Managing Agricultural Production Variability through Seasonal Climate Prediction

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Outline

- Prologue
- Problem Scoping
- Context
- Solution
- Who – Stakeholders
- How – Engaging the Stakeholders
- Epilogue

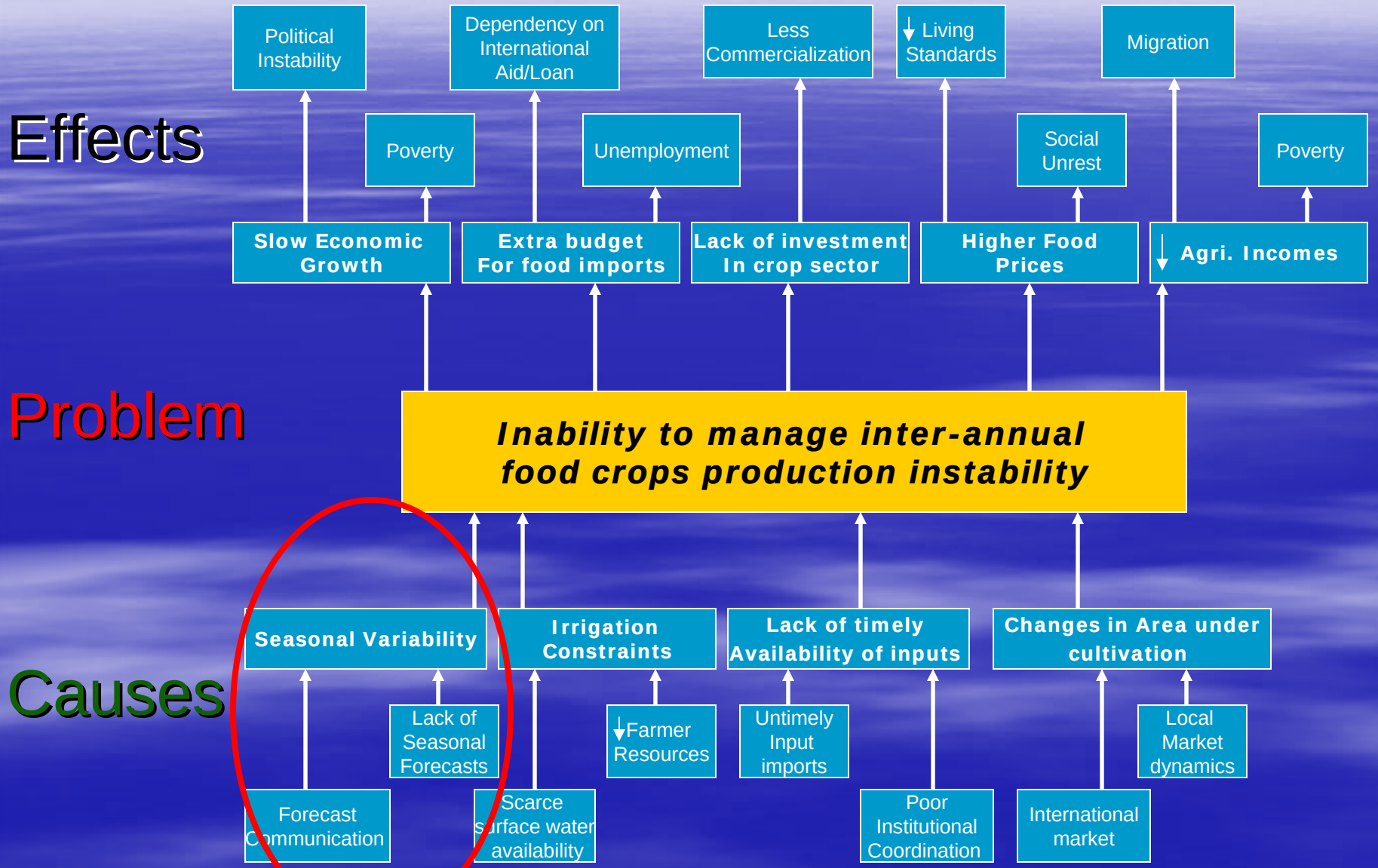
Prologue

- Agriculture is the engine of growth of Pakistan's economy

- It contributes 24% to Gross Domestic Product (GDP), accounts for 60-70% of country's exports, provides livelihood to 68% of the country's population living in rural areas and employs 42% of the national labor force

- The production instability is a major concern

Problem Scoping



Context

- Agricultural production is inextricably linked to climate variability
- More specifically, the success or failure of a given season's crop is highly dependent on that season's weather
- Climate variability is responsible for more than 50% in production instability
- Global Conversion of areas from food to fuel

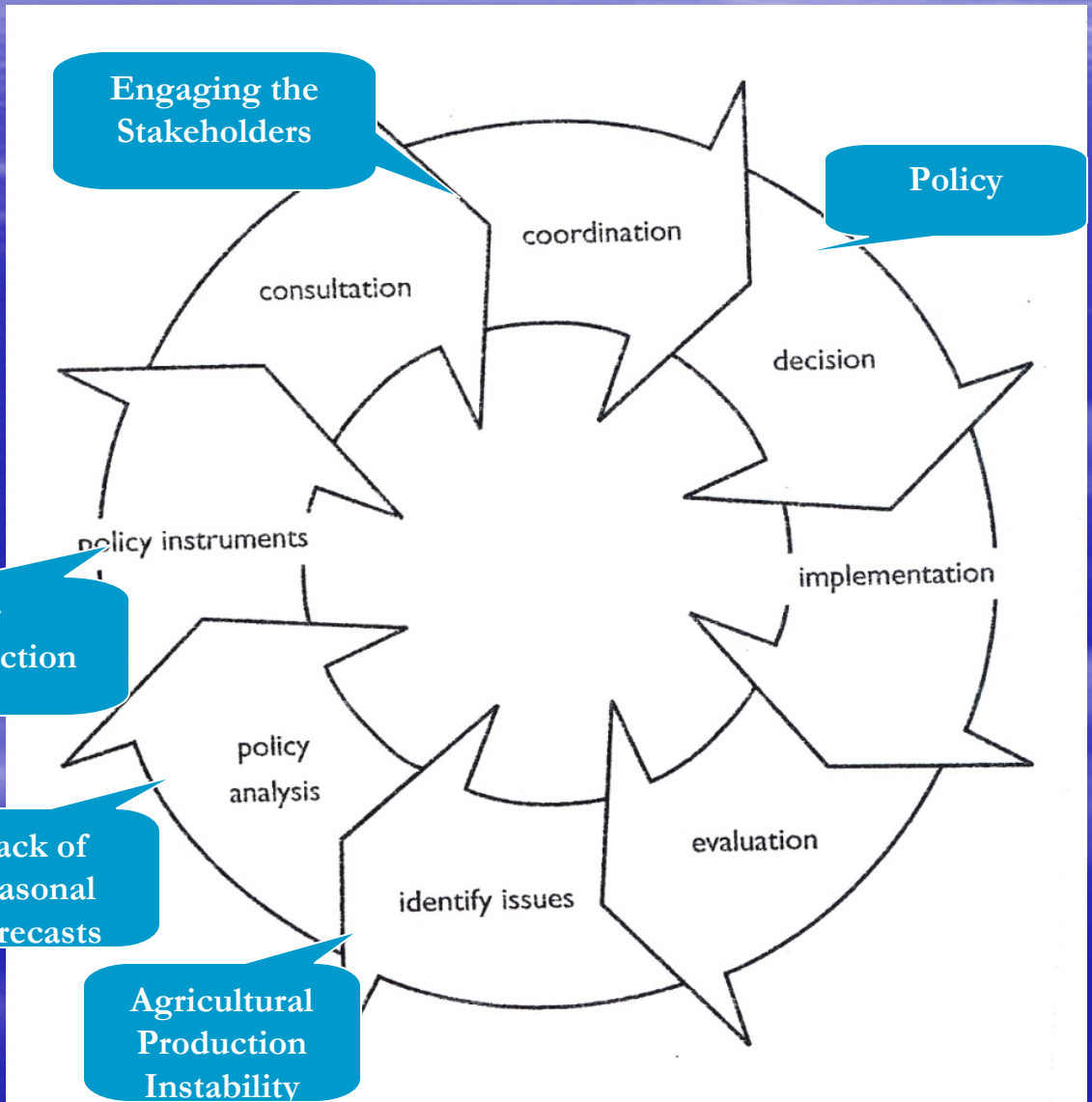


Solution – Knowing Unknowns

Problem	Cause	Solution	Outcome
Crop Production Instability	Seasonal Variability **Sub Causes** - Lack of seasonal Forecasts - Forecast Communication	Knowing Unknowns Seasonal Climate Prediction	Yield stability

The Challenge – Bridging the Research-Policy

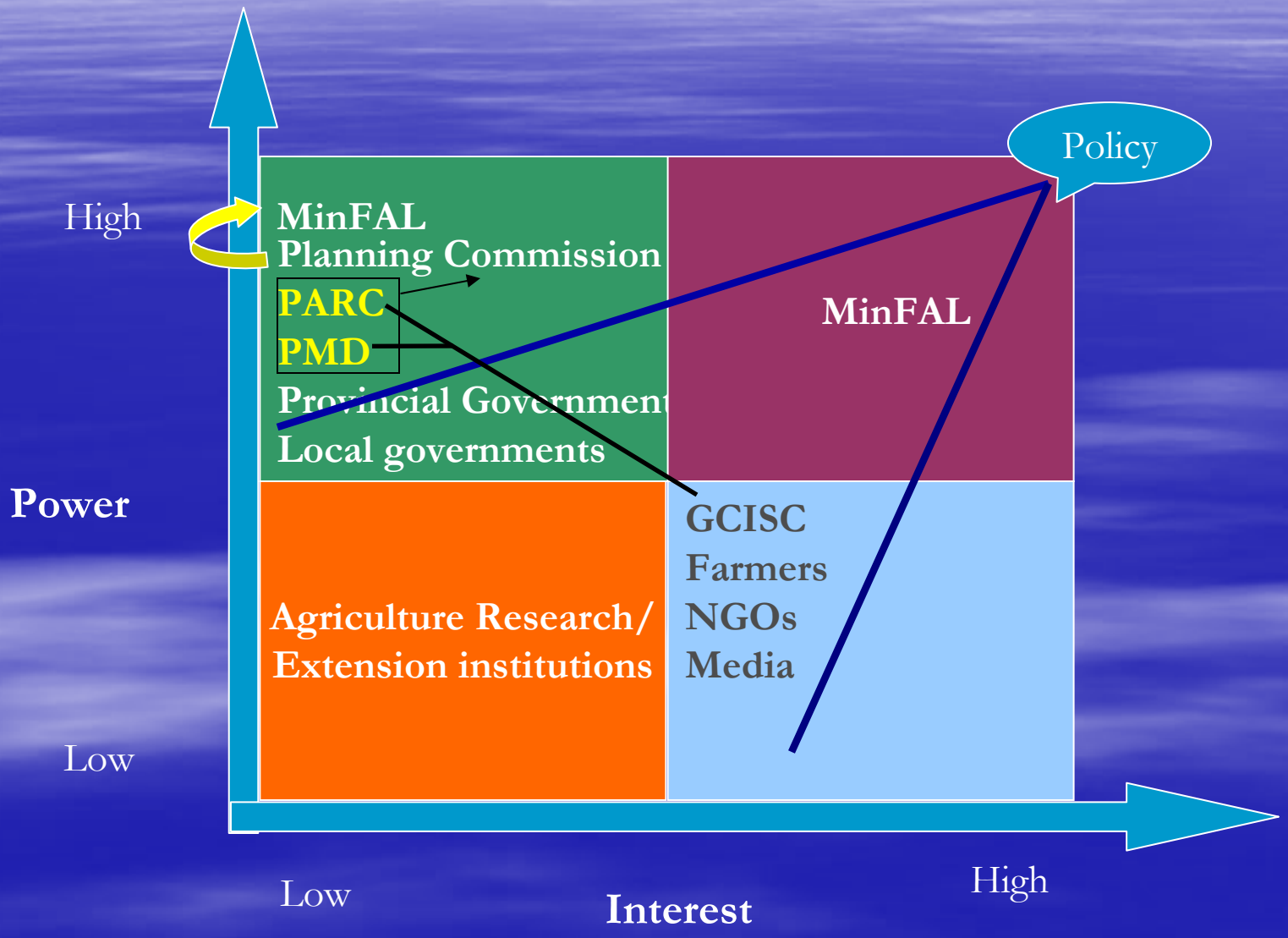
Wheeling the Policy Cycle



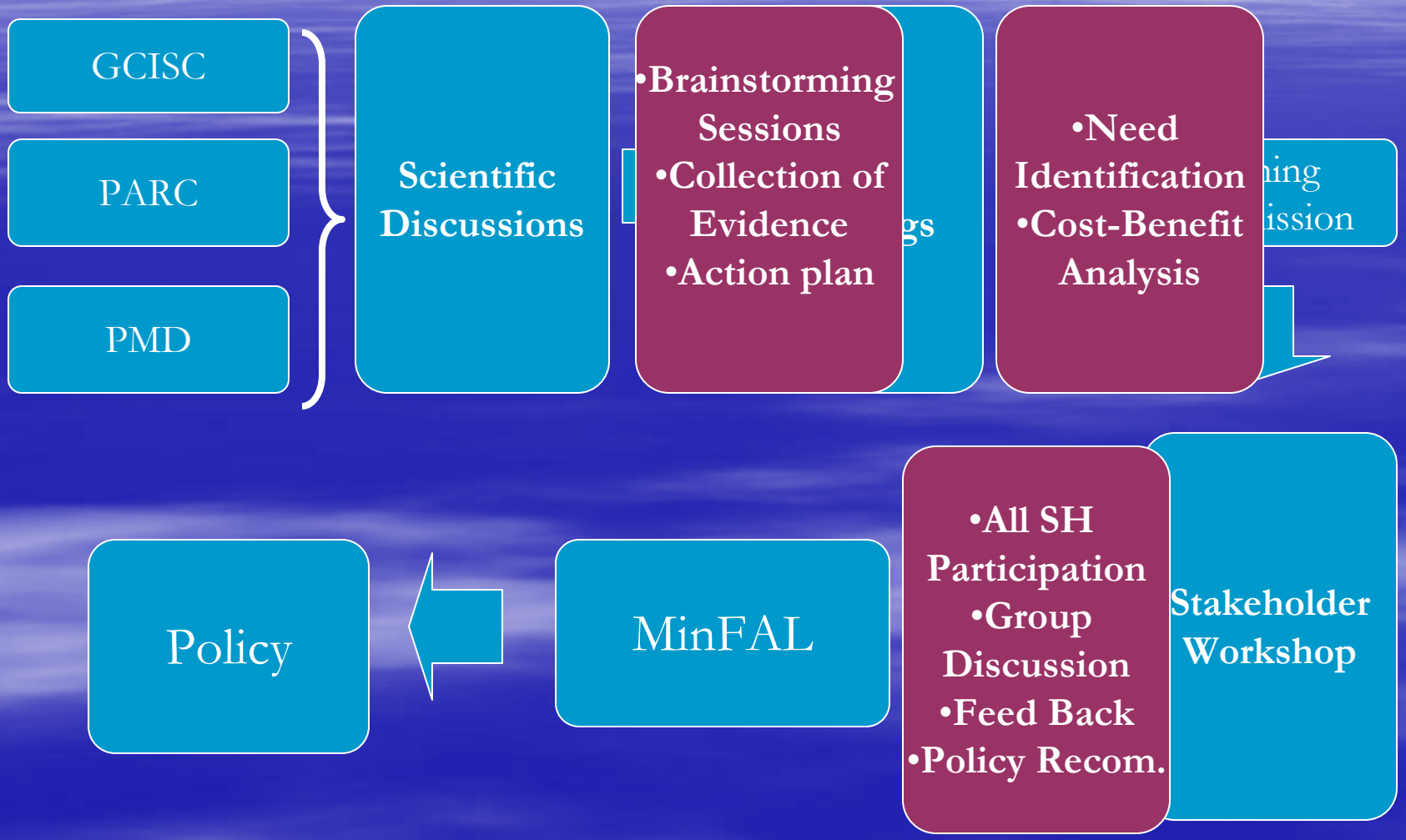
Stakeholders

Public Sector	Private Sector	Civil Society
Min. Food, Agri. & Livestock Planning commission Min. Water & Power Min. Environment Pak Agri. Dev. Bank GCISC PMD SUPARCO Provincial & Local Institutions	Business Associations Professional Bodies Individual Businessmen Financial Associations	Farmers NGOs Media CBOs

Stakeholders' Analysis



Engaging the Stakeholders



Epilogue

- An efficient climate information system requires close collaboration between natural and social scientists and institutions such as academic institutions, government and non-governmental organizations

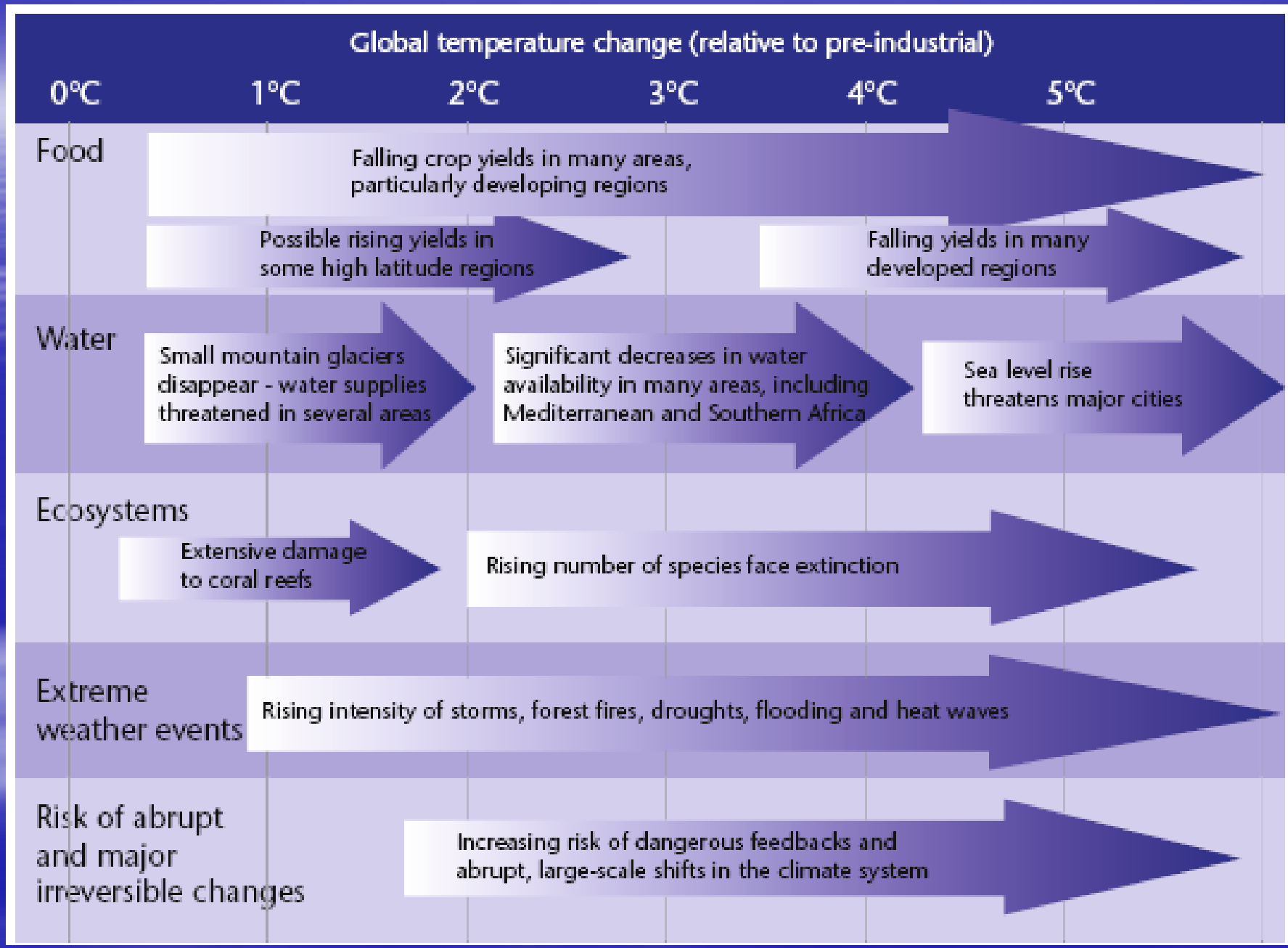
- Strengthening the institutional basis for the implementation of national risk management policies and programmes

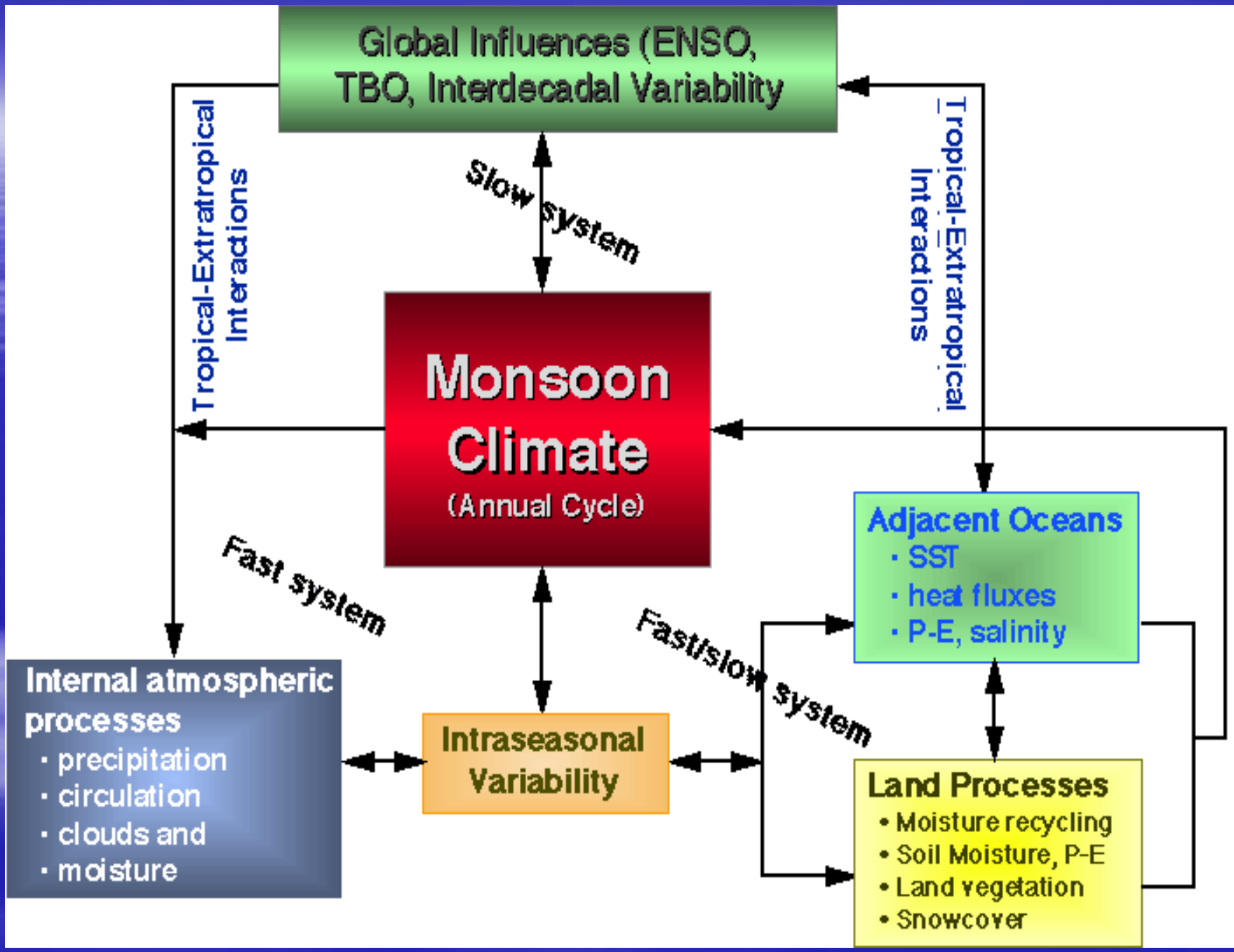
Policy Vision

An efficient *and competitive*

sustainable agriculture
ensuring food security
and ability to contribute
to the economic development
and poverty alleviation
in Pakistan

Thanks


Global temperature change (relative to pre-industrial)
0°C
1°C
2°C
3°C
4°C
5°C
Food
Falling crop yields in many areas, particularly developing regions
Possible rising yields in some high latitude regions
Falling yields in many developed regions
Water
Small mountain glaciers disappear - water supplies threatened in several areas
Significant decreases in water availability in many areas, including Mediterranean and Southern Africa
Sea level rise threatens major cities
Ecosystems
Extensive damage to coral reefs
Rising number of species face extinction
Extreme weather events
Rising intensity of storms, forest fires, droughts, flooding and heat waves
Risk of abrupt and major irreversible changes
Increasing risk of dangerous feedbacks and abrupt, large-scale shifts in the climate system


Global Influences (ENSO, TBO, Interdecadal Variability
Slow system
Tropical-Extratropical Interactions
Tropical-Extratropical Interactions
Monsoon Climate
(Annual Cycle)
Fast system
Fast/slow system
Adjacent Oceans
· SST
· heat fluxes
· P-E, salinity
Internal atmospheric processes
· precipitation
· circulation
· clouds and
· moisture
Intraseasonal Variability
Land Processes
• Moisture recycling
• Soil Moisture, P-E
• Land vegetation
• Snowcover

Identifying the Stakeholders - Criteria

- Who are the potential beneficiaries
- Who will be adversely affected
- Who has existing rights
- Who is likely to be voiceless
- Who is likely to mobilize resistance
- Who is responsible for the intended plans
- Who has the money, skills, or key information
- Whose behavior has to change for success to be reached