

Supplementary S1

Table S1. Main Sources of Information.

Economic Valuation Method	Region	Ecosystem Services	Sources
Price-based approach	Amazonas (Colombia)		Instituto Amazónico de Investigaciones Científicas (SINCHI) (2014). Generación de conocimiento y valoración integral de los ecosistemas acuáticos amazónicos y sus recursos para su manejo y aprovechamiento sostenible. www.sinchi.org.co (accessed on 10 March 2015).
			Autoridad Nacional de Pesca (AUNAP-UNIMAGDALENA). (2012). Reporte de la actividad pesquera Industrial y artesanal Continental y Marina de Colombia. Convenio 0005 de 2012 entre la Autoridad Nacional de Acuicultura y Pesca y La Universidad del Magdalena. Bogotá, Colombia.
		Fish (fish catch volume and prices)	Agudelo, E. (2014). Bases científicas para contribuir a la gestión de la pesquería comercial de bagres. (Familia Pimelodidae) en la Amazonia colombiana y sus zonas de frontera. Ph.D. Thesis. Universidad Autónoma de Barcelona. 258p.
			Montreuil, V. y Tello, S. (1990). "Rendimiento máximo sostenible de la pesquería comercial de Loreto". In: Fishbyte 8, ICLARM, Philippines.
	Loreto (Iquitos) (Peru)		Instituto de Investigaciones de la Amazonía Peruana. (2004). Avances en el desarrollo de la acuicultura en la región de Amazonas. IIAP: Iquitos, Peru.
			Instituto de Investigaciones de la Amazonía Peruana. (2009). Viabilidad económica de la pesca artesanal en el departamento de Loreto. Avances Económicos N° 13, 11-47.
			Dirección Regional de Producción (DIREPRO, Loreto). Informe mensual de la Dirección de Extracción y Procesamiento Pesquero. Oficina de Planeamiento y Presupuesto.
	Madre de Dios (Peru)	Brazil nuts (production and prices; average costs)	Rosales, E. (2012). Valoración económica de árboles de castaña en una concesión castañera de 3,155 has del fundo Sana Julia, Las Piedras, Tambopata-Madre de Dios. Universidad Nacional Federico Villareal, Lima, Perú.
			Dirección General Forestal y de Fauna Silvestre-DGFFS. (2013). Bosques de producción permanente. http://dgffs.minag.gob.pe/portal/index.php/ordenamiento-y-manejo-ffs/mapas-tematicos-ffs?id=60 (accessed on 4 February 2014).
	Loreto (Peru)	Timber (prices and production of wood and wood species)	Dirección General Forestal y de Fauna Silvestre-DGFFS. (2013). Bosques de producción permanente. http://dgffs.minag.gob.pe/portal/index.php/ordenamiento-y-manejo-ffs/mapas-tematicos-ffs?id=60 (accessed on 4 February 2014).
	Caqueta (Colombia)	Regulating service: Carbon sequestration (volumes and prices)	Instituto de Hidrología, Meteorología y Estudios Ambientales, IDEAM (2009). Análisis y estimaciones de Carbono-Tier 1. Informe de resultados. Proyecto Capacidad Institucional Técnica Científica para apoyar Proyectos REDD: Reducción de Emisiones por Deforestación en Colombia. Ministerio de Ambiente, Vivienda y Desarrollo Territorial, Fundación Moore, Instituto de Hidrología, Meteorología y Estudios Ambientales y Fundación Natura. Bogotá D.C., Colombia. 18 pp.

		Sistema de Información Ambiental de Colombia–SIAC. Emisiones de gases de efecto invernadero. http://181.225.72.78/Portal-SIAC-web/faces/Dashboard/cambioClimatico/emisiones/emisionGasesEfectoInvernadero.xhtml (accessed on 18 March 2014).
		Departamento Administrativo Nacional de Estadística. Cuenta Satélite de Turismo. http://www.dane.gov.co/index.php/esp/cuentas-economicas/cuentas-satelite/95-cuentas-nacionales/cuentas-satelite-/2841-cuenta-satelite-de-turismo (accessed on 18 March 2014).
Amazonas and Caqueta (Colombia)		Ministerio de Comercio, Industria y Turismo-MCIT. (2012). Plan de Desarrollo Turístico del Departamento de Caquetá. Bogotá.
		Ministerio de Comercio, Industria y Turismo-MCIT. (2012). Plan de Desarrollo Turístico del Departamento de Amazonas. Bogotá.
		Proexport. (2012). Plan de Negocio de Turismo de Naturaleza para Colombia. Bogotá.
		Proexport. (2013). La Revista de Oportunidades. Amazonía y Orinoquía. Oportunidades de negocio para la región en inversión, exportaciones y turismo. Bogotá.
Cultural service: Amenities (flows and expenses by tourists)	Napó and Sucumbios (Ecuador)	Ministerio del Ambiente del Ecuador (2010). Patrimonio de Áreas Naturales del Estado y Bosques Protectores.
		Ministerio del Ambiente del Ecuador (2013). Áreas bajo Conservación en el Programa Socio Bosque.
		Sistema Nacional de Áreas Protegidas del Ecuador (2014). Reporte histórico de visitas. http://areasprotegidas.ambiente.gob.ec/es/reporte-de-visitas# (accessed on 24 March 2014).
		Fundación Río Napo (2013). Evaluación Económica de los Usos Recreativos y Turísticos del Río Jondachi. Tena: Fundación Río Napo.
	Madre de Dios (Peru)	Geo Reisen Ecuador (2014). Geo Reisen Ecuador, June 06. http://www.georeisen-ecuador.com (accessed on 24 March 2014).
		Imagine Ecuador, Adventure Travel. (2014). Imagine Ecuador, Adventure Travel. http://www.imagineecuador.com.es (accessed on 24 March 2014).
		Estadísticas de Turismo del Ministerio de Comercio Exterior y Turismo (MINCETUR). http://www.mincetur.gob.pe/newweb/Default.aspx?tabid=4663 (accessed on 19 February 2014).
		Trip Advisor web portal. https://www.tripadvisor.com.pe (accessed on 19 February 2014).
Avoided cost approach	Amazonas (Colombia)	Regulating service: Disease control (medical treatment and medicine costs for malaria vivax, dengue, and diarrheal diseases) Ministerio de Salud y Protección Social, Colciencias, Universidad de Antioquia. (2013). Guía de práctica clínica para prevención, diagnóstico y tratamiento de la enfermedad diarreica aguda en niños menores de 5 años SGSS–2013 Guía No. 8 GPC-EDA. Bogotá. MinSalud y OPS. Ministerio de Salud y Protección Social y Organización Panamericana de la Salud. (2013). Estrategia de Gestión Integrada para la Promoción, prevención y control de enfermedades por vectores en Colombia, 2012–2021. Preliminary version.

Transfer values approach	Napo and Sucumbios (Ecuador)	Regulating service: Disease control (medical treatment and medicine costs for diarrhea)	Ministerio de Salud (2014). Dirección de Epidemiología. Enfermedades del agua y alimentos y enfermedades tropicales, 2014. https://public.tableau.com/profile/vvicentee80#!/vizhome/ETAS-2014/ANUARIO (accessed on 21 January 2015). Tarifario de Prestaciones para el Sistema Nacional de Salud (2014) http://instituciones.msp.gob.ec/images/Documentos/subse_gobernanza/TARIFARIO%20DE%20PRESTACIONES%20DEL%20SISTEMA%20NACIONAL%20DE%20SALUD.pdf (accessed on 21 January 2015). http://instituciones.msp.gob.ec/images/Documentos/subse_gobernanza/reformese_el_tarifario_de_prestaciones_para_el_si (accessed on 21 January 2015).
	Loreto (Peru),	Regulating service: Disease control (medical treatment and medicine costs for malaria vivax).	Ministerio de Salud - MINSA, Dirección General de Epidemiología. (s.f.). Malaria en el Perú. http://www.dge.gob.pe/vigilancia/sala/2013/SE44/malaria.pdf (accessed on 13 January 2014).
	Amazonas (Colombia),	Regulating service: Diseases control	Olson, S. H., Gangnon, R., Silveira, G. A., & Patz, J. A. (2010). Deforestation and Malaria in Mâncio Lima County, Brazil. <i>Emerging Infectious Diseases</i> , 16(7), 1108–1115. doi:10.3201/eid1607.091785: provided the elasticity of malaria incidence due to deforestation. Garg, T. (2014). Public Health Effects of Ecosystem Degradation: Evidence from deforestation in Indonesia. <i>Agricultural and Applied Economics Association</i> . Presented at: 2014 Annual Meeting, July 27-29, 2014, Minneapolis, Minnesota.: provided the average probability of malaria incidence due to deforestation. Pattanayak, S. K., M. T. Ross, B. M. Depro, S. C. Bauch, C. Timmins, K. Jones, and K. Alger. 2009. Climate change and conservation in Brazil: CGE evaluation of health and wealth impacts. <i>B.E. Journal of Economic Analysis & Policy</i> 9. (2): Article 6.: provided the correlation between deforestation and malaria and dengue incidence.
	Amazonas and Caqueta (Colombia)	Cultural service: Amenities (flows and expenses by tourists)	Victorino, Isaí, Carolina Bello y Jorge E. Gualdrón-Duarte. (2015). Identificación de elementos prioritarios para establecer esquemas de incentivos económicos en comunidades indígenas: Caso piloto Mocagua - Leticia. (Colombia). Tutors: Rocío Moreno y Jorge Higinio Maldonado. Research grant awarded by Iniciativa para la Conservación de la Amazonía Andina-ICAA. In: <i>Conservation Strategy Fund. Serie Técnica No. 37</i> . May.
	Madre de Dios (Peru)		Kaltenborn, B., Nyahongo, J., & Kideghesho, J. (2011). "The attitudes of tourists towards the environmental social and managerial attributes of Serengeti National Park, Tanzania". In: <i>Tropical Conservation Science</i> , 4(2), 132-148. Newbold, T. S. (2012). "Ecological traits affect the response of tropical forest bird species to land-use intensity". In: <i>Proceedings of The Royal Society</i> . http://dx.doi.org/10.1098/rspb.2012.2131 (accessed on 22 April 2014).

Supplementary S2

Table S2. Economic Instruments for the integration of ecosystem services into development planning.

Ecosystem service/Country/Province or Department	Assignment of Property Rights	Creation and Improvement of Markets	Tariffs	Fiscal Instruments	Financial Assistance	Liability Systems/Bonds and Deposit Systems/Refunds
Provisioning Service						

Fish (CO-Ama; PE-Lo)	Establishment of fishing zones and quotas (Pe-Lo)				Fisheries agreements (Co-Ama)
Timber (PE-Lo)	Land ownership regularization	Certification Bioprospecting contracts	-Works for taxes program -Subsidy for forest conservation	-Loans for safe housing	-Insurance with protection against third-party damage.
Chestnuts (PE-MdD)		Certification and eco-labeling	-Temporary subsidies		
Regulating Service					
Disease control (CO-Caq, Ama; PE-Lo)	-Land ownership regularization (Co-Caq)	Payment for environmental services (PE-Lo; CO-Caq; CO-Ama)	-Works for tax programs (PE-Lo) -Research fund (<i>Canon para investigación</i>) (PE-Lo)	Micro-credits aimed at improving productivity (CO-Caq)	-Conservation agreements with owners and possessors (CO-Caq)
Carbon sequestration and storage (CO-Caq)		-PSA (Banco2) -REDD+ projects at national natural parks			
Regulation of water quality (EC-Na), (EC-Su)	Land tenure regularization	ES Compensation: Reciprocal water agreements (EC-Su)	Forest Partner Program (Na-Su) Environmental charges (Na, Su)	-Water Fund (Na, Su)	
Servicio Ecosistémico Cultural					
Scenic beauty (CO-Ama; EC-Na, Su; PE-MdD)		-PES (similar to Banco2 for the benefit of local communities (reserves, peasant communities)) (Co-Amz) -Certification of tourism quality for Leticia and renewal of certification for Puerto Nariño (CO-Ama) -Certification of ecotourism activities (EC-Na)	-Admission charges to reserves of Decentralized Autonomous Governments (DAG) (EC-Na) -Works for taxes program (PE-MdD) -Levies on discharges (<i>tasas retributivas</i>) (CO-Ama) -Subsidies to establish ecotourism activities (EC-Na) -Forest Partner Program (EC-Su)	-Financial and technical assistance (CO-Ama) -Financial mechanism for management of admission charges (EC-Na) -Soft loans for investment in ecotourism (EC-Na) - Conservation Fund (EC-Na)	-Life plans for Indigenous communities (EC-Su) -Commodatum agreement with indigenous communities for protected areas (EC-Na)

Source: (Gómez and Aguirre, 2015). Compiled by authors.

Supplementary S3

Table S3. Other complementary instruments for ES integration into development planning.

Ecosystem Service/Country/Province or Department	Planning and Regulation	Management and Regulation	Others
Provisioning			
Fish (CO, PE)	-Basin inventory and mapping (PE-Lo) -Census of vessels (PE-Lo)	-Information systems (CO-Ama)	
Timber (PE-Lo)	-Updated land register -Ecological economic zoning (meso and micro) -Land Use Plan		
Chestnuts (PE-MdD)	-Updated register -Ecological economic zoning (meso and micro) -Land Use Plan		
Regulating			
Disease control (CO, PE)	-Land use guidelines (CO-Caq) -Environmental management plans (CO-Amz)	-Information and early warning system (PE-Lo)	-Training and assistance for small and medium producers (CO-Caq)
Carbon sequestration and storage (CO-Caq)	-Inventory of projects related to ES -Updated register		
Regulation of water quality (EC-Na), (EC-Su)	-Land use and development plans -Rural register -Socioeconomic and environmental diagnostic of potable water and sanitation systems	-Management plans and investment in DAG protected natural areas. Municipal reserves in water sources	
Cultural			
Scenic beauty (CO, EC, PE)	-Zoning of potential tourist areas (PE-MdD) -Indicators of carrying capacity by tourism site (CO-Ama) -DAG land use and development plans (EC-Na/Su) -Tourism development plan, as part of the Land Use and Development Plan (EC-Na) -Province tourism inventory (EC-Na)	-Consolidated value chains associated with nature tourism (CO-Ama) -Creation of provincial and municipal reserves (EC-Na)	

Fuente: (Gomez and Aguirre, 2015). Compiled by authors.

Supplementary S4. Supplementary Information. Public Policy Instruments for National and Regional Development

Country	Public Policy Instruments–National Scope	Public Policy Instruments–Regional Scope
Colombia	<ul style="list-style-type: none"> National Policy for integrated management of biological diversity and ecosystem services (<i>Política Nacional para la gestión integrada de la diversidad biológica y los servicios ecosistémicos</i>) Law on the National Development Plan (<i>Ley del Plan Nacional de Desarrollo</i>): enables Payment for Environmental Services (PAS) schemes. Manual for offsetting the loss of biological diversity (<i>Manual para la compensación por pérdida de diversidad biológica</i>) Standard on payment for environmental services (<i>Norma sobre Pago por servicios ambientales</i>)–Decree No 0953: regulation of Article 111 of Law 99 of 1993, amended by Article 210 of Law 1450 of 2011. 	<ul style="list-style-type: none"> Caquetá: 2012–2015 Departmental Development Plan–Governance of Opportunities (<i>Plan de Desarrollo Departamental 2012–2015-Gobierno de Oportunidades</i>) Strategic Science, Technology and Innovation Plan (<i>Plan Estratégico de Ciencia Tecnología e Innovación</i>) Corpoamazonía: 2012–2015 Institutional Action Plan (<i>Plan de Acción Institucional 2012–2015</i>) Amazonas: 2012–2015 Departmental Development Plan–for well-being (<i>Plan de Desarrollo Departamental 2012–2015-Por un buen vivir</i>)
Ecuador	<ul style="list-style-type: none"> Political Constitution, incorporating rights for nature and environmental rights National Plan for Well-being (<i>Plan Nacional para el Buen Vivir</i>), 2013-2017 Organic law on water resources (<i>Ley orgánica de recursos hídricos</i>): use and exploitation of water Forest Partner Program (<i>Programa Socio Bosque</i>): conservation and development 	<ul style="list-style-type: none"> Provincial Land Use and Development Plans Provincial Ordinances Provincial Environmental Policies
Peru	<ul style="list-style-type: none"> Bicentennial Plan (<i>Plan Bicentenario</i>), 2011 and 2014 under review) National Product Diversification Plan (<i>Plan Nacional de Diversificación Productiva</i>), 2014 National Competitiveness Agenda (<i>Agenda Nacional de Competitividad</i>), 2014-2018 Budgeting for results and Budget programs (SERNANP, Forests, among others) National Guide for the Economic Valuation of Natural Heritage (<i>Guía Nacional de Valoración Económica del Patrimonio Natural</i>, MINAM, 2015) National Forest Conservation Program for the Mitigation of Climate Change (<i>Programa Nacional de Conservación de Bosques para la Mitigación del Cambio Climático</i>, MINAM) 	<ul style="list-style-type: none"> Concerted Development Plan, by region Regional Competitiveness Plan (<i>Plan Regional de Competitividad</i>)

Source: Compiled by authors.

Supplementary S5. Supplementary Information Section on Workshop Space and Unstructured Interviews

A. General objective of the workshop

The workshops were a space for exchange and capacity building among participants responsible for planning, the environment, territorial planning, indigenous affairs, competitiveness, gender, investment, etc. in both public and private institutions.

Capacity building includes improving the understanding of conceptual frameworks that facilitate the integration of ecosystem services into economic and social dynamics; the economic valuation and use of results for the design and implementation of planning instruments; and the design and implementation of methodological tools that allow the characterization of ES, as well as

the identification and evaluation of value chains, in order to understand the importance of integrating the ES under their purview for their own present and future well-being and that of the communities they serve.

Equal participation of people in the workshops was encouraged.

B. Why are ecosystem services part of a development planning process?

Based on the premise that policy-makers generally place a higher value on what generates wealth or has a higher price, the economic valuation of biodiversity is seen as a novel way of countering the greater weight of other economic sectors and of placing environmental issues strategically on political agendas and ensuring that they are genuinely taken into account.

In this sense, the economic valuation of ecosystems aims to create incentives to halt the loss of biodiversity by making visible the economic importance of nature and the long-term economic benefits of conservation.

The TEEB approach (The Economics of Ecosystems and Biodiversity) is the result of a wave of studies that have attempted to place an economic value on ecosystems. The first work of this kind was presented by (Robert Costanza, 1997), who estimated the value of the biosphere in a range of USD 16 to 54 trillion/year, with an average of USD 33 trillion/year, a magnitude far exceeding the world GDP, estimated at USD 18 trillion/year in the same year.

On the other hand, in 2005, a report commissioned by the United Nations, the International Millennium Ecosystem Assessment Programme, identified the existing links between natural systems and human well-being and introduced the social aspects of ecosystems and biodiversity, through the services they provide to society, as an essential axis of the debate.

In 2010, at the 10th Conference of the Parties (COP) to the Convention on Biological Diversity in Nagoya, Japan, parties committed to integrating biodiversity values into development planning and national accounts by 2020 (Aichi Target 2).

The TEEB approach is based on the premise that, if the value of ecosystems and biodiversity is not taken into account, the wrong policies and decisions will be made. On the contrary, awareness of this value can lead to better management of resources and to greater returns on investment in natural capital for the benefit of society, especially the most disadvantaged.

Indeed, one of the key messages of the TEEB report is the inextricable link between poverty and the loss of ecosystems and biodiversity. It shows that several of the Millennium Development Goals are at risk because of the limited attention paid to natural capital. In this sense, the analysis of the value of biodiversity and ecosystem services not only promotes strong international action to curb greenhouse gas emissions, but also highlights the intrinsic value of money invested in natural capital to help mitigate and adapt to climate change.

C. Objectives of the workshop

To improve the understanding of the economic–environmental framework of TEEB, which facilitates the integration of ecosystem services into economic and social dynamics.

To explain the use of the results of the socio-economic–environmental–institutional characterization of the study area region in the design and implementation of planning instruments.

To validate the results of the cabinet work.

To identify the ES to be integrated in the development planning in the region of the study area.

D. Expected results of the workshop

Revised socio-economic–environmental–institutional characterization.

Revised approximation of the economic contribution of ecosystem services.

Portfolio of programs and projects.

Agreements.

Workshop report, including list of participants.

E. Profile of participants

The workshop was mainly aimed at regional and local government officials responsible for planning, environment, territorial planning, indigenous affairs, gender, investment, etc., and also regional authorities, representatives of the economic–productive activity (e.g., producers' association, tourism, chamber of commerce), research institutes, universities, and other actors involved in the management of the integration of ecosystem services in regional development planning.

F. Working group guide

Part 1: Review of the identified portfolio of ecosystem services and their articulation with economic activities and human well-being.

General questions:

1. Which are the most important ecosystem services provided by the ecosystem under consideration and why are they important for the functioning of economic activities and human well-being?

2. What are the threats to these ecosystem services?

3. What would happen if the ecosystem service were to disappear?

List of ecosystems:

Ecosystem X

Instructions:

1. The group is divided into three groups. Each group represents an ecosystem (5 min).

2. Each member of the group briefly answers each of the general questions. (5 min)

3. The answers are shared and a group answer is consolidated. (30 min) Presentation on flipchart

Table S4. Ecosystem: X.

Predominant Ecosystem Services	Applications (Productive Activity, Population)	Threats	Impact of Deterioration/Disappearance	Complementary Information/Contacts' E-mail

Part 2: Spatial identification of threats to ecosystem services

Ecosystem: X

1. Validate the threats to the ES from a spatial perspective: indicate the directionality of the threat (where it is coming from and where it is going).

Relative importance of the threat: assign large, medium, small red circles as appropriate. Use stickers or rounded cardboard.

2. Validate the conserved ES, in a spatial perspective and sustainable economic activities: (where it comes from and where it goes to)

Importance of the driving force that favours the conservation of ES: large, medium and small green circles, depending on the case. Use stickers or rounded cardboard.

Discussion

Question: What are the main instruments that work for an adequate territorial order? Strengths and weaknesses of the tools

Part 3: Identification of possibilities for valuation of ecosystem services.

Part 4: Identification of possibilities for incorporating ecosystem services in regional development planning.

Questions:

1. What are the ecosystem services that drive development (improved competitiveness, reduced poverty)?

2. What are the current plans, programmes and projects that promote the management of ES?

3. What are possible future actions to improve the integration of ES in development planning?

Ecosystem: X

Table S5. This table collects information about main ES development drivers with plans, programmes, projects implemented, and possible future actions to improve the integration of ES in developing planning.

Main SE Development Drivers	What is Done? Plans, Programs, Projects in Progress	Possible Future Actions to Improve the Integration of ES in Development Planning

References

Gómez, Rosario y Julio Aguirre (2015). La integración de los servicios ecosistémicos en la planificación del desarrollo de la Amazonía Andina. Universidad del Pacífico-USAID-Iniciativa para la Conservación de la Amazonía Andina: Lima-Perú. 30 pp. https://pdf.usaid.gov/pdf_docs/PA00KZX3.pdf.

Costanza, R., d'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R. V., Paruelo, J., Raskin, R. G., Sutton, P., and van den Belt, M. (1997). The Value of the World's ES and Natural Capital. *Nature* 387: 253–260.