

STELLENBOSCH, SOUTH AFRICA  
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Win more, lose less:

Capturing synergies between  
SDGs through agricultural research



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# THE CLIMATE-LAND-ENERGY AND WATER NEXUS

## IMPLICATIONS FOR AGRICULTURAL RESEARCH

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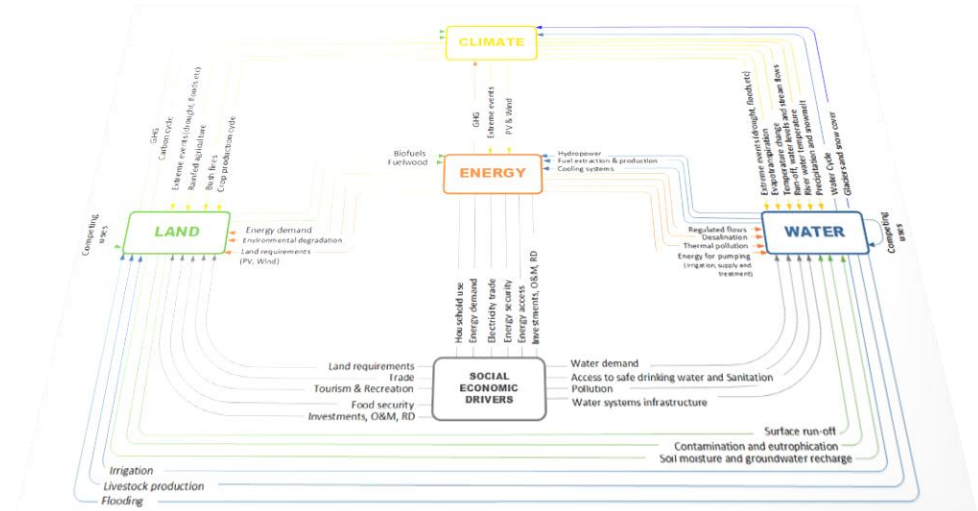
*Vignesh Sridharan, Mark Howells, Eunice  
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# FROM GOALS TO SYSTEMS

The **SDGs** and **SLOs** give us a reading lens for finding the interlinkages of interest



The interlinkages are then studied with the underlying physical and social systems



# SYNERGIES AND TRADE-OFFS WITH



## Ex. SYNERGIES

## Ex. TRADE-OFFS



1	2	3	4	5	6
1	2	3	4	5	6

Water and sanitation needed for malnutrition

Ending hunger and malnutrition could affect water availability



1	2	3	A	B
1	2	3	A	B

Energy for food production  
Food systems for bioenergy

Competition for resources

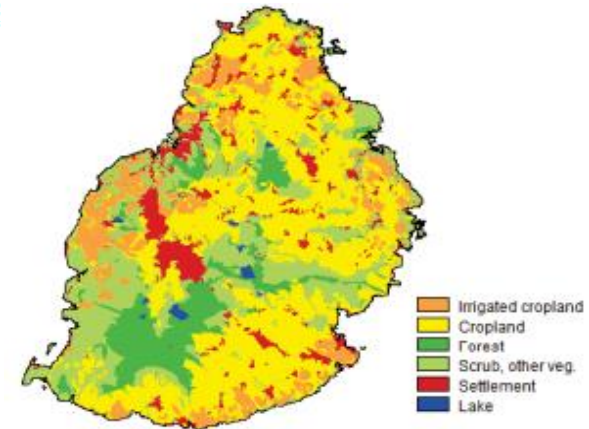
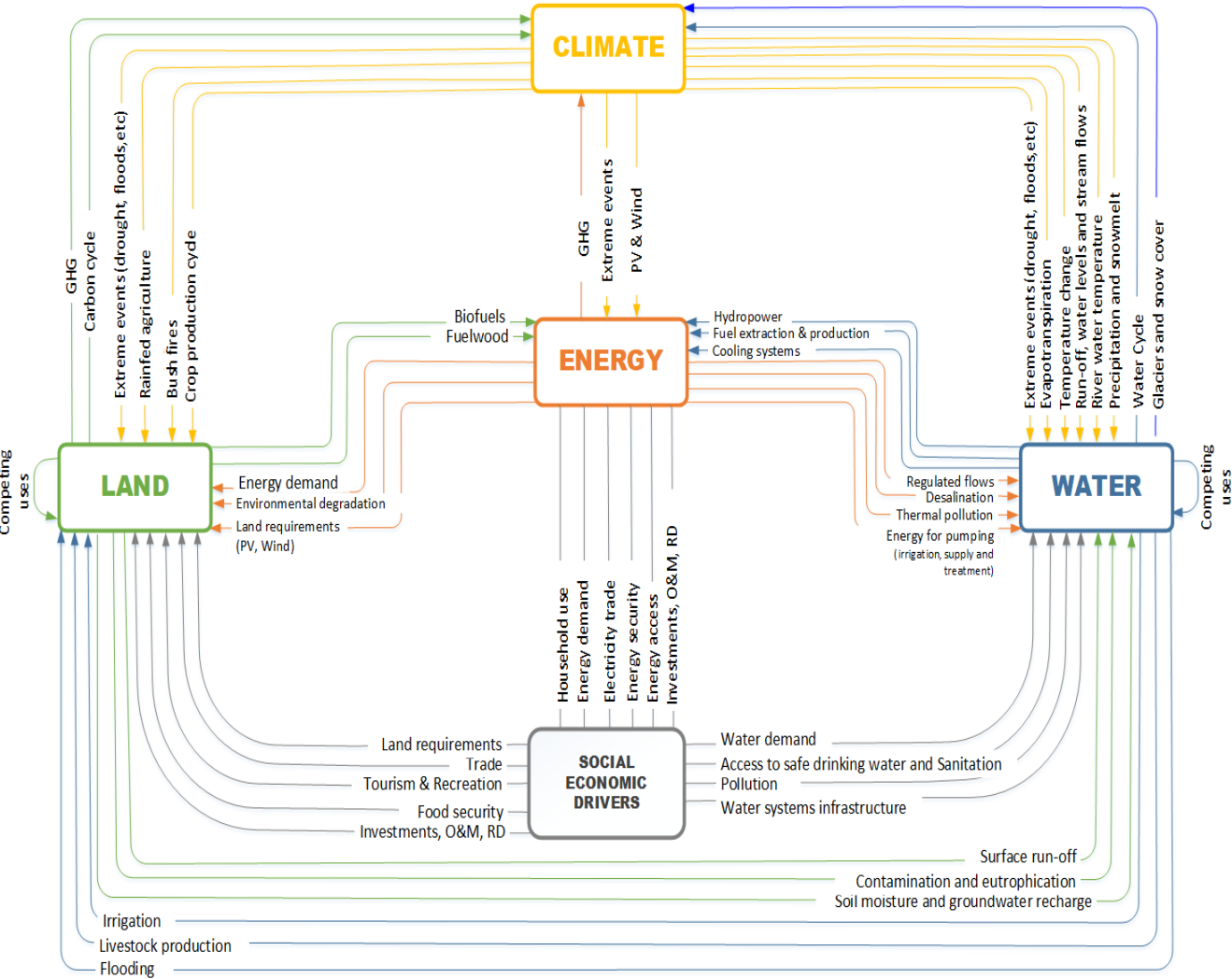


1	2	3	A	B
1	2	3	A	B

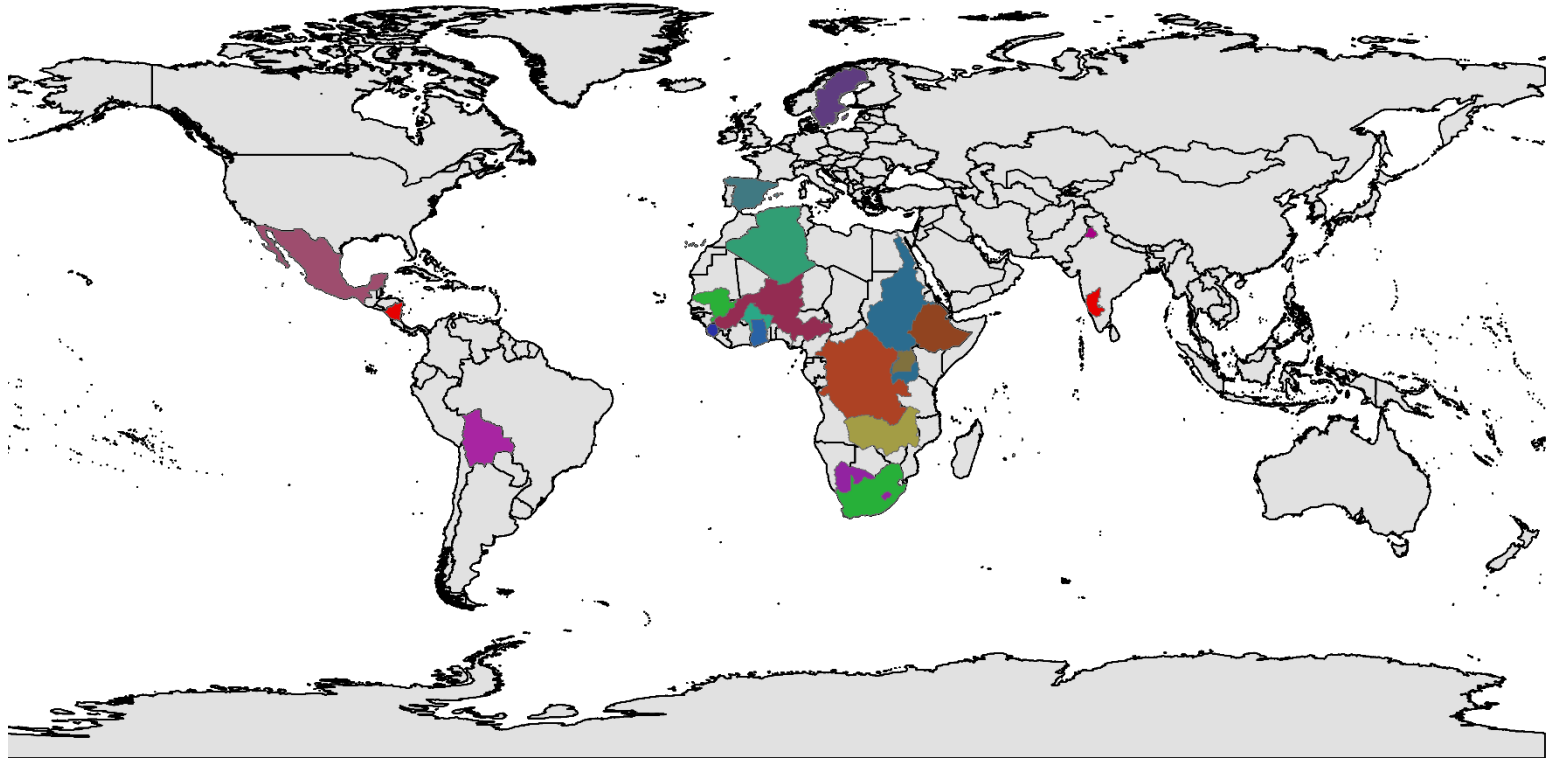
Climate action for productive and adaptive food systems

Climate action could affect land availability and small food producers

# AGRICULTURE AND NEXUS SYSTEMS INTERACTION



# INTEGRATED ASSESMENTS



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# SELECTED GAPS IN INTEGRATED ASSESMENTS FOCUSING ON NEXUS

## Overall

- Focus usually lies on linkages between **two systems**
- **Climate** consideration and its uncertainty
- Too much focus on **calories** and less on **nutrition**

## Inter-sectoral gaps

- **Energy**- Lack of info on **energy footprint in agricultural production chain**
- **Water**- Emphasize on **quantity over quality**
- **Land**- **Lack of reliable data on underground aquifers**, their recharge rates and water carrying capacities
- **Climate**- Going **beyond** just temperature and precipitation



## SOME SUGGESTIONS TO MOVE FORWARD..

1. Develop **free and open access tools** overcoming the gaps presented previously
2. Develop **lighthouse projects** for SDGs interlinkage quantification

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