

## Addressing gaps and challenges: How to sustainably upscale the development of adaptation technologies

Emile Frison, Sp. Representative of the Director General, Bioversity International  
Technical Executive Committee, UNFCCC. Bonn, 4 March 2013

# How can agriculture meet today's and tomorrow's challenges?

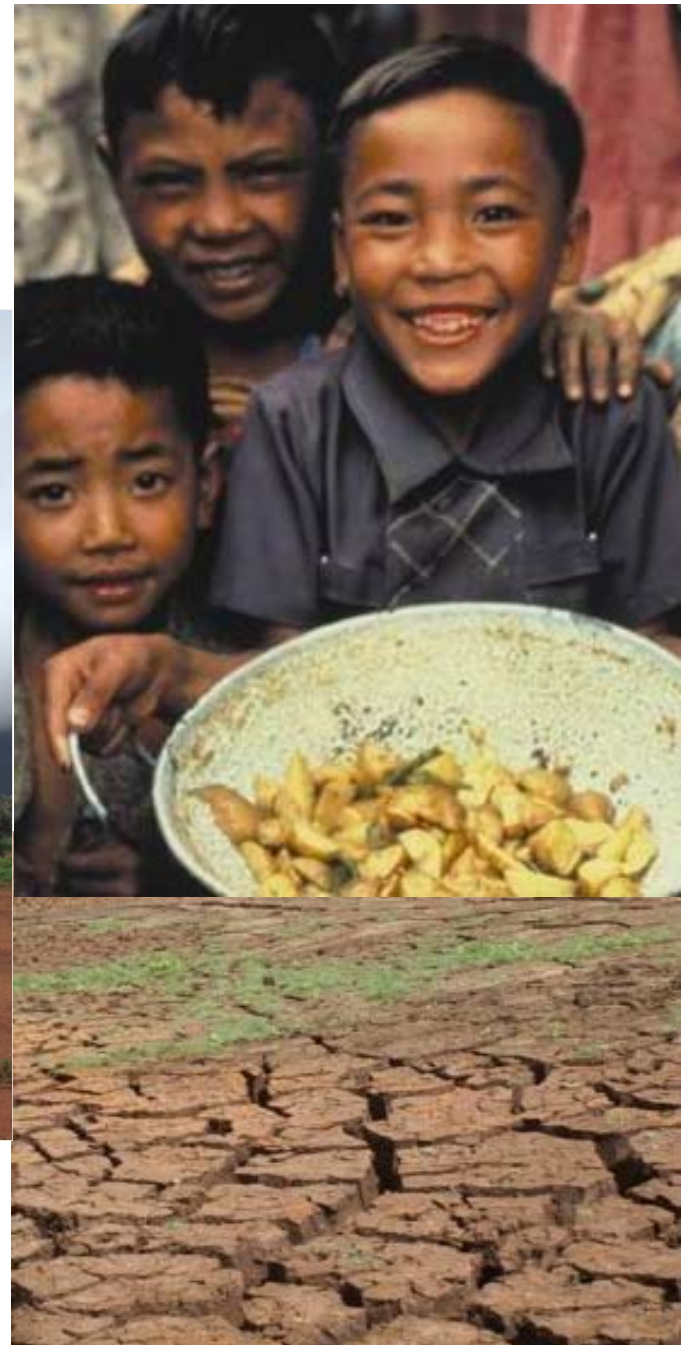
We need to adapt...

Agricultural systems that produce more and better food under harsher conditions while protecting the environment


If we want to focus on the needs of the poor and hungry  
→ we need a different paradigm



# Climate change: Not in isolation!



We must address better nutrition, ecosystem services as well as less predictable seasons



**Adaptation research  
for productivity,  
nutrition, stability,  
resilience and  
ecosystem services:**

**→ Participatory  
research**

# Farmers' management of genetic diversity for adaptation

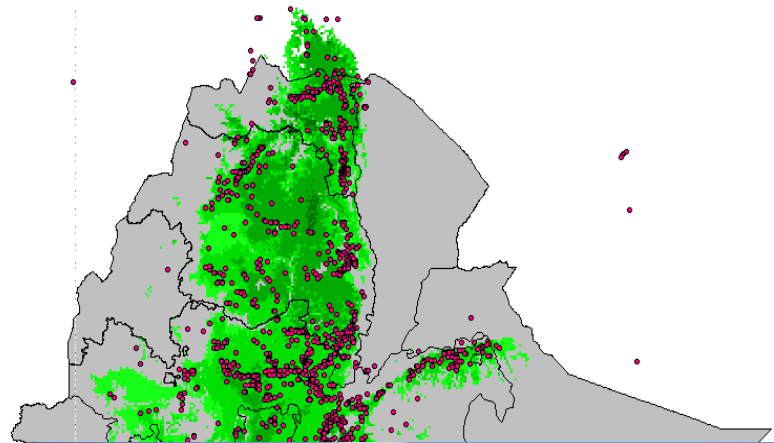
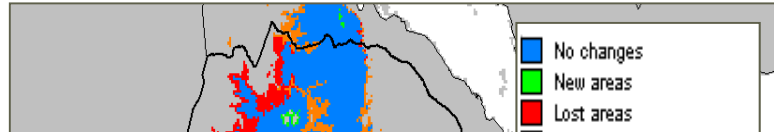


**Participatory plant breeding to improve disease resistance in the local cold tolerant rice and barley landraces in high mountain agricultural sites in Nepal**

Sthapit, Jarvis, Skinner, Murray, 2012

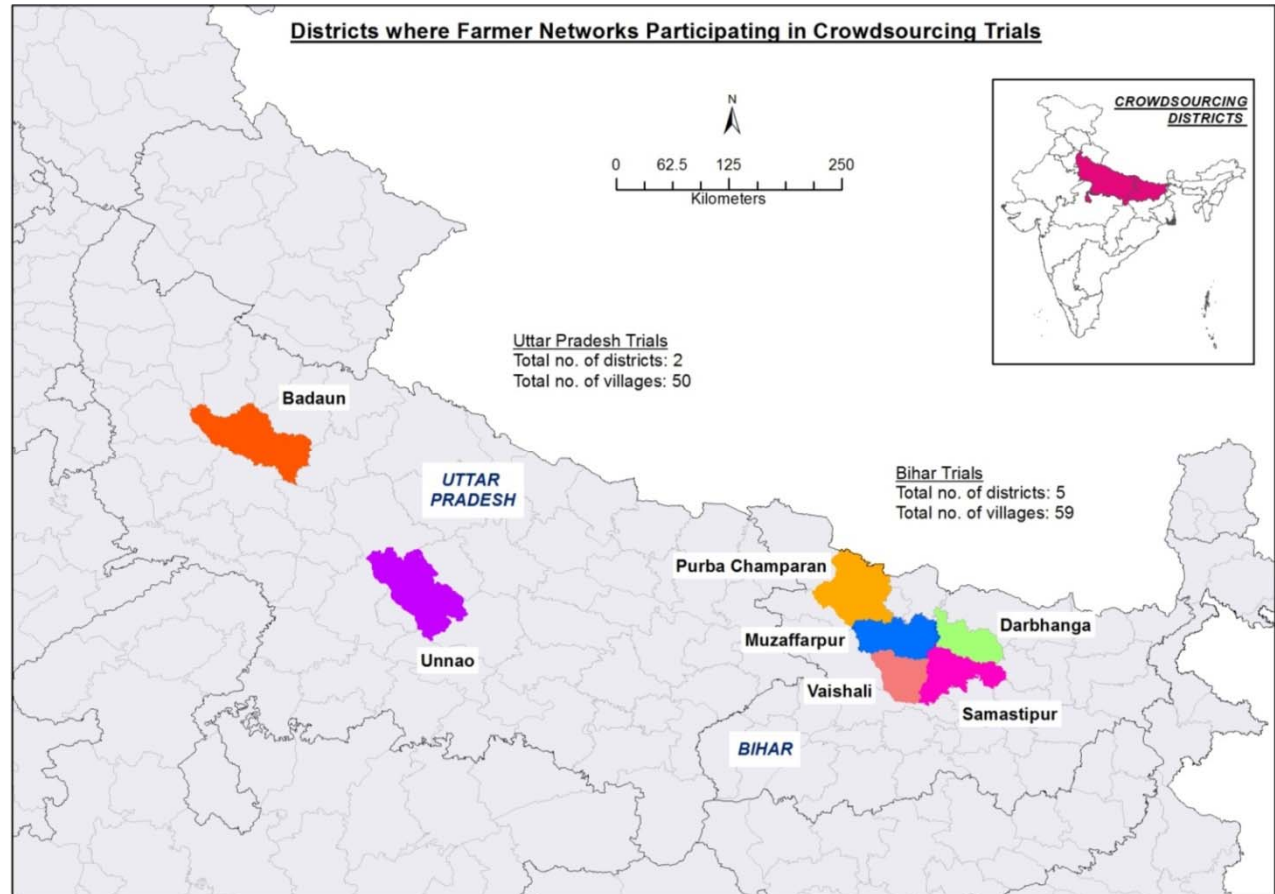


# “Seeds for Needs” project promotes adaptation to climate change by women farmers in Ethiopia and PNG



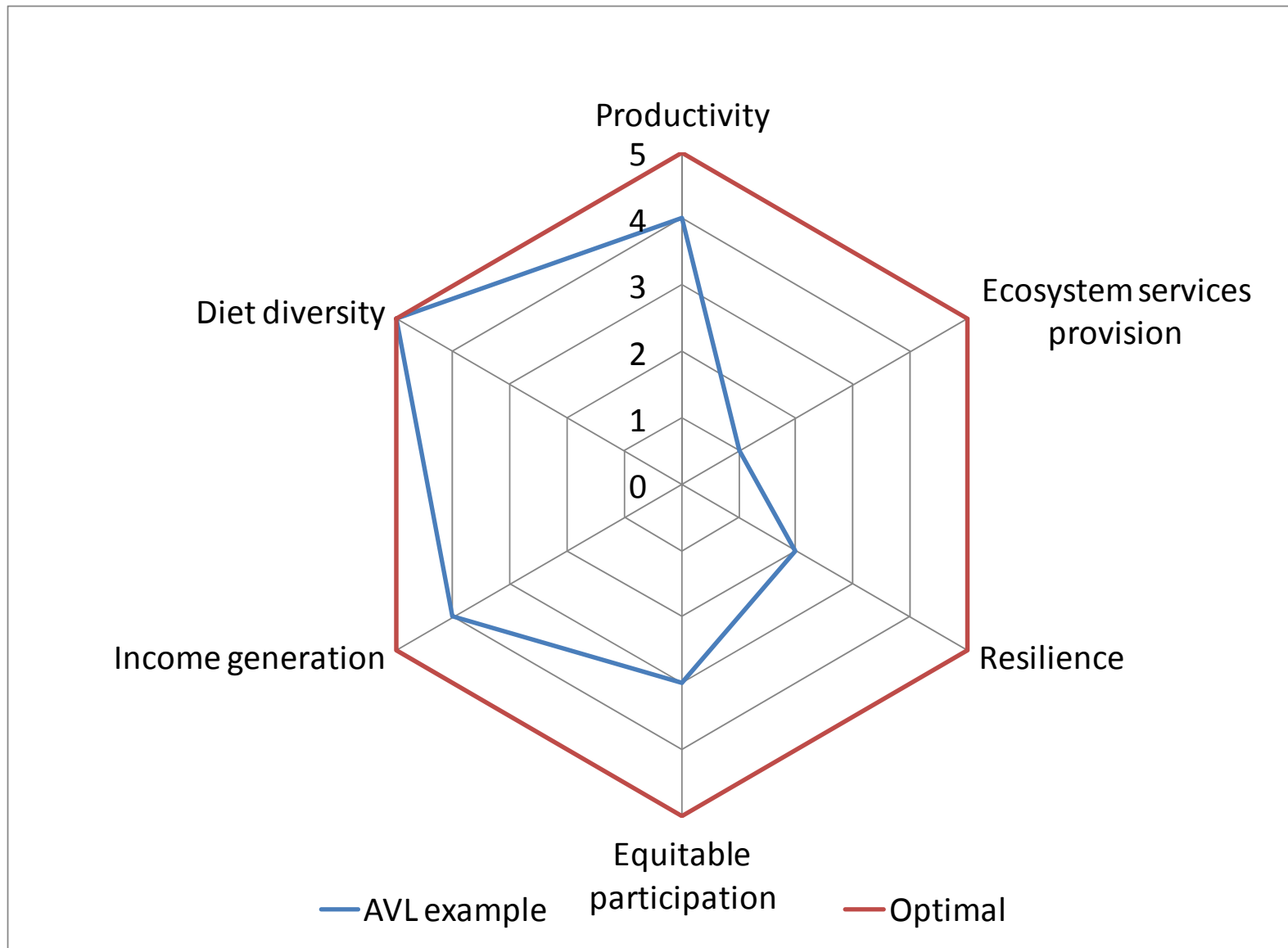
- Projection of future climates in target regions
- Develop climate profile of genebank accessions
- Match current and future environmental conditions of target regions
  - Participatory evaluation by farmers

# Broadening the genetic base of crop cultivation and empowering farmers for climate change adaptation through crowdsourcing




Citizen science approach scales out participatory crop research.

# Objective: Integrating across outcomes







# Conservation and availability of genetic resources for adaptation

# Genetic resources collections



- Over 7 million accessions maintained in >1400 collections
- CGIAR collections: >700.000 accessions held in trust in 11 collections
- Major source of diversity for breeding adapted varieties

***In situ* conservation, on farms and in the wild, of agricultural and forest biodiversity:**



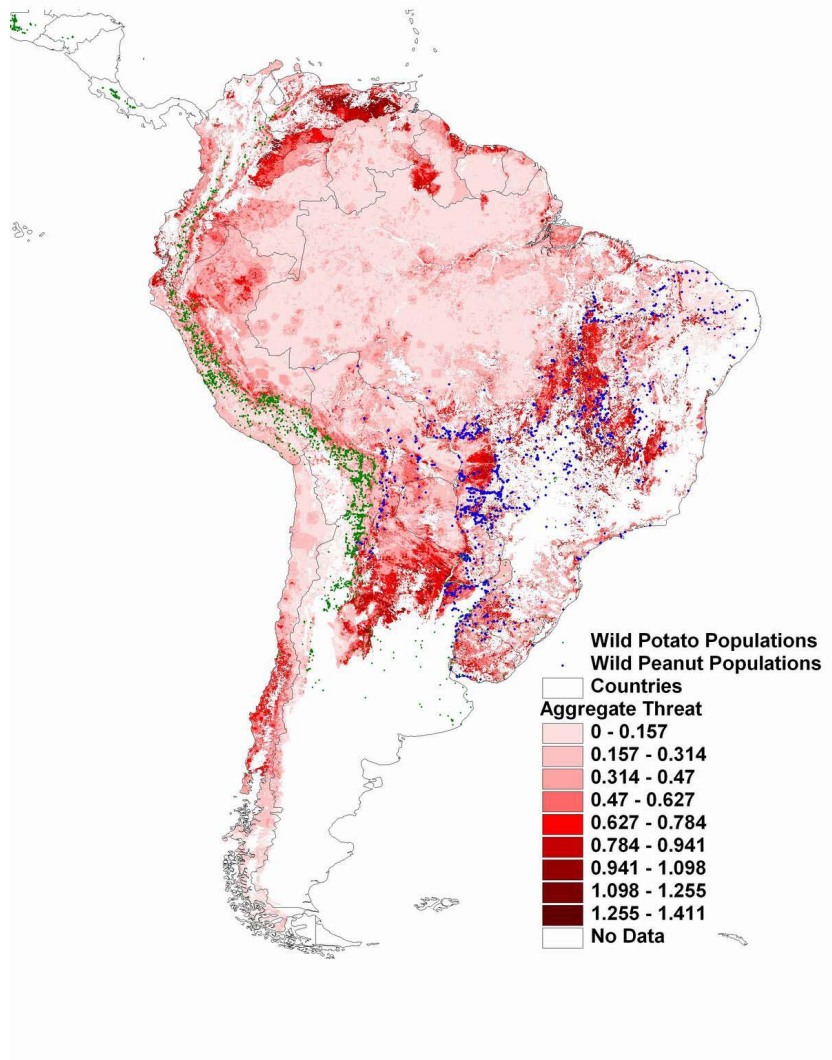
ensures the continued evolution and adaptation to changing conditions

# Crop Wild Relatives: precious source of traits

- Underrepresented in collections
- Difficult to maintain ex situ
- → Need
- Targeted collecting
- In situ conservation strategies



# Climate change threats to crop wild relatives



Use existing data for accessions

Combine with climate change model GIS data

Identify areas of greatest threat



Thank you

[www.biodiversityinternational.org](http://www.biodiversityinternational.org)



*Science for a food secure future*

