

Given that the warming of the climate system is now unequivocal, climate-driven environmental changes will be both cumulative and incremental.

Adaptation and mitigation measures will have to be sufficiently dynamic to keep pace and even anticipate the cumulative and incremental changes.

Governments Inertia may not be equipped to cope with such rate of changes.

ADAPTIVE CAPACITY, RESILIENCE AND VULNERABILITY:

→ The adaptive capacity of rural folk over time is determined by their resilience and their vulnerability to changes in climate and weather patterns. Adaptive capacity varies considerably spatially, temporally, culturally and with social values and lifestyles.

PREDICTABILITY (short and long range) UNCERTAINTIES AND INFORMATION DELIVERY:

→ Predictability of changes in climate and weather patterns within reasonable bounds of certainty will be crucial to people's adaptive capacity
→ Efforts devoted to enhance predictability, either through models or supported by historical knowledge of the effects of extreme events and the timely delivery of agro-climatic information to farmers are a good investment of resources

FOOD PRODUCTION STABILITY AS AN ADAPTATION PRIORITY

- Achieving food production stability, in spite of climate change and weather variability, should be a priority in the adaptation measures agenda.

- Considering the uncertainties involved in predicting weather patterns under climate change, a conservative approach and precautionary principle should be used while designing adaptation measures
- Governments will require to implement massive information / education campaigns concerning the implications of climate change and weather variability for farmers and rural populations

DRYLANDS ARE FRAGILE AND MOST VULNERABLE ECOSYSTEMS

- The low resilience of dryland ecosystems makes them the most vulnerable to the effects of climate change and weather pattern variability. Research in adaptation measures for such areas of the world should be priority.
- Livelihood systems in drylands are also fragile and human suffering may result from their collapse.
- Extreme weather events including droughts and torrential rains and floods will result in moderate to severe land degradation in drylands, with the consequent loss of land productivity and the onset of food insecurity. The extent and intensity of the effect of climate change on land degradation is difficult to predict, but it will likely be large.

ADAPTATION IS MORE PRESSING THAN MITIGATION:

→ ADAPTATION measures are more pressing than mitigation activities that may be derived from the agricultural sector. Ideally, they should be implemented concurrently.

SYNERGIES ARE ACHIEVABLE THROUGH MITIGATION AND ADAPTATION PROJECTS WITH AGRO-FORESTRY IF SOIL MOISTURE REGIMES CAN BE PREDICTED AND MANAGED:

- Climate change will have a direct measurable impact on the hydrological cycle of many dryland ecosystems.
- Innovative and conservative soil moisture management strategies throughout the growing period in drylands becomes a very important adaptive measure.
- Carefully planned and designed agro-forestry systems, under sound soil moisture harvesting and conservation, and soil organic matter management strategies may provide the required synergies between adaptation, GHG mitigation, enhancing carbon sequestration, environmental services, water retention and biodiversity.
- Research into ecosystems that mimic the complexity of climax AGRO-ECOSYSTEMS in terms of structure, function and species composition, in the face of climate impacts, is worth pursuing

(Ponce-Hernandez)