, organisations such as the United Nations (UN) have reduced their projections of the eventual size of future populations. Yet despite this, because of increased per capita and unit service, or product demand, renewable freshwater scarcity will continue to be an ever-increasing problem for millions of people around the world. There are currently more than 430 million people living in countries considered to be water-stressed, with adjusted projections suggesting that by 2050, the percentage of the world's population living in water scarce (stressed) countries will increase three to fivefold (Gardner-Outlaw and Engelman, 1997). In several countries, per capita availability of water has fallen dramatically and there are concerns of potential conflicts over water.

As a result, in recent years, the issue of water scarcity has risen to the top of the international political agenda. Water supply and demand was a major issue at the United Nations General Assembly Special Session (UNGASS) in July 1997 and is the focus of the activities of the Commission for Sustainable Development (CSD). The UN also sanctioned the establishment of the Global Water Partnership (GWP) and the World Water Council (WWC), international organisations given the task of evaluating the world's water problems and trying to develop ways to best tackle the problem. Various governments, international agencies and NGOs have also prepared or are in the process of preparing position papers on water.

The debate regarding water scarcity has also led to the development of a variety of indicators for measuring scarcity which take account of the many factors influencing the adequacy of a nation's water system — storage-to-flow ratio, coefficient of variation of precipitation, use-to-resource ratio and average income. However, such methods all developed from a mould and, as a result, are cast with the same conceptual flaw: they view scarcity as a water supply availability and demand problem, when in actual fact, water scarcity is a problem where there is a failure to gain access to the services that water resources provide. Lack of services may, in many cases, be defined by lack of water in sufficient quantity to undertake a function or complete a service but it could equally result from lack of water of a sufficient quality (for example, bacteria free water for drinking or bathing), incompatible uses of water from the same resource base (fishing in or drinking from a polluted lake, extraction of water for irrigation that dries up wetlands), social, institutional or economic barriers which limited access to water resources that may in themselves be both abundant and of suitable quality to provide the desired service (lack of funds to buy equipment to extract groundwater for irrigation or tenure rights that prevent the needy using private resources).

All these forms of scarcity are highly dynamic: water quantity, water quality and socio-economic conditions of stakeholders alter in space and time, often extremely rapidly, and in response to a wide range of factors that go beyond simple resource-used ratios. It is the more complex, subtle concept of scarcity that is the basis of the analysis of the situation in rural Bangladesh. It does not have the simple attractiveness or dramatic impact of many of the more sensationalist measures conventionally used, but it does have one over-riding advantage: it provides a basis for understanding local-level reality that the conventional measures do not.

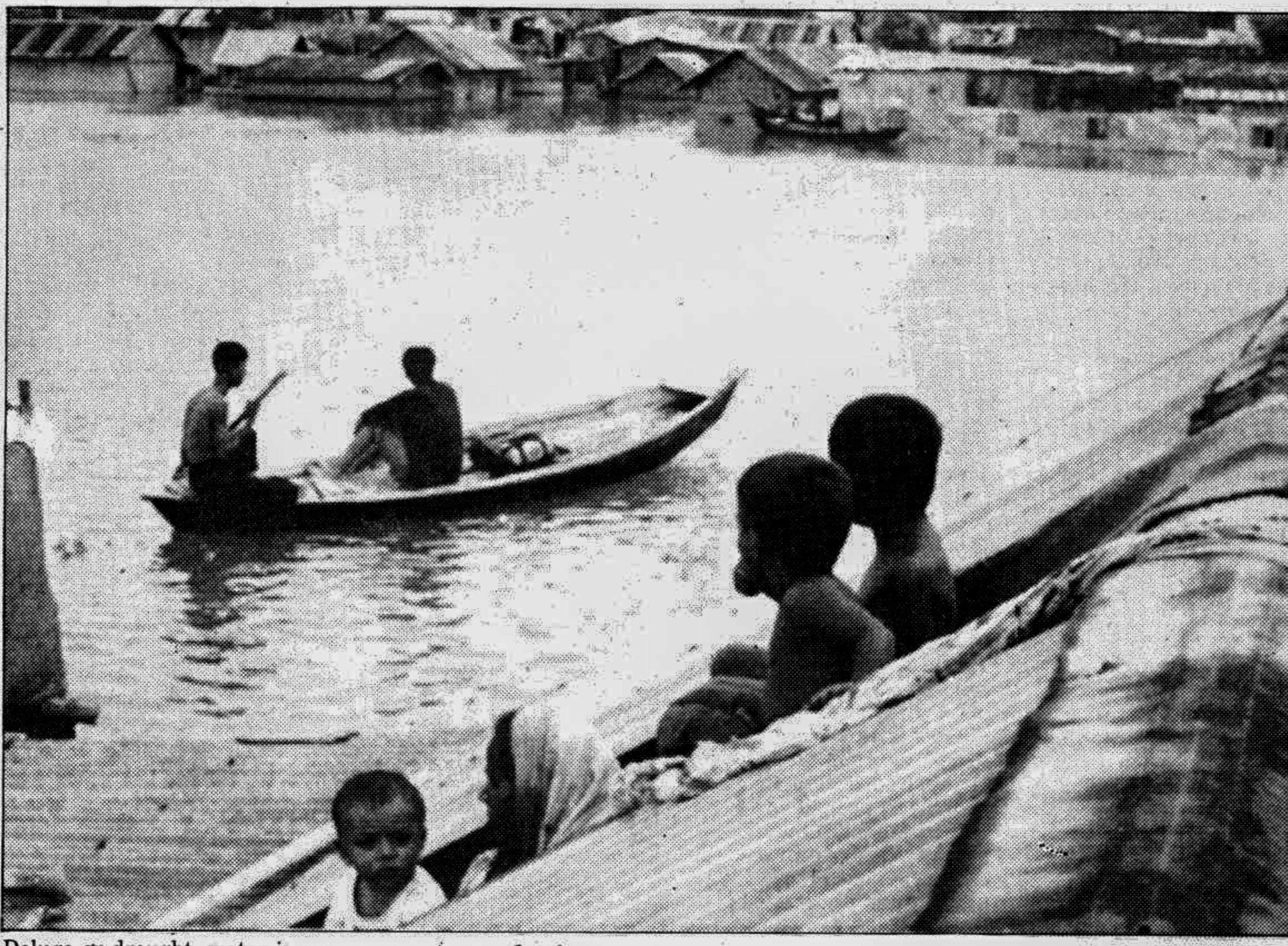
Water Resources and Their Uses

Recent flood events in Bangladesh have served to highlight the devastating effect flooding can have on rural peoples' livelihoods. Government estimates put the number of dead during the 1998 floods at about 1000 and the area of the aman season's rice that has been damaged at over 6000000 hectares. Yet, it must be borne in mind that water is the mainstay of Bangladesh. The country's economy is still agrarian based, and therefore essentially water-dependent. Its great rivers: the Ganges-Padma, the Brahmaputra-Jamuna, the Meghna, and their associated tributaries discharge about five million cubic feet per second into the Bay of Bengal at peak periods (Rashid, 1991). The complexities and scale of these rivers, linked to the country's physiography, extremes and variability in climate, and the socio-economic vulnerability of the population, means that the country's water resources form a double-edged sword, providing opportunity and benefit one minute and hardship and suffering the next. This fact is no better illustrated than by the events of the devastating 1988 flood, which led to nearly 2000 deaths and millions of dollars of damage. However, the succeeding season's rice harvest was one of the highest on record.

A participatory study, in central Bangladesh by a team of researchers from BCAS and the Environment Centre from the University of Leeds of UK, found scarcity of an adequate quality and quantity of water to be the main problem in the country even during flood. These findings were the result of extensive consultations with stakeholder groups. Scarcity of monsoon floodwaters appeared to be the primary concern of the majority of livelihood groups. There was also a consensus of opinion regarding the consequences that result from this. These include a reduction in soil fertility due to lack of silt being deposited on their fields that replenish the soil nutrients. There is evidence they are right in terms

of mechanism. The research suggests that we need to re-think the prevailing paradigm in Bangladesh of dealing with too much water in monsoon (i.e., flood) to one which deals with how to cope with lack of water in the years between major flood events,

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Lack of adequate annual monsoon water, drawdown of the water-table and depletion of fisheries resources are the three major problems affecting the everyday lives of millions, said the village people of central Bangladesh. The study team from BCAS and Environment Centre, University of Leeds consulted the major livelihood groups in eight villages of Tangail Sadar and Kalihati thanas. These included farmers (across a range from sharecroppers to large landowners), fishermen, agricultural labourers, owners of shallow tubewells who sell water, and people practising fish culture. The group also consulted women as the 'manager' of domestic water supplies. The primary findings of the study suggested that Scarcity of monsoon floodwaters appeared to be the primary concern of the majority of livelihood groups (Consultations taken place prior to the flood 1998).

There was also a consensus of opinion regarding the consequences that result from this. These included the belief amongst participants that there is a reduction in soil fertility due to lack of silt being deposited on their fields that replenish the soil nutrients. The team suggest such an assertion is correct in terms of the mechanism but probably not the process. This is because raw alluvium is relatively infertile in the short term. It contains little organic matter and provides little useable phosphorus or nitrogen.

The minerals contained in river alluvium weather relatively slowly and consequently contribute to soil fertility on a long-term basis rather than in the year of their deposition. According to Brammer (Brammer, 1995) and others the fertility associated with seasonal flooding comes mainly from the flooding itself, rather than the sediments. Algae, including blue-green algae that are nitrogen fixing, grow plentifully on the submerged soil and the stems of plants in the floodwater. The algae's organic remnants fall on the soil surface and decompose, releasing nutrients to plants. The main benefit is derived by the rabi crops with the soils become aerated after the flood recedes.

Another problem associated with a lack of floodwaters highlighted by the participants was the decline in the amounts of fish fry, fingerlings and fish reaching the tributaries and floodplain from the permanent water bodies where breeding takes place. This has in turn led to a major decline in open water fish catches, in terms of the range of species, the total volume of fish and the size of individual fish caught. The old truism that everyone in Bangladesh

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many cases they have had to reduce each STW's command area, the area of land supplied with irrigation water from the irrigation pump, and that drawdown often gets so bad that it is necessary for the owner to move the pump to other tubewell points within the season. As a consequence there are increasing tensions between water sellers and farmers over the amounts of irrigation water they receive.

The problem, going down of water level, was also the primary problem identified at the FG meetings with women. All the women FGs placed this as one of the top two problems. As a consequence, the women now find it increasingly difficult to pump water out with handpumps towards the end of the dry season. The causes of this problem appear to be well understood by the community with many Focus Group Discussion highlighting over-extraction by STWs for irrigation as the prime culprit. The other reason many respondents mentioned was that lack of floodwater on the floodplain to replenish aquifers. However, this is not something that is appreciated at the national level, where conventional wisdom appears to be that there is no need to be concerned over the sustainability of groundwater supplies.

A further problem highlighted by both the male livelihood groups and the women's groups was the high levels of iron in the groundwater. This was the other most pressing issue highlighted by the women's FGs, and was mentioned by 34 out of the 42 FGs held. The women's groups ranked this as the biggest problem for them in both areas. The iron is said to result in a multitude of problems: food becomes discoloured and develops an unpleasant taste and colouring is harder to wash, becomes coloured by the iron and wears less well. Health problems were also cited: some people talked of gastric problems, others of the colouring of teeth whilst every group mentioned that hair washed in tubewell water becomes matted and dull. However, the study team suggest that iron is unlikely to be to blame for the gastric problems mentioned. Health problems in relation to iron are invariably due to insufficient rather than excess iron. Iron excess can lead to medical problems but such cases are extremely rare.

Most farmers also mentioned that use of groundwater for irrigation leads to the soil becoming coloured, hard and gradually less fertile. Iron is an important element, necessary for plants' oxidation-reduction reactions. It is also a structural component of plants. Problems related to soil iron are usually associated with lack of iron as opposed to excess and are closely linked to pH, with ferric iron solubility decreasing about 1000-fold per pH unit rise. Iron can cause problems when hydroxides of iron are concentrated and precipitated and eventually lead to the development of an iron pan or plinthite.

Adaptive Strategies and Solutions

The livelihood groups went on to outline the responses or "adaptive strategies" that they have developed in an attempt to deal with the water related problems they face. All the Focus Groups stated that the best solution to the problem of insufficient floodwater on the floodplain would be to excavate or dredge the rivers and canals leading from the Jamuna River to the two areas. Associated with this, respondents said infrastructure such as sluice gates needed to be widened and operated more effectively. Such complaints are frequent and are difficult to resolve. They are especially hard for local people, as they entail actions outside of their immediate locality and in relation to structures not under their jurisdiction. As is often the case with water resources, there are clear limits to what can be achieved through local-level interventions only.

Various adaptive strategies have been developed to deal with the problems associated with lack of monsoon floodwaters. Farmers with higher land have adapted new cropping patterns and now tend to plant crops such as sugarcane, bananas and timber that require less water where they previously grew rice.

Fishermen and part-time fishermen now have to go further afield to fish and tend to be concentrated on fewer water bodies, adding to competition for ever declining fish stocks and leading to disputes between village communities and professional and part-time fisherfolk. Several professional fisherfolk appear to have given up and switched primary livelihood activities, with many becoming fish traders and buying in fish from elsewhere. Others have abandoned fishing completely and own small shops and tea stalls or operate cycle rickshaws.

The Way Forward

The implications for government and donors alike are dramatic. Today we still have a situation in Bangladesh where bilateral and multi-lateral spending on water resources has been dominated by investments in flood control. Yet there is increasing evidence that this allocation needs to be reassessed, and that efforts in the field of water conservation merit more attention than flood control if Bangladesh could effectively manage its emerging water scarcity. It is extremely difficult for many to view Bangladesh as a water scarce nation. None of the many existing indicators of water scarcity view the nation as water scarce. Yet many of these indicators are too simplistic in approach. The fail to take account of seasonal distribution of rainfall, or of the pathways through which water passes through a nation and may be utilised. Moreover, they fail to take any account of the services that water has to provide. It appears that the desire to view and manage water in a way more akin to practices in the Northern Hemisphere still dominate development perspectives and strategies. But livelihood practices in Bangladesh are fundamentally different, with standing water as much part of the landscape and of people's livelihood systems as dry land. It is this type of analysis, that provides an understanding of the role of water resources in sustaining livelihoods, that should be the basis upon which policies and projects are built.

The 1998 floods mean that there is a danger that the vested interests who benefit from large flood control investments will be able to agitate for yet more donor-driven project that are doomed to failure. There is, however, also a strong movement (including at the national policy level) advocating subtler, integrated approaches based on structural reforms to the legal and institutional framework of water resources. This movement needs to be supported, as the local-level perspectives presented in this paper clearly show that it does more than follow conceptual fashions: it captures reality on the ground.

— BCAS Feature

Globalisation: Myth and Reality

by Naved Ahmed Chowdhury

IT is actually hard to interpret and analyse globalisation because in majority of the cases, globalisation is taken as synonymous with 'westernization' (western pundits may disagree with this assertion). Therefore, though the policy makers in countries like Bangladesh are using this word in abundance in order to make political mileage, in reality they are as confused as anyone else. Globalisation, instead of putting forward a message of societal benefit from international exchange reaching the masses, is becoming something of a political message where its justification is explained by raw and complicated statistics of foreign direct investment, the number of plants established in EPZ across the country, the number of multinationals coming to Bangladesh, the number of foreign visits of ministers, or even the number of mobile phones in the country! But is this really representing how globalised our country is at present? Without using any numbers (which usually confounds a reader) let us explore the myth and the reality behind to see what is really the case. What is globalisation and whose interest is it serving?

Myth: The Pacific Rim countries are economic success cases and the recent setback is not because of globalisation but because of wrong government policies: It is true that the ASEAN countries are economic success stories having made enormous strides in economic arena, averaging eight to ten per cent growth every year for the last decade. The poverty level nose-dived and any visitor would be surprised to see the abundance of consumer goods in Singapore, Manila, Kuala Lumpur or Bangkok. But let us think here a little. It took only one crash to almost destroy what 'hey gained'! Almost all the economies contracted dur-

ing last year (with the exception of Singapore) with Indonesia being hardest hit where the economy contracted almost 15 per cent in one year and per capita GNP went from 100 dollars down to almost 300 in one year. All of these countries are continuously praised and courted by the World Bank as being most open of all economies. But instead of being helped by globalisation, they fell victim to it. As soon as the crash hit them they experienced massive capital flight to the western countries. The speculators were the first to flee and following them were other foreign companies who had invested money.

All of these countries were very obedient pupils of the World Bank and the IMF, so for all the credit these two organisations took all these years to have made these countries wealthy, guess who was blamed for all the ills that happened at the end? Who was blamed for being corrupt and incompetent, selfish and insensitive? None other than the regimes in these countries. But these very regimes were praised for being the paragon of globalisation, for having opened the economies by successfully implementing prescriptions of the World Bank and the IMF! But then why were these economic gurus unable to predict the mess, the crash? Who did really benefit from the crash at the end, since we see these very organisations again lending money to the successive regimes just as they had done with the previous ones?

It is actually hard to interpret these phenomena accurately since various interpretations are being superimposed as being globalisation. On the one hand it follows westernization wherever the recipe of market plus democracy and the individualism that goes with it are being advocated and applied on a worldwide scale. It means

freedom and choice without necessarily understanding the implications. It means opening your arms to anything and everything while acknowledging that your own culture was inferior since it has not been globalised as yet. It means standardization of values, decline of standard and then rise of new ethics dictated by the market.

In recent times, anyone and everyone from the government in Bangladesh find glee in overwhelming us with information about foreign investments and how Bangladesh need to reap the benefit of globalisation.

Myth: The factors of production are more mobile than before and that is going to make a richer world: A notable feature on the road to globalisation is liberalisation of capital flows. It is true that helped by sophisticated technology and fast information exchange it is possible for the capital to move across the border.

The question, though, is if the capital moves freer, but whether the factors of production can move unobstructed. In a world of hypocrisy where the capital is moving without hindrance, another factor of production, labour, is not at all as mobile. Though it is very easy for the citizens of developed world to come to any developing country to work (one need has to see the abundance of consultants working on different projects in Bangladesh) it is almost impossible for anyone from the developing countries to go to developed world to work. New immigration laws in Western Europe, North America and Australia are making it even more difficult.

In addition, to that, with the slightest indication of any sort of turmoil, be it political, or economical, in the developing countries people like George Soros remove their cash from capital markets (as was the case in South-East Asia).

Bangladesh also suffered tremendously because of this obsession with speculation.

During the recent stock market crash, we have also experienced massive capital outflow ruining thousands of people. None of the western financial institutions invested money in our stock market then. Unfortunately, the stock market has still not regained its lustre.

Myth: Better communication reinforces globalisation and the benefits will accrue to the people: Communication and globalisation are closely inter-linked. Development in communication — e-mail, internet, cellular phones, multimedia, databases etc — does help to link a country with the world at large. That technological improvements are taking place by leaps and bounds is also apparent in other countries. Unfortunately, a limited number of companies control the digital revolution in Bangladesh. Till date the benefits are not enjoyed by the mass but only by a certain segment of the society.

Myth: Increased cross border developments in law, international treaties and international courts are beneficial to the developing countries: We have seen in recent times innumerable number of international treaties being written in Geneva and New York. One such example is the activities of World Trade Organisation, which is supposed to assure that world markets are open and no country can get undue preference over others. The developed countries can rest assure that WTO has taken its mandate very seriously and is going about doing its job with customary zeal. The recent spurt of the US and the European Union is a good example where WTO is expected to negotiate the opening of European markets to big American Banana companies so that they can have equal access to the market.

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One need to be aware that the process of globalisation has occurred or is occurring through the emergence, at each stage, of greater economic and

national power that is bigger in scale and complexity than the organising centres of the developing countries at the present time. To understand this, one only has to remember the US refusal to sign the treaty which would have restricted carbon-dioxide emission around the globe to its 1995 level. The treaty has been quite ineffective in practice since the US is the largest emitter of this gas in the world and it has not signed it! The rest of the world failed to convince the US that it would have benefited the world enormously. But to the policymakers in the US, the Autoblobby was much stronger and more important than the benefit of the whole world. These same automobile companies cry foul if they are not given unrestricted access to any national market, since other than making money they have little or no care for ethics.

Globalisation is also used to signify openness of any economy. But it is very unfair to put the economies of the developed world with strong fundamental principles on equal terms with the economies of the developing countries.

Numerous other examples can be given but the fact remains that while credibility of sovereign countries like Bangladesh is increasingly put into question when talking about freedom of market, we see that western governments (in other words donor countries) actively pursue and in many cases put pressure on developing nations as they lobby for their multinationals.

Why do we talk only about global benefits, what about global responsibilities? Have the moralists ever questioned why the north did not respect even the minimum requirement of diverting only 0.7 per cent of their GDP as aid to their partners in the south? When the seven richest countries of the world balk at forgiving the debt

of the twenty poorest countries of the world, how can any one talk about a global village?

Is then Globalisation a myth? No, it need not to be if the essentials are the same. If it means that it will benefit both the rich and the marginal at the centre and the periphery, than it is desirable. If Globalisation is to succeed then it will make many demands on our life styles and therefore on our culture. Increased awareness of our rights in a global village and confidence in our expectations and historical consciousness can guarantee that national allegiance and global citizenship each have their rightful place.

Let us not consider ourselves unfit to compete in the world market, let us be critical of our society by assessing it not against other cultures but against moral ethics that is ingrained in us.