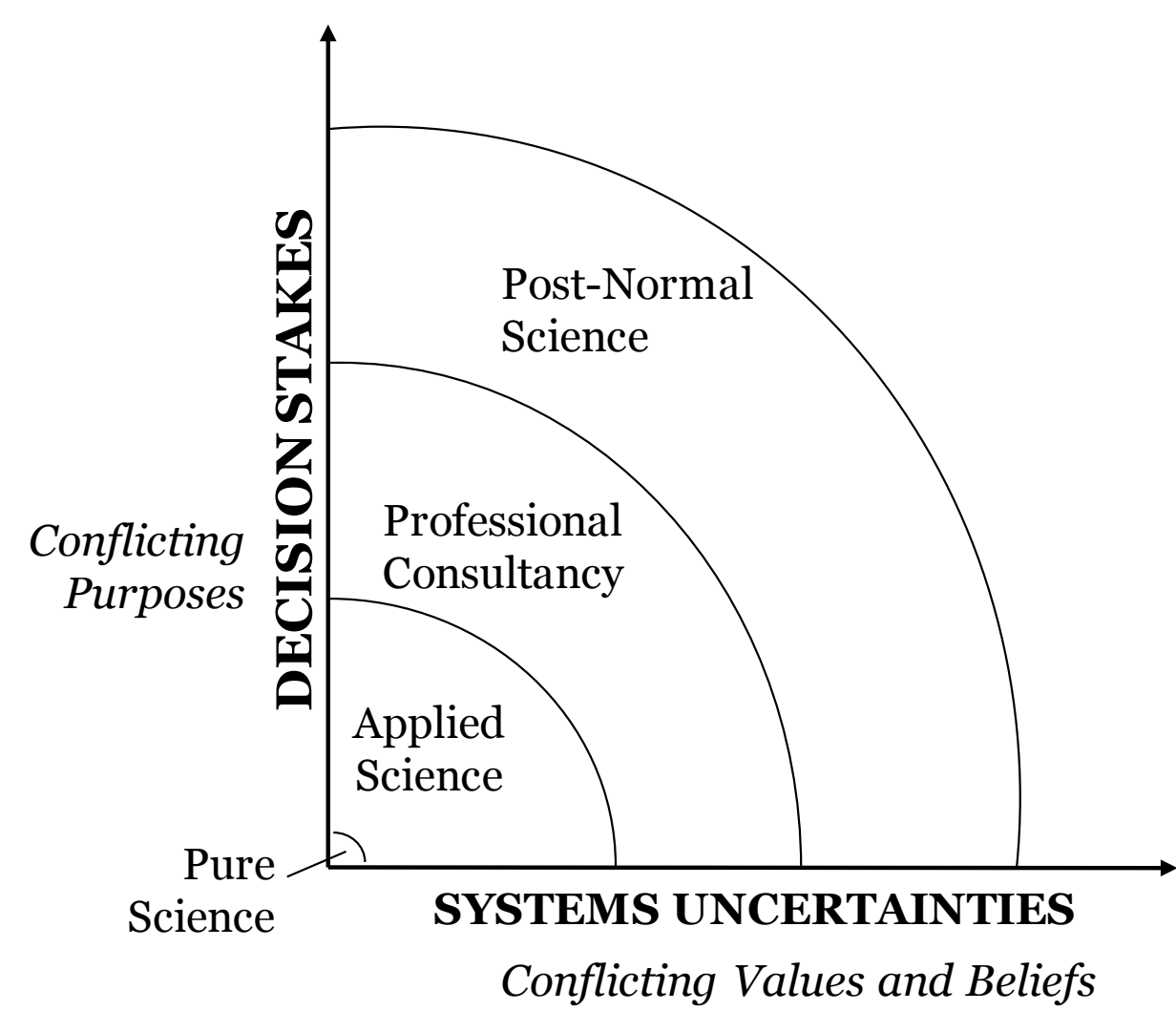


CAN PAYMENT FOR ECOSYSTEM SERVICES PROMOTE SOCIO-ECOLOGICAL CONNECTIVITY?

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Socio-ecological Complexity

Facts are uncertain, risks are high, values in dispute, decisions urgent (Funtowicz and Ravetz, 1993)



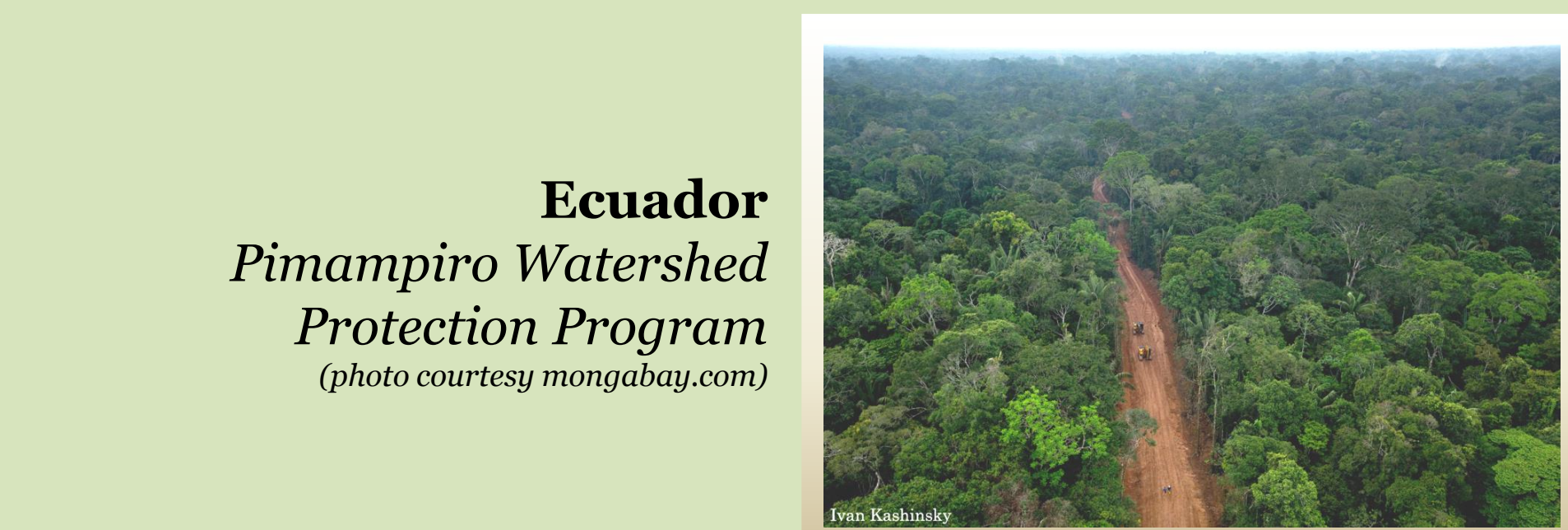
Adapted from Funtowicz and Ravetz, 1993, 2003

THE PROBLEM: In the beginning, Payment for Ecosystem Services (PES) initiatives were designed to (cost-effectively) enhance localized ecosystem service benefits such as increased forest cover, watershed protection and sustainable livelihoods. They are increasingly tasked with resolving global challenges such as deforestation and climate change; complex socio-ecological problems with multi-layered inputs and impacts. The theory of Post-Normal Science suggests that interventions need to understand key elements of complexity – *facts are uncertain, risks are high, values in dispute and decisions urgent* (Funtowicz and Ravetz, 1993). To be effective, strategies for resolving complex socio-ecological problems (deforestation and climate change) require processes to engage a diversity of ideologies, to mediate value conflicts, and to promote mutual learning through pluralistic engagement (Morse, 1998). From a foundation in political ecology and transdisciplinarity, this research project proposes a framework for socio-ecological connectivity to meet the challenge posed by Post-Normal complexity, and uses the framework to evaluate the capacity of PES to effectively address complex socio-ecological problems.

Costa Rica
Pago por Servicios Ambientales
(photo courtesy mongabay.com)

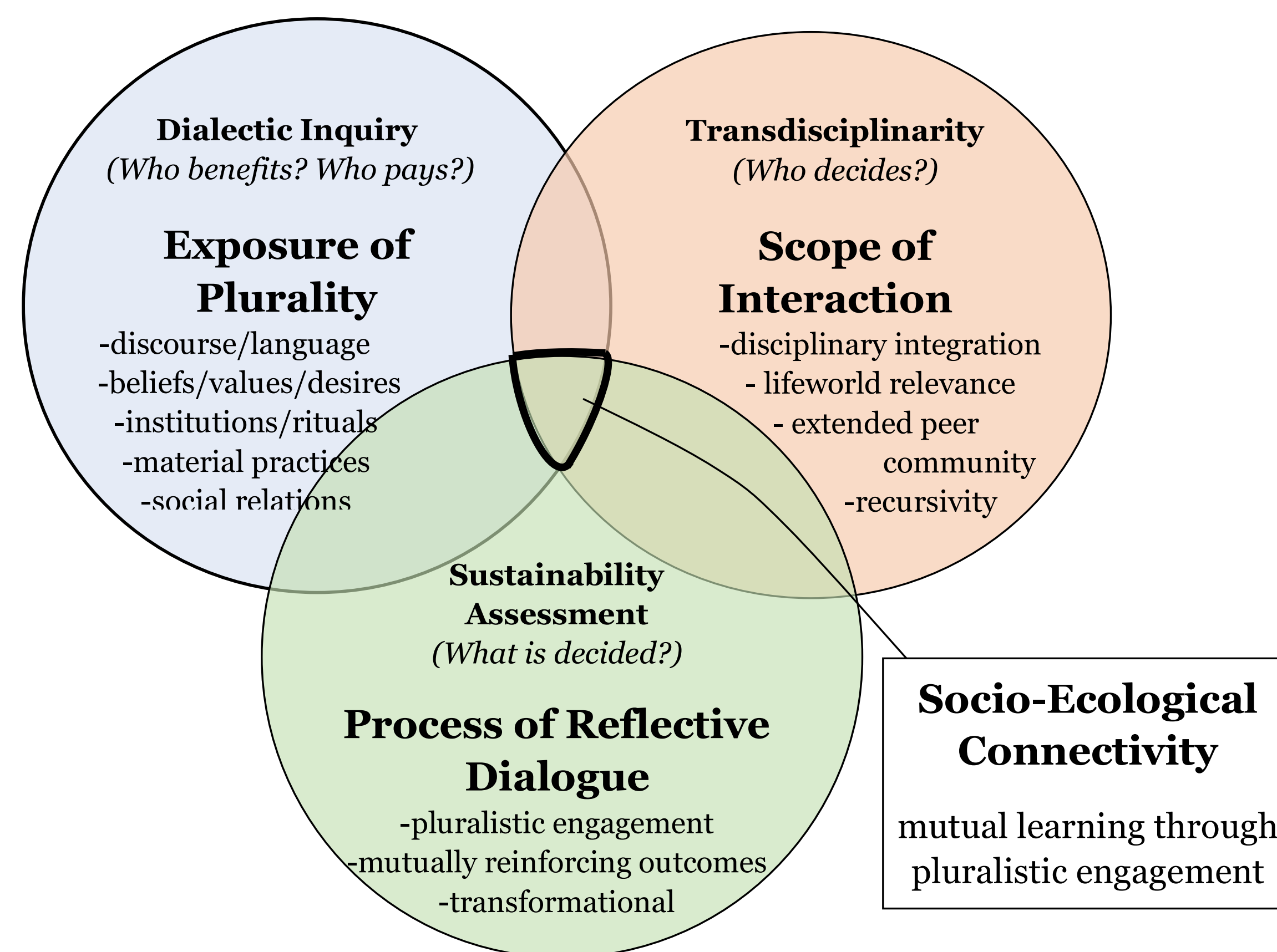


Brazilian State of Amazonas
Bolsa Floresta
(photo courtesy mongabay.com)



Ecuador
Pimampiro Watershed
Protection Program
(photo courtesy mongabay.com)

Socio-Ecological Connectivity



THE PROPOSED REMEDY: Mutual learning through pluralistic engagement is more than interdisciplinary, participatory processes in which differing views are verbalized. Pluralistic engagement requires ongoing cooperative, and experiential interactions amongst a broad plurality of stakeholders who collectively craft a shared future vision (Meppem and Gill, 1998). It proposes to develop the means to democratically tackle critical, value-laden sustainability questions:

Who benefits?

Who pays?

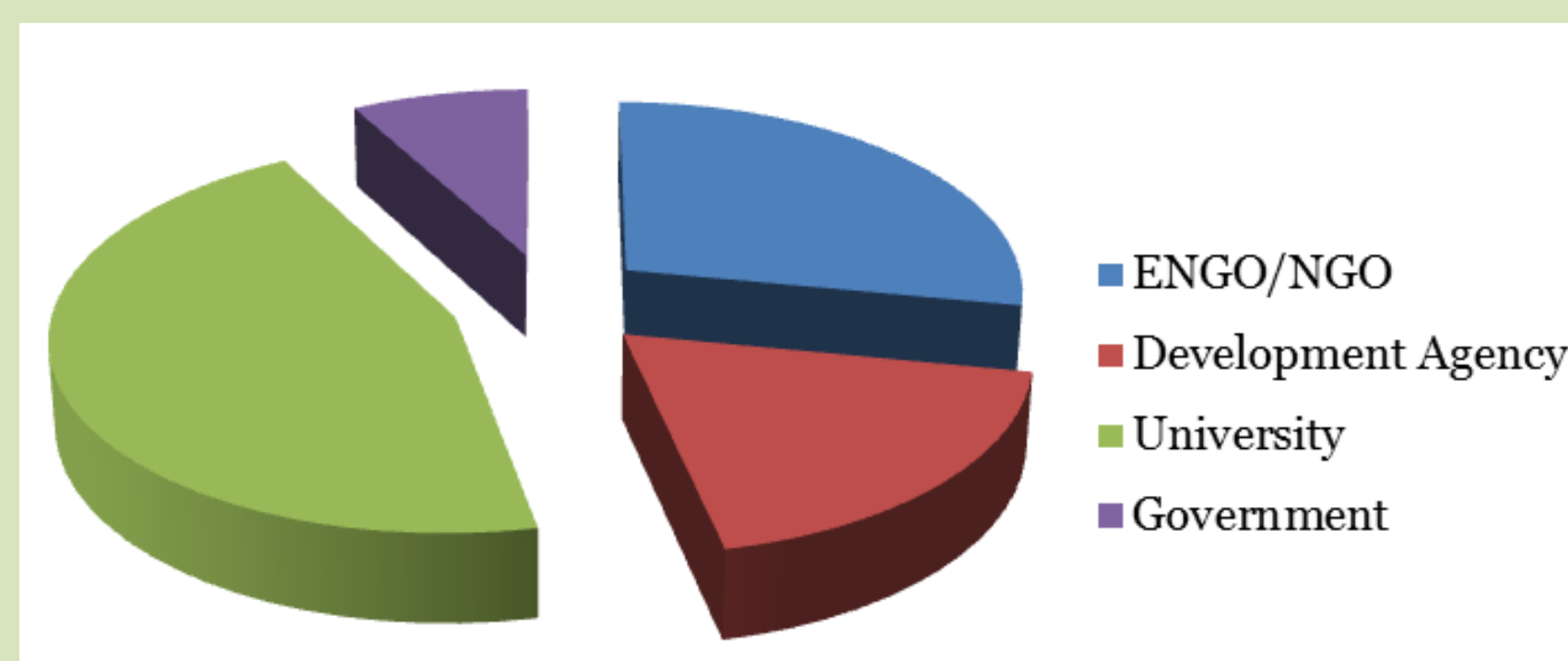
Who decides?

What is decided?

THE RESEARCH: Presented here is one component of a larger investigation into the capacity of PES to effectively address complex socio-ecological problems: A meta-analysis of impact assessment literature from existing PES initiatives: a) Costa Rica's national level *Pago por Servicios Ambientales* in Costa Rica, b) the Brazilian State of Amazonas *Bolsa Floresta*, and c) Ecuador's *Pimampiro Municipal Watershed Protection Program*. Impact assessment analysis is used to explore ideological diversity as analytical priority is considered reflective of goals and values (Ferraro and Pattanayak, 2006, della Porta and Keating, 2008). In addition to analytical priority, the meta-analysis assessed disciplinary basis and institutional affiliation.

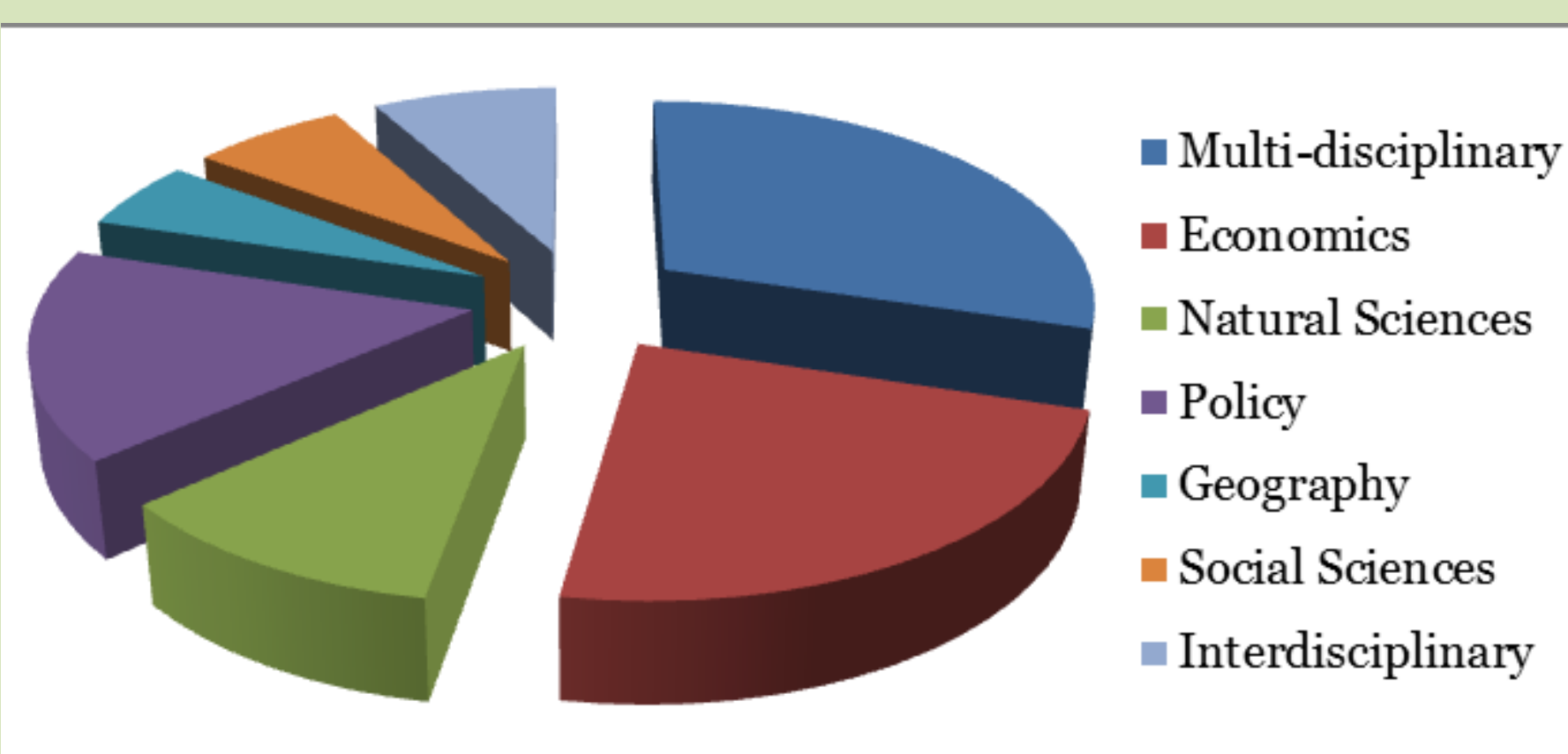
THE RESULTS:

Analytical Priorities	#1	#2	#3
Costa Rica	Governance Social Well-Being	Forest Cover (Local) Economic Development	
Brazil	Economic Equity	Cost-Effectiveness	Security
Ecuador	Governance	(Local) Economic Development Economic Equity	
Overall	Governance	Cost-Effectiveness	(Local) Economic Development



Target Indicators/Analytical Priorities		
Label	Indicators Identified:	
Forest cover	Extent of forest area enrolled, net gain in forest canopy	
Deforestation	Rate and extent of deforestation and forest degradation	
Cost effectiveness	Maximization of output (forest cover) as function of resource input	
Participation	# of individuals enrolled, # of contracts signed	
Additionality	Change in forest cover in relation to established baseline	
Financial Viability	Economic sustainability of initiative	
ES Delivery	Carbon	Changes in forest carbon stocks
	Hydrological Services	Improved quantity and quality of water resources
	Biological Diversity	Extent of protection afforded biological diversity
Economic Development	Poverty rates, development of sustainable livelihoods, removal of adoption barriers for new livelihoods	
Social well-being	Changes to capital assets (natural, social, human, physical and financial), impacts of local cultural attributes	
Equity (\$)	Distribution of costs and benefits	
Security	Access rights; tenure security; free, prior, informed consent	
Governance	Institutional reform, new policy development, stakeholder participation, ecosystem service market structure	
Sustainability	Scope, scale, permanence of behavioral change	
Relationships/Power Structures	Impacts on existing power hierarchies	
Perspectives	Ideological framing of PES, sustainability, nature, equity....	

Color Coding: Environmental Priorities (green), Economic Priorities (blue), Social Priorities (orange)



THE IMPLICATIONS: The concept – Payment for *Ecosystem Services* – implies a focus on enhanced ecosystem services benefits, in practice it is increasingly used as a policy expected to resolve larger socio-ecological issues of resource governance, sustainable livelihoods, and economic inequities. This practical shift in priority from ecological to social systems suggests a need for greater engagement of a social science voice in the conservation debate, specifically in the design, and application of PES.

References:

- della Porta, D., and Keating, M. (2008). *Approaches and methodologies in the social sciences: A pluralist perspective*. Cambridge University Press.
- Ferraro, P. J., and Pattanayak, S. K. (2006). Money for nothing? A call for empirical evaluation of biodiversity conservation investments. *PLoS Biology*, 4(4), e105.
- Funtowicz, S. O., and Ravetz, J. R. (1993). Science for the post-normal age. *Futures*, 25(7), 739–755. doi:10.1016/0016-3287(93)90022-L
- Meppem, T., and Gill, R. (1998). Planning for sustainability as a learning concept. *Ecological Economics*, 26(2), 121–137.
- Morse, S. (2008). Post-sustainable development. *Sustainable Development*, 16(5), 341–352.