Contributing Paper

Flood Action Plan in Bangladesh

Herb Wiebe
Northwest Hydraulic Consultants, Canada

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BANGLADESH – THE EVOLUTION OF PLANNING FOR FLOOD CONTROL

BACKGROUND

Bangladesh (area 144,000 km^2) experiences flooding every year on up to two-thirds of its territory. During the monsoon months (Jun-Sep), when 80% of annual rainfall occurs, the Ganges, Brahmaputra, and Meghna Rivers bring about $1x10^{12}$ m^3 of water plus 500 Mt to 1500 Mt of sediment into Bangladesh from the upstream catchment area (area 1.74 million km^2). Rainfall within Bangladesh accounts for a further $0.12x10^{12}$ m^3.

Normal annual flooding provides numerous benefits - common access to the large natural floodplain fishery, deposition of fertile loam on agricultural fields, and flushing of stagnant water in low-lying areas. But when the major river flood peaks coincide, unusually high floods can occur, causing catastrophic losses - damage to crops, housing, and infrastructure, and increased incidence of disease and death. Adverse tidal conditions and heavy local rainfall, if also present, aggravate the situation. Floods are then slow to recede due to the low average gradient (about 5 cm km^{-1}), and drainage system conveyance limitations caused by sediment deposition. In addition to and distinct from the major river floods, flash floods affect smaller areas of the country that are located on hill streams and in piedmont areas.

Population has increased from about 70 million in the early 1970s to about 130 million in 2000, with 172 million forecast for 2025, even though population growth has been significantly reduced in recent years. Over 80% of the population lives in rural areas, and over half still depends on agriculture for livelihood. Increasing population density and agriculture dependence compels people to inhabit flood-vulnerable areas, intensifying flood impacts and placing severe constraints on flood control options.

To cope with these challenges, over the past several decades water resources planning has evolved in three phases: national water planning, the Flood Action Plan (FAP), and post-FAP.

NATIONAL WATER PLANNING

In 1964, a national (at that time provincial) water planning approach was initiated with the 20-year Water and Power Master Plan. Though this Plan did lead the way to protecting most of the coastal zone from tidally-induced flooding, overall it was too ambitious, overestimating public sector capabilities and overemphasizing large-scale surface water interventions. It largely overlooked the country's ground water resource, later the key to rapid irrigation expansion.

In 1986, Phase I of the National Water Management Plan (NWP) was completed. This was primarily a food grain self-sufficiency sector strategy, lacking implementation details. This time around, planners emphasized ground water development for irrigation, mindful of the weak performance of existing flood control drainage infrastructure. The Government, concerned about possible over-estimation of ground water, did not accept this plan.

In 1991, NWP Phase II was completed, including a detailed investment program. It was overtaken by events when severe flooding in 1988 led to the formulation of the Flood Action Plan.

FLOOD ACTION PLAN

After the 1988 floods, a debate on how to address the flooding problem began to develop through various preliminary studies. These proposed interventions ranging from an almost purely structural "once-for-all" massive engineering solution, to a mainly non-structural "living with the floods" approach. The debate was subsequently short-circuited by a set of eleven principles prepared to guide future studies; directives from senior levels of Government to proceed despite the unresolved issues; and also, in part, international commercial interests that favored structural interventions.

The compromise five-year plan that emerged from this debate was called the Flood Action Plan (FAP). FAP consisted of regional planning studies, project preparation studies, and pilot projects. FAP was strongly opposed by local and international NGOs, organized around a coalition of environmental NGOs that initially raised awareness through public meetings outside Bangladesh. The opposition to FAP challenged a number of basic assumptions related to structural flood control, among these, that flood control was desirable; that the major rivers could be embanked sustainably despite large sediment loads and alluvial soils; that structural measures were affordable; and that planners could work in isolation from the people for whom the interventions were intended.

The FAP process gradually produced a consensus on several issues, among them support for a softer "controlled flooding" concept in place of the more hard-edged idea of "flood control;" the need for greatly enhanced people's participation; and an emphasis on improving drainage through dredging planned at the river system level. In the end, the FAP did not recommend large-scale works; rather, it initiated guidelines on people's participation and environmental assessment.

POST FAP

It is clear now that FAP resulted in a new planning approach. It is now widely accepted that planning must be participatory and that consultation at all levels is essential to correctly identify development needs and interventions. Furthermore, greater emphasis on participation has led to the recognition that as people's lives are not compartmentalized by sectors, so too must planning be multi-objective and multi-sectoral.

Other outcomes of FAP included much greater emphasis in the planning process on environmental and institutional aspects, flood mitigation as an integral part of flood management, acceptance that flood control should be addressed in a regional context, and that cooperation among riparian countries is essential.

Many of these new concepts are enshrined in the first National Water Policy, established in 1999 and in the National Water Management Plan that will be completed 2001. The challenge will be to put these lofty principles into practice in the field. Progress is likely to be slow, given public sector capacity limitations.