Adaptation Research Flagship of the NCCRP

LTAS

Ministers Breakfast

November 2013

Gauteng

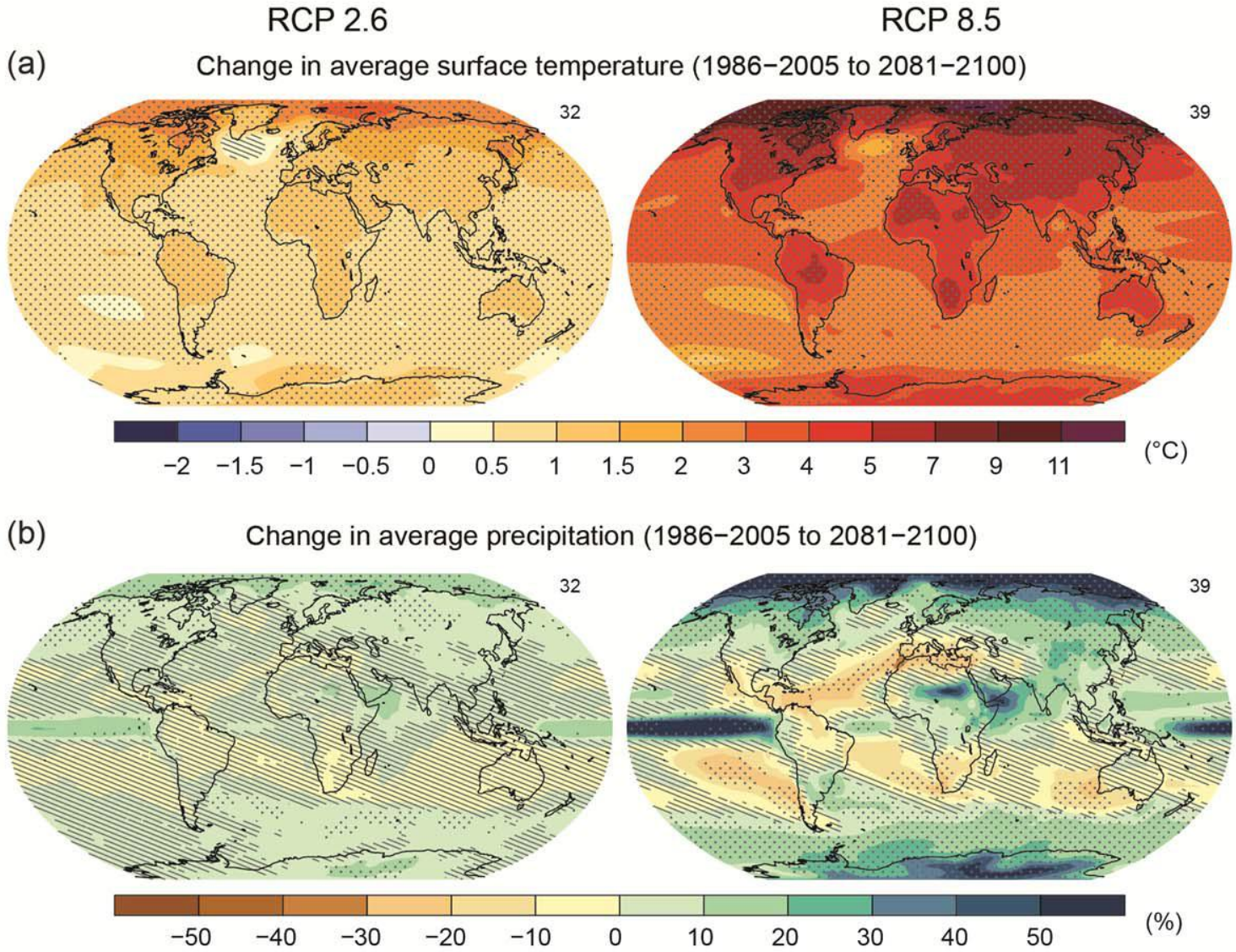
NATIONAL CLIMATE CHANGE RESPONSE ADAPTATION IMPLEMENTATION

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

SANBI
Biodiversity for Life

giz

Mitigation and adaptation matter



LTAS process so far

- **Mandate**
- **<u>Project design</u>**

Design, roll-out national and regional research programme to scope sectoral adaptation requirements and costs and identify adaptation strategies with cross-sectoral linkages and benefits, including an assessment of climate change vulnerabilities in the sub-region, with a detailed scenario planning process to define potential sub-regional response strategies

LTAS process so far

- **Mandate**
- **Project design**

Phase 1

Climate scenarios

Impact scenarios

Adaptation options
Water, agriculture, human health, agriculture and forestry, biodiversity

Development objectives

"Top down" economics approach

Phase 2

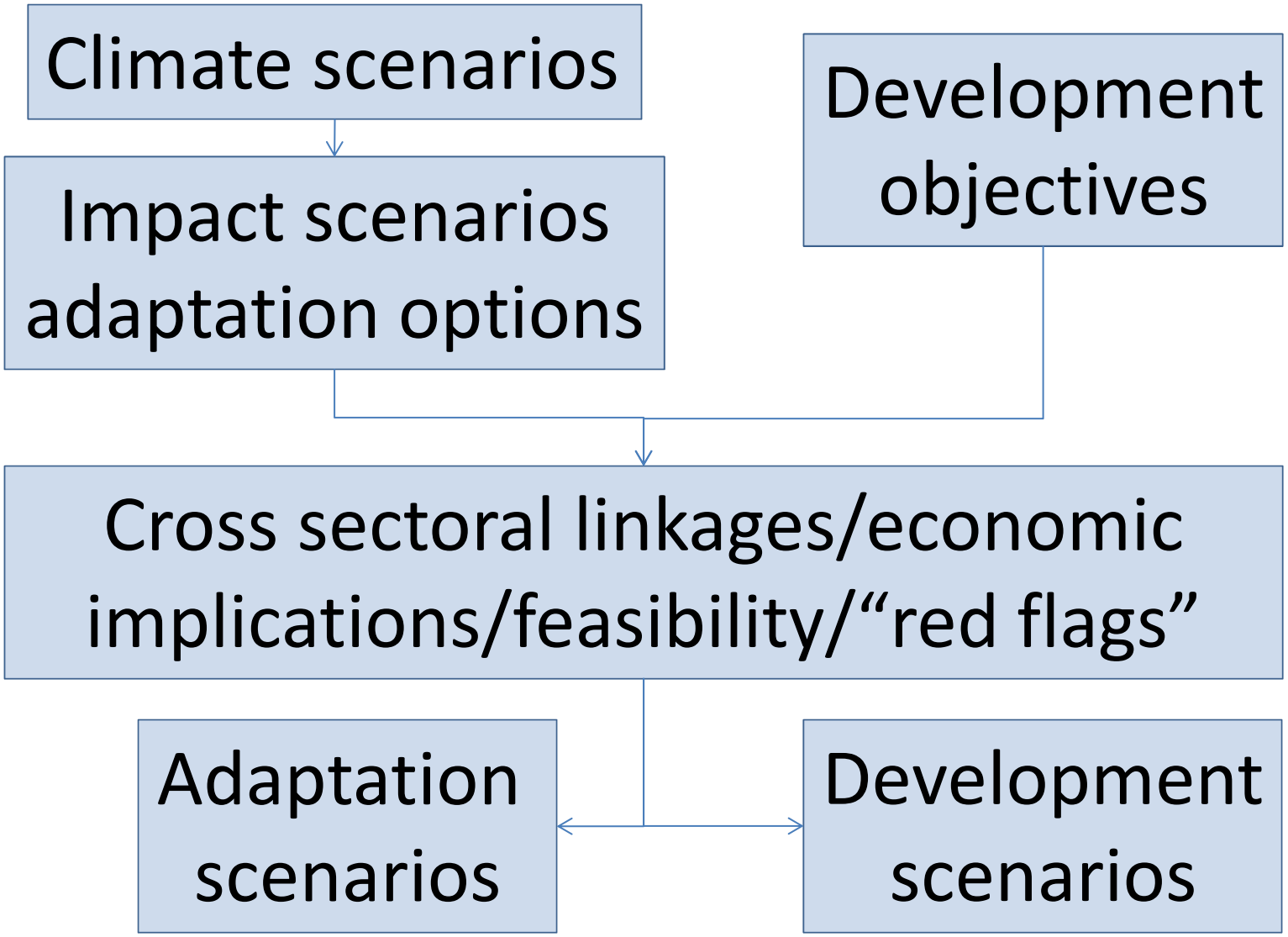
Urban, rural settlements

Disaster Risk Management and Reduction

Adaptation scenarios: Economic costs and benefits

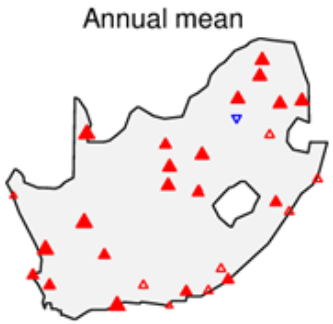
Regional assessment

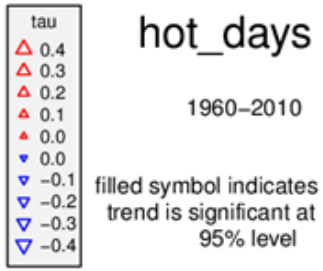
Methodology: process



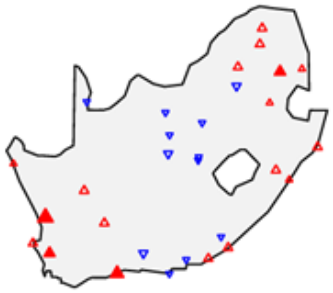
LTAS climate scenarios

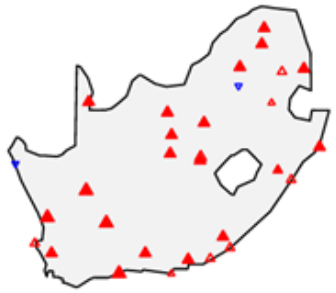
- **Trends analysis 1960-2010**

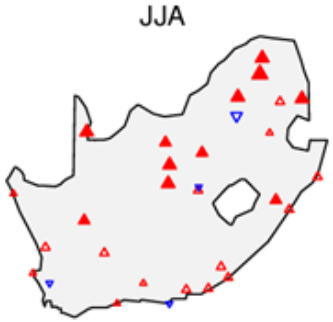


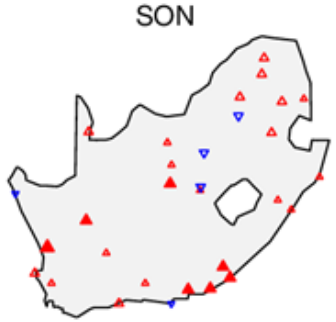


tmax
1960–2010







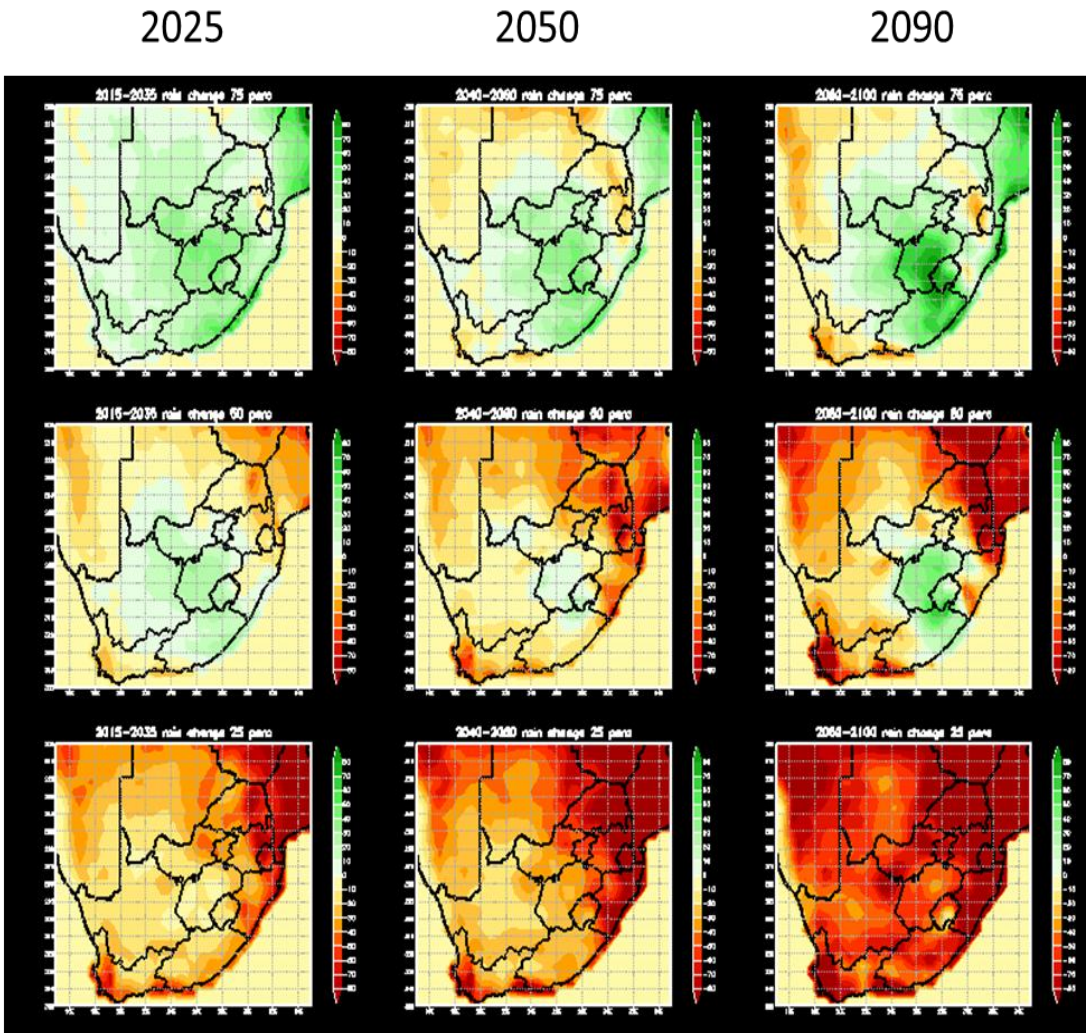


symbol indicates
l is significant at
95% level

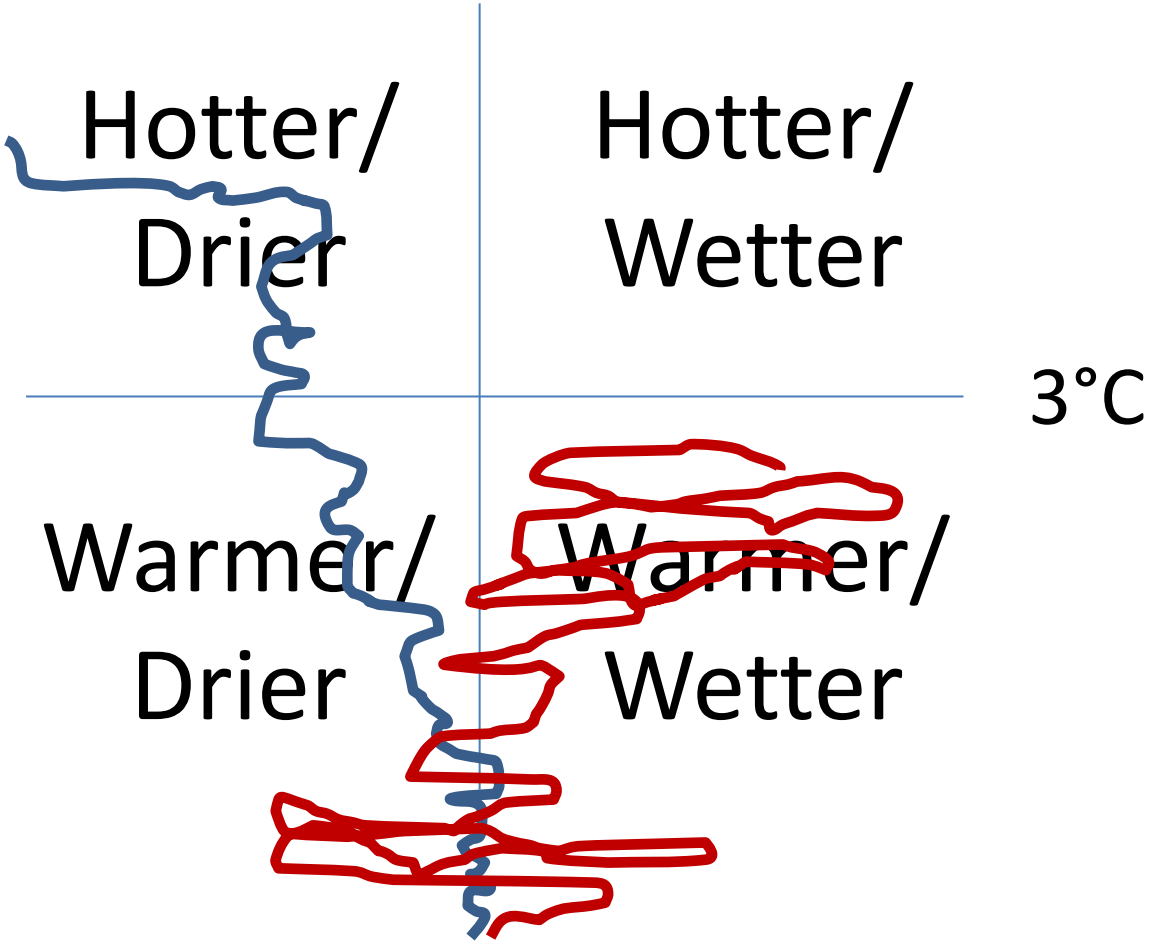
LTAS climate scenarios

- **Trends analysis 1960-2010**
- **<u>Climate Projections</u>**

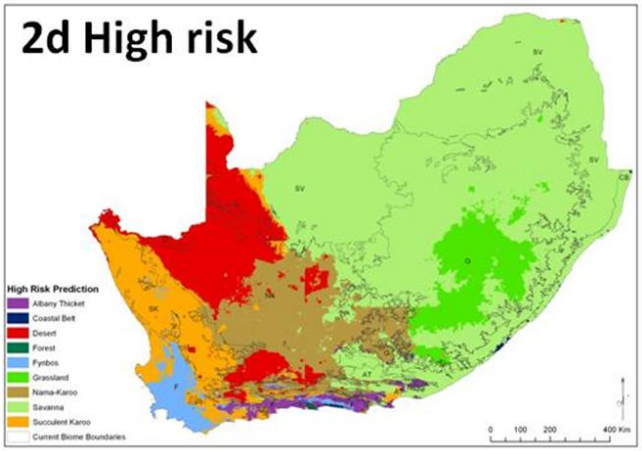
A2 emissions scenario, dynamical downscaling



LTAS climate scenarios

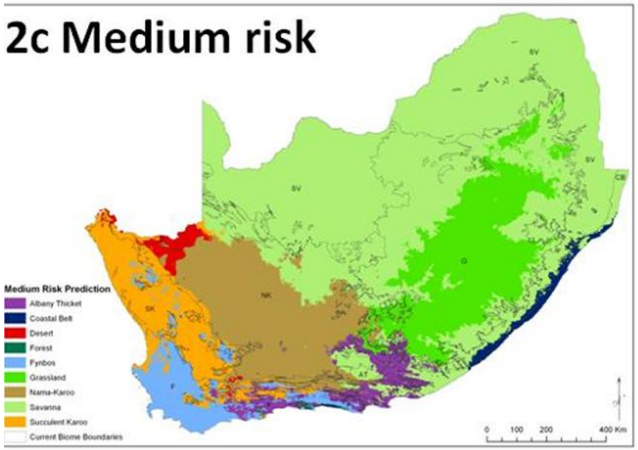


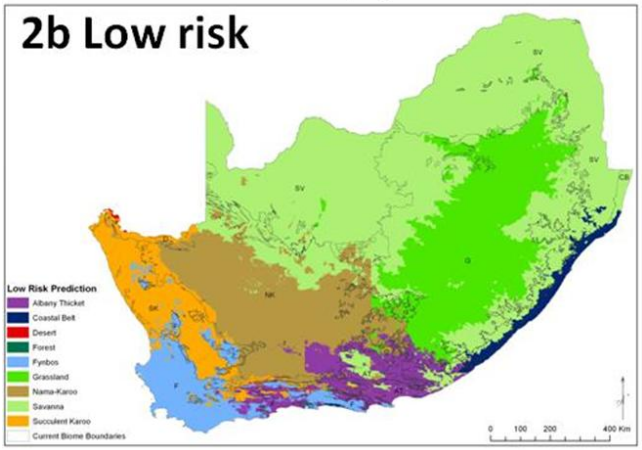
LTAS impact scenarios



Hotter/
Wetter

3°C

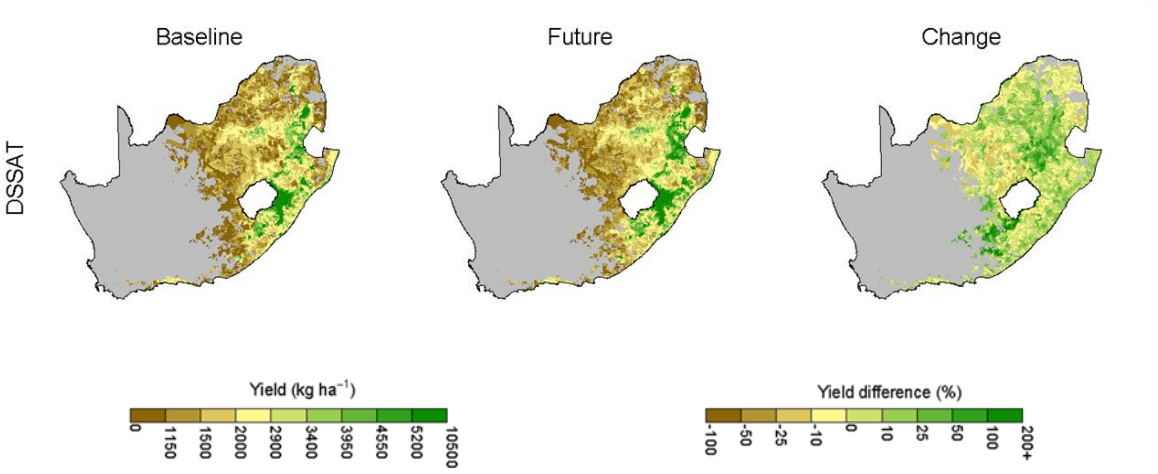




LTAS impact scenarios

- Biodvrsty/ ecosystem
- Marine fisheries
- Human health
- Water
- Agriculture Forestry

Median change in crop yields for rain fed maize by 2050 under a B1 SRES emission scenario, and a “wet” climate scenario.



LTAS adaptation options

Climate Smart Agriculture identify, roll out sustainable agricultural development within the explicit parameters of climate change. 3 pillars: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gases emissions (FAO, 2013).

Conservation Agriculture resource-saving agricultural crop production to achieve profits together with high, sustained production levels and conserved environment. Three principles: minimum soil disturbance (erosion and water loss improvements) ; managing top soil; crop rotation with more than two species.

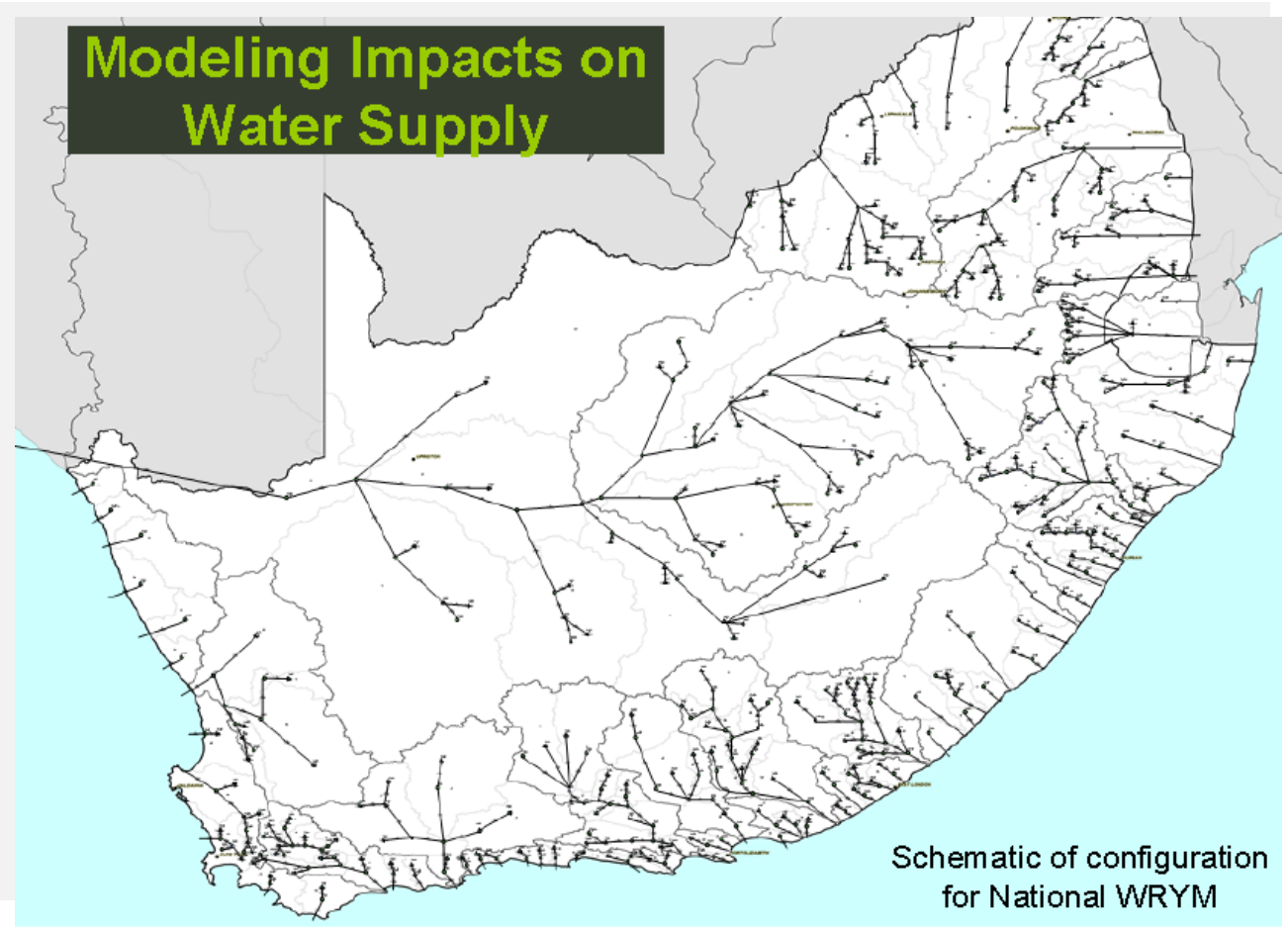
Water Resource Management and Infrastructure provides a rich set of options based on world-leading planning and implementation processes

Ecosystem-based Adaptation uses biodiversity and ecosystem services in an overall adaptation strategy that help people adapt to the adverse effects of climate change.

National Implementing Entity learning about climate change adaptation through focused project development and implementation

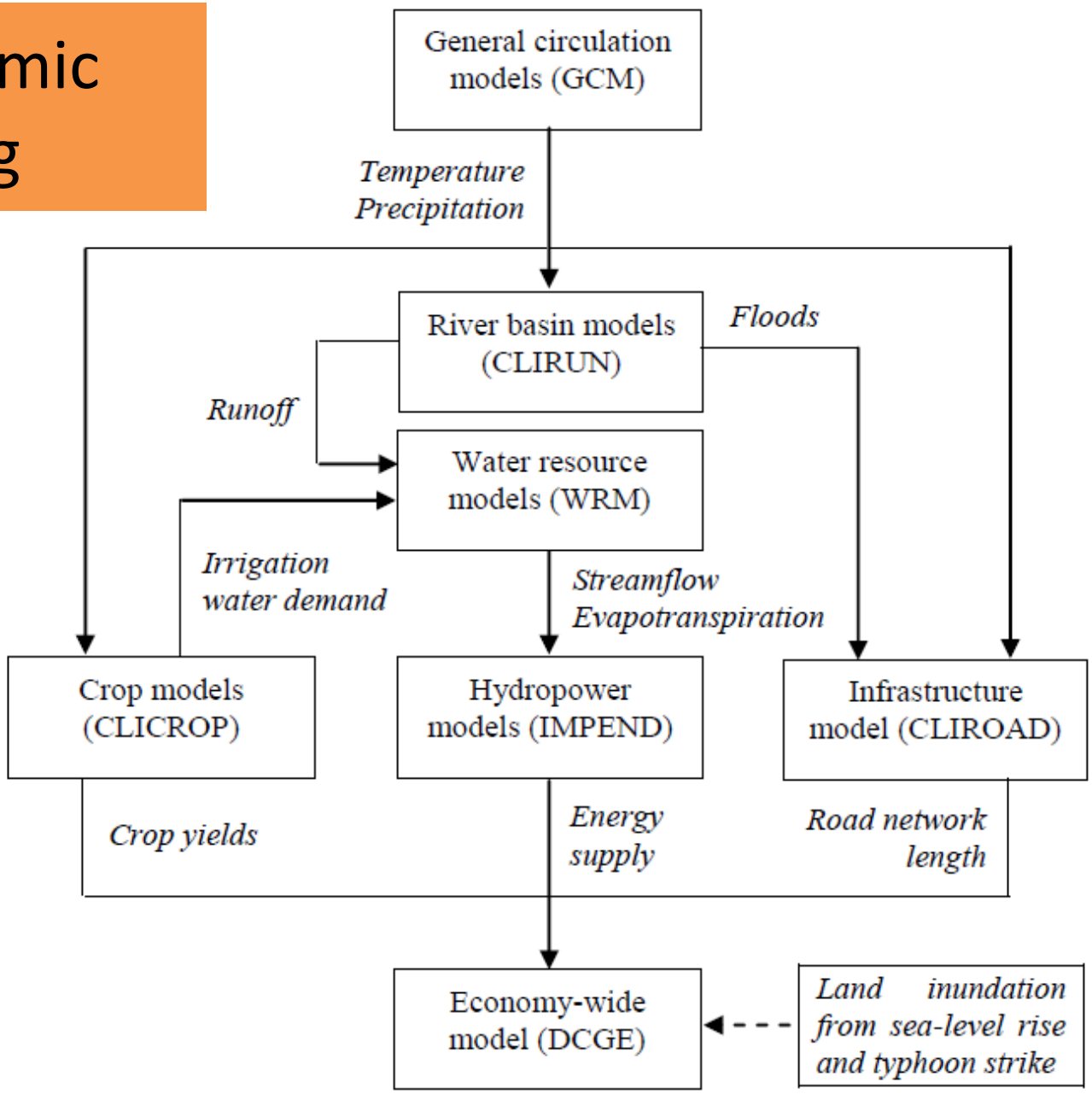
LTAS economic modeling

- Integrated Economic Assessment



LTAS economic modeling

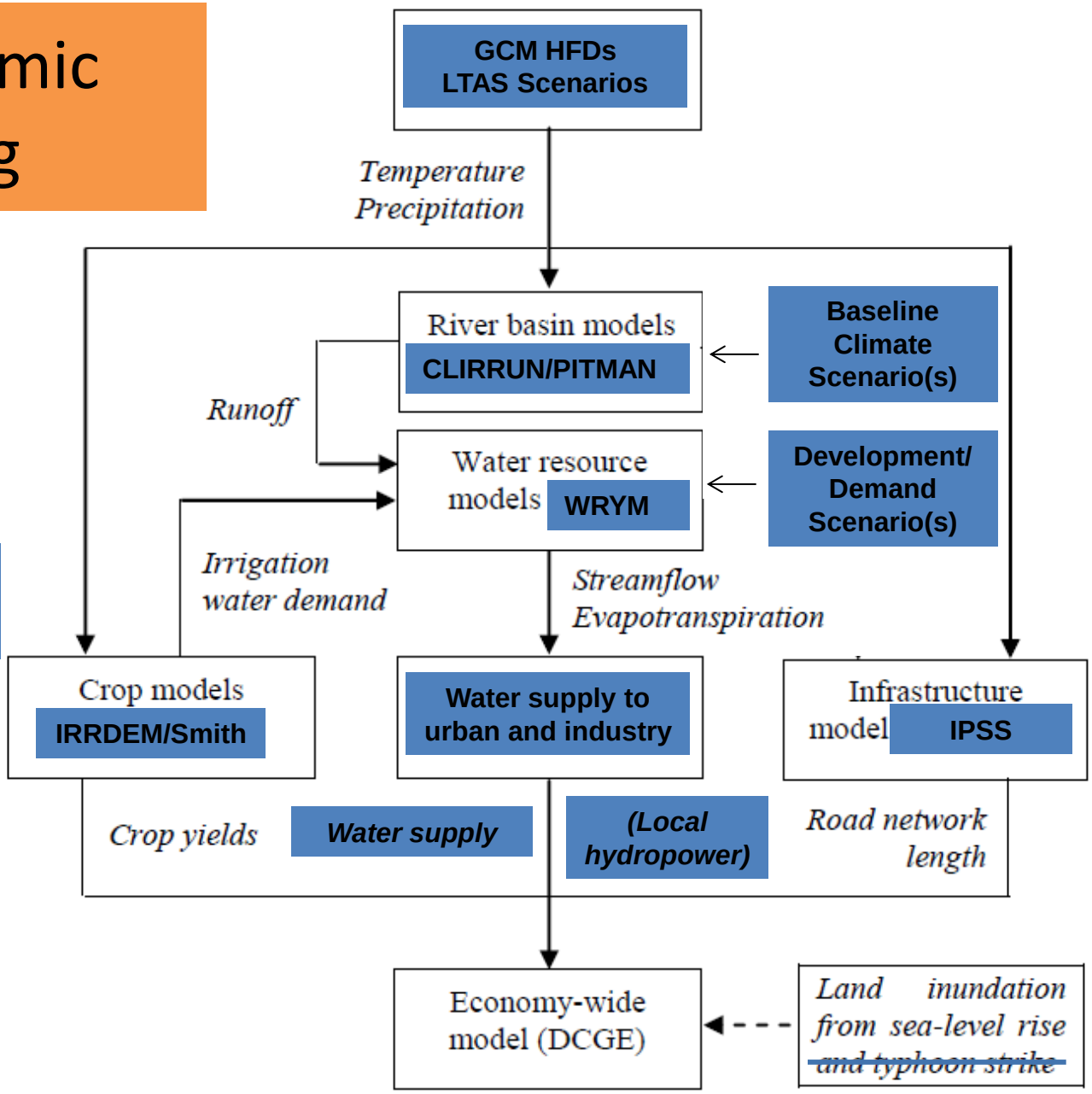
Integrated Modeling Framework



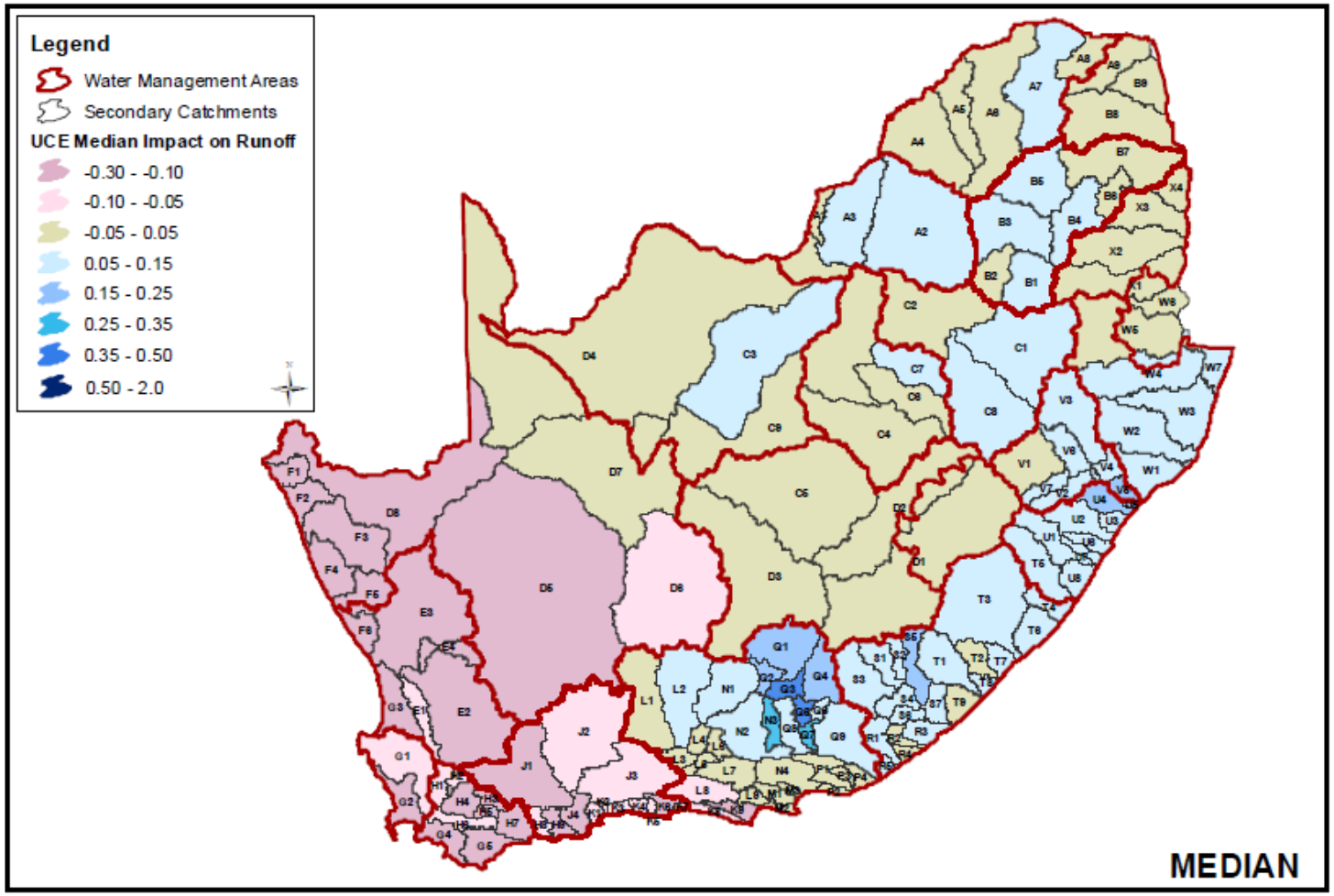
LTAS economic modeling

Integrated Modeling Framework

ADJUSTED FOR RSA MODELS

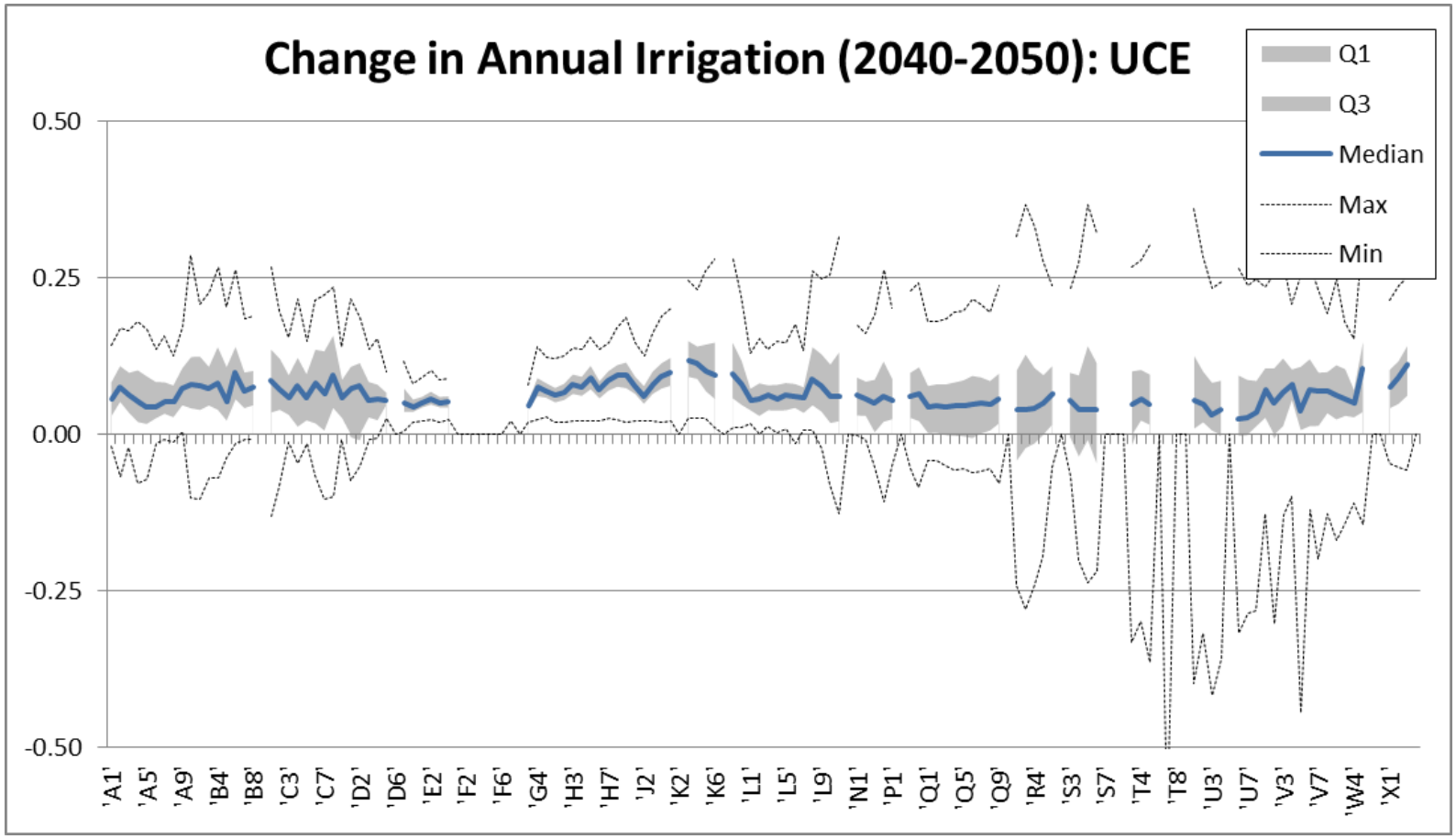


Spatial variation on potential climate change impacts on the average annual catchment runoff by 2050.
Median impacts for the Unconstrained Emissions scenario.



All models show drying in the west, and most models show wetting in the east, but with some models showing some drying. Generally increases over Lesotho.

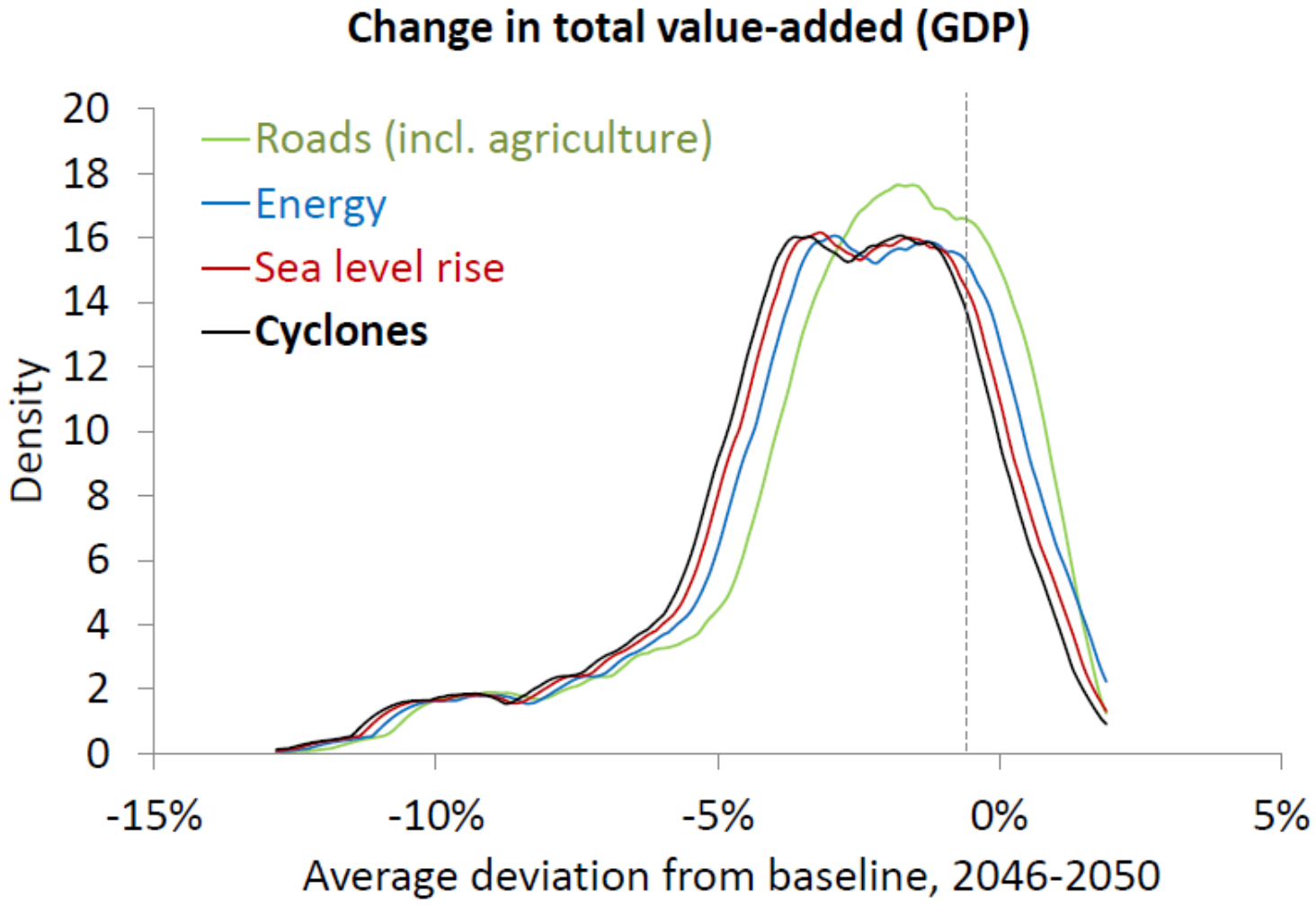
Impacts on the average annual irrigation demand in each secondary catchment by 2050 based on Unconstrained Emissions scenario.



Increases in irrigation demands across the country (due to increasing Temp) except some scenarios in the east where it is offset by increasing precipitation.

Roads, Energy, Sea Levels and Cyclones

Mozambique example – SA model currently running



LTAS phase 2 work

- Assessments of impacts and vulnerabilities for urban and rural settlements (incl sea level rise), costs and benefits of adaptation options (focus on food and water security)
- Integrated assessment of disaster risk management objectives and options
- Develop adaptation scenarios aligned with development scenarios
- Develop national capacity, and conduct, integrated economic modeling of high level adaptation scenarios