Assessment of risk and vulnerability of agricultural systems

SBSTA 42 in session Workshop
Bonn, 3 June 2015

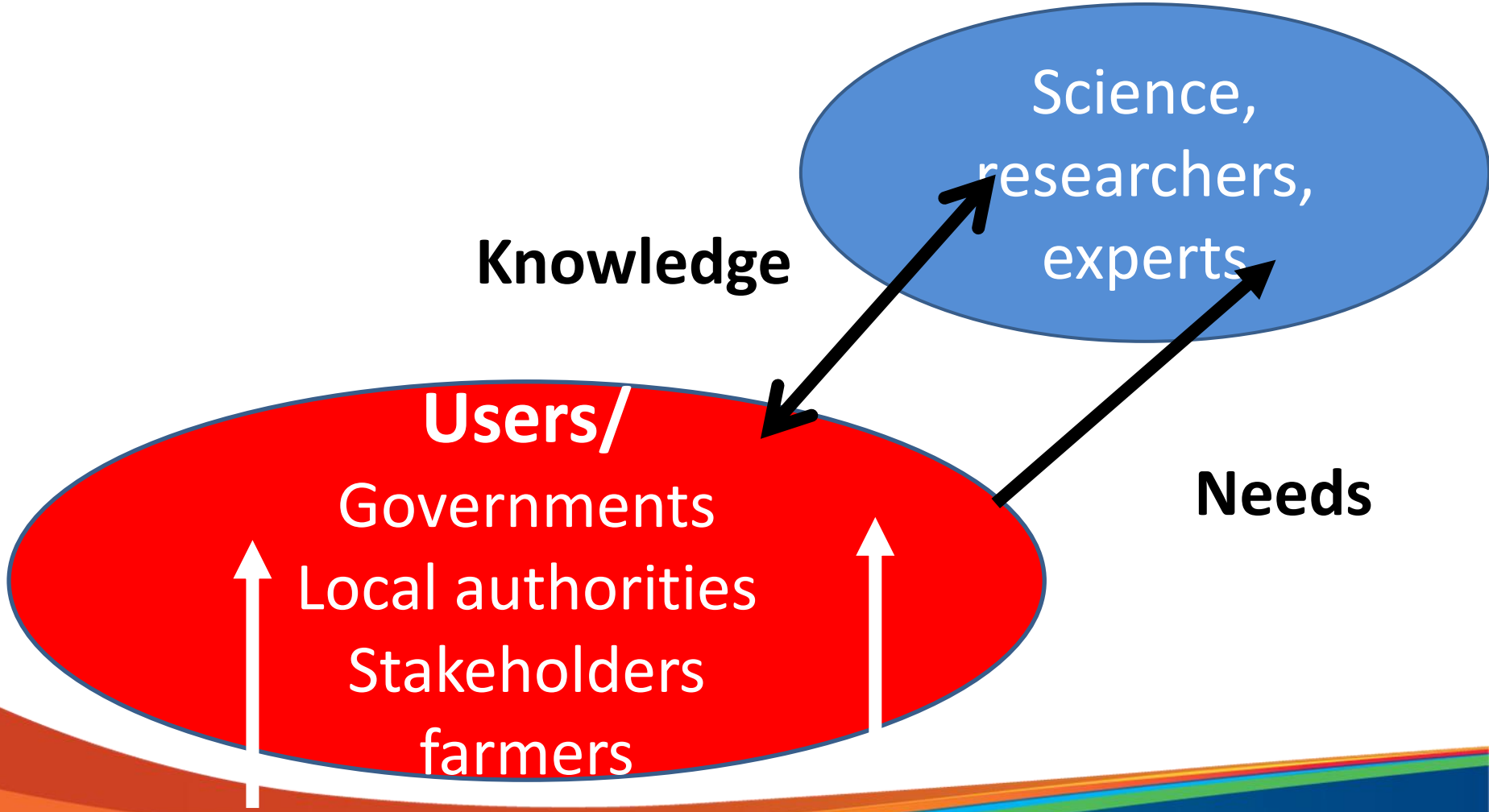
Alexandre Meybeck, FAO

Global assessment: key risks

- Key risks (IPCC 2014) inform evaluation of « dangerous anthropogenic interference with the climate system » (art 2)

- Food insecurity and breakdown of food systems
- Loss of rural livelihoods and income
- Loss of marine & coastal ecosystems, & livelihoods
- Loss of terrestrial & inland water, & liveliohods

Assessment process



Projections of climatic hazards: challenges for Agriculture

- Downscaled, localized projections
- With projection of distribution of temperature and precipitations along the year
- With precise time horizons

- Need robust global models, good historic data, capacity

Risks

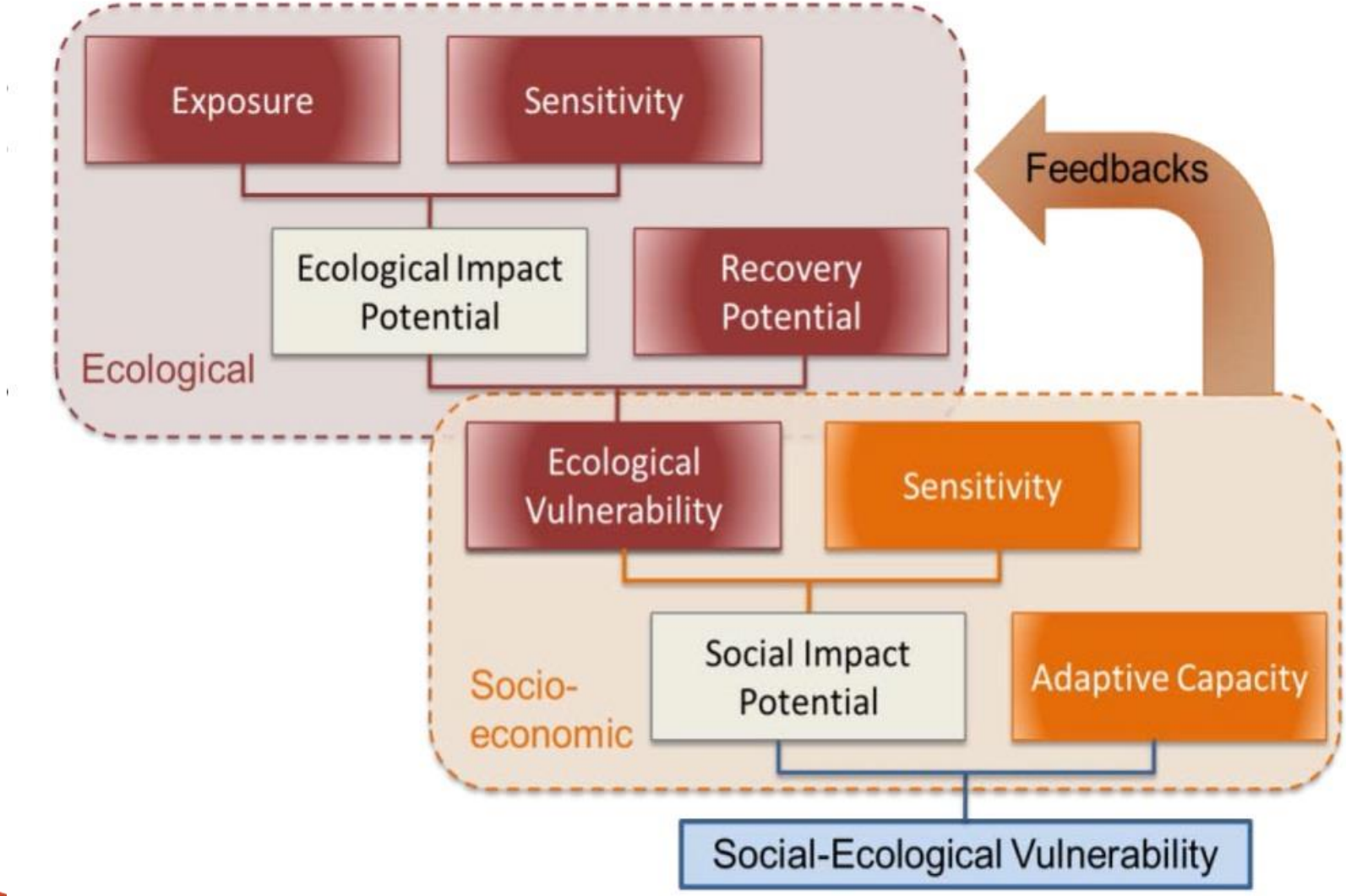
- Abiotic: sea level rise, modified river flows, soil erosion…salinisation, including of groundwater… land degradation, desertification,
- Biotic: polinators, pests (weeds, fungi, parasites), diseases (especially vectored), …
- Can conteract positive direct climatic impacts

- Reduced income and capacity to invest
- Food price volatility and price increase

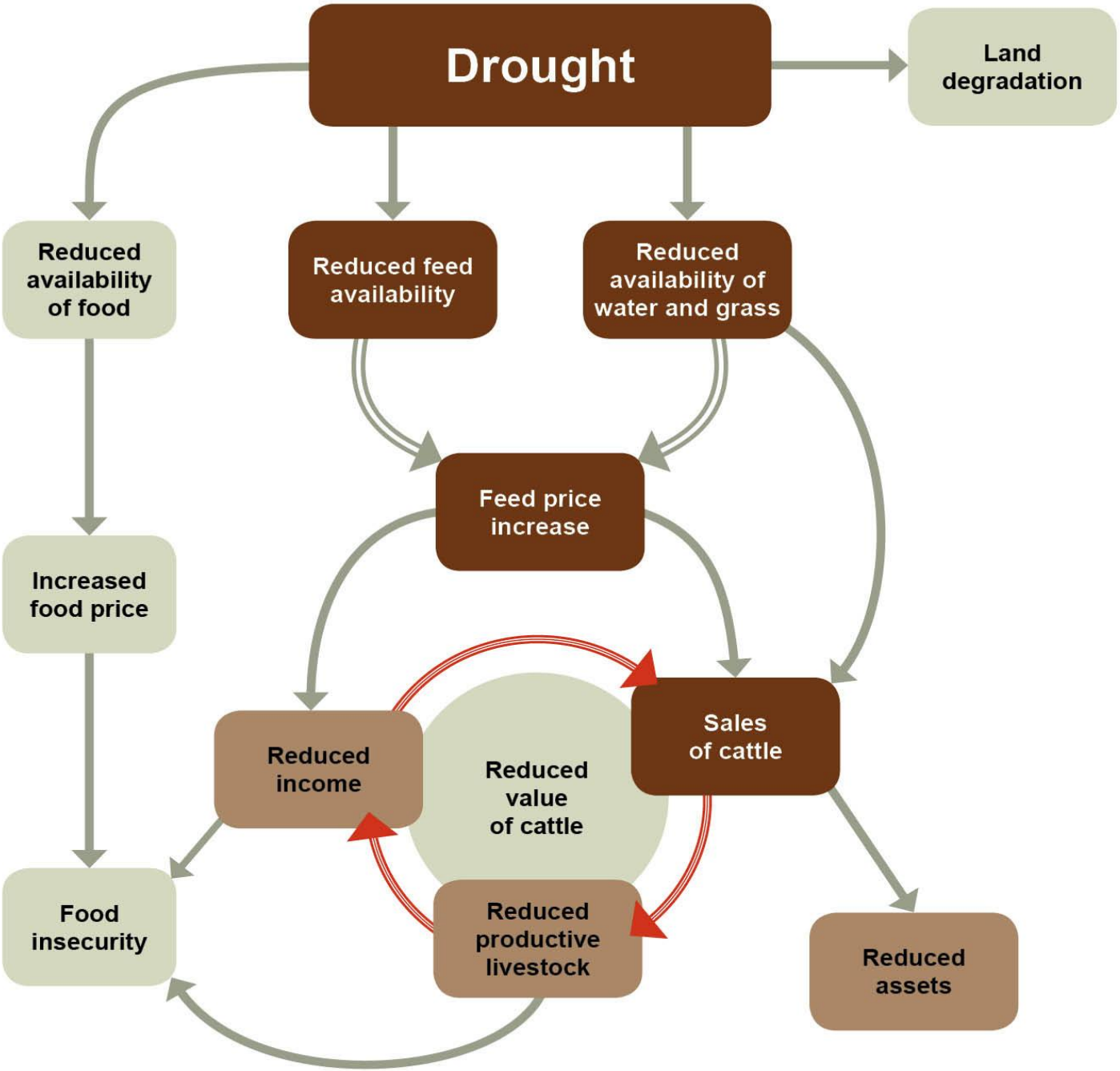
Vulnerabilities

- Environmental: degradation of ecosystem services, land degradation…
- Socio economic: poverty, lack of knowledge & information, institutions, governance

From one level or domain (environmental, socioeconomic) to another, vulnerabilities amplify each other.


Exposure
Sensitivity
Feedbacks
Ecological Impact Potential
Recovery Potential
Ecological
Ecological Vulnerability
Sensitivity
Social Impact Potential
Adaptive Capacity
Socio-economic
Social-Ecological Vulnerability

Impacts of a drought on livestock grazing systems



Gitz & Meybeck, 2012

Knowledge gaps

Issues	Downscaled projections	Crops	Drought	Flood	Weeds	Rift valley fever
Target						
Same climate, more data						
Same climate than future one						
Comparable for one or several issues