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# ASEAN Futures: Plausible Scenarios and Potential Trends

10-12 October 2017
Bangkok, Thailand


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# Acknowledgements







Plus... A big team of climate scientists, agronomists, statisticians, and economists.

# Megatrends and challenges

**De-globalization**

**Urbanization & rising middle-income population**

**Changing diets and nutrition**

**Climate change**

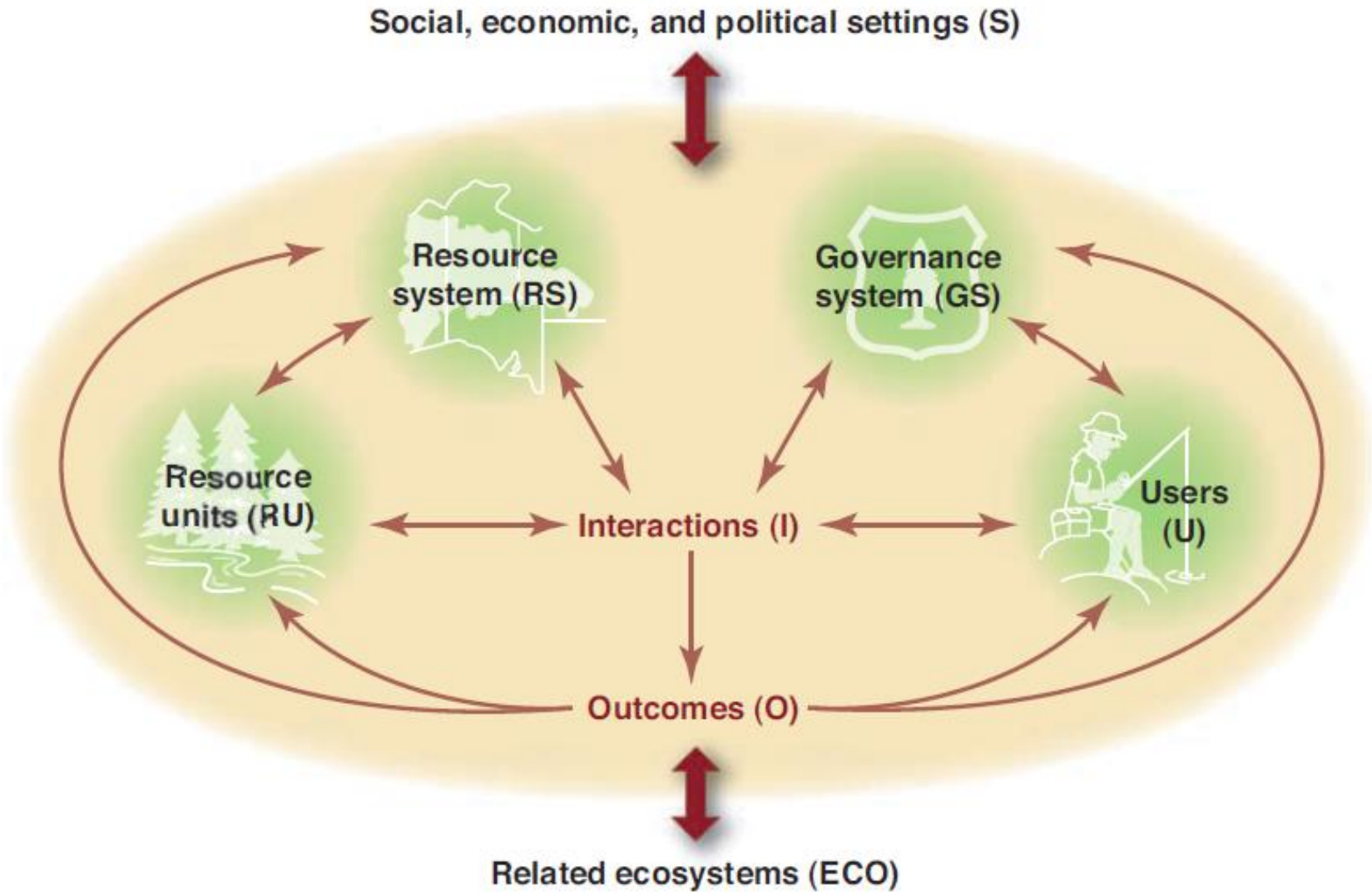
**Technological innovations**

**Emerging economies**

Fan (2017)

(Slide borrowed from Wiebe and Prager 2017)

# Answers are no longer found in individual domains...




(Ostrom 2009)

# Challenges are complex, multi-scale, long-term

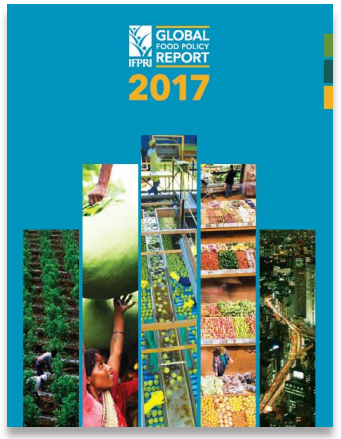
- Uncertainty is deep and unavoidable
- Decisions affecting the future are being made today
- We need to ask the question:

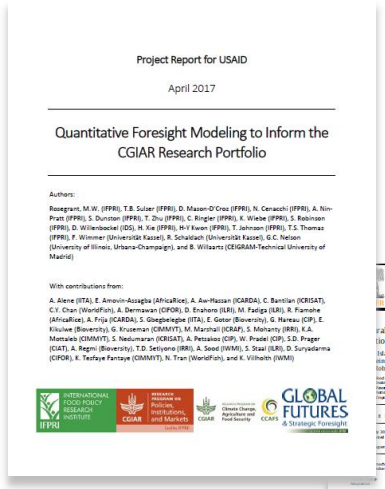
What if…?

(Slide borrowed from Wiebe and Prager 2017)

# Global Futures and Strategic Foresight (GFSF) Scales of analysis and application

- Baseline scenarios
  - E.g. different pathways for population, GDP, technology, globalization, diets (SSPs) and climate (RCPs)
- Broad alternative scenarios
  - E.g. investment options – “USAID scenarios”
- Specific alternative scenarios
  - E.g. shocks and promising technologies





Project Report for USAID

April 2017

Quantitative Foresight Modeling to Inform the CGIAR Research Portfolio


Global Food Security

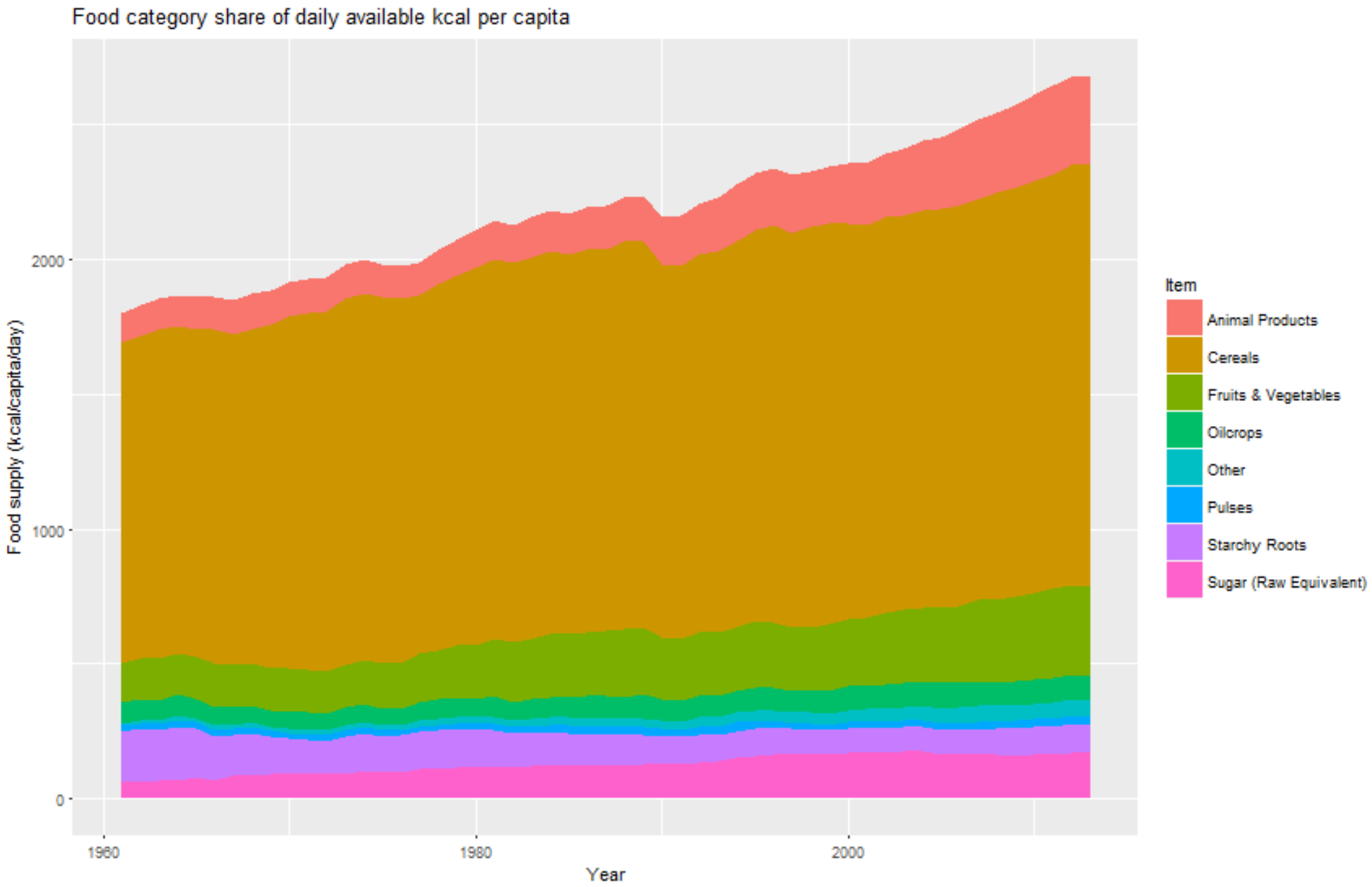
(Slide borrowed from Wiebe and Prager 2017)

# Understanding IMPACT Baseline & Investment Scenarios

## SSP2 – RCP8.5

Note: Results are presented in two aggregations, all ASEAN and IMPACT East Asia Pacific (Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, and Vietnam).

# Setting the ASEAN Context



# Diet, nutrition, and health: Progress relative to WHO targets (*baseline with climate change*)

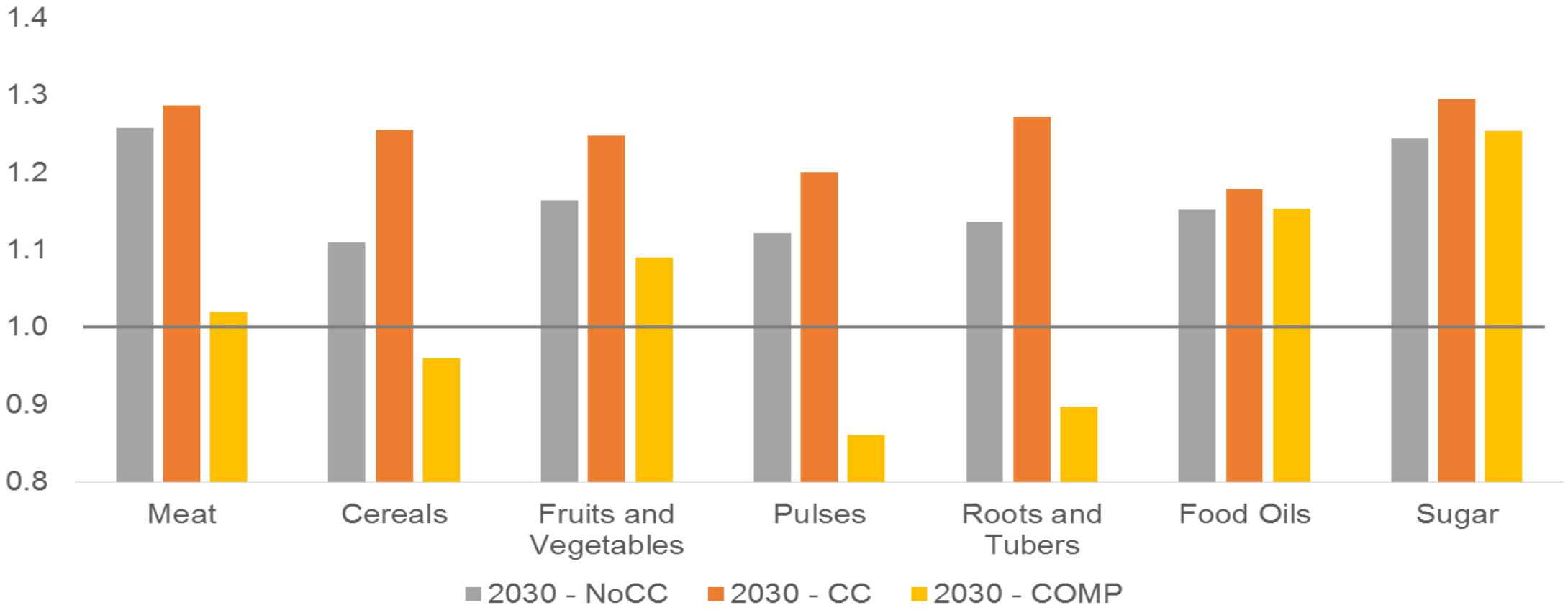
| Region | 2010 | | | | 2050 | | | |
|---|---|---|---|---|---|---|---|---|
| | Fruits and Vegetables (g/person/day)[1] | Fat Share of Calories[2] | Sugar Share of Calories[3] | Total Calories[4] | Fruits and Vegetables (g/person/day) | Fat Share of Calories | Sugar Share of Calories | Total Calories |
| East Asia | 819 | 22% | 9% | 2,873 | 971 | 28% | 11% | 3,326 |
| South Asia | 313 | 17% | 11% | 2,360 | 970 | 19% | 17% | 2,826 |
| Former Soviet Union | 502 | 22% | 14% | 3,090 | 642 | 23% | 17% | 3,339 |
| Middle East and North Africa | 775 | 20% | 15% | 3,126 | 813 | 21% | 17% | 3,280 |
| Africa South of the Sahara | 290 | 16% | 8% | 2,356 | 430 | 18% | 10% | 2,703 |
| Latin America and Caribbean | 469 | 25% | 18% | 2,876 | 573 | 27% | 20% | 3,080 |


**Note**: 2050 results reflect climate change impacts simulated using RCP 8.5 and the Hadley Climate Model.
**Source**: IFPRI, IMPACT model version 3.3 (Rosegrant et al. 2017).

(Slide borrowed from Wiebe and Prager 2017)

# World Prices in 2030 relative to 2010

*by climate and investment scenario*



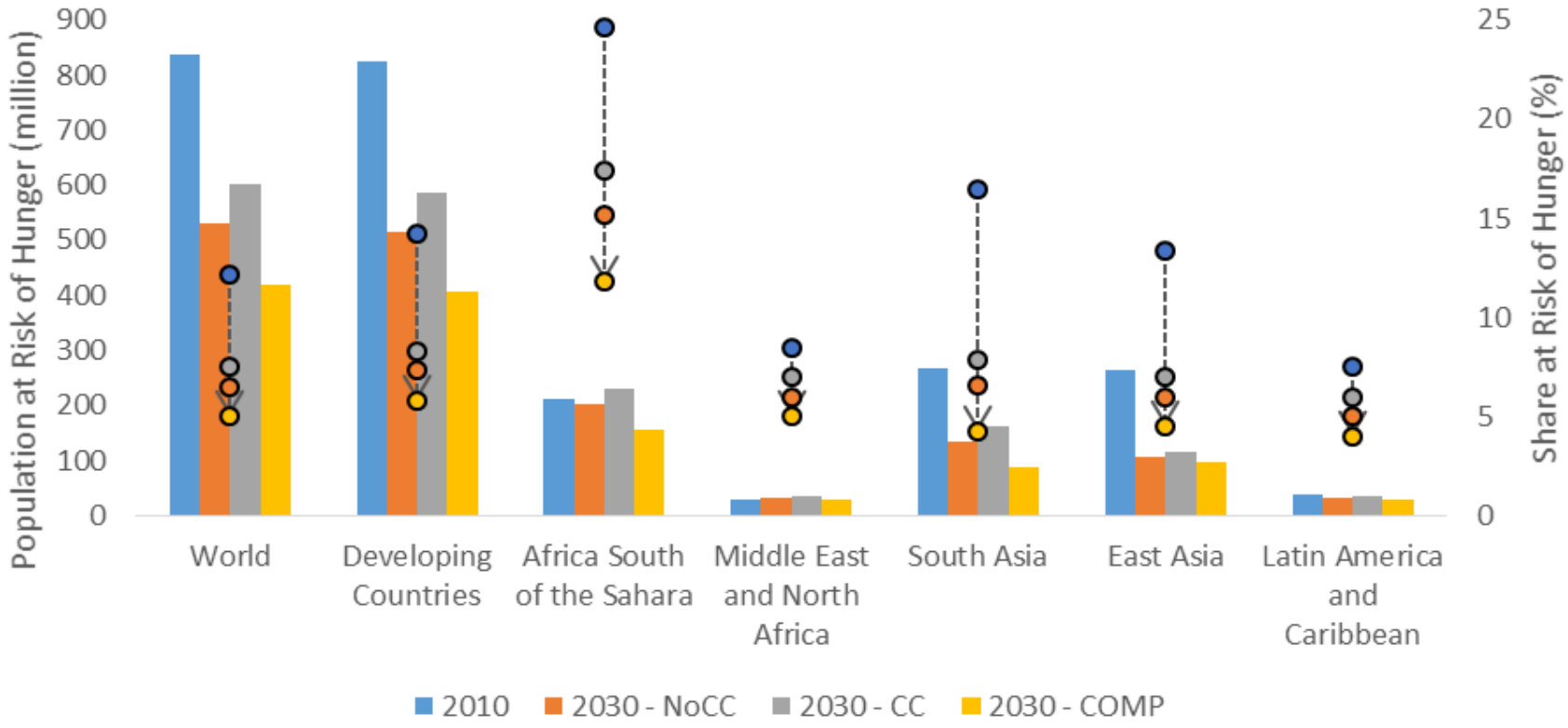

**Note**: 2030-NoCC assumes a constant 2005 climate; 2030-CC reflects climate change using RCP 8.5 and the Hadley Climate Model, and 2030-COMP assumes climate change plus increased investment in developing country agriculture.
**Source**: IFPRI, IMPACT model version 3.3 (Rosegrant et al. 2017).

(Slide borrowed from Wiebe and Prager 2017)

# Hunger in 2030

*by climate and investment scenario*

(Bars showing numbers on the left axis, dots showing shares on the right axis)

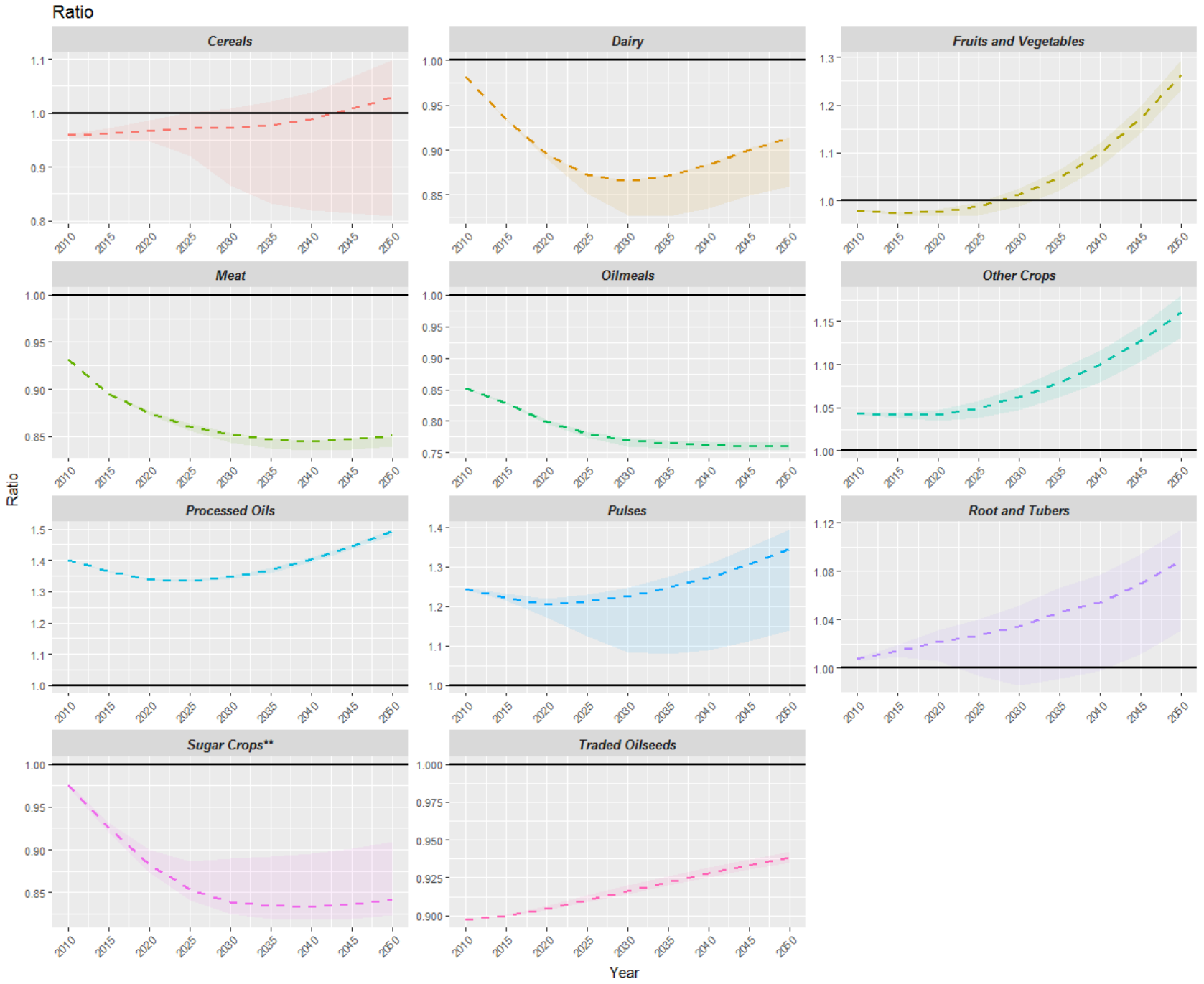


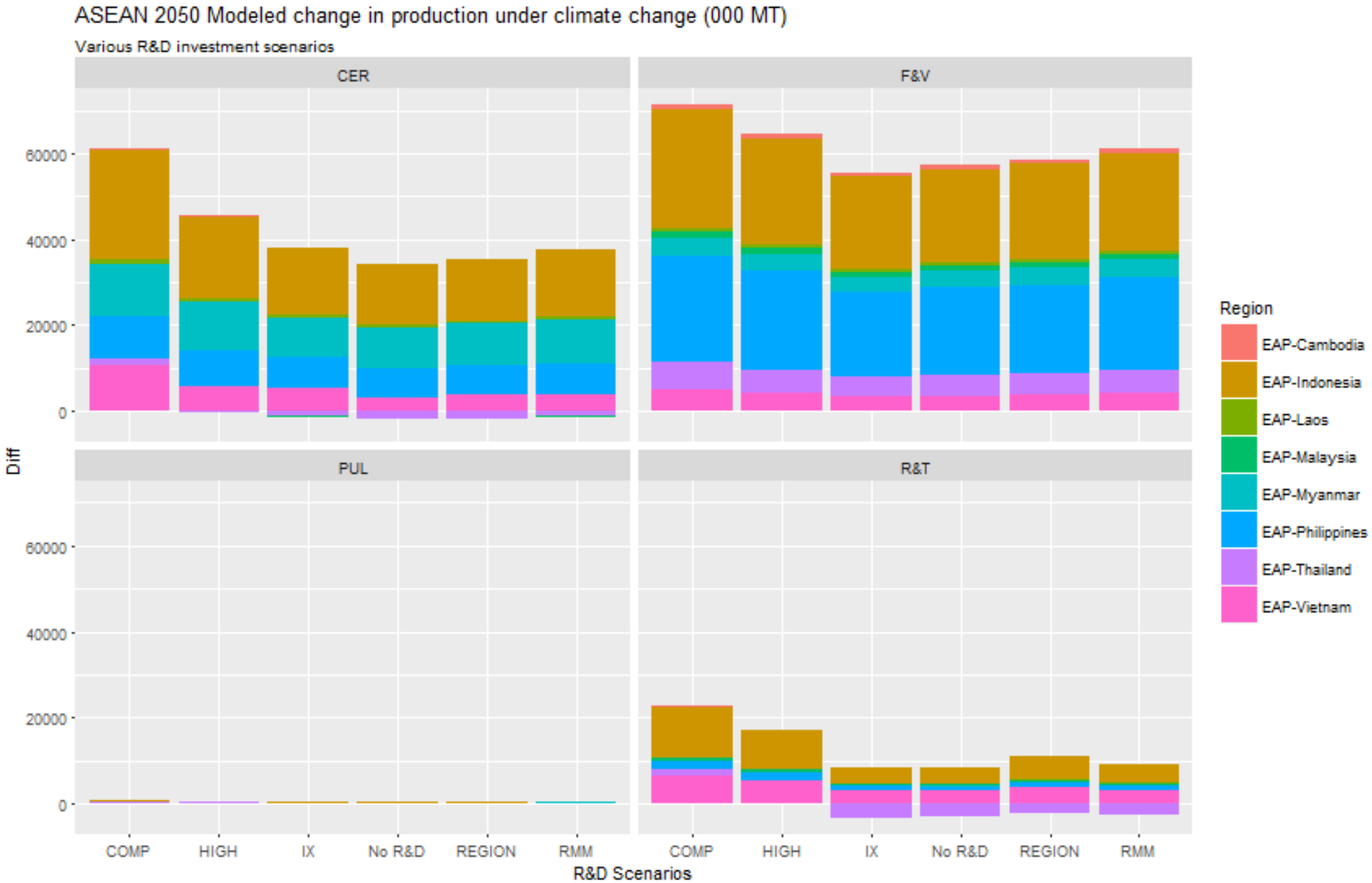

**Note**: 2030-NoCC assumes a constant 2005 climate; 2030-CC reflects climate change using RCP 8.5 and the Hadley Climate Model, and 2030-COMP assumes climate change plus increased investment in developing country agriculture.
**Source**: IFPRI, IMPACT model version 3.3 (Rosegrant et al. 2017).

(Slide borrowed from Wiebe and Prager 2017)

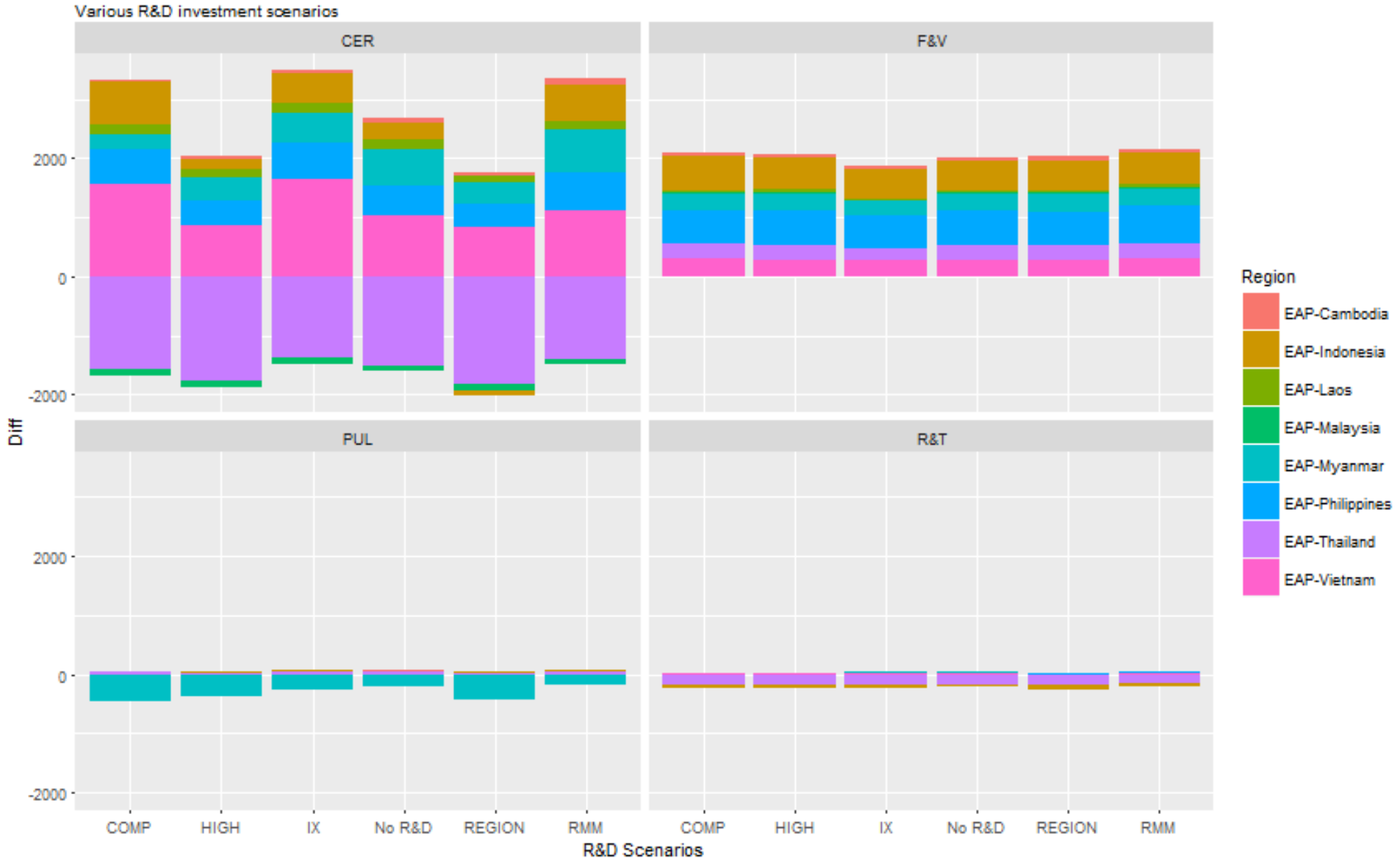
# Supply-Demand Ratios for Key Commodities in EAP Region

(shaded areas represent range of potential investment scenarios)

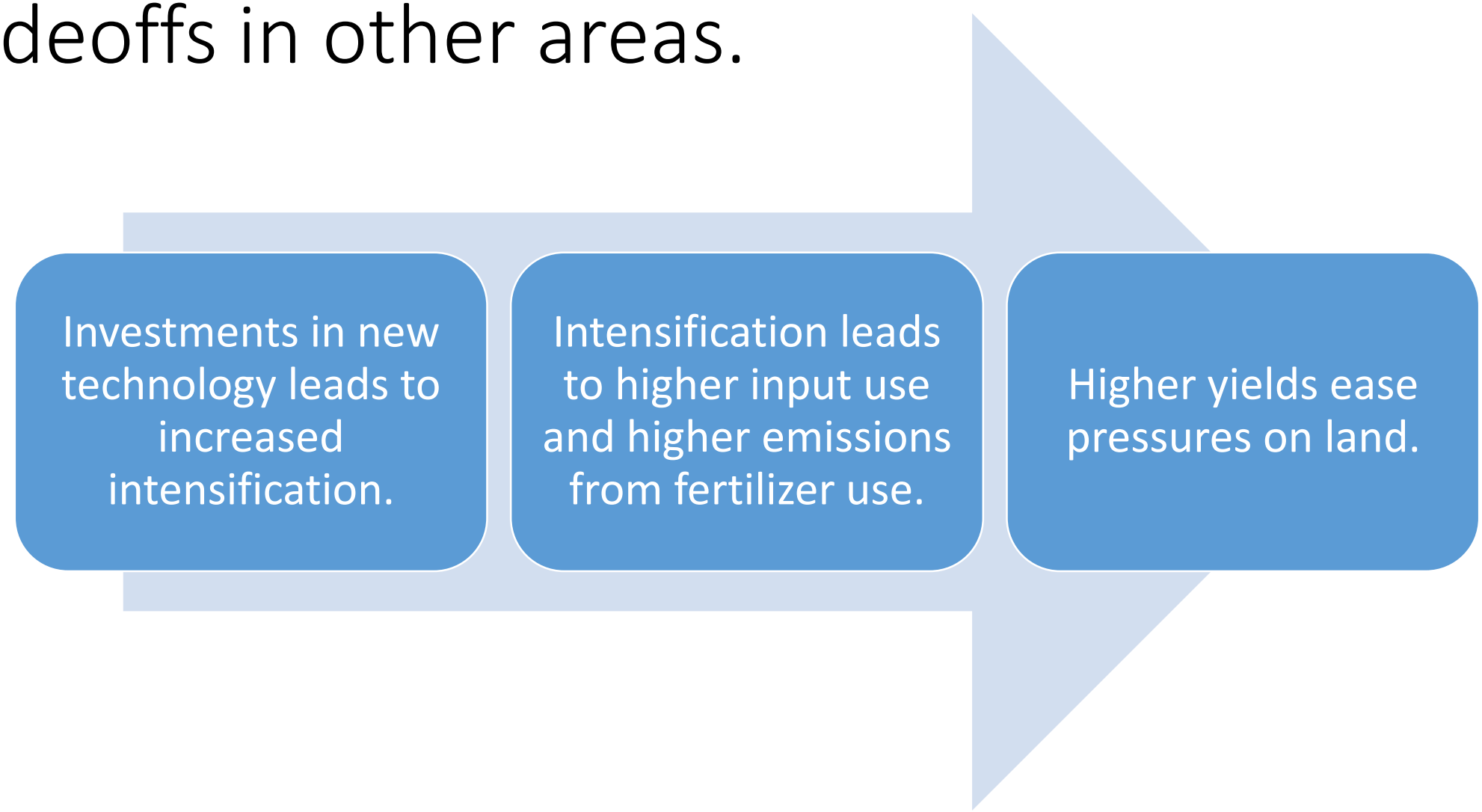


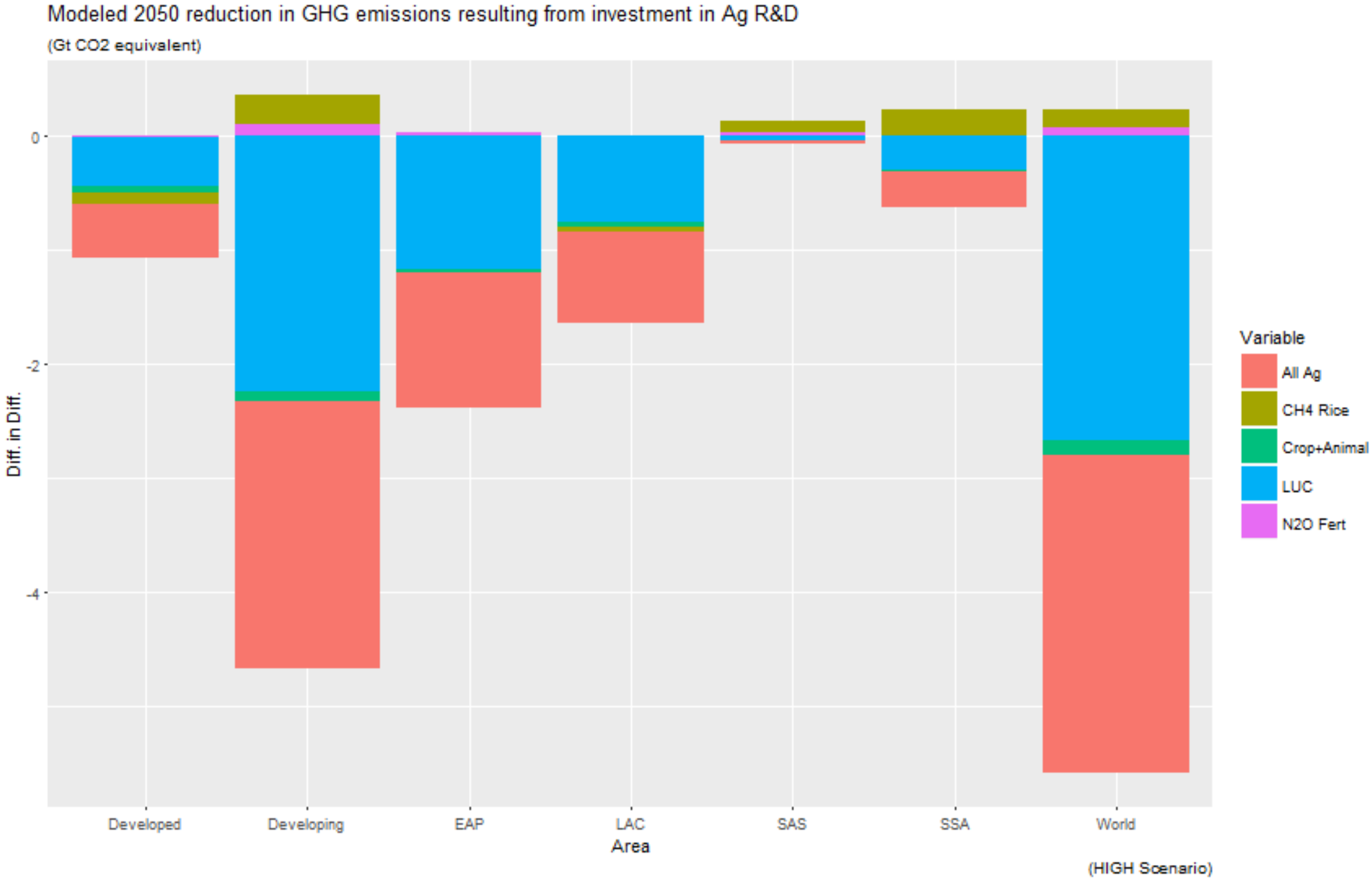

ASEAN 2050 Modeled change in production under climate change (000 MT)
Various R&D investment scenarios
CER
F&V
PUL
R&T
Diff
60000
40000
20000
0
COMP
HIGH
IX
No R&D
REGION
RMM
R&D Scenarios
Region
EAP-Cambodia
EAP-Indonesia
EAP-Laos
EAP-Malaysia
EAP-Myanmar
EAP-Philippines
EAP-Thailand
EAP-Vietnam

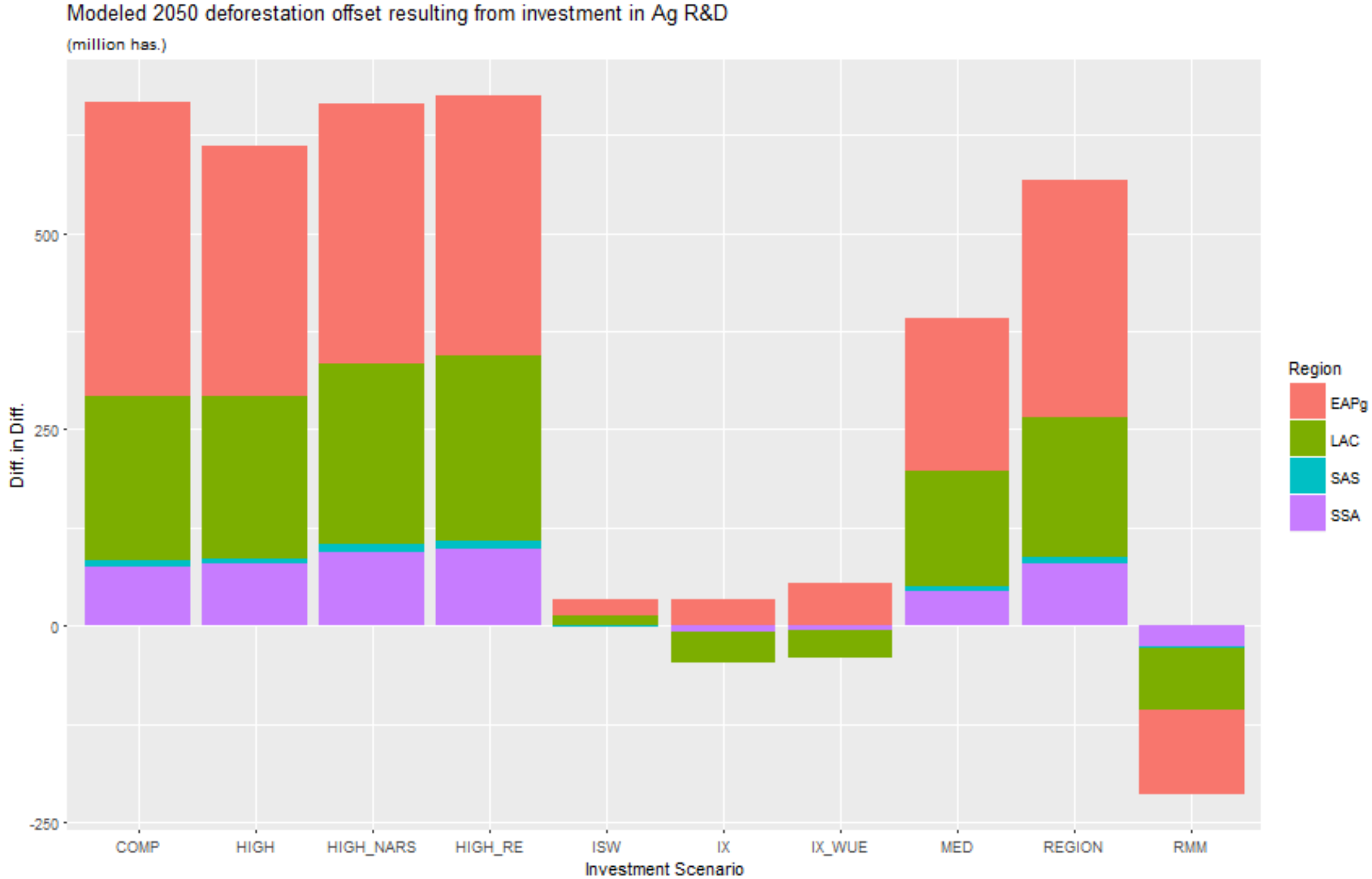
# Change in Crop Land



# One must consider, however, that pressure in one area may have positive (or negative) tradeoffs in other areas.




Modeled 2050 reduction in GHG emissions resulting from investment in Ag R&D
(Gt CO2 equivalent)
0
-2
-4
Diff. in Diff.
Developed
Developing
EAP
LAC
SAS
SSA
World
Area
(HIGH Scenario)
Variable
All Ag
CH4 Rice
Crop+Animal
LUC
N2O Fert


Modeled 2050 deforestation offset resulting from investment in Ag R&D
(million has.)
Diff. in Diff.
500
250
0
-250
COMP
HIGH
HIGH_NARS
HIGH_RE
ISW
IX
IX_WUE
MED
REGION
RMM
Investment Scenario
Region
EAPg
LAC
SAS
SSA

# Parting thoughts...

Find synergies

Be aware (but not afraid) of tradeoffs

Think in terms of “compound interest”

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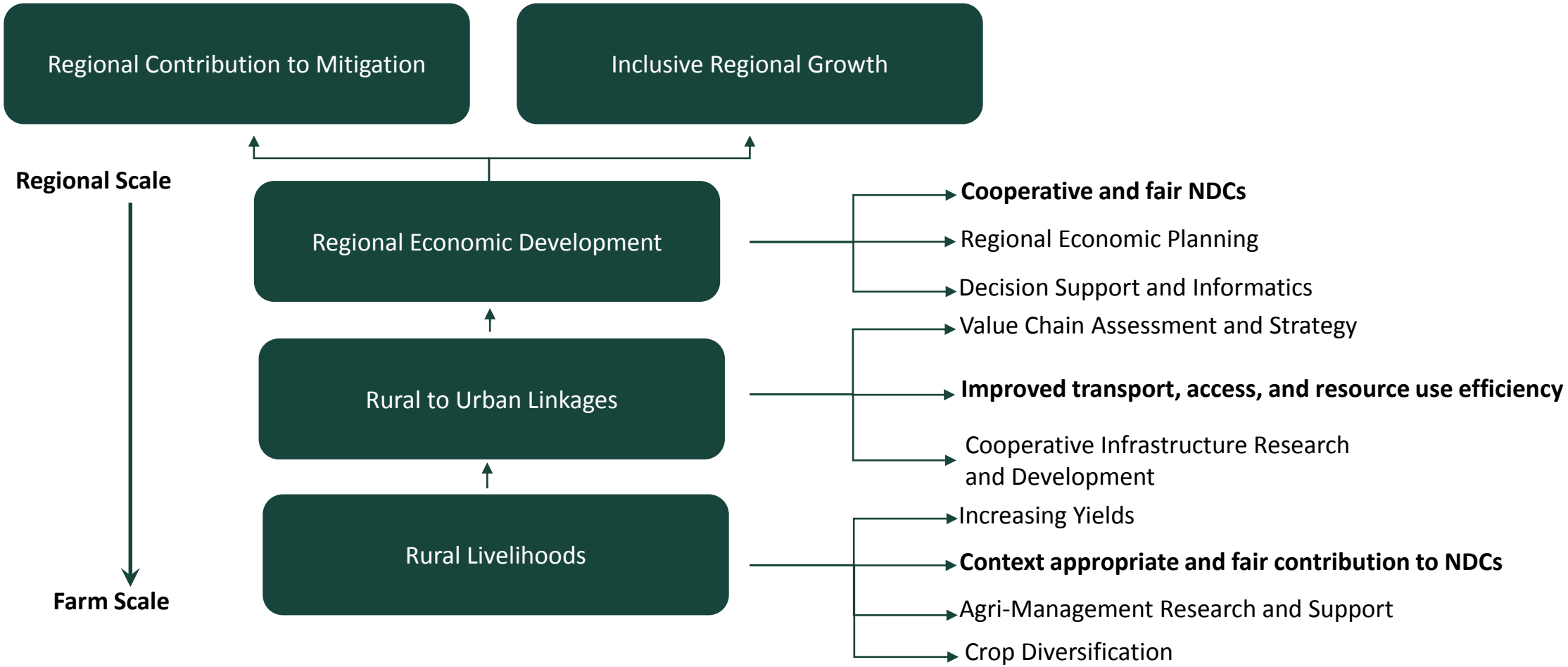
*Science for a food secure future*

| Term | Economy-wide | Agriculture-specific |
|---|---|---|
| **Longer term trends** | Globalization and world governance (general) | Globalization and world governance (agri-food sector) |
| | Economic growth (trend) | Evolution of the agrarian structure, of agri-food value chains, and of rural-urban balance |
| | Poverty and income distribution | |
| | Demography and population | Consumption patterns (urbanization, sustainability, health issues, other values, impact on meat consumption) |
| | Trade agreements (general) | Trade agreements for the agricultural sector |
| | | Public regulations and private standards related to agriculture and food |
| | Energy trends | Constraints in natural resources (water, land) |
| | General technology | Agricultural R&D; productivity growth |
| | Climate change (general economy) | Climate change (agricultural sector) |
| **Shorter term cycle** | Economic growth (cycle) | Cyclical factors affecting the agrifood sector |
| | Employment, poverty, and income distribution | |
| | Exchange rates, interest rates, capital flows, and other macroeconomic factors | Agricultural trade policy |
| | Agricultural and food prices, price of energy (oil and others) | Global biofuel policies (short term) |
| | | Stock-to-use ration |
| | Weather (general economy) | Weather (agricultural sector) |

Source: Díaz-Bonilla 2015, adapted from Zahniser (2012).

# Thinking About a Theory of Change Related to NDCs




Strategic foresight allows us to evaluate plausible futures in relation to desired outcomes.