Climate Change in Asia: Bangladesh Country Report - 1994

Bangladesh Country Report

1. EXECUTIVE SUMMARY

This country study reports the results of investigation into the impact of climate change in Bangladesh, the available options for adaptation and mitigation measures and response strategies that may be pursued at the national and the regional levels. The primary emphasis in the study is on two areas, viz., water resources and agriculture but other areas of impact have also been investigated. Observations in Bangladesh indicate that there has been little or no increase in the average annual temperature in the country over the last four decades. On the other hand, the records on rainfall showed definite trends to increase.

The increased rainfall in the future is expected to lead to increased surface run-offs with severe consequences for flooding in the country. On the other hand, however, the impact of sea level rise may be less than what has been expected so far. About 11 % of the area of the country and 5% of the present population are likely to be under threat if a 45 cm relative rise in sea level occurs by 2070. For a 1 meter rise the respective figures are estimated to be 21 % and 14%.

Agriculture, apparently, will benefit somewhat from the climate change. Particularly, it is expected that there may be 5 - 10% increase in the yield of rice. However, model simulations indicate that due to the interplay of other factors like economic policies and prices, the realized yield increase will be much less, 2 - 4% or so. On the other hand, however, the sea level rise will lead to substantial losses in potential rice output by 2070. No appreciable impact is expected to be felt either way before 2010.

Forestry will suffer mainly due to the impact of the sea level rise, which is expected to inundate 75% of the Sundarbans, the main mangrove forest of the country, in case of a 45 cm sea level rise. In the other case, it will vanish forever.

The main policy planks in the above situation must be in the management of the water resources and protection of the coastal areas. However, protection from flood is already a major policy of the government and may now assume higher priority. On the other hand given the interrelationships between monsoon flood and instabilities in rice production in the face of potential losses and probable gains in agriculture simultaneous emphasis on dry period water management (irrigation) becomes very important for stabilization of foodgrain output. The same applies to coastal fortifications and adaptation strategies. In either case, however, two points must be kept in mind. Regional cooperation in water management and water sharing must be given top priority. So far the record in this field has been lackluster. Secondly, the governments flood control policy is already under severe criticism due to the alleged lack of consideration of many adverse environmental impacts at the planning, designing and operational stage. Any new emphasis on flood control, therefore, will have to give due attention to meeting those criticisms.

In terms of emissions Bangladesh ranks among the lowest ones both on a total and a per capita basis. This does not mean, however, that Bangladesh should not take

mitigation measures to lower the emission levels. Particularly, it is generally believed that there is widespread inefficiency in production, distribution and consumption of energy. This inefficiency exists in case of both biomass-based energy and commercial energy. Very substantial savings in energy use particularly can be expected if more efficient equipment and implements could be popularized. In case of mitigation measures related to methane emission, possibly not much can be done immediately without a long-term research effort in this regard. Indeed, one needs to be more definite about the significance of "major" sources of methane emission like rice cultural practices.

What could be a proper national response strategy to prepare the country for a future with climate change? A point must be made very clearly at the outset. Climate change is not Bangladesh's immediate problem. Her principal problem is poverty eradication. All other policies must fit in with that goal. Hence policies which further the basic national goal should be the first priority. Second priority policies should be those which are being implemented in any case for other good reasons. In the third group may be those that may have to be specifically undertaken as adaptation or mitigatory measures provided a good case can be made for them on the basis of firm empirical knowledge. The first two groups of policies fall under the "no-regrets" measures.

Measures for widespread diffusion of more efficient cooking stoves to conserve biomass is of no-regrets type and at the same time help the poor. The measures related to dry period water management for better and more efficient irrigation facilities may indirectly help the poor by stabilizing the supply of food grains in the market and is another example of a no-regrets policy. However, abatement strategies like coastal embankments may not of no-regrets type. One will have to be definitely sure about the rise of the sea level, its rate and whether there are more cost-effective methods for coastal protection without many of the problems that crop up in case of coastal embankments. In general water management related to inundation and drainage will have to be very carefully assessed in the light of existing measures and their experiences.

In the regional sphere, more particularly at the sub-regional level the issue of an equitable and internationally guaranteed water sharing arrangement among the upper and lower riparian countries becomes more pressing in a wetter South Asia. Other areas of regional cooperation include research and information exchange and monitoring of the sea level. A comparatively new area in which the countries can cooperate is the tradable right in emission of green house gases.

Technical assistance will be needed most in assessment and analyses of the last mentioned type of research. Most emission assessment research will also be good candidates for the same. Among the adaptation and mitigation measures, the technical assistance will be required most for assessment of the energy-efficiencies of various industrial processes and identification of the suitable technologies for adoption.