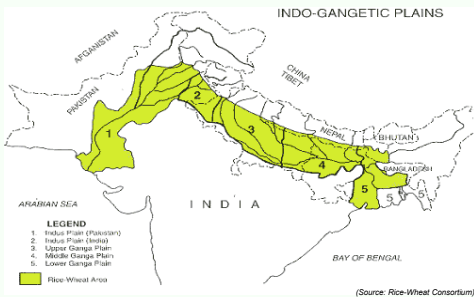


The food systems in the Indo-Gangetic Plain (IGP) are largely dependent on rice and wheat grown in rotation. As seasonal weather is a major determinant of yield (due to both the direct effects on crop growth and indirect effects related to management), there is concern that changes in climate, especially related to changes in climate variability, will exacerbate the observed trend. Moreover, the highly-intensive production approach currently practiced in large parts of the region is a major source of greenhouse gases.



The IGP is divided into two major regions based on biophysical and socio-economic characterisation.

## IGP Western Region (sub-regions 1, 2 & 3)

- high productivity – food surplus
- high investment in infrastructure
- major use of fertilisers and irrigation
- Decline in groundwater resources
- in-migration of labour

## IGP Eastern Region (sub-regions 4 & 5)

- low productivity – food deficit
- poor infrastructure and limited capacity for private investment
- low inputs of fertilizer and irrigation
- high risk of flooding and drought
- out-migration of labour

## Regional policy priorities promote:

- Enhancing agricultural competitiveness while limiting further environmental degradation
- Developing food provision systems which enhance the social security of the more vulnerable
- Creating rural employment opportunities thereby reducing intra-IGP labour migration and urbanisation.

## Regional Research Development

A collaborative, interdisciplinary research project is being developed by regional research institutions and GECAFS\*. The project aims to determine strategies to cope with the impact of environmental change on IGP food provision and to determine the environmental and societal consequences of possible adaptation alternatives.

Planning workshops involving regional policy makers, scientists and donors have developed a series of research questions for the eastern and western regions.

### Western Region:

How will water supply and demand and consequent food system vulnerability be affected by climate change and increasing non-farm demands for water?

How can changes in water management (e.g. through enhanced policy instruments, landuse strategies and community participation) and energy-efficient technologies reduce vulnerability of food systems to climate variability and other aspects of environmental change?

What will be the consequences of alternative approaches to resource-conservation strategies on rural livelihoods, intra-regional trade, carbon sequestration, GHG emissions, and water tables?

### Eastern Region:

How will the vulnerability of resource-poor farmers to flooding and drought be affected by environmental change, and how will this exacerbate existing socioeconomic inequities?

What early warning systems would assist stakeholders to identify regions of potential insecurity; and what infrastructure options need to be developed for diversifying crops to make more effective use of flood and groundwater and what are the social constraints to their adoption?

How would diversification and increased government interventions affect food provision, rural income, equity, labour migration, employment, water use and quality, biodiversity, and GHG emissions?

\* *Global Environmental Change and Food Systems (GECAFS) is an international research programme investigating the vulnerability of food provision to, and interactions with, Global Environmental Change (GEC). GECAFS involves a wide range of social, physical and biological scientists.*

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