


## Opinion

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### For an action plan for Bihar

M.S. Swaminathan

*Action to revive livelihoods when the floods recede is as important as saving lives. This will call for a proactive, "beyond-the-flood strategy."*

The Kosi floods are still causing immense human hardship in some parts of Nepal, but more severely in Bihar. In Bihar, over 2.5 million children, women and men are experiencing mental and physical shock and suffering due to displacement from their homes, deficiency of food intake, lack of access to clean drinking water and spread of epidemics. Women and children as well as the poor suffer the most. Fortunately, there is a spontaneous outpouring of concern and compassion in our country in the case of natural calamities such as earthquakes, tsunamis, cyclones, droughts and floods, and civil society organisations try their best to help. We have rich experience dating back to the colonial times in launching immediate relief measures designed to reduce hunger and suffering and prevent disease epidemics.

In the case of the Bihar floods also, relief measures are making a good impact, although in a calamity of this dimension there could be occasional shortcomings in the delivery of needed food, medicine and other relief material. Obviously, our immediate concern should be human safety and survival. The work relating to calamity relief is now being handled by the Union Home Ministry; until a few years ago the responsibility was with the Ministry of Agriculture.

In another two weeks, the floods will have receded. Then we will have to shift our attention from saving lives to reviving sustainable livelihood opportunities. Usually it is this aspect of rehabilitation which is often ineffective, largely because of a lack of coordinated and proactive measures. In the Sardar Patel Memorial Lecture series broadcast over All India Radio, I spoke in October 1973 on the topic "Our Agricultural Future." There I pleaded for the development and use of drought, flood and good weather codes. The aim of the codes is to minimise damage to livelihoods from surplus or scarcity of water and optimise benefits from good monsoons and growing conditions. A Flood Code, for example, will not only deal with measures that address the root causes of chronic floods but also with the post-flood revitalisation of agriculture. This will call for

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preparing contingency plans for different weather probabilities and initiating action that will render the effective implementation of such plans possible.

In the case of the Bihar floods, the immediate challenge will be agricultural rehabilitation, since agriculture including crop and animal husbandry, fisheries, agro-forestry and agro-processing comprise the backbone of the livelihood security system in over 80 per cent of the areas affected by the Kosi.

Proactive action for agricultural rehabilitation will involve the building of buffer stocks of appropriate seeds, planting material, manures and implements. The flood-affected areas will have excellent aquifer recharge. Therefore the tapping of groundwater during October to April will become possible. Bihar farmers were the pioneers in inventing the bamboo tube well, which is a low-cost method to pump groundwater for agriculture. Crops like sweet potato grow well after floods. We now have sweet potato varieties with yellow flesh that are rich in Vitamin A. In addition, there are several short-duration varieties of maize, pulses and sunflower, and a wide range of vegetables and fodder crops and legumes. The annual variety of *moringa* (drum stick) bred at the Tamil Nadu Agricultural University, Coimbatore, grows well in Bihar. It is an excellent source of micronutrients that are essential for eliminating hidden hunger.

In all these cases, it is lack of seeds or planting material that comes in the way of resuming agriculture. In my Sardar Patel lecture, and other lectures and articles, I have been emphasising that seed reserves are as important for crop security, as grain reserves are for food security. The Warehousing Corporation of India and the Rural Godown Project of the Government of India could help store seeds that could be sown by farmers if the first crop sown at the beginning of the south-west monsoon period is damaged by drought or by floods. Systematic action in this area is yet to be initiated. The Kosi-bank farmers will want to grow crops both for home consumption and for the market as soon as the floods recede. What help will be forthcoming to facilitate this?

It is becoming increasingly clear that the frequency and intensity of natural calamities like droughts and floods may increase, partly due to the anthropogenically induced climate change leading to alterations in temperature, precipitation rates and the sea level. Rise in the mean temperature leading to the melting of Himalayan snow and the receding of glaciers could lead to more serious and frequent floods. Therefore we have to place equal emphasis on saving lives and sustaining livelihoods. While drought creates a serious irrigation and drinking water crisis, floods cause more hardship when the river waters rise above embankments and get into habitations. The post-flood season can be an important cropping season that could help compensate for the loss of the crop affected by floods, if our agricultural universities develop implementable strategies to mitigate the adverse impact of either scarcity or water-surplus during the south-west monsoon period.

Both relief and agricultural rehabilitation efforts require coordinated attention and action involving the active participation of local communities through gram sabhas. There is also a need to minimise the fury of the floods by strengthening embankments and taking other measures in areas

where flood waters originate. For example, nearly 100 km of embankments were built in the Nepal side of the Kosi-Ganga largely through *shramdan* (voluntary work) under the leadership of Gulzarilal Nanda. Nearly 60 km of these are in Nepal and the remaining in the Saharsa and Purnea districts of Bihar. A good soil conservation research, demonstration and training centre was established at Chatra in Nepal. This is the point where the Kosi leaves the hills and enters the plains. It is important that there is an objective evaluation of the impact of past efforts to arrest floods, since the role of embankments has become controversial.

In all such initiatives, human memory is short-lived. There will be intensive interest and activity following the present Bihar floods and there will be the blame game. The sufferers will be the poor people, most of whom belong to small farm families. Several experts have suggested the development of a priority watershed plan for all the three tributaries of the Kosi, namely, the Sun Kosi in the west, the Arun Kosi in the north and the Tamur Kosi in the east. The Tamur Kosi brings the maximum quantities of sediments. Such a long-term plan can be implemented with labour provided under the National Rural Employment Guarantee Programme.

Unfortunately, coordinated action is difficult, particularly where several Ministries and Departments of both Central and State governments are involved. While money becomes available easily to help families where deaths have occurred due to floods, funds are scarce to eradicate the root causes of such unfortunate loss of life and suffering.

We now need urgent attention to a "beyond the floods" action plan. This will involve immediate attention to restoring livelihood opportunities to farm families and at the same time long-term strategies that can help minimise the fury of floods. Above all, the Bihar government, with the help of the Government of India and other interested agencies, should assemble seeds and planting materials at once to help those who depend on agriculture for work and income. Fodder and feed will be needed for farm animals.

Floods in the Brahmaputra begin as soon as the monsoon rain starts, partly because of the extensive deforestation that has occurred upstream. Both humans and wildlife like the one-horned rhino are endangered. Farming is the predominant occupation. Over 30 years ago, I had referred to Assam as "a Green but not a green-revolution State," where water is available in plenty but water management is poor. Assam has the potential to become the leader of an ever-green revolution movement in our country, leading to enhancement in productivity in perpetuity without the associated ecological harm. In recent years, Assam has been experiencing a rice revolution during the rabi and boro seasons, triggered by minor irrigation facilitated by shallow tube wells. The non-flood-prone season can thus become the major cropping season. The breeding of cold tolerant varieties of rice and other crops will increase production during the rabi season. Besides floods, the south-west monsoon period is characterised by loss of fertilizer nitrogen due to leaching and ammonia volatilisation.

Assam can increase production and minimise the cost of production during the flood-prone season by the use of organic manures such as compost,

green manures and bio-fertilizers, and the adoption of cereal-legume crop rotation. Fortunately the cultivation of organic rice, tea, fruits and vegetables is spreading. The tragedy of floods can then become an opportunity to promote high-value organic farming.

Thus, both short and long term measures are needed to instil hope in the lives of the unfortunate victims of the floods in Bihar and Assam. Brief aerial surveys by high-ranking officers and political leaders only fuel cynicism and anger. What is urgently needed are steps which can assure the affected population that they can look forward with hope to the life beyond the floods.

*(Professor M.S. Swaminathan is Member of Parliament, Rajya Sabha.)*

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