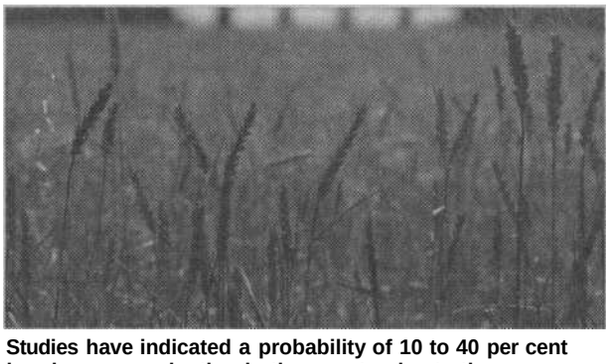
The Business Standard, Mumbai, 21 Jan 2008

Climate change may lead to 40% loss in food production

Surinder Sud



Studies have indicated a probability of 10 to 40 per cent loss in crop production in the country due to the anticipated rise in temperature by 2080-2110

Though agriculture's share in the total green house gas (GHG) emissions of India is relatively small, it will be a big loser as a consequence of climate change. Various studies have indicated a probability of 10 to 40 per cent loss in crop production in the country due to the anticipated rise in temperature by 2080-2110.

The agriculture sector's contribution to the country's total GHG emissions is reckoned by the environment and forests ministry at only 28 per cent; the rest being from other sources, including the use of fossil fuels.

Studies conducted by the New Delhi-based Indian Agricultural Research Institute (IARI) have pointed to a possible loss of 4 to 5 million tonnes in the overall wheat production with every 1 degree centigrade increase in temperature throughout the growing period of the crop.

This information has been provided in the agenda note circulated to the vice-chancellors of agricultural universities *in* their two-day All-India conference that began here yesterday. Significantly, this note also indicates that the adverse impact of global warming on agriculture can be mitigated to an extent by suitably adapting to the changed climatic and ecological conditions. The estimated loss in wheat output is, however, based on the assumption that the availability of irrigation water would remain the same as it is now. But this seems unlikely in view of receding Himalayan glaciers and increasing non-agricultural use of water, the agenda note points out.

The possible adverse bearing of global warming on the output of other crops has still not been assessed or ascertained precisely, though this is believed to be relatively less. The kharif (summer) crops, in fact, may not be substantial losers in this respect.

On the positive side, the higher concentration of carbon dioxide in the atmosphere is expected to be beneficial for several crops. Also, the damage to the crops due to ground frost, which is quite common during the rabi season in the country's key north-western agricultural belt, may also reduce due to rise in temperature in the wake of climate change.

The note points out that the small changes in climate parameters can be managed reasonably well, and the losses minimised, by changing the planting schedules, spacing of the crop plants and input management.

The IARI study had indicated that the loss in overall wheat output due to climate change could be reduced from the projected level of 4-5 million tonnes to merely 1-2 million tonnes if most farmers could change the sowing time of wheat crop.

The farm sector's emissions consist largely of methane generated from paddy fields and fermentation in ruminant animals' stomachs, besides nitrous oxide produced from fertilisers and manures applied in the crop fields.

The note has listed several ways by which these harmful emissions from the agriculture sector can be reduced. These include better management of water and fertilisers in the paddy fields and changes in the diet of livestock herds. Such measures will cut down generation of both nitrous oxide and methane.

Besides, changes in land use patterns by expanding the area under agro-forestry and bio-fuel plantations could also mitigate GHG emissions. But these measures may, however, lower land availability for food crops.