Flood control measures must not alter natural system

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It would be much better to spend money to restore wetlands, replace ground cover on water courses, build check dams on small streams, move buildings off the floodplains, and undertake other non-structural ways of reducing flood danger. More attention should be given to check river erosion, which has been uprooting thousands of families every year devouring dwelling houses and farmland.

AFTER every deluge in the country, the flood control issue comes to the limelight and draws considerable attention from the policymakers. Like on previous occasions, the policymakers, including the Prime Minister, this time also pledged to undertake projects to control the floods. But is it possible to control floods? Or should we manage them to minimise the extent of damage? Control and management are two varying schools of thought in solving any natural disaster. Unfortunately, our experts and high-ups always opt for the first owing to various reasons.

The rivers and streams generally accommodate the water flow much of the year when the water level may be well below the bank height. But heavy rains and snowmelt can deliver more water than the river can carry. Excess water that overflows riverbanks and covers adjacent land is considered a flood.

Although floods are dubbed as natural, many human activities increase both the severity and frequency of floods. Under a normal condition, floods are mitigated by floodplains -- low land that is periodically inundated during normal floods. However, floodplains have lost much of their ability to absorb floodwaters as they are widely farmed, developed with towns, villages and industrial areas, and cleared of vegetation.

The objective of this article is not to pinpoint any particular measure for controlling floods in the country, but to draw attention of the policymakers and experts to think differently to manage the floods, and also take lessons from the past measures undertaken at home and abroad.There is a notion that the earth is all enduring. But in reality, the opposite is true. The earth

Scourge of the annual phenomenon

stores every event that affects it in its memory. It withstands the punches for the time being, but strikes back when those cross the tolerance limit. So, whenever we want to control nature or over extract natural resources, we instead of doing any good invite harm for ourselves.

The decision-makers have been committing the same mistakes like their counterparts in other countries while trying to control flood through changing the natural flow of water.

During the past few decades, the subsequent governments in the then East Pakistan and Bangladesh executed a large number of flood control projects (total embankment -- 5695 km, flood control/regulating structures - -1695, drainage canals -- 4310 km) at the advice of the domestic and foreign so-called experts, and spending crores of taka. But these flood control structures contributed only little in reducing flood damage. Let us examine the damages and losses in the 1954 and 1988 deluges, the two severest floods in our country.

In the 1954 flood, economic loss was Tk 1200 crore while in 1988 the loss was estimated at Tk 10,000 crore i.e. more than eight times that of the 50s. The country incurred a damage in terms of grain of 0.6 million tons in 1954 while 3.2 million tons in 1988, and the flood-related deaths were 112 in 1954 and 2,379 in 1988, although a lot of flood control structures were built by that time. That means the propensity of floods did not reduce, but rather increased, and the damage, in terms of economic and human casualty, also gradually increased, despite our claim to control flooding.

Not only in Bangladesh, the scenario in India was also the same. Despite crores of rupees spent on flood control since independence, India remains the most flood-affected country in the world after Bangladesh.

The flood-affected area in fact has been increasing from average annual 6.4 million hectares in 1954 to 9 million hectares in the 1980s.

In fact the mega and big flood control structures ultimately did not do anything to mitigate flood damage. Rather, these structures adversely affected nature, altering water flow of the rivers, silting up the rivers and other water bodies, changing the geophysical structure, and thereby increased prospects of danger.

The flood control measures in our country mostly concentrated on restricting the water flow of the big rivers. In doing so, the experts and policy-makers treated rivers as 'dead' things. Many people think human being can do anything through scientific innovations. Nothing is beyond the capacity of human beings. But this conception does not work in the case of nature. Humans can manipulate human creations such as highways or power. But this does not necessarily apply to nature, such as rivers. Rivers are not human artifacts, they are not pipelines to be cut, turned around, welded, and rejoined.

So, any project altering the natural river system if destined to be end up in disaster. Many such big projects across the world resulted in disastrous consequences. The Aral Sea project in the former USSR is one of the unique examples of how human interventions can destroy the natural system, and create an ecological and human disaster.

The Aral Sea was the fourth largest freshwater lake in the world with an area of 66,000 sq km including 2200 sq km of islands. The lake's water volume exceeds 1,000 cu km (as much as total annual discharge of the Ganges (493) and Brahmaputra (510) together) and its average depth was 30 metres. In the 1960s, the Aral Sea had a thriving commercial fishery and was a popular recreation spot.

Two rivers, the Amu Darya and the Syr Darya flow into the Aral Sea, with a basin area of 309,000 sq km and total length of 2,500 km. The mean flow of both the rivers was 116 cu km.

Until the 1960s, the former Soviet Union used mostly primitive irrigation techniques. As part of the integrated method of development of desert lands, water of the Amu Darya and the Syr Darya was diverted to that area. About 92 percent of the diverted water was used for irrigation and the rest for industrial and rural water supply. The irrigated area in the Aral region expanded from 5 million to 7.9 million hectares.

The consequence of this water diversion is highly visible. The Aral Lake has been reduced to almost half (38,000 sq km) and the volume of the water in the lake has fallen by one third (354 cu km). This exposed the lakebed, which become dry and salinity level in the lake increased, almost eliminating the commercial fishery. The tragic and sudden death of the Aral Sea is a reminder to the entire world that you cannot divert rivers at will without causing massive damage.

In Egypt, the Aswan High Dam was built to irrigate thousands of hectares of farmland, but the dam loses much of the Nile's water to evaporation. Without the annual flood that carried rich silt to farmlands for thousands of years, many farming areas are becoming infertile, and the famous Nile Delta --and its rich fisheries -- are disappearing.

Despite having 25 billion dollars river control systems on the Mississippi and its tributaries, the United States could not check a major flood in 1993.

When the government decision-makers talk about flood control measures, the questions arise: Have our water experts learned anything from the past? What is the net achievement from the flood control measures so far undertaken? Did the water schemes serve any purpose in controlling floods or just serve political purpose? Would the experts act as they did in the past or look for new alternatives?

Floods cannot be controlled, rather they should be managed. But experience tells us that our tendency is to construct big structures involving large amounts of money. This is based on a lucrative nexus of technologists-bureaucrats-politicians, who find large schemes are ideal for their purpose. Apart from amassing money, the politicians become popular, bureaucrats increase their domain of power, and the technologists get larger toys to play with.

So, it would be much better to spend money to restore wetlands, replace ground cover on water courses, build check dams on small streams, move buildings off the floodplains, and undertake other non-structural ways of reducing flood danger. More attention should be given to check river erosion, which has been uprooting thousands of families every year devouring dwelling houses and farmland.

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