Our disasters, 'their' management

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SOCIO-ENVIRONMENTAL IMPACTS
The waterlogging crisis resulted in:

- Loss of agricultural land and livelihoods
- Increased poverty and forced migration
- Damage to roads, houses, and public facilities
- Long-term ecological degradation

Communities in the region faced chronic hardship due to persistent inundation.

Cyclone evacuation notice. PHOTO: PRABIR DAS

PUBLIC RESPONSE AND ADAPTIVE MEASURES

In response to waterlogging, local communities initiated Tidal River Management (TRM) practices from the 1990s onward. TRM involves temporarily opening embankments to allow tidal water and sediment to enter selected floodplains, raising land levels and restoring river depth. The government later adopted TRM as a partial mitigation strategy.

The introduction of polders and ring embankments in south-west Bangladesh initially achieved its objectives of flood protection and agricultural expansion. However, the unintended consequence of chronic waterlogging highlights the limitations of rigid structural interventions in dynamic deltaic environments. The experience underscores the need for adaptive, ecosystem-based water management approaches that balance flood control, sediment dynamics, and community participation.

MALARIA ERADICATION PROGRAMME

Malaria was a major public health threat in undivided Bengal during the mid-20th century, particularly in rural and forested regions. High transmission rates caused widespread illness, reduced productivity, and significant mortality. In response, the then East Pakistan (now Bangladesh) adopted DDT (dichloro-diphenyl-trichloroethane) spraying as a primary vector-control strategy, in line with global malaria eradication efforts promoted during that period.

INTRODUCTION OF DDT SPRAYING

DDT spraying was introduced in the 1950s under the global malaria eradication programme supported by international agencies. Indoor residual spraying targeted malaria-carrying Anopheles mosquitoes, aiming to interrupt transmission. The intervention initially proved highly effective, leading to a dramatic reduction in malaria incidence and mortality and an immediate public health success.

The use of DDT resulted in:

a) Rapid decline in mosquito populations
b) Significant reduction in malaria cases
c) Improved public health outcomes and economic productivity

At the time, DDT was considered a cost-effective and powerful solution for vector control. On the other hand, over time, extensive and prolonged DDT use produced serious unintended consequences:

DESTRUCTION OF BENEFICIAL INSECTS

DDT is a broad-spectrum pesticide. Along with mosquitoes, it killed beneficial insects such as pollinators and natural predators of crop pests, disrupting the ecological balance.

ENVIRONMENTAL PERSISTENCE AND BIOACCUMULATION

DDT does not break down easily. It accumulated in soil, water, and the food chain, affecting fish, birds, livestock, and ultimately humans.

DEVELOPMENT OF PESTICIDE DEPENDENCY

As mosquito populations developed resistance to DDT, higher doses or alternative chemical pesticides became necessary. This led to increasing reliance on chemical pest control in both public health and agriculture, trapping the country in pesticide dependency.

HUMAN HEALTH IMPLICATIONS

Long-term exposure to DDT has been associated in scientific studies with:

While DDT was not the sole cause of cancer, its widespread and uncontrolled use increased population-level exposure to carcinogenic and toxic substances, raising long-term health risks.

POLICY SHIFT AND BAN

By the 1970s–1980s, growing global evidence of DDT's harmful effects led to its restriction and eventual ban in many countries, including Bangladesh. Malaria control strategies gradually shifted, but by that time it was too late to reverse the situation. To fight malaria, we are now trying with a) Integrated Vector Management (IVM), b) Use of insecticide-treated bed nets, and c) Environmental management and surveillance.

The experience underscores a critical public health lesson: disease control strategies must balance immediate benefits with long-term ecological and human health consequences.

There are many more examples of 'backfires'; actually, so-called 'unintended impacts' swamp the intended impacts of the apparently useful initiatives. To address another public health crisis, Bangladesh promoted the use of hand-pumped tubewells as a safe drinking water solution. This intervention was strongly supported by international agencies and development partners and was implemented on a large scale from the 1970s. However, by the 1990s, a serious unintended consequence emerged. Scientific investigations revealed that groundwater in many regions of Bangladesh contained naturally occurring arsenic at levels exceeding safe limits. Long-term consumption of arsenic-contaminated water led to widespread arsenicosis, a chronic condition caused by arsenic poisoning.

THE TALE OF SALT IODIZATION

To stop the aggression of goitre, we went for a blanket solution named 'iodized salt' for all, forgetting the people who are suffering from hyperthyroids. Iodine is nothing but poison to such people. In 1989, Bangladesh enacted the Iodine Deficiency Disorders Prevention Act, making the iodization of all edible salt mandatory. The programme was implemented under the framework of Universal Salt Iodization (USI) during the early 1990s. Salt was selected as the vehicle for iodine supplementation because it is universally consumed, affordable, and easy to fortify without altering taste or quality.

Alongside some positive outcomes, an increase in the detection and prevalence of certain thyroid disorders has been observed. For the sake of argument, one can say this 'unintended' development does not indicate a failure of salt iodization but reflects complex physiological and epidemiological factors associated with changes in iodine intake. This also reflects our mindset of following the advice of those who give funds without questioning or analysing the possible intended and also unintended impacts on life and livelihood.

INTRODUCTION OF HIGH-COST CYCLONE SHELTER: MEGA PROJECT SYNDROME

According to government project budgets, Bangladesh is constructing three-storied multi-purpose cyclone shelters at a total cost of about Tk 636.09 crore under a coastal resilience programme. This means each shelter costs roughly around Tk 7 crore on average (636.09 crore ÷ 90 shelters = ~7.07 crore per shelter), though actual costs vary by site and amenities. Using the funding needed to construct one cyclone shelter could result in the construction of 35–40 cyclone-resistant houses, which can accommodate many more people during a disaster without the need to travel to a shelter in dangerous conditions. ActionAid, in consultation with BUET experts and BRAC, has already successfully piloted such housing. Another alternative is increasing the number of raised earthen platforms, known otherwise as Kella or Mujib Kella, which can house people and livestock during cyclones. Investing in such alternatives, with provisions for local communities to construct and manage these structures themselves, will also create opportunities for work in the coastal areas. While the Government has taken initiative to build new 'Mujib Kellas', it is also important to maintain Kellas so that they do not become vulnerable during cyclones owing to landslides.

We also have success stories in building and maintenance of flood/cyclone protection embankments. Laxmipur (Char Alexander) and Bhola (Char Fassion) embankments are still protecting the vulnerable communities since 1992, while the other high-cost embankments could not survive as they should have. There was no trick or deception behind this. In both cases, marginalised people living in the vulnerable area were consulted from the very inception of the project. They were involved in building the embankments and were given ownership of the embankment, and in return they protected it on their own initiative, sometimes risking their lives.

To make disaster management in Bangladesh more people-sensitive and responsive, greater emphasis is needed on community-centred and inclusive approaches rather than a predominantly top-down system. Local people—especially women, persons with disabilities, the elderly, ethnic minorities, and the urban poor—should be meaningfully involved in risk assessment, planning, and decision-making so that warnings, shelters, and relief reflect real needs and social realities. Early warning messages must be simplified, localised, and delivered through trusted channels and local languages to ensure last-mile reach. Strengthening local government institutions with adequate resources, trained manpower, and decision-making authority can significantly improve rapid response and accountability. Disaster shelters and recovery programmes should prioritise dignity, privacy, livelihoods, and long-term resilience rather than only emergency survival. Finally, transparent data sharing, feedback mechanisms from affected communities, and stronger coordination between government, NGOs, and community groups can help ensure that disaster management systems respond quickly, fairly, and with empathy to the people they are meant to serve.