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Farming for the Future

the environmental sustainability of agriculture in a changing world

Holger A. Kray

Lead Agriculture Economist

hkray@worldbank.org



The Global Food System in 2050

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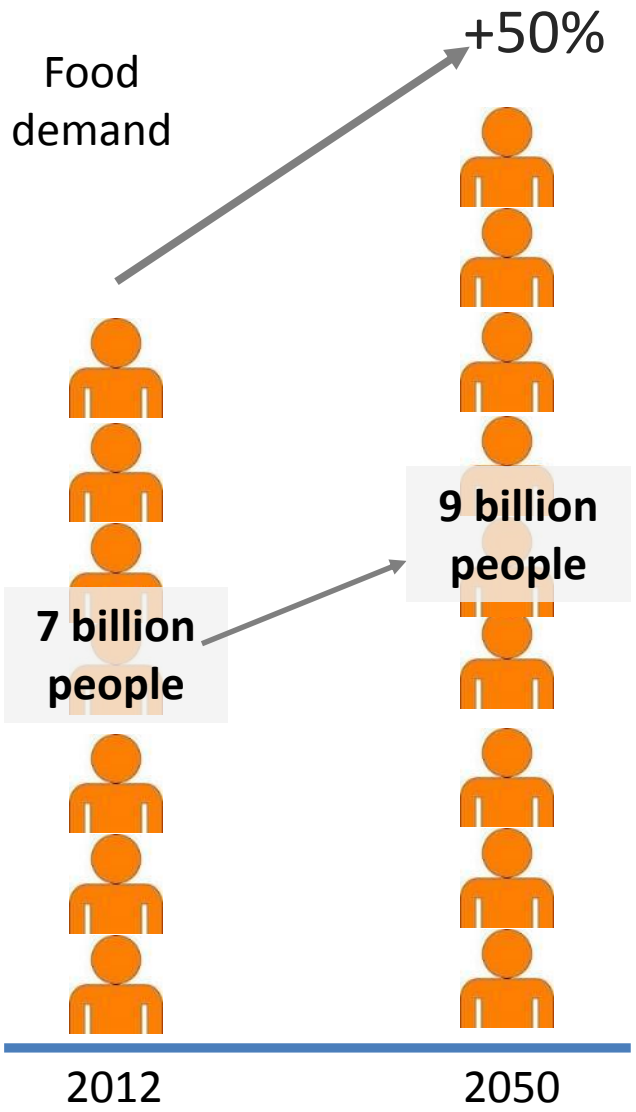
Needed from the Global Food System



- 35% increase in food production by 2030 (FAO)
- Access to safe, nutritious, diverse diets

- 4.5% income growth per year for smallholders farmers in poorer countries (to end poverty)

- Improved health outcomes
  - Reduced undernourishment and child stunting
  - Reduced obesity

- Improved resilience and responsiveness to shocks
- Sustainable use of natural resources – land, water, biodiversity, atmosphere

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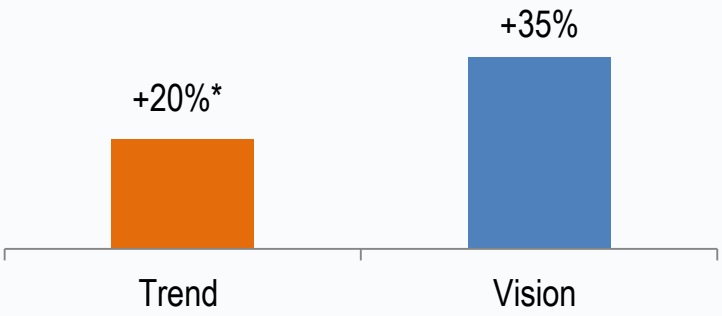
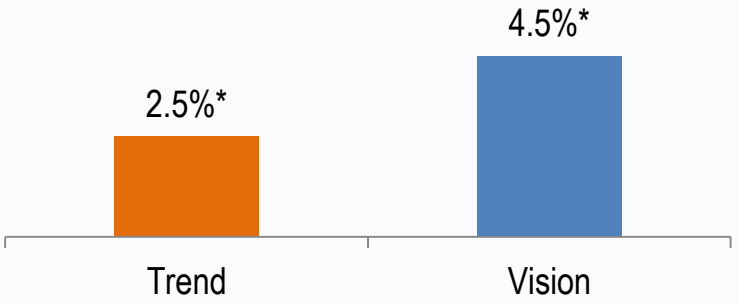
Projected Trends Will Not Get Us There

Increase in **Food Production** (%) by 2030



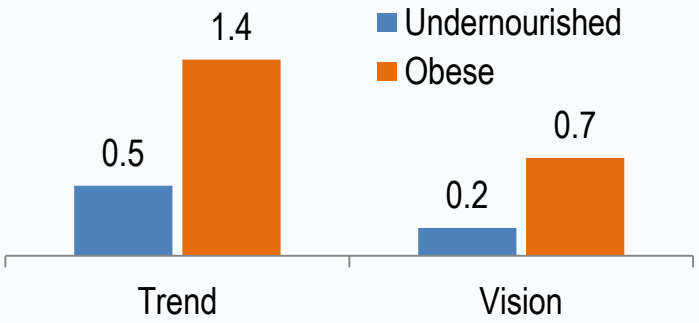
* Trend assumes a 2ºC warmer world by 2030 and an associated 10% reduction in food crop yields

Income Increase to 2030 (% per year)



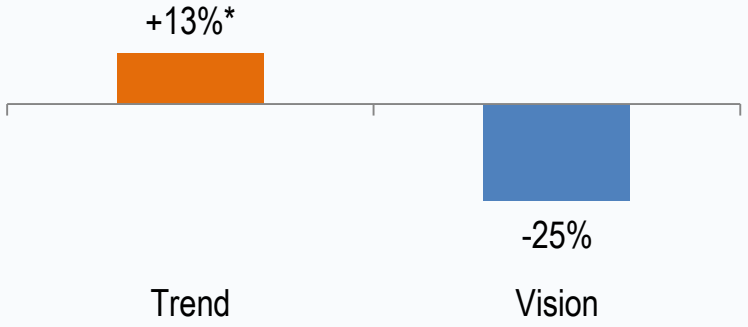
* 2.5.% is 10 yr trend growth (2003-2012) of agricultural labor productivity in low income countries projected forward to 2030; 4.5% is estimated agricultural incomes gains of the poor needed to end poverty by 2030.

Health Outcomes (bn people) by 2030



* Trend assumes 8% undernourishment rate and 6.8 bn people in developing countries by 2030, Vision is 3%.

GHG Emissions from Agriculture (% change) by 2030



* Trend: WRI estimates

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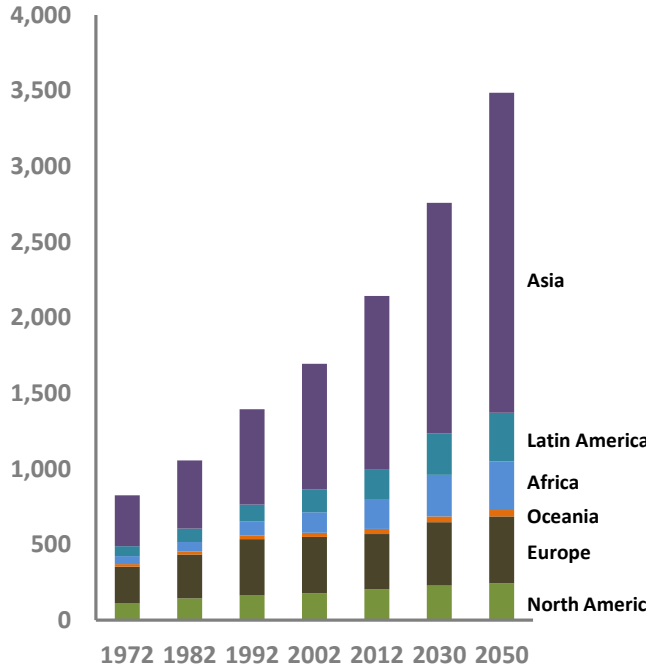
Three Challenges

1 PRODUCTIVITY

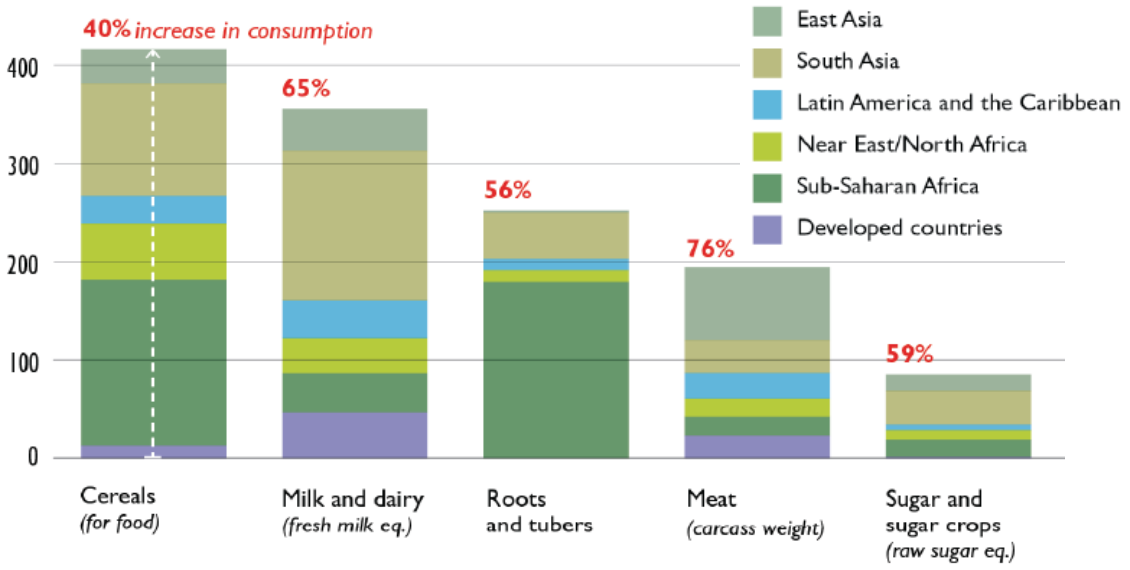
Feeding 9 Billion People in 2050

Food Production by Region 1972-2050
(Constant 2004-06 US$)



Food Demand By Commodities in 2050 relative to 2005-07

(Billion kg per year)



CEA 2013 based on FAO 2012

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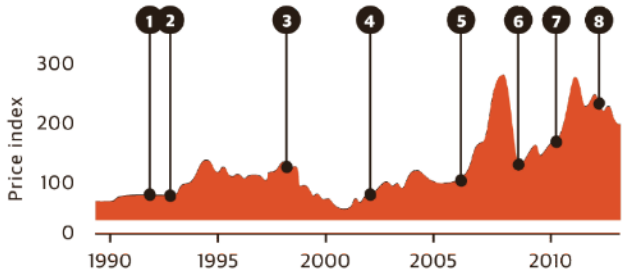
2 ADAPTATION
Climate Change Impacts on Food Systems

Problems Today:
Short Term Volatility

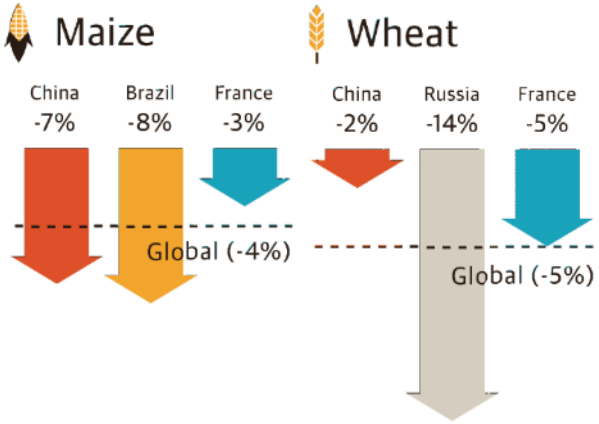
Recent price spikes for food commodities have been linked to extreme weather events



1. Australia wheat. **2.** US maize. **3.** Russia wheat. **4.** US wheat, India soy, Australia wheat. **5.** Australia wheat. **6.** Argentina maize, soy. **7.** Russia wheat. **8.** US maize.

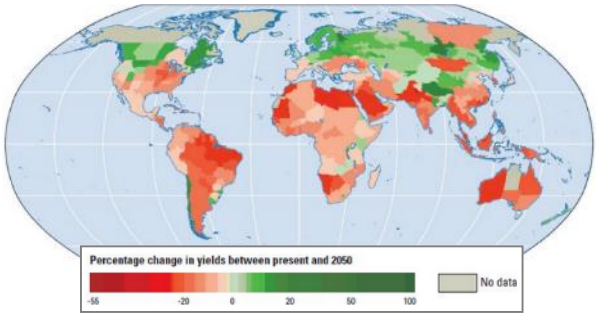
Issues Tomorrow:
Medium Term Yield Losses and Increasing Cost Structures

Maize and wheat yields show climate impacts



Uncertain Future:
Production Collapse in the Longer Term

Maize and wheat yields show climate impacts



CCAFS 2014; World Bank 2008

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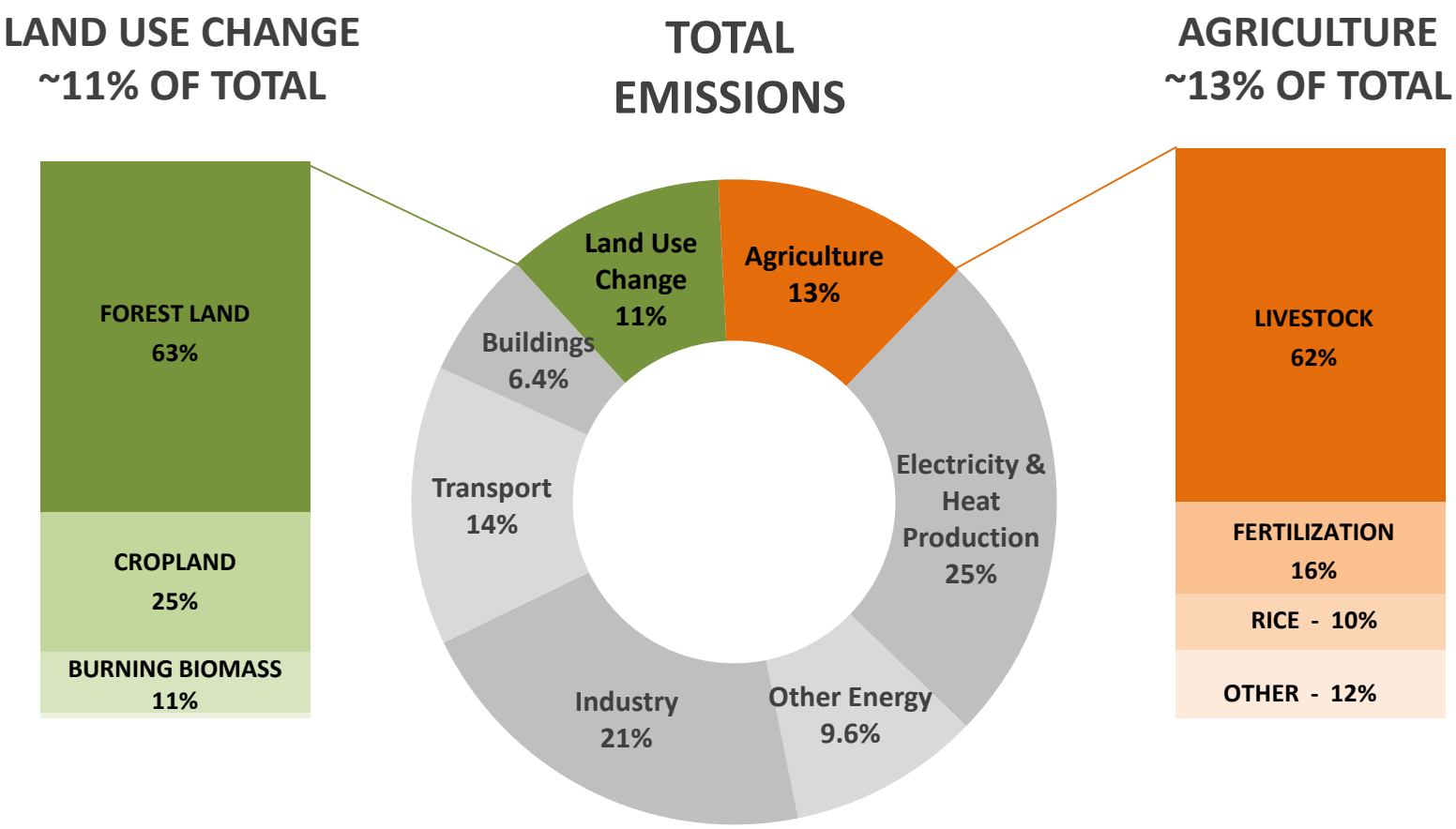
3a

EMISSIONS
Agriculture: **Today**



IPCC 2014

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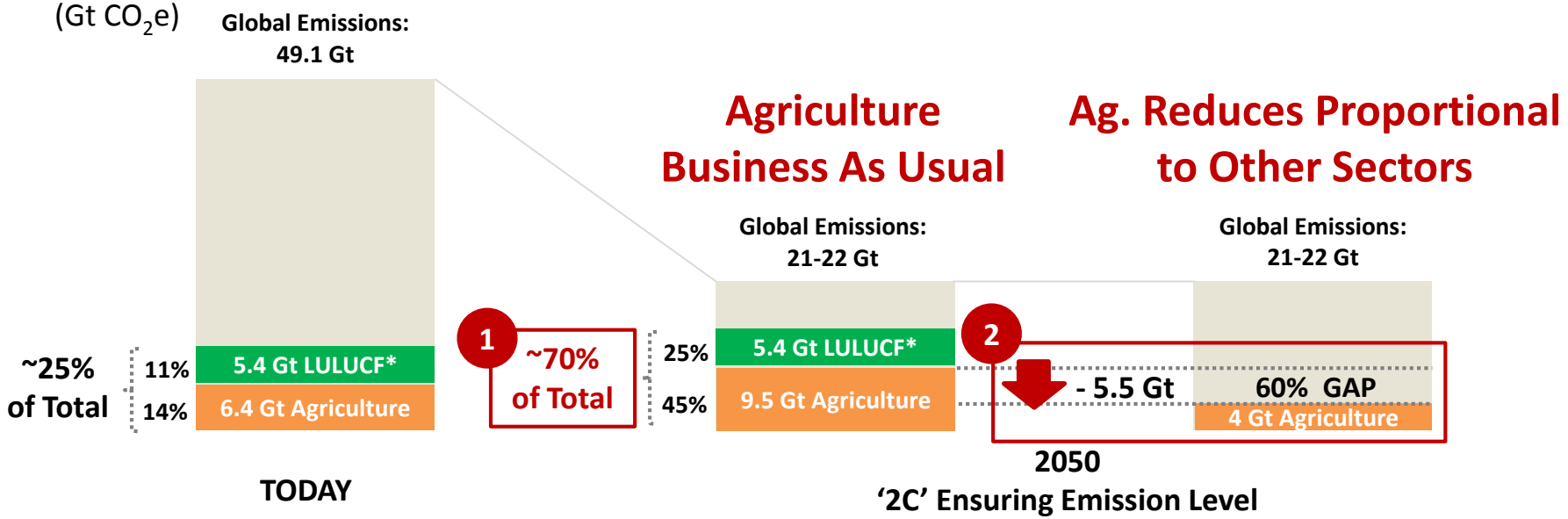
3b EMISSIONS
Agriculture: **Tomorrow**

Projections of Global, Agriculture and Land Use Change Related Emissions towards 2050

(Gt CO_2e)



1

By 2050, Agriculture and Land Use Change could represent 70% of Global Emissions - if global emissions are reduced in accordance with a 2C goal, while Agriculture were to remain in business as usual.

2

By 2050, Agriculture will therefore have to reduce its emission intensity by 60%, if it is to maintain its footprint in parallel with overall emissions reductions. **This already assumes emissions from Land Use Change will have fallen to zero.**

WRI 2013

*Land Use, Land Use Change and Forestry

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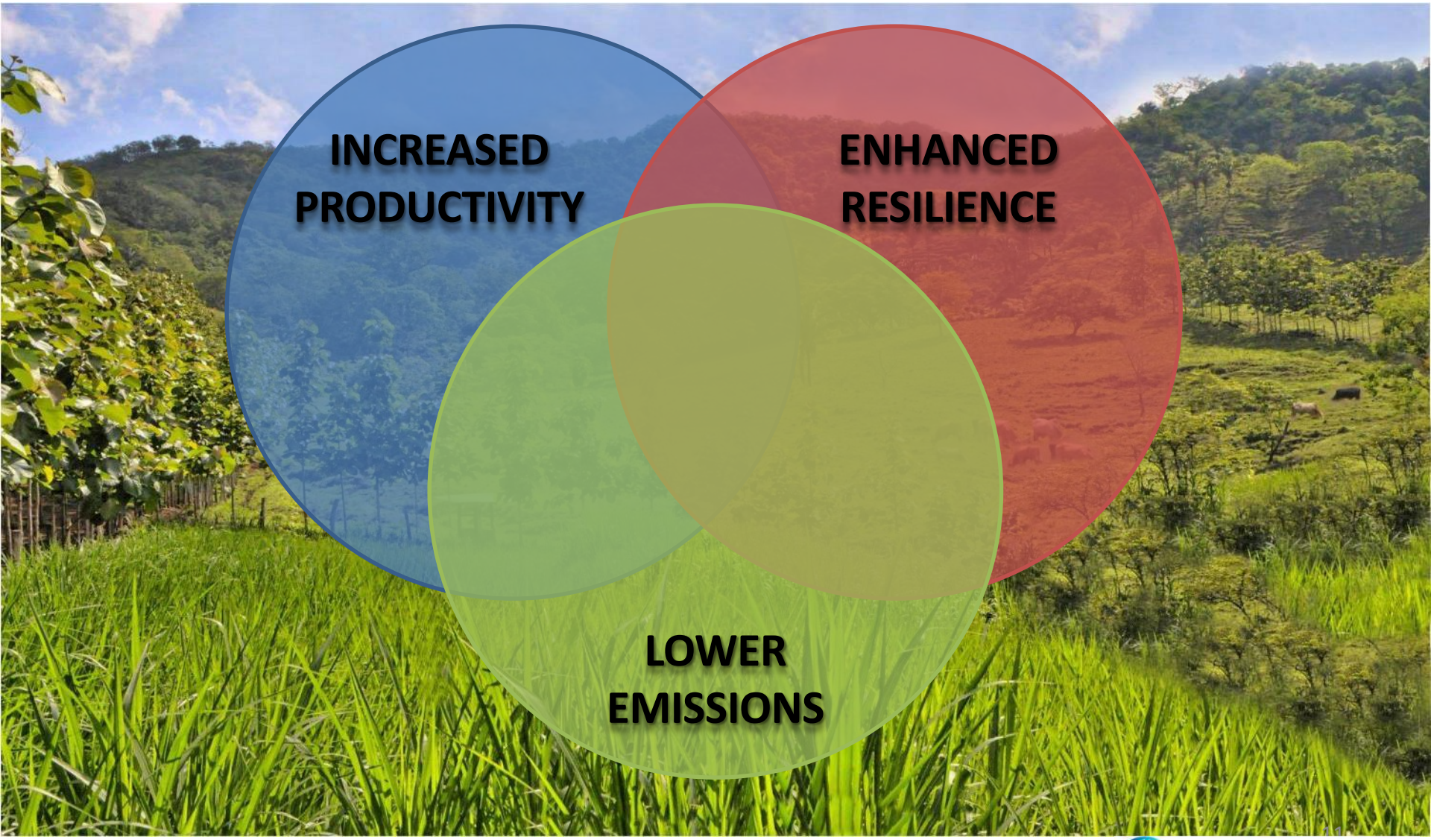
Solutions

Agriculture Delivering Solutions by Focusing on Three Outcomes:

Climate-Smart Agriculture (CSA)



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Bulgaria can deliver the Triple Win …

Promoting climate-smart water management

Applying good soil management practices

Strengthening the agriculture risk management tools

Further refining the agriculture information systems (e.g. prices)

Differentiating policies to target sector development asymmetries

Promoting carbon sequestration

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