

Climate change, Water Scarcity and Food Security in South Asia: Global-to-local analysis

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December 16, 2016

Introduction

Title: Climate change, Water Scarcity and Food Security in South Asia: Global-to-local analysis

Objective: to examine the impact of climate change and water scarcity on food security in South Asia using a global economic land use model and regional macroeconomic development insights from regional stakeholder developed scenarios.

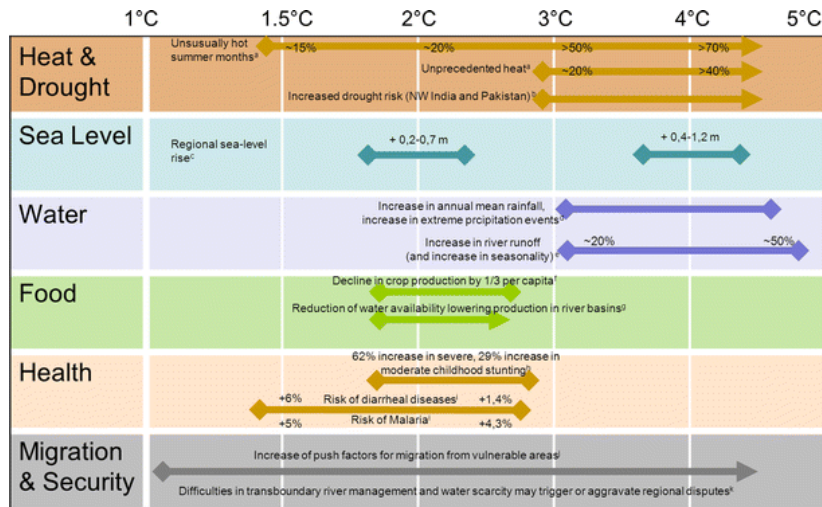
Target journal: Regional Environmental Change (PIC)?

Interesting literature

- ▶ Nelson (2010), Food security, farming, and climate change to 2050, IFPRI
- ▶ World Bank (2013), Turn Down the Heat, Climate Extremes, Regional Impacts and the Case for Resilience.
- ▶ Various articles in REC

Framework but no modelling

Vinke et al. (2016), *Climatic risks and impacts in South Asia: extremes of water scarcity and excess*, Regional Environmental Change



Tackling climate issues we do not consider?

- ▶ Flooding
- ▶ Tropical Cyclones
- ▶ Glacial loss and river flow

Outline paper

1. Introduction

- ▶ Refer to Vinke (2016) for context
- ▶ Stress participatory scenario development and SAS methodology

2. Background

3. Methods

- ▶ Participatory scenario development
- ▶ GLOBIOM: Water extension

4. Baseline scenarios

5. Results

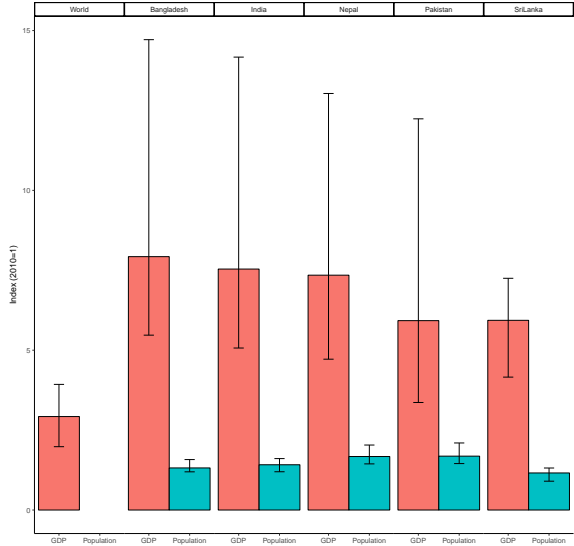
- ▶ Water issues:?
- ▶ Agriculture: production and land use?
- ▶ Food security: Prices and undernourishment

5.6 Discussion/Conclusions

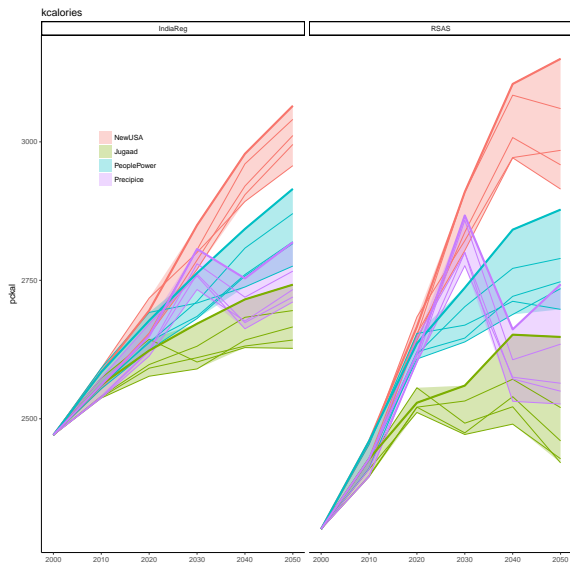
Country summary

name	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Agricultural irrigated land (% of total agricultural land)	53	36	30	52	NA
Agricultural land (% of land area)	70	61	29	47	44
Annual freshwater withdrawals, total (% of internal resources)	34	53	5	334	25
GDP per capita, PPP (current international \$)	3333	6089	2458	5042	11739
Malnutrition prevalence, weight for age (% of children under 5)	33	44	29	32	26
Population, total	161	1311	29	189	21
Poverty gap at national poverty line (%)	6	4	5	6	1
Prevalence of undernourishment (% of population)	16	15	8	22	22
Rural population (% of total population)	66	67	81	61	82

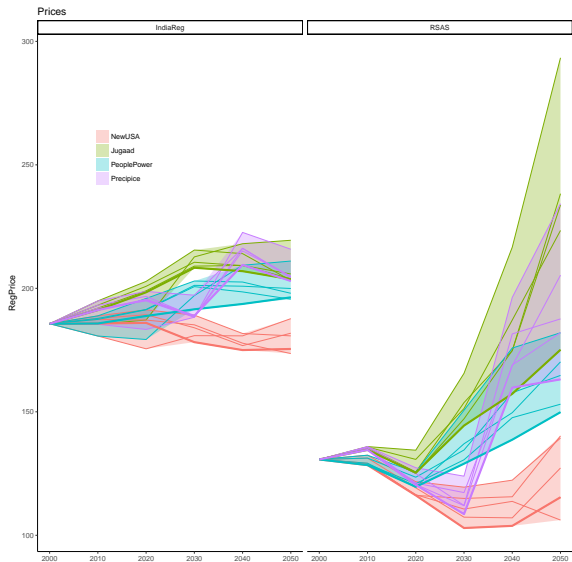
Baseline



Calories

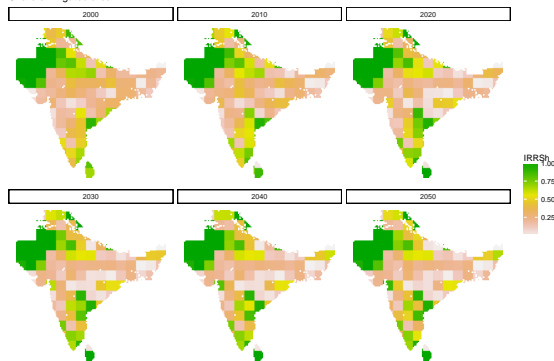


Rice prices



Irrigated area

Share of irrigated area



Discussion points

- ▶ Preference for four four explorative baseline scenarios
- ▶ What is the BAU climate scenario, if any?
- ▶ Are baseline scenarios good enough?
- ▶ What can we add on the water side?
- ▶ What can we add on the food security side
- ▶ Present only numbers for total region or per sub-region/country/grid cell?