



INSTITUTO DE ECOLOGÍA  
UNAM

*Why is sustainability important?*

**LANCIS**

*- Laboratorio Nacional de Ciencias de la Sostenibilidad -*

03.05.18

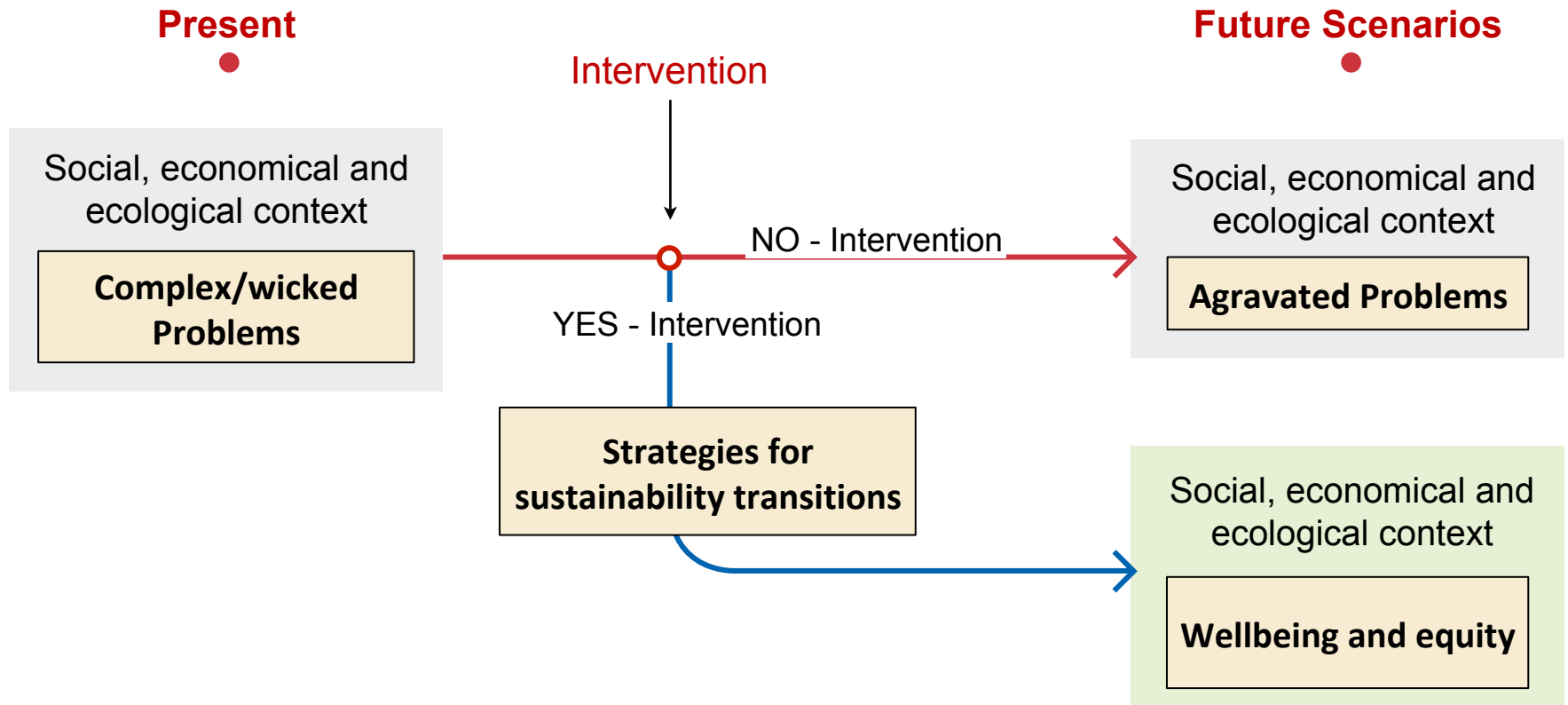
*Advancing Sustainability of US-Mexico  
transboundary drylands: a binational workshop  
IPICYT, San Luis Potosí, México*



- SUSTAINABILITY AND HUMAN RIGHTS or THE RIGHT TO A HEALTHY ENVIRONMENT:
  - Ethical principle: “distribution of [natural] resources to satisfy human and non-human needs in the short and long term” (Dobson, 1998)
  - How can this be accomplished? – intervention design.



## *Intervention Strategies*





*WHAT DO WE KNOW? How do we design these strategies or interventions for sustainability transitions for them to be effective?*

*We have to acknowledge:*

- All ecosystems are socio-ecosystems (society – ecosystem or environment interactions).
- Technical, methodological, political challenges to study/understand the interactions (of the SYSTEM in its complexity).
- Social-ecological or social-environmental systems (SES) study approaches and intervention design HAS TO BE COLLABORATIVE, from different disciplines and sectors... why?



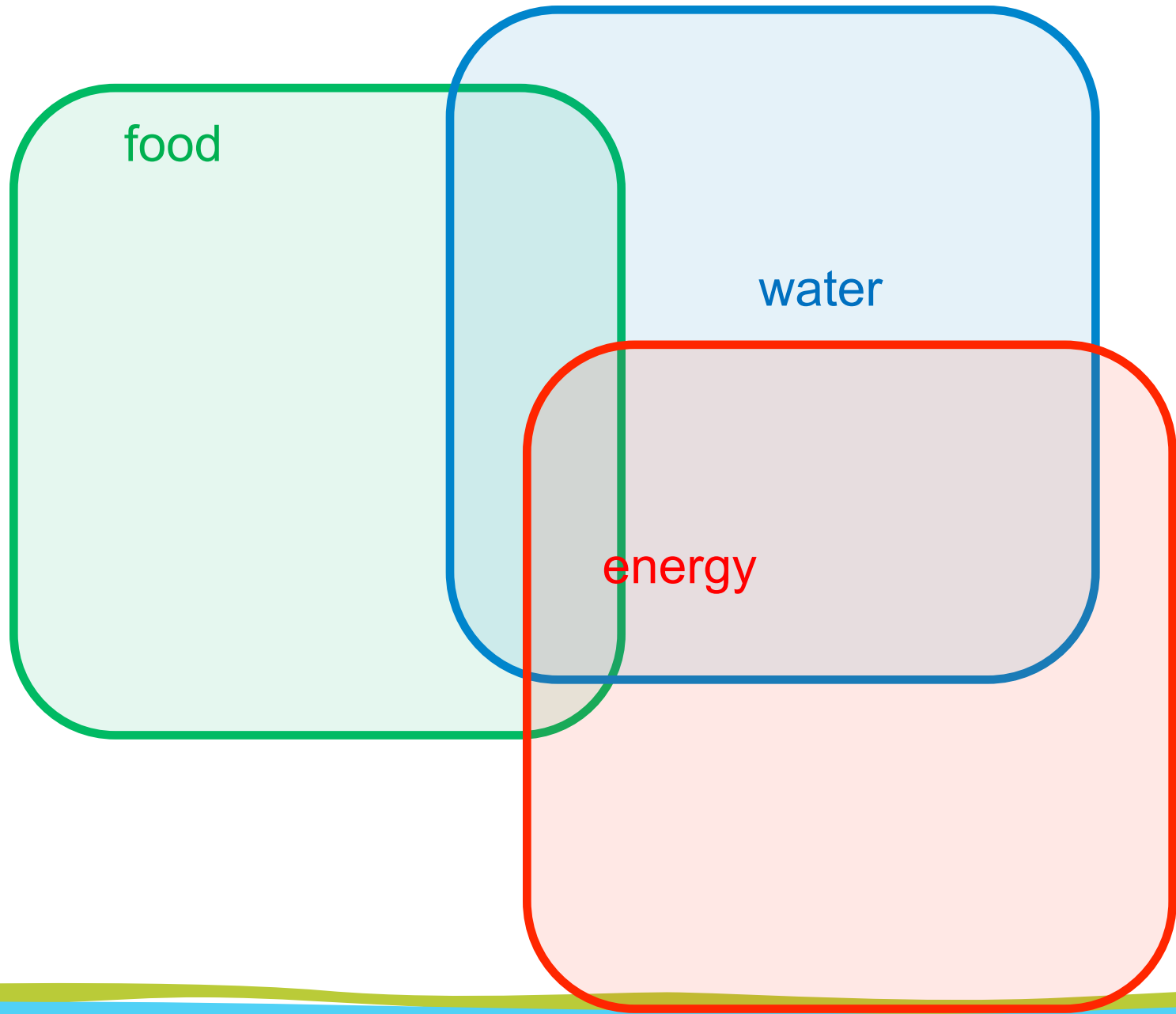
food

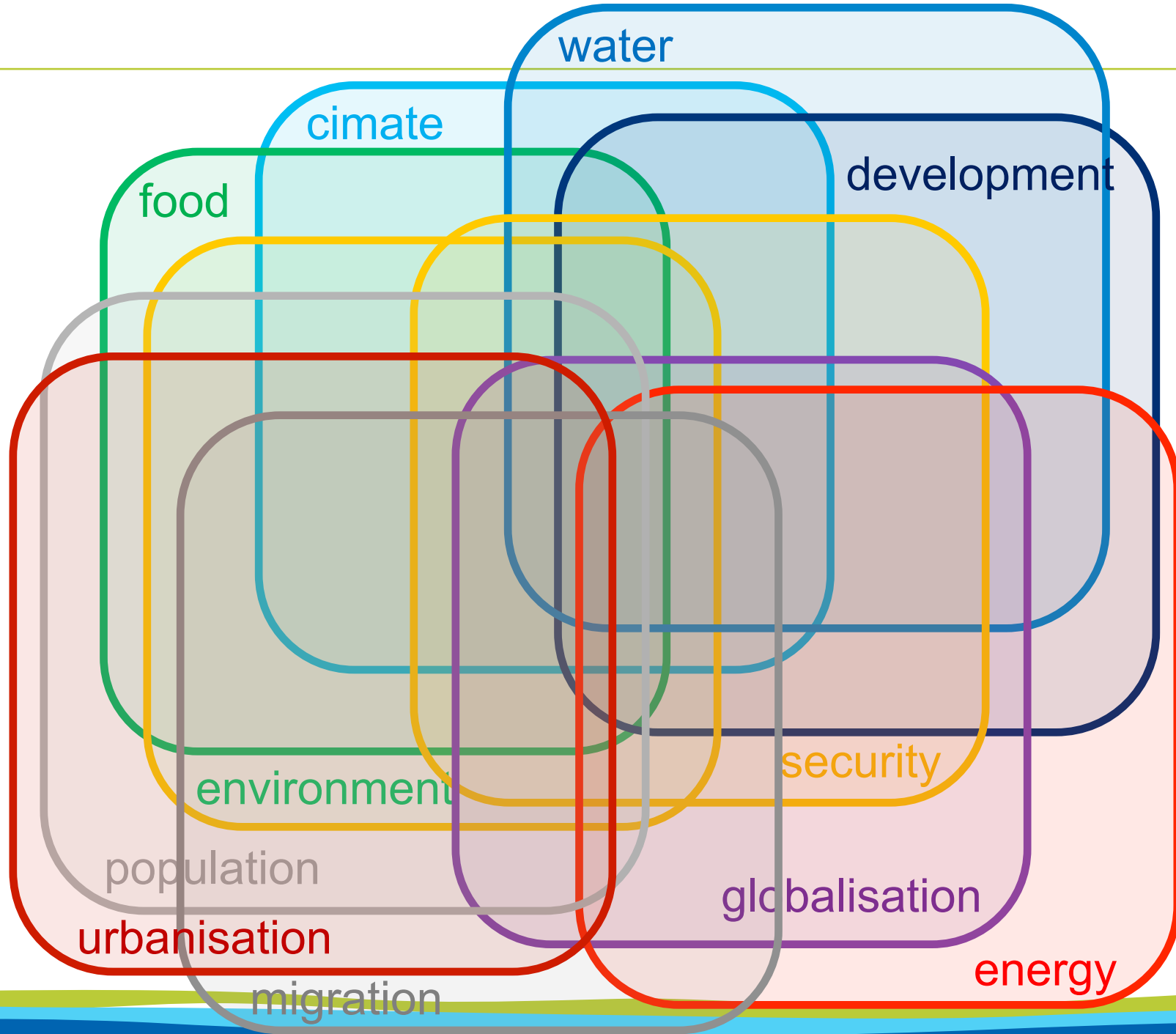
water

energy



# Sustainability Problems







# Sustainability problems

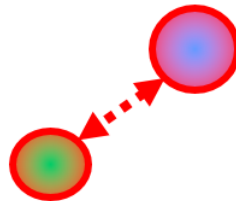
*Sustainability Science*

## Research approaches

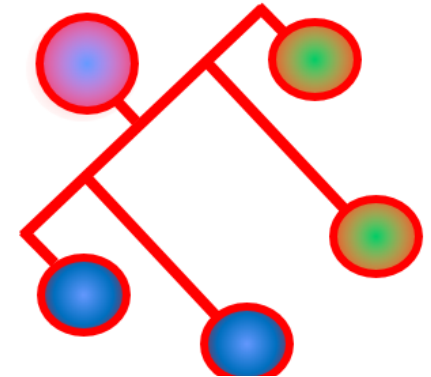
*MULTI – INTER – TRANS - DISCIPLINARITY*

### **DISCIPLINARITY**

Natural  
Sciences  
  
Cuantitative

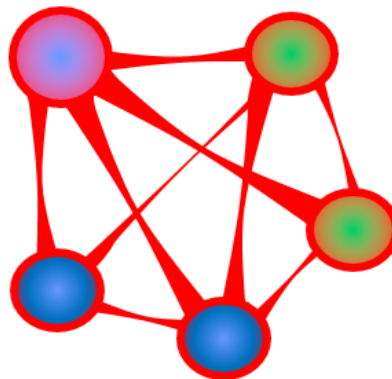


### **MULTIDISCIPLINARITY**

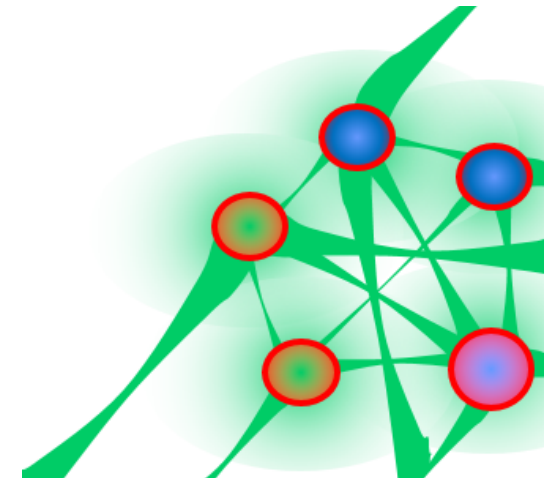


### **INTERDISCIPLINARITY**

Social  
Sciences  
  
Cualitativo,  
interpretativo



### **TRANSDISCIPLINARITY**



Brandt et al 2013 - A review of transdisciplinary research in sustainability science





## *WHAT IS LEFT TO KNOW? – non exhaustive list*

- Which are the best **methodological approaches** for research on SES interactions?
- Which are the best **modelling tools for looking at future scenarios** given great uncertainty? (e.g. lack of data, not all parameters included, limited computational capacity)
- Which are effective mechanisms **for translation-communication-engagement** to reach impact and implementation of interventions?



## WHAT IS LEFT TO HAVE?

- Research organizations with academic, social and environmental impact to
  - → reduce social inequities, vulnerability and facilitate sustainability transitions
- ***Strategic plans*** for the study and integrated analysis of socio-ecological systems, which consider participation of all sectors and be ***scientifically sound but operational.***



## *WHAT IF THIS DOES NOT HAPPEN?*

- Business as usual scenario:
  - Decisions and interventions that do not consider the complexity of the challenges.
  - Ineffective and unsustainable strategies and interventions.
  - Difficulties in the implementation.



## *PROPOSAL FOR ADVANCING*

- International and scientific literature suggest: “**boundary organizations**” in which the research is pertinent, legitimate, accountable, transparent and with academic, social and environmental impact.



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