Opportunities and Challenges in the implementation of PES for agrobiodiversity

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Outline (two parts)

PART 1

1. Mainstream PES Vs. alternative views
2. Political economy of equity-fairness vs. efficiency

PART 2

3. The problem of Ag-Bio loss
4. PACS case study
5. Results/Conclusion

PART I:
Challenges of mainstream PES

1. Intro. Mainstream notion of PES

- Mainstream definition of PES: ***voluntary*** *transaction where a* ***well-defined*** *environmental service (ES) - or a land-use likely to secure that ES Is being "bought" by a (min. one) ES* ***buyer*** *from a (min. one) ES* ***provider*** *if and only if the ES provider continuously secures ES provision (****conditionality****)* (Wunder)

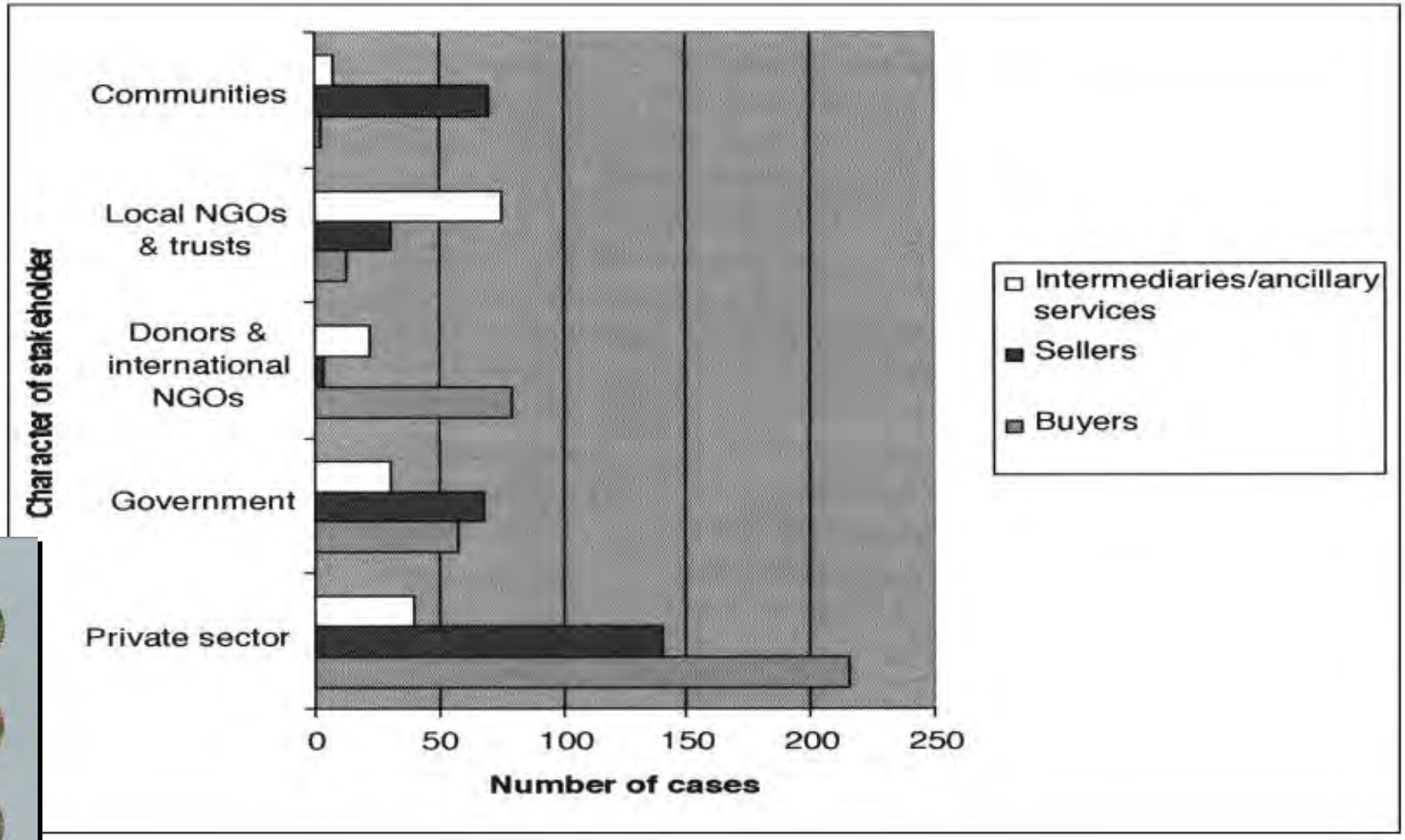
- Implementation emphasis: reducing transaction costs, allocating entitlements and establishing bargaining processes → private-private ideal for permanence and efficiency.

- Distinctive separation between efficiency and equity considerations → Poverty reduction as potential *positive side effect* → Mixed evidence of the effects of PES schemes on poverty (much received wisdom around and little systematic research)

Mainstream PES

- Uncertainty due to bio-complexity → contracts negotiated on scientific received wisdom (faith) → increase scientific evidence of ES increases transaction costs → PES too costly.
- Equity/Fairness perceptions as key factors determining the political feasibility of PES.
- PES may 'crowd-out' local rules and social norms, affecting 'intrinsic motivations' for environmental protection behavior → PES more about co-investment (land tenure, social capital)
- intermediaries as 'dominant agents': tend to define traded ES, set conditions among actors, influence P of the exchange

The role of the intermediary



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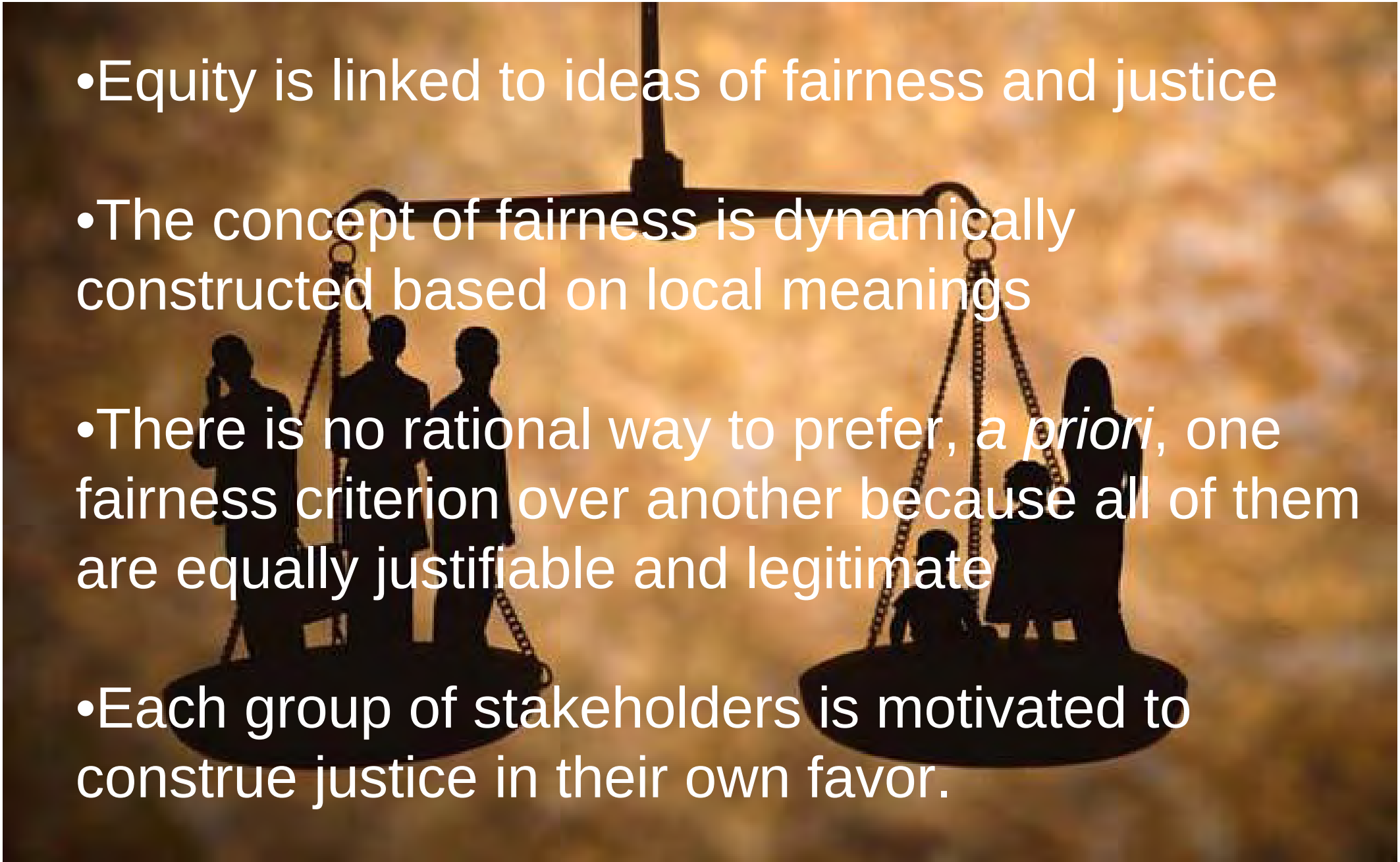
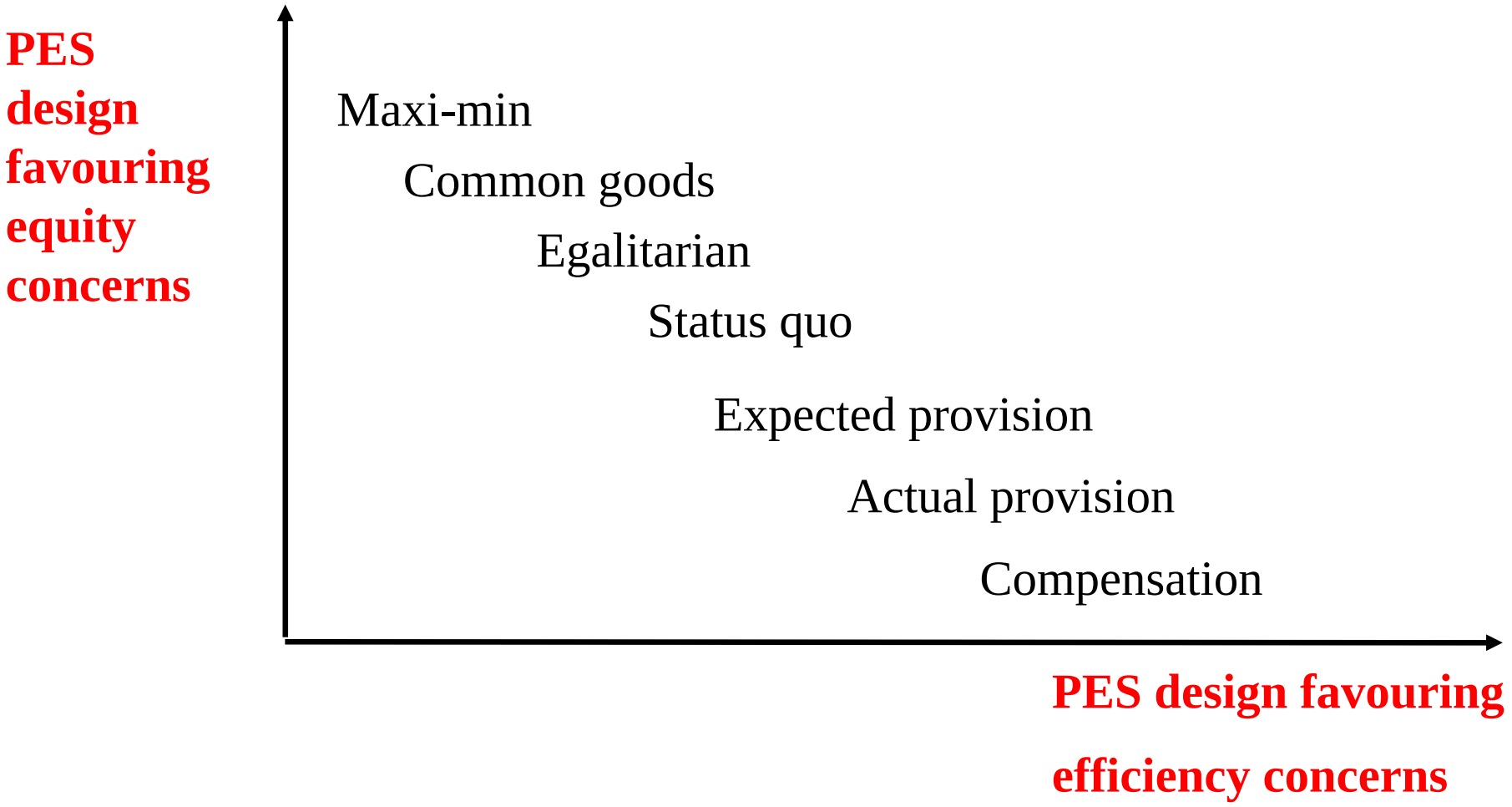
Landell-mills Porras (2002)

2. Equity – Fairness vs Efficiency?



- Equity is linked to ideas of fairness and justice
- The concept of fairness is dynamically constructed based on local meanings
- There is no rational way to prefer, *a priori*, one fairness criterion over another because all of them are equally justifiable and legitimate
- Each group of stakeholders is motivated to construe justice in their own favor.

Example of fairness criteria



Pascual et al (2010)

PART II:
Opportunities for "Payments for Agrobiodiversity Conservation Services"

3. The problem: Policy failure

- The costs of implementing conservation programmes may be relatively small → We are losing Ag-Bio for the lack of relatively little conservation funding

  - Expected marginal value of exploiting an individual ex-situ accession in commercial agriculture justifies the cost of conserving it in a gene bank.
  - Releases of improved varieties by plant breeding programs have generated economic returns that far outweigh the costs of investment.
  - Costs = < 1% ? of agricultural subsidies (OECD = $260 billion p.a.)

… and market failure

- Ag-bio: The privately "capturable" value include
  - Direct use value: Food production, animal feed, medicine, fibre and fuel, seeds for the next season, etc.
  - Indirect use value: Farmers use Ag-Bio to spread the risk of ag. production shocks due to weather variability or pest and diseases.
- Ag-Bio: Public values include
  - Cultural values, local identity and traditional knowledge
  - Option values associated may be extremely high
    - Society better adapted to confronting future challenges, such as new disease epidemics and climate change
- But farmers not rewarded for Ag-Bio conservation as positive "global" externality → underinvestment in conservation

What and where to conserve Ag-Bio?

- Ag-Bio requires active maintenance by humans and that the nature of the plant breeding process calls for a broad range of plant genetic resources as inputs into any single successful product.
- In situ Ag-Bio conservation or *"in situ museums"*?
  - Safe Minimum Standards need to be secured. BUT not enough science about in-situ SMS
  - Combination of conservation criteria possibly needed as evolutionary processes are critical (traditional knowledge, informal seed systems, etc.)
- Spatial scaling:
  - Need to scale up as what may be at risk in one country might not be across the border

4. Landrace conservation in the Peruvian and Bolivian Andes

Peru – Lake Titicaca

Bolivia - Salar de Uyuni

Quinoa varieties

Quinoa farmer


-MAÑAZO


Collaboration
Understanding
Imaginative

4. Piloting first PACS

- What needs to be conserved? Quinoa landraces 'at risk' or in 'critical' situation + morphological dissimilarity analysis

  - Risk criteria: area under cultivation, number of farmers, level of traditional knowledge, amount of own seed available.
  - Results in targeting 5 quinoa landraces in Bolivia and 4 in Peru

PACS tender

- Small scale pilot: just $4k per country
- Single-round, sealed-bid auction
- 38 community-based organisations (CBOs) invited
  - 12/18 CBOs participated in Bolivia and 13/20 CBOs in Peru
- CBOs free to determine:
  - Which targeted landrace to conserve, land area for conservation, number of participating farmers in the CBO and requested compensation
- Criteria for allocating budget: total land area across CBOs, Total number of farmers, Total number of communities, weighted combination

5. Preliminary results

- Bolivia (Peru) is more cost-effective in allocating land for conservation (number of farmers) across landraces

- Most **unequal** distribution in terms of payments received by CBOs under the cost effective objective of:
  - $/participating farmers in Bolivia. Gini: 0.75
  - $/ha under conservation in Peru. Gini: 0.80

- Multi-criteria weighting (0.4 – n. farmers, 0.4 - land, 0.2 – n. CBOs) → most equitable distribution (Gini: 0.37 Bolivia, 0.57 Peru).

Example of trade-offs (Bolivia)

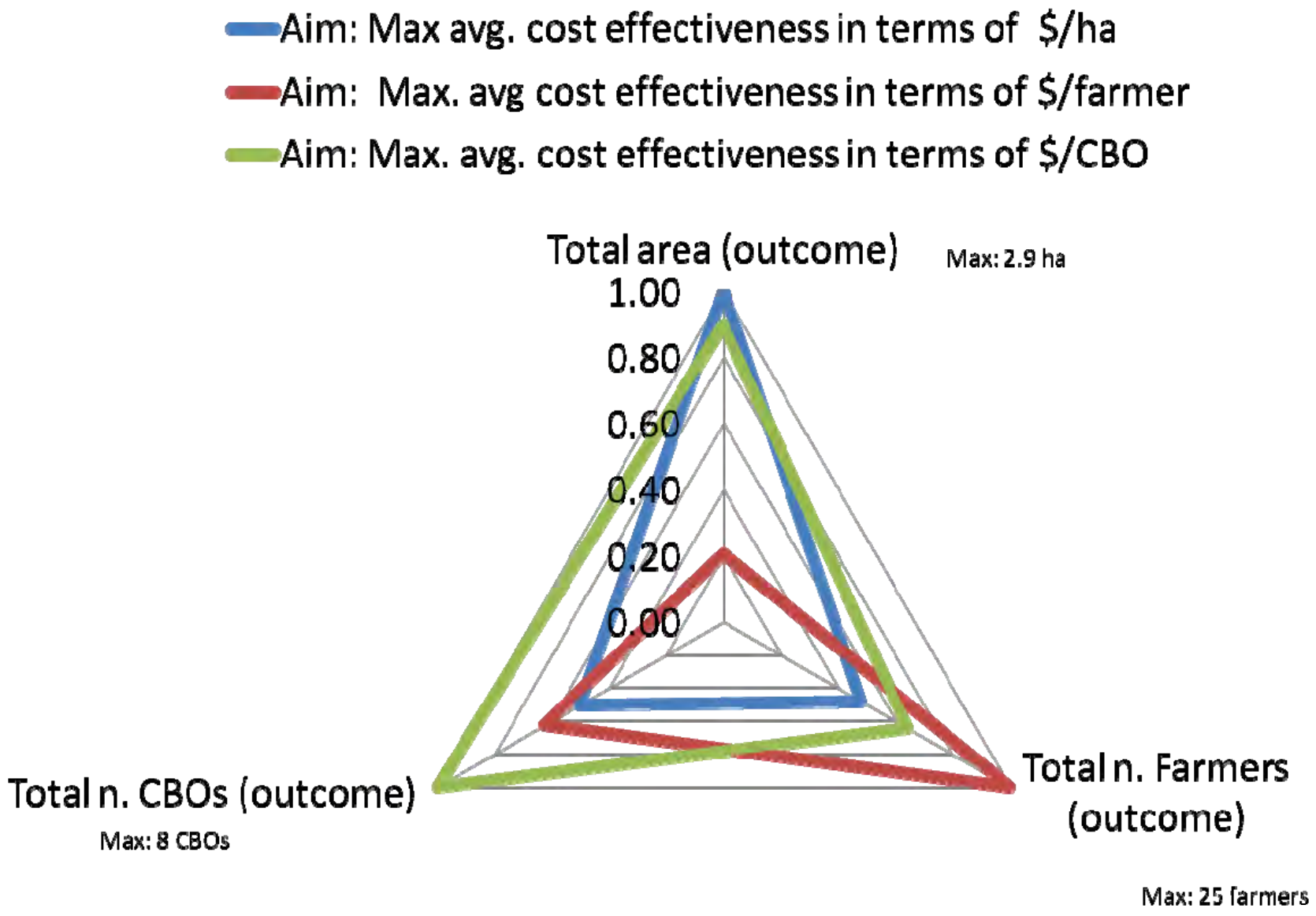
Selection criteria (aim) / Outcome	Aim 1: Max avg (across landraces) cost effectiveness ($/ha)	Aim 2: Max. avg cost effectiveness ($/farmer)	Aim 3: Max. avg. cost effectiveness ($/CBO)	Aim: Max. Weighted avg. cost effectiveness across criteria (e.g., 0.4, 0.4, 0.2)
Total area (outcome)	**2.9 ha**	0.6 ha	**2.6 ha**	**2.6 ha.**
Total n. Farmers (outcome)	12 farmers	**25 farmers**	**16 farmers**	**16 farmers**
Total n. CBOs (outcome)	4 CBOs	5 CBOs	**8 CBOs**	**7 CBOs**

MAX EFFICIENCY

MEDIUM EFFICIENCY

MIN EFFICIENCY

Tradeoffs between cost-effectiveness criteria and activity outcomes



Conclusions

- Equity – Efficiency tradeoffs in PES are real (!)
- Need to move beyond mainstream PES but can use cost effective instruments (e.g., tenders)
- Can agrobiodiversity conservation use PES? Possibly.
- PACS needs scientific evidence (SMS) to decide what conservation activities to target, when, where and how.
- Promising avenue of research – need to devise PACS to support co-evolution of PGRs.

Thank you.