Payments for Ecosystem Services & Environmental Markets:

Training Modules

November 2010

FOREST TRENDS

the katoomba group

Supported by:

TRANSLINKS

WILDLIFE CONSERVATION SOCIETY

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Any errors in the report are those of the authors alone. Please direct comments or questions to swaage@forest-trends.org

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TRANSLINKS

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INTRODUCTION

Ecosystems provide services that sustain life. Forests and wetlands, for example, contribute to climate regulation, purify and deliver reliable flows of water, as well as being a component of biodiversity.

If nature did not provide these services, then we would need to spend billions of dollars developing the infrastructure to accomplish what ecosystems do for free—if we were able to replace them at all. Yet, today, over 60% of ecosystem functions around the world are being degraded faster than they can recover. It is clear that for ecosystem services to be maintained, stewardship needs to become as, or more, profitable than alternative land uses.

Concern has led to innovation. Emerging financial markets—such as the carbon market—and business deals focused on ecological restoration are giving value to ecosystem services such as carbon storage, flood protection, as well as clean, reliable flows of water. The result is that formal environmental markets now exist and self-organized "payments for ecosystem services" (PES) are increasingly emerging. (For more information, please see boxes.)

Within all markets—regulatory, voluntary, and government-mediated—contractual agreements are made between individuals (or groups of people) who engage in natural resource management practices that restore or maintain the flows of ecosystem services. The key characteristic of these transactions is a focus on maintaining a specified ecological service, such as reliable clean water or carbon sequestration. In order to ensure that the ecological services are indeed maintained—as buyers expect for their money—the transactions may require regular, independent verification of sellers' actions and effects on the resources. Overall, the key attributes of these transactions are that sellers maintain specific ecological structures and functions, and remain accountable that the "service" being paid for is indeed being delivered.

As environmental markets and PES gain international attention, there is increasing demand for training—both as an introduction to the concepts as well as a 'primer' for technical applications.

In order to address this demand for capacity building materials, Forest Trends and the Katoomba Group—in collaboration with the USAID-funded and WCS-led TransLinks project—has developed a series of training modules for specific audiences, that are scalable as short or longer sessions. In addition, Forest Trends and the Katoomba Group have created a PES resource matrix to support training modules as well as to serve as a stand-

Box 1:
Environmental Markets and
Payments for Ecosystem Services (PES)

Payments for ecosystem services (PES) occur within:

- **Compliant markets,** which are driven by regulation and enforcement, similar to other pollutant trading markets.
- **Voluntary markets,** which are driven by ethical and/or business case motives as well as the threat of future regulation.
- **Government-mediated markets**, which are publicly administered programs that use public funds to pay private landowners for the stewardship of ecosystem services on their property.

The markets for ecosystem services follow the popular grouping of:

- **Carbon markets** are those that reward the stewardship of an ecosystem's atmospheric regulation services.
- **Water markets** provide payments for nature's hydrological services.
- **Biodiversity markets** create an incentive to pay for the management and preservation biological processes as well as habitat and species.
- **Bundled payments** are ones in which a payment secures all or a combination of carbon, water, and biodiversity services (including products that consider full environmental costs, such as certified timber)

Source: Forest Trends and the Ecosystem Marketplace. 2008. *Payments for Ecosystem Services: Market Profiles.* (http://moderncms.ecosystemmarketplace.com/repository/moderncms_documents/PES_Matrix_Profiles_PROFOR.1.pdf)

alone tool for resources and literature on ecosystem markets and payments. The matrix includes key documents, articles, and presentations searchable by audience, level of expertise, and type of service. As a set, the training modules and matrix assemble the set of "best of" materials developed to date within a framework that helps to understand what materials exist that describe environmental markets and payments for ecosystem services, where are there gaps in existing materials, and what components need to be strengthened.

The intention in offering these materials is to provide inspiration—not a step-by-step approach—as we recognize that trainers will need to tailor messages for specific national and regional contexts as well as particular audiences

These training materials have been developed for:

Audience	Subject Matter & Learning Objectives	Teaching Approach
Public sector	*Climate Change, Carbon Markets, and REDD+*, outlining the basics of climate change, carbon markets, payments for ecosystem services, and reducing emissions from deforestation and degradation (REDD+)	• Short course outline, with video recommendations, reading recommendations, and additional materials *(See Module 1 for outline and final CD-Rom for materials)* • Tailored applications for: - Brazil's State of Acre's Environmental Secretary (SEMA) state's technical staff for implementing a new law on incentives for ecosystem services and carbon sequestration *(See Module 1.1 for outline and CD-Rom for materials)* - Government of Uganda training for public and non-profit players on REDD 'readiness' *(See Module 1.2 for outline)* - USAID *(See Module 1.3 for outline and CD-Rom for materials)*
	Legal Issues Associated with REDD	• Short course outline, with video recommendations, reading recommendations, and additional materials *(See Module 2)*
	Marine and Coastal Ecosystem Services, introducing potential payments	• Short course outline, with video recommendations, reading recommendations, and additional materials *(See Module 3)*
Private sector *Mid-Career Business Managers,* through an academic institution / mid-career extension program	*Business Management for Low Carbon*	• 8 hours of tailored application for Brazil's *Fundacao Getulio Vargas* (FGV) business school within an extension course entitled ''Management for Low Carbon", specifically tailored for private sector decision makers and offered through the Center for Sustainability Studies through the Continuing Education Program (PEC) of FGV *(See Module 4)*
Private sector *Fund managers*	*The Role of Environmental Funds in Payments for Ecosystem Services (PES) Projects*	• Network of Latin American Environmental Funds (RedLAC) *(See Module 5)*
Public & Non-	*Getting Started with*	• Half day course outline and power point

Profit Sector 'Practitioners' (e.g., donors, project developers, partners, etc.)	*PES*	*(See Module 6 for outline, and CD-Rom for full 59 slide PPT)*
Rural Communities	Introduction to PES and REDD	• Tailored applications for Government of Uganda training for public and non-profit players on REDD 'readiness' *(See Module 7 for outline)*

Our hope is that these training modules will catalyze PES experimentation—both in terms of projects and policy—and capacity for rural communities to engage PES transactions which are ultimately durable, equitable, and effective PES projects

MODULE 1: PUBLIC SECTOR -- CLIMATE CHANGE, MARKETS AND SERVICES: TRAINING PROGRAM OUTLINES & RECOMMENDED MATERIALS[1]

Note: Please see CD-Rom for all materials.

Welcome and Introduction

- Course introduction
- Participant introductions
  (name, title, organization, geographic location of work, and reason for participation)

Resources

- Ice breakers http://www.icebreakers.ws/get-to-know-you

Film Screening & Discussion

- The 11th Hour http://video.google.com/videoplay?docid=-2174195060267517042#
- An Inconvenient Truth http://www.amazon.com/s/ref=nb_ssc_1_10?url=search-alias%3Ddvd&field-keywords=inconvenient+truth&x=0&y=0&sprefix=inconvenie (to buy)

Climate Change: Overview

- Concepts:
  - Climate change and global warming: concept and origins
  - Greenhouse effect: definition and global trends
  - Greenhouse gases: types, origins and their contribution to global warming
- Causes of climate change
- Social, ecological and economic effects of climate change
- Mitigation

Video

- Introducing the 350 Mission to the World (http://www.350.org/mission)

PowerPoints

- What is Climate Change
- Making the Priceless Valuable: Ecosystem Services Payments
- The Science and Economics of Sustainability

[1] This material was developed by Forest Trends and the Katoomba Group consultant Marina Campos, a curriculum consultant with over sixteen years experience in educational design and implementation. A native Brazilian, she received her teaching certificate, bachelor's of science degree, and masters of science degree from São Paulo University before continuing her studies at Yale University, where she received a PhD in Social Ecology through the Yale School of Forestry and Environmental Studies Department. She has worked for IUCN, Federal University of Acre, IPAM, and IIED. More recently, she was employed by the Secretariat for Environment and Sustainable Development Government of Amazonas where she supervised the design and implementation of the energy, climate change education and carbon monitoring state programs; oversaw the creation and dissemination of the state's Climate Change education curriculum, including materials and training programs currently in use by over 340 teachers in more than 30 public schools across four municipalities within Amazonas state; and represented the Amazonas State Government at local, national and international meetings, including public hearings before three state assemblies, the Brazilian national conference on climate change and the Conference of Parties (COP-13). Marina is currently in independent consultant on Climate Change and Environmental Services. Her most recent work includes the development of a training manual for practitioners and community leaders on environmental services and forest carbon projects in collaboration with Forest Trends, the coordination of data gathering information and writing a guide on REDD projects in Latin America with Idesam and TNC Brazil, and the creation of a manual for practitioners on the role of forests in mitigating climate change for the Government of the State of Amazonas.

Additional course ideas are available from The Nature Conservancy's REDD training initiative at: https://www.conservationtraining.org/course/category.php?id=9.

Resources

- Glossary of Climate Change Terms, *Environmental Protection Agency* http://www.epa.gov/climatechange/glossary.html
- Greenhouse Gas Emissions, *Environmental Protection Agency* http://www.epa.gov/climatechange/emissions/
- Causes of Climate Change, *The Encyclopedia of Earth* http://www.eoearth.org/article/Causes_of_climate_change
- Effects of Climate Change, *Time Magazine* http://www.time.com/time/interactive/0,31813,1620995,00.html
- Climate Change Impacts: Feeling the Heat, *The Nature Conservancy* http://www.nature.org/initiatives/climatechange/issues/
- Technologies, Policies and Measures for Mitigating Climate Change, *IPCC* http://www.gcrio.org/ipcc/techrepI/index.html

Historical and Political Context of Climate Change

- Climate change, GHG Emissions and the disparities between developed and developing nations
- History:
    - 1972: United Nations Conference on the Human Environment – Stockholm Conference
    - 1988: Creation of IPCC, concept, function, importance and reports
    - 1992: Earth Summit, ECO-92 and the Creation of UNFCCC
    - 1997: The Kyoto Protocol, definition, history and flexible mechanisms
    - COP meetings from Rome to Copenhagen
    - The Copenhagen Accord

Resources

- The Discovery of Global Warming http://www.aip.org/history/climate/timeline.htm
- Report of the United Nations Conference on Human Environment ,*UNEP* http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=97
- Declaration of the United Nations Conference on Human Environment, *UNEP* http://www.un-documents.net/unchedec.htm
- IPCC http://www.ipcc.ch/
- United Nations Conference on Environment and Development , *The Encyclopedia of Earth* http://www.eoearth.org/article/United_Nations_Conference_on_Environment_and_Development_(UNCED),_Rio_de_Janeiro,_Brazil
- The Kyoto Protocol on Climate Change: History & Highlights http://www.mapleleafweb.com/features/kyoto-protocol-climate-change-history-highlights
- United Nations Framework Convention on Climate Change, *Wikipedia* http://en.wikipedia.org/wiki/United_Nations_Framework_Convention_on_Climate_Change
- Copenhagen Accord=Climate Action, *Huffington Post* http://www.huffingtonpost.com/jake-schmidt/copenhagen-accord-climate_b_445196.html
- Low Targets, Goals Dropped: Copenhagen Ends in Failure, *The Guardian UK* http://www.guardian.co.uk/environment/2009/dec/18/copenhagen-deal
- Copenhagen Accord, *UNFCCC* http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf

Climate Change & Ecosystem Services

- Ecosystem services: basic concepts
- Valuing environmental services
- Example related to climate regulation

PowerPoint

- Forest Carbon: A Canopy Perspective

Videos

- Our Changing Planet: Ecosystem Services
  http://www.umac.org/ocp/videos/ecosystemServices.html
- Global Warming 101
  http://www.youtube.com/watch?v=oJAbATJCugs&feature=related

Resources

- Millennium Ecosystem Assessment. 2005. http://earthtrends.wri.org/updates/node/195
- Daily, Gretchen. 1997. *Nature's Services*. Washington D.C., USA: Island Press.
- Ecosystem Markets Introduction: Backgrounder
  (http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?page_name=e_markets_intro&section=about_us#close)
- Agenda to Restore Ecosystem Services: WRI http://earthtrends.wri.org/updates/node/195

Forests, Carbon Sequestration and Storage

- Forest types
- Calculating carbon stocks
- Role of forests in climate change mitigation
- REDD: history, opportunities and limitations
- The three REDD bottlenecks: scale, baseline and funding
- REDD +

Videos

- Stefano Pagiola, World Bank. Payment for Ecosystem Services: The REDD Initiative
- Understanding REDD
  http://www.youtube.com/watch?v=DiG9TQIzPeQ&feature=related
- Introduction to REDD
  http://www.youtube.com/watch?v=4Z4TIC1ObUI&feature=related

PowerPoint

- Forests, Climate, and Carbon: UNFCC REDD

Resources

- Angelsen, A. (ed.) 2008. *Moving ahead with REDD: Issues, options and implications.* CIFOR, Bogor.
- Bond, I., M. Grieg-Gran, S. Wertz-Kanounnikoff, P. Hazlewood, S. Wunder and A. Angelsen. 2009. *Incentives to Sustain Forest Ecosystem Services: A Review and Lessons from REDD.* International Institute for Environment and Development (IIED), London.
- Griffths, T. and F. Martone. 2009. *Seeing 'REDD'? Forests, Climate Change Mitigation and the Rights of Indigenous Peoples and Local Communities.* Forests and Peoples Programme, London.

- Pedroni, L., M. Dutschke, C. Streck and M.E. Porrua. 2009. *Creating Incentives for Avoiding Further Deforestation: The Nested Approach.* Climate Policy 9: 207-220.
- Forests and Climate Change, *FAO Newsroom* http://www.fao.org/newsroom/EN/focus/2006/1000247/index.html
- Tropical Forests and Climate Change Adaptation http://www.cifor.cgiar.org/trofcca/_ref/home/index.htm
- Science Clarified: Forests http://www.scienceclarified.com/Ex-Ga/Forests.html
- Types of Forests, *WWF* http://www.panda.org/about_our_earth/about_forests/types/

Water

- Reliable, clean water as an ecosystem service
- Relationship of water to forests and carbon sequestration
- Natural, social, and economic connection between carbon, water, and biodiversity
- Types of environmental services and scales

PowerPoint

- Global Overview of Payments for Watershed Services
- Valuing Watersheds: A market approach

Videos

- Dr. Delia Catacutan: Payments for Watershed Services: Lessons and Learn Facilitating Linkages between ES Providers and Sellers
  http://live.katoombagroup.org/?cat=8

Resources

- State of Water Markets www.ecosystemmarketplace.com
- Payments for Watershed Services: The Bellagio Conversations http://www.paramo.org/portal/files/recursos/The_Bellagio_Conversations_FINAL_2.pdf
- Ecosystem Services Markets, *FAO* http://www.fao.org/ES/ESA/pesal/ESmarkets2.html
- Harris, Leila M., and Gantt, Whitney. *Gender and Shifting Water Governance: Differential Effects of Privatization, Commodification, and Democratization.* The Land Tenure Center, University of Wisconsin Madison.
  http://www.translinks.org/CaseStudiesandAnalyses/tabid/2063/language/en-US/Default.aspx

Biodiversity

- Role of biodiversity in well-functioning ecosystems
- Relationship of biodiversity to forests and carbon sequestration

PowerPoint

- Global Overview of Biodiversity Markets, Payments, and Offsets
- Biodiversity Offsets: Good for Business and Biodiversity?

Videos

- Terry Sunderland: Biodiversity Markets
http://live.katoombagroup.org/?cat=8
- Michael Crowe: Biodiversity Offsets
http://live.katoombagroup.org/?cat=8
- Kerry ten Kate: State of Biodiversity Offsets and Market Instruments
http://live.katoombagroup.org/?cat=8

Resources

- State of Biodiversity Markets: Offset and Compensation Programs Worldwide, *Ecosystem Marketplace* http://www.ecosystemmarketplace.com/documents/acrobat/sbdmr.pdf
- Payments for Ecosystem Services: Legal and Institutional Frameworks http://cmsdata.iucn.org/downloads/eplp_78_1.pdf

Deforestation and Land Degradation

- Dynamics associated with deforestation and land degradation
- Concerns
- Linkages to PES through REDD +

Resources

- Deforestation and Climate Change, *WWF* http://assets.panda.org/downloads/intro_factsheet_27nov07_lr.pdf
- Impact of Deforestation, Mongabay http://rainforests.mongabay.com/0902.htm
- The Causes and Process of Deforestation http://sedac.ciesin.org/tg/guide_glue.jsp?rd=lu&ds=3.2
- Deforestation and Degradation, *CIFOR* http://www.cifor.cgiar.org/Publications/Corporate/FactSheet/degradation.htm

Payments for Ecosystem Services

- PES: Reconciling for environmental conservation with economic concerns
- Basic technical aspects: Additionality, baselines, leakage, permanence, measuring and monitoring
- Regional project examples

Videos

- Sven Wunder: What are Payments for Environmental Services http://www.youtube.com/watch?v=uNGPF1CdK-4

Resources

- Forest Trends 2007. *Getting Started, A Primer*. Forest Trends, Washington DC.
- Wunder, S. 2005. *Payments for Environmental Services: Some Nuts and Bolts.* CIFOR Occasional Paper N°42. Center for International Forestry Research, Bogor.
- Our Changing Planet: *Ecosystem Services*
- A Gateway to PES http://cmsdata.iucn.org/downloads/a_gateway_to_pes_d_huberman.pdf
- Roberts, J. P. and S. Waage. 2008. *Negotiating For Nature's Services: A Primer for Seller of Ecosystem Services on Identifying & Approaching Prospective Private Sector Buyers.* Forest Trends, Washington, DC.

- Wunder, S. 2005. *Payments for Environmental Services: Some Nuts and Bolts.* CIFOR Occasional Paper N°42. Center for International Forestry Research, Bogor.

Carbon Markets Overview

- Types of carbon markets: compliance and voluntary
- Key types of players at international, national, and regional scales

PowerPoint

- Mapping the Voluntary Carbon Markets

Resources

- The Ecosystem Marketplace's *State of the Forest Carbon Markets* (http://www.ecosystemmarketplace.com/pages/dynamic/resources.library.page.php?page_id=7525&section=carbon_market&eod=1#close)
- *State of the Voluntary Carbon Markets* (http://www.forest-trends.org/publication_details.php?publicationID=2343)
- The World Bank's *State and Trends of the Carbon Market Report* (http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:22592488~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html)

Political, Legal, Financial & Institutional Aspects of PES

- Assessing relevant national & sub-national policies
- Identifying potential legal barriers and enabling mechanisms
- Evaluating costs of potential transactions

Resources

- IUCN EPLP No. 78, Thomas Greiber, ed. *Payments for Ecosystem Services: Legal and Institutional Frameworks.* 2009
- Wunder, S. 2008. *Necessary Conditions for Ecosystem Service Payments Economics and Conservation in the Tropics.* Conference Paper
- Guide to Conducting Country-Level Inventories of Current Ecosystem Service Payments, Markets, and Capacity Building (http://www.katoombagroup.org/regions/africa/documents/National%20Inventory%20Framework.doc)
- Turner, Matthew. *Ecological Complexity and the Management of Common Property Resources.* Land Tenure Center, University of Wisconsin Madison. http://www.translinks.org/CaseStudiesandAnalyses/tabid/2063/language/en-US/Default.aspx
- *Beyond Boundaries: Zoning as a Tool to Link Conservation & Development Tools.* 2007. Translinks http://www.translinks.org/CaseStudiesandAnalyses/tabid/2063/language/en-US/Default.aspx

Social & Community-Related Considerations

- Social and community benefits and risks associated with PES projects
- Prior, free and informed consent
- Potential of carbon projects to strengthen land tenure rights of Indigenous groups
- Guidelines for Social Impact Assessment evaluations
- Cultural considerations and managing community expectations

PowerPoint

- Avoided Deforestation, Community Forestry, and Options for Channeling Payments Down to the Community Level

Resources

- Richards, Michael and Panfil, Steve. *Manual for Social Impact Assessment of Land-Based Carbon Projects: Part 1, Core Guidance for Project Proponents.* Forest Trends and CCBA. July 2010. *http://www.forest-trends.org/publications.php*
- Richards, Michael and Panfil, Steve. *Manual for Social Impact Assessment of Land-Based Carbon Projects: Part 2, Toolbox of Methods and Support Materials.* Forest Trends and CCBA. July 2010 *http://www.forest-trends.org/publications.php*
- The Katoomba Group's Ecosystem Marketplace Community Portal articles and training materials (http://community.ecosystemmarketplace.com/)
- Pro-Poor REDD – How will we Know?: Social Impact Assessment of Land-based Carbon Activities (http://www.forest-trends.org/publication_details.php?publicationID=2393)
- The Climate, Community and Biodiversity Project Design Standards (http://community.ecosystemmarketplace.com/pages/dynamic/resources.tools.page.php?page_id=6106&eod=1)
- Svadlenak-Gomez, Karin. 2007. *Integrating Human Rights into Conservation Programming.* WCS and Translinks. http://www.translinks.org/CaseStudiesandAnalyses/tabid/2063/language/en-US/Default.aspx

How to Design a PES Project

- Identification of seller, site, and ecosystem service
- Land ownership and other legal aspects
- Community engagement
- Scoping analysis
- Project design & Methodology
- Identifying team members
- Monitoring and evaluation plans (social, economic and environmental)
- Certification or Verification
- Cost estimates and funding
- Project Timeline and Schedule
- Planning payments

PowerPoint

- Getting Started: Designing PES Projects and Getting them to Market

Resources

- Getting Started: An Introductory Primer to Assessing and Developing Payments for Ecosystem Service Deals (http://www.katoombagroup.org/learning_tools.php)
- Payments for Ecosystem Services: Getting Started in Marine and Coastal Ecosystems (http://www.forest-trends.org/publication_details.php?publicationID=2374)
- Negotiating for Nature's Services: A Primer for Sellers of Ecosystem Services on Identifying & Approaching Private Sector Buyers (http://www.katoombagroup.org/documents/publications/NegotiatingforNature.pdf)
- The Conservation Marketing Equation: A Manual for Conservation and Development Professionals (http://www.translinks.org/ToolsandTrainingMaterials/tabid/2064/language/en-US/Default.aspx)
- Naughton, Lisa. 2007. *Collaborative Land Use Planning: Zoning for Conservation and Development in Protected Areas.* Land Tenure Center, Madison, Wisconsin. http://www.translinks.org/CaseStudiesandAnalyses/tabid/2063/language/en-US/Default.aspx

Engaging with Rural Communities as Potential Ecosystem Services 'Sellers'

- Understanding the cultural context:
- Indigenous peoples rights
- Free, prior and informed consent
- Assessing communities: needs, roles and responsibilities
- Sharing benefits: equity and fairness
- Strategy for capacity building
- Planning Impact assessments
- Community role: Active participants, supervisors and project monitors

Resources

- The Katoomba Group's Ecosystem Marketplace Community Portal articles and training materials (http://community.ecosystemmarketplace.com/)
- Pro-Poor REDD – How will we Know?: Social Impact Assessment of Land-based Carbon Activities (http://www.forest-trends.org/publication_details.php?publicationID=2393)
- The Climate, Community and Biodiversity Project Design Standards (http://community.ecosystemmarketplace.com/pages/dynamic/resources.tools.page.php?page_id=6106&eod=1)

Videos

- Interview with Pati Ruiz Corzo, community leader from Sierra Gorda, Mexico http://www.youtube.com/user/rbayon#p/u/3/o8n0jHOefrs
- Interview of Yusuf Ole Petenya, a Maasai leader from the Shompole Community in Kenya http://www.youtube.com/user/rbayon#p/u/4/YGhqIv5NKpA
- An interview in English of Rubens Born, founder and director of Vitae Civilis, a Brazlian non-profit. http://www.youtube.com/user/rbayon#p/u/5/dxalw-HBWi8

Group Activity

Participants can be divided in two groups to review and present materials about case studies

- **Overview of a REDD case study**
  - Review and evaluation of the project
  - Role of stakeholders (NGOs, community, and government dynamics)
  - Ultimate goals vs. ultimate outcomes
  - Lessons from existing projects and ideas for future initiatives

- **Overview of a water case study**
  - Review and evaluation of key projects
  - Role of stakeholders (NGOs, community, and government dynamics)
  - Ultimate goals vs. ultimate outcomes
  - Lessons from existing projects and ideas for future initiatives

Videos

- REDD As Part of the Solution http://www.youtube.com/watch?v=PYHldt9gfMw

Resources

- Wunder, S., B. D. and E. Ibarra. 2005. *Payment is good, control is better: Why payments for forest environmental services in Vietnam have so far remained incipient?* Center for International Forestry Research, Bogor.
- Yuan-Farrell, C. and P. Kareiva. 2006. *Ecosystem Services: Status and Summaries.* The Nature Conservancy, Washington, DC.

REDD Context & Legal Issues

- Precondition: legal control over ecosystem service
  - Certainty for investors
- Investor's role
- ES-provider-as-seller responsibilities in an ES transaction
  - Deliver ecosystem services as promised
    - REDD: manage the forest and prevent deforestation
  - Monitoring, reporting, and verification
  - Third party verification vs. internal or buyer standard
    - REDD: third party verification likely required; VCS, CCBA lead the market
  - Project administration and governance
- Risk and recourse
  - Causes of project failure
  - Managing the risk of project failure
    - Reduce risk as much as possible
    - Risk allocation and contracts

PowerPoint

- REDD in a Post-Kyoto International Framework

Resources

- IUCN EPLP No. 77, John Costenbader, ed. *Legal Frameworks for REDD: Design and Implementation at the National Level.* 2009
- Takacs, David. *Forest Carbon: Law and Property Rights.* Conservation International, November 2009
- Baker & McKenzie, Covington & Burling LLP. *Background Analysis of REDD Regulatory Frameworks.* May 2009
- Global Canopy Programme. *The Little REDD Book.* December 2008.
- Myers, Erin C. *Policies to Reduce Emissions from Deforestation and Degredation (REDD) in Tropical Forests.* Resources for the Future, December 2008
- Davis, Patsy. *Carbon Forestry Projects In Developing Countries: Legal issues and Tools.* Forest Trends 2000.

Videos

- UN-REDD Program (multiple videos) http://www.un-redd.org/Events/UNREDDVideoInterviews/tabid/613/language/en-US/Default.aspx

REDD Certification

- Importance of certification
  - Accountability
  - Credibility
  - Transparency
  - Associated costs
- Existing standards
  - Climate, Community and Biodiversity (CCB Standards)
  - Verified Carbon Standards (VCS)
  - Others

Videos

- Projects, Products, and Measurements: REDD Carbon Measurement, Joerg Siefert Grazin http://live.katoombagroup.org/?cat=8

Resources

- Carbon Offset Standards, *Carbonfund.org* http://www.carbonfund.org/site/pages/our_projects/category/Verification
- Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards, *WWF* http://assets.panda.org/downloads/vcm_report_final.pdf
- How Carbon Offsets Work, *How Stuff Works* http://science.howstuffworks.com/carbon-offset3.htm
- Mandatory and Voluntary Offset Markets, CORE http://www.co2offsetresearch.org/policy/MandatoryVsVoluntary.html
- WCS and Translinks. *Casting for Conservation Actors*. 2007 http://www.translinks.org/ToolsandTrainingMaterials/tabid/2064/language/en-US/Default.aspx

REDD-Focused Community Engagement

- Understanding the cultural context:
    - Cultural sensitivity
    - Community Leadership
    - Community Groups and minorities
- Indigenous peoples rights
- Free, prior and informed consent
- Assessing communities: needs, roles and responsibilities
- Sharing benefits: equity and fairness
- Strategy for capacity building on REDD
- Planning impact assessments
- Community roles: active participants, supervisors and project monitors

Videos

- Community Forestry REDD in Cambodia
  http://www.youtube.com/watch?v=HtjVGyisQ4Q

Resources

- Griffths, T. and F. Martone. 2009. *Seeing 'REDD'? Forests, Climate Change Mitigation and the Rights of Indigenous Peoples and Local Communities.* Forests and Peoples Programme, London.
- Community Forestry and REDD in Cambodia (video)
  http://www.youtube.com/user/repinkham#p/a/u/1/HtjVGyisQ4Q
- Linking Communities to Environmental Markets http://community.ecosystemmarketplace.com/
- WCS and Translinks. 2007. Livelihood Surveys
  http://www.translinks.org/ToolsandTrainingMaterials/tabid/2064/language/en-US/Default.aspx

Videos

- REDD: A New Animal in the Forest (video)
  http://www.redd-monitor.org/2009/12/04/two-films-on-redd-in-indonesia-by-lifemosaic/

How to design a REDD project (Project Design Document – PDD)

- Selection site and scale
- Land ownership and other legal aspects
- Community engagement
- Methodology
    - Baseline
    - Leakage
    - Additionality
    - Permanence
    - Certification
- Identifying institutional partners and necessary team:
    - Roles
    - Responsibilities
- Monitoring and evaluation plans (social, economic and environmental)
- Benefits and payments:

    - Payments: how much, how often, what type of payment, and to whom?
    - Other potential benefits: land title, reforestation, support for economic activities, and others
- Cost estimates and funding
- Project timeline and schedule
- National, sub-national, nested

Resources

- Forest Trends & the Katoomba Group's Step by Step Guide to Forest Carbon *(pending publication)*
- WCS and Translinks. 2007. *WCS REDD Project Development Guide* http://www.translinks.org/ToolsandTrainingMaterials/tabid/2064/language/en-US/Default.aspx

Group Activity / Brainstorm: Funding and Financial Management

- Finding appropriate funding sources
- Assessing carbon value and transaction costs
- Assessing potential buyers
- Mock letters of inquiry and grant applications
- Outline of project fund distribution
- Project management: key aspects on project accountability, reports, and financial planning

Group Activity 1

Participants can be divided in groups of 4 to review and present materials about case studies:

- **Overview of REDD case study**
    - Review and evaluation of the project
    - Role of stakeholders (NGOs, community, and government dynamics)
    - Ultimate goals vs. ultimate outcomes
    - Lessons from existing projects and ideas for future initiatives

- **Overview of REDD policy**
    - Review and evaluation of the policy
    - Role and responsibilities of the government and other stakeholders
    - Ultimate goals
    - Challenges of implementation

Group Activity 2

Participants can be divided in groups of 4 to outline the major points and challenges to develop their own REDD projects and present to the class.

Resources

- Cenamo, M.C., M.N. Pavan, M.T. Campos, A.C. Barros, F. Carvalho. 2009. *Casebook of REDD projects in Latin America*. Manaus, Brazil.
- Parker C., J. Brown, J. Pickering, E. Roynestad, N. Mardas and A. Mitchell . 2009. *The Little Climate Finance Book.* Global Canopy Program, London.
- Parker C., A. Mitchell, M. Trivedi, N. Mardas and K. Sosis. 2009. *The Little REDD+ Book.* Global Canopy Program, London.

Additional Readings

Bennett, M.T. 2009. *Markets for Environmental Services in China: An Exploration of China's "Eco-Compensation" and Other Market-Based Environmental Policies.* Forest Trends, Washington, DC.

Case Studies and Analysis. 2007-2010. Translinks. http://www.translinks.org/CaseStudiesandAnalyses/tabid/2063/language/en-US/Default.aspx

Enterprise Works/Vita and Translinks. 2007. *Philippines Translinks Workshop*. Enterprise Works, Washington DC.

Iftikhar, U.A., M. Kallesoe, A. Duraiappah, G. Sriskanthan, S. V. Poats and B. Swallow. 2007. *Exploring the inter-linkages among and between Compensation and Rewards for Ecosystem Services (CRES) and human well-being.* ICRAF Working Paper N°42. World Agroforestry Centre, Nairobi.

Karin Svadlenak-Gomez, Tom Clements, Charles Foley, Nikolai Kazakov, Dale Lewis, Dale Miquelle, Renae Stenhouse. 2007. *Paying for Results: Direct Incentives for Conservation.* WCS, New York.

Raju K.V., S. Puttaswamaiah, M. Sekher and R. Rumley. 2007. *Asia Regional Workshop on Compensation for Ecosystem Services: A Component of the Global Scoping Study on Compensation of Ecosystem Services.* ICRAF Working Paper N°42. World Agroforestry Centre, Nairobi.

Treves, Adrian. 2007. *Balancing the Needs of People and Wildlife: When Wildlife Damage Crops and Prey on Livestock.* Land Tenure Center, University of Wisconsin, Madison.

Xuan To, P. 2009. *Timber Markets and Trade between Laos and Vietnam: A Commodity Chain Analysis of Vietnamese Driven Timber Flows.* Forest Trends, Washington DC.

Additional Videos

Nature.Inc (film series) http://www.natureinc.org/series.htm

Websites

Ecosystem Marketplace http://ecosystemmarketplace.com/
Forest Carbon Portal http://www.forestcarbonportal.com/
Wilderness Conservation Society http://www.wcs.org/
Communities and Markets http://community.ecosystemmarketplace.com/
Species Banking http://www.speciesbanking.com/
The Katoomba Group http://katoombagroup.org/
Global Climate Change, NASA http://www.time.com/time/interactive/0,31813,1620995,00.html
Intergovernmental Panel on Climate Change http://www.ipcc.ch/
FAO http://www.fao.org/ES/ESA/pesal/index.html
Forest Trends Publications and Reports http://www.forest-trends.org/publications.php
Forest Trends Legal Portal
http://www.katoombagroup.org/regions/international/legal_resourcesportal.php
Translinks http://www.translinks.org/

GOVERNO DO ESTADO DO ACRE

CURSO DE CAPACITAÇÃO EM SERVIÇOS AMBIENTAIS PARA TÉCNICOS DO GOVERNO DO ACRE, BRASIL

INFORMAÇÕES SOBRE O EVENTO

Datas:
9 – 12 do Novembro do 2010
Antifitrião:
Secretaria De Estado De Meio Ambiente do Governo do Estado do Acre
Organizadores:
Secretaria de Estado de Meio Ambiente
Forest Trends, Programa de Comunidades e Mercados
O Grupo Katoomba, Equipe de Respostas Rápidas

PANO DE FUNDO

O Estado do Acre é um dos estados mais avanzados no Brasil e no mundo inteiro em pensar e planificar para a preservação do meio ambiente. Seguindo o sonho de Chico Mendes de ver toda a floresta preservada, o Estado está buscando formas innovadores para dar um valor econômico à floresta. Mas o Estado reconhece que as flroesetas fornecem muitas cosas mais que os "bems" como a madeira, remedios naturais e a borracha, mas que também fornecem aguas limpas, protecção da biodiversidade e secuestro de carbono. No passado, estes servços não foram valorizados no economia internacional. Contudo, agora mercados para os serviços ambientais são emergentes e podem proveer fondos para sua protecção e manutenção. Para agarrar esa oportunidade, as secretarias e autarquias responsaveis para o desenvolvimento sustentável do Governo Estadual criaram a Política de Valorização do Ativo Ambiental que busca entrar nos mercaods novos e incentivar a conservação no estado.

O Governo do Estado do Acre tomou a decisão de buscar as alternativas sociais, produtivas e ambientalmente adequadas para ajudar a gestão socioambeintal e a regularização do Passivo Ambiental Florestal (os limites legais esetabelecidos para as reservas florestais em áreas privadas) dentro do Estado.

Visando estabelecer uma base para que os mecanismos de pagamento por serviços ambientais sejam instituídos de maneir sólida, o governo do Acre instituiu a Política de Valorização do Ativo Ambiental Florestal. Lançado em setembro de 2008, esta política vem sendo implementada por meio de estratégia conjunta de secretarias e autarquias que compõem a área de desenvolvimento sustentável do Governo Estadual integrada com as Prefeituras municipais e o movimento social organizado. Esta política está alicerçada em dois programas: o Programa de Recuperação de Áreas Alteradas (PRAA) e o Programa do Ativo Ambiental Florestal (PVAAF).

O Projeto de Pagamento por Serviços Ambientais - Carbono propõe a estruturação de incentivos financeiros e econômicos voltados a manutenção das florestas do Estado considerando as diferentes situações de pressão a que estas florestas estão submetidas. Busca gerar créditos de carbono para negociar nos mercados de carbono quando este estiver consoloidado e disposto a remunerar de forma justa o serviço ambiental.

O Projeto PSA-Carbono tem os seguintes objetivos específicos:

- Incentivar o uso intensivo das áreas alteradas através do fortalecimento da produção agroflorestal e/ou agropecuária sustentável gerando renda e reduzindo substancialmente a pressão sobre a floresta possibilitando a manutenção do Ativo Florestal.
- Promover repartição de benefícios para atores que conservam, preservam e recuperam os ativos florestais.
- Viabilizar fluxos financeiros privados e públicos que proporcionem a provisão continua de serviços ambientais das flroestas acreanas que provem estes serviços.
- Garantir reduções efetivas e duradouras do desmatamento.

DESCRIÇÃO E OBJETIVOS DO CURSO

A Secretária do Meio Ambiente do Estado do Acre tem finalizado e aprobado sua Lei Estadual de Pagamento por Serviços Ambientais e Programa de Carbono. O Estado tem trabalhado vigorosamente para finalizar as instituições que vão implementar a programa e agora tem a prioridade de crear capacidades dentro dos Ministérios e novas instituições.

Juntamente, a Programa de Comunidades e Mercados da Forest Trends, o Equipe de Resposta Rápida do Grupo Katoomba e a Secretária do Meio Ambiente entregarão uma oficina de quatro dias para os especialistas do Estado. A oficina vai focar-se nos fundamentos dos serviços ambientais e REDD em preparação para a implementação da nova estrutura para carbono florestal e pagamentos por serviços ambientais.

Os objetivos do curso incluem:

- Introducir o papel das florestas na mitigação da mudanças climáticas
- Definir os serviços ambientais
- Descrever os Pagamentos por Serviços Ambientais (PSA), mercados do carbono e a Redução de Emissões por Dematamento e Degradação (REDD)
- Fornecer o pano de fundo sobre as negociações internacionais e o regime emergente nacional no Brasil sobre cambio climático
- Resumir os elementos principais num projeto de carbono, contabilidade e metodologias para MRV
- Discutir as oportunidades para PSA além do carbono e REDD
- Explorar os incentivos e financiamento para a conservação
- Compartilhar informações sobre os direitos indígenas, melhores prácticas, e os Critérios e Principais Socioambientais

Nessa oportunidade Forest Trends tem a honra de trablahar juntos com o Governo do Acre na implementação da Política de Valorização do Ativo Ambiental, com ênfase na parte do pagamento por serviços ambientas e o carbono.

RECURSOS

- Documento de Informações do Evento (este documento)
- Aprendendo sobre Serviços Ambientais: Material de Apoio para o Curso de Capacitação em Serviços Ambientais para Técnicos do Governo do Acre (Forest Trends, The Katoomba Group e SEMA, 2010)
- CD de Recursos
- Política de Vaolirzacao Do Ativo Florestal, Project Pagamento por Servicos Ambientais – Carbono, Governo do Acre, Amazonia, Brasil (2010)

AGENDA

DIA 1: 9 NOVEMBRO 2010		
Hora	**Módulo**	**Instrutor**
8:30	Bem-vindo	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
8:45	**Apresentação dos objetivos, a metodologia e agenda do curso**	Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
9:00	Apresentação dos participantes	
9:15	**Mudanças Climáticas e as Florestas**, **Parte 1** - Mudança climática e calentamiento global: conceitos e origens - Efeito Estufa: definição e tendências globais - Gases de efeito estufa: tipos, contribução ao calentamiento global	João Tezza, Fundação Amazonas Sustentável
10:30	Intervalo	
11:00	**Mudanças Climáticas e as Florestas**, **Parte 2** - Impactos sociais, ecológicos, e econômicos da mudança climática - Mitigação - Papel das florestas na mitigação - Importância da Região Amazônica	João Tezza, Fundação Amazonas Sustentável
12:30	Almoço	
14:00	**Introdução aos Serviços Ambientais e Esquemas de Pago e Compensação** - Serviços Ambientais: conceitos básicos (biodiversidade, água, carbono, etc.) - Externalidades - Tragédia dos bens comunes - Bens Públicos e Privadas - Custos de oportunidade e transação - Valorizando os serviços ambientais	Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
16:00	Intervalo	
16:30	**Introdução ao Redução das Emissões por Desmatamento e Degradação (REDD)** - História, oportunidades e limitações - REDD+	João Tezza, Fundação Amazonas Sustentável Mauricio Voivodic, IMAFLORA
18:00	Encerramento do Dia	

DIA 2: 10 NOVEMBRO 2010		
Hora	**Módulo**	**Instrutor**
8:30	Bem-vindo e Síntese do Dia 1	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
8:45	**Negociações Internacionais sobre as Mudanças Climáticas** - UNFCCC - Protocolo de Kyoto - COP16 e REDD	Shigeo Shike, Dept. Econômico, Ministério do Meio Ambiente
9:30	**O Regime Emergente Brasileira sobre REDD** - Lei Federal sobre PSA - Lei Proposta para implementar REDD - Mercados no Brasil	Shigeo Shike, Dept. Econômico, Ministério do Meio Ambiente
10:30	Intervalo	
11:00	**Introdução aos Mercados de Carbono** - Mercados voluntários e regulatórios - Ferramentas da UNFCCC: CDM, JI, REDD	Mariano Cenamo, IDESAM Mauricio Voivodic, IMAFLORA
12:30	Almoço	
14:00	**Elementos Principais de um Projeto de Carbono (reflorestamento e REDD), Part 1** - Escopo do Projeto - Área e Limites do Projeto - Aspectos Legais - Descrição da area do projeto - Linha de Base - Atividades do Projeto - Cenário com o projeto	Mariano Cenamo, IDESAM Mauricio Voivodic, IMAFLORA
16:00	Intervalo	
16:30	**Elementos Principais de um Projeto de Carbono (Reflorestamento e REDD), Part 2**	Mariano Cenamo, IDESAM Mauricio Voivodic, IMAFLORA
18:00	Encerramento do Dia	

DIA 3: 11 NOVEMBRO 2010		
Hora	**Módulo**	**Instrutor**
8:30	Bem-vindo e Síntese do Dia 2	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
9:00	**A Política do Estado do Acre, Parte 1** - Visão de longo prazo - Elementos chaves - Papeis e responsabilidades do governo	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Monica de los Rios, Estado do Acre
10:30	Intervalo	
11:00	**A Política do Estado do Acre, Parte 2** - Desafios chaves	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Monica de los Rios, Estado do Acre
12:30	Almoço	
14:00	**Introdução à Contabilidade de Carbono e MRV** - Calcular os estoques de carbono - Planos de avaliação sociais, econômicos, e ambientais - Certificação - Verificação - Padrões internacionais - Riscos: Vazamento, permanência e adicionalidade	Mariano Cenamo, IDESAM
15:30	Intervalo	
16:00	**Sessão de Perguntas e Respostas** **Grupos de Trabalho**	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends Mariano Cenamo, IDESAM
18:00	Encerramento do Dia	

DIA 4: 12 NOVEMBRO 2010		
Hora	**Módulo**	**Instrutor**
8:30	Bem-vindo e Síntese do dia 3	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
9:00	**Financiamento** - Como se financiam os projetos - Contratos - Cenários - Negociação	Virgilio Gibbon, Fundação Getúlio Vargas
10:30	Intervalo	
11:00	**Estructurando os Incentivos** - Cronologia de um projeto - Planificando os pagamentos	
12:30	Lunch	
14:00	**Os Direitos Indígenas, Melhores Prácticas, Critérios e Principais Socioambientais** - Benefícios e riscos sociais e comunitários - Consentimento livro, prévio e informado - Diretrices para avaliação para os impactos sociais - Princípios e critérios socioambientias de REDD	Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
15:30	**Além de REDD: Outras oportunidades para PSA** - Biodiversidade - Água	Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends
17:00	Encerramento	Eufran Amaral, Secretário do Meio Ambiente, Estado do Acre Beto Borges, Diretor, Programa de Comunidades e Mercados, Forest Trends Monica de los Rios, Estado do Acre
18:00	Jantar Celebratório	

MODULE 1.2: PUBLIC SECTOR – CLIMATE CHANGE, CARBON MARKETS, & REDD: TAILORED TRAINING FOR THE GOVERNMENT OF UGANDA'S NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

Day 1: Introduction to PES and PES Project Components			
Time	Title	Content	
8:00am	Welcome	- Introductory words from participating institutions - Review of the workshop objectives and agenda - Presentation of participants, instructors, and facilitators	
8:45am	Introduction to Climate Change	Introduction to Climate change - What is climate change? What are its effects? - Green House Gases – definition, sources, global trends - Mitigation and the role of forests, biodiversity, water, agriculture	
9:30am	Question and Answer		
9:45am	Break		
10:00am	Introduction to Ecosystem Services	Introduction to Ecosystem Services - Definition of Ecosystem Services - Basic concepts - What are the different types? - Why are they important? - Carbon, water, biodiversity	
10:45am	Introduction to markets and payments for ecosystem services (PES)	- Externalities - Public and private benefits - Opportunity and transaction costs - Valuing environmental services - PES: Origen, concepts, and structure - Types of payments, markets, and compensation schemes (carbon, biodiversity, water) - Who pays, who receives, and why? - Basic technical aspects: Additionality, baselines, leakage, permanence, measuring and monitoring	
11:45am	Question and Answer		
12:00	Lunch		
1:00	Examples of PES Projects in the Region	- PES types - Funding source - Trigger/ motivation - Legal framework - Involved actors - Financial mechanism - Main challenges - Cross cutting themes in the region's PES experiences	
1:45	Question and Answer		
2:00	Designing a PES Project: Step by Step (Part I)	- Ideal conditions for PES - when and where a PES is viable? - Identify the service: measurement and baseline, valuation - Site selection	

		- Identify the suppliers - Identify buyers, demand and the payment availability	
2:45	Question and Answer		
3:00	Break		
3:15	Designing a PES Project: Step by Step (Part II)	- Analysis of legal and political framework - Analysis of technical capacity of involved institutions - Agreement structuring: transaction costs and options - Payment types, contract types, key elements of agreements	
4:00	Implementing the PES Project	- Project design and methodology - Adaptive Management - Monitoring and evaluation - Certification and verification	
4:45	Discussion: Key Challenges in PES Projects	- Land ownership - Community engagement - Identifying team members - Cost estimates/ funding sources - Planning payments	
5:30	Question and Answer		
6:00	Summary and Conclusions		

Day 2: Government Role in PES Transactions – Enabling Environments and Lessons from Abroad			
Time	Title	Content	
8:00	Welcome	- Summary of Day 1 - Introduction of attendees and instructors - Agenda for Day 2	
8:30am	Legal, Policy, and Institutional aspects of PES	- Assessing relevant national & sub-national policies - Identifying potential legal barriers and enabling mechanisms - Government and institutional capacity	
9:15am	Enabling Conditions for PES	- Property rights and ownership issues - Contract design and components (securities, risk allocation, negotiation processes) - Monitoring, non-compliance, and enforcement - Dispute resolution and public participation	
10:00am	Question and Answer		
10:15	Break		
10:30	Engaging with Rural Communities as Potential Ecosystem Services Sellers	- Understanding cultural context - Indigenous rights - Free prior and informed consent - Needs, roles and responsibilities - Benefit sharing – equity and fairness - Capacity building strategies - Socio-Economic PES impacts	
11:15	Government Role in PES Transactions	Risks, opportunities, responsibilities of government as: buyer, facilitator, negotiator, funder, or seller in PES transactions.	
11:15	Financial Framework for	- Real opportunity costs - How to make biodiversity conservation competitive?	

	biodiversity conservation on productive landscapes – options and needs for Uganda	- Direct payments, partial subsidies - Priority areas and activities - Community capacity building - Certification programs - Payment delivery mechanisms - Strengths/ weaknesses of multiple incentives	
12:00	Question and Answer		
12:15	Lunch		
1:15 to 5:15	Lessons from Abroad Possibly: - Acre, Brazil: REDD+ Incentives for Ecosystem Services - China: Grain for Green (erosion control) - US: Conservation Reserve Program (ag + water quality/ habitat) - Ghana: Forestry conservation legislation and biodiversity offsets - Ecuador: FUNBIO and burgeoning biodiversity incubator/ offsets initiative - Peru: Ecosystem Services law - Mexico: PWS Discussion questions: strengths and weaknesses from the frameworks. How are they innovative? Do they involve key actors? What are the main goals? How are monitoring/ evaluation fulfilled?		
1:15	Case Study #1 Presentation		
2:00	Discussion		
2:30	Case Study #2 Presentation		
3:15	Discussion		
3:45	Break		
4:00	Case Study #3		
4:45	Discussion		
5:15	Conclusions		
5:45	Closing		

MODULE 1.3: USAID FORESTS AND CLIMATE CHANGE TRAINING
PRETORIA, SOUTH AFRICA. MAY 11-13, 2009
CONDUCTED BY CIFOR, ICRAF, FOREST TRENDS, THE KATOOMBA GROUP AND THE USAID'S CLIMATE CHANGE TEAM

From May 4-8, 2009, USAID conducted an Environment and Natural Resources Management overview course for USAID staff in the Africa region, in Pretoria, South Africa. Following this training session, on May 11-13, a 3-day PES, Forests, and Climate Change in-depth training module was offered. The materials and presentations for this module are being collaboratively offered by CIFOR (www.cifor.cgiar.org), ICRAF (http://www.worldagroforestry.org) with Forest Trends and the Katoomba Group (www.forest-trends.org and www.katoombagroup.org).

The training provided participants with a solid understanding of forests, climate change, and environmental markets / payments for ecosystem services. Topics included:

- forests, climate change, and adaptation
- economic services of ecosystems
- emergence and growth of environmental markets and payments for ecosystem services
- carbon markets and payments for ecosystem services (including reduce emissions from deforestation and forest degradation (REDD), afforestation/reforestation (A/R) clean development mechanism (CDM), carbon accounting, etc.)
- water and biodiversity payments for ecosystem services
- guidelines for assessing opportunities and risks associated with engagement with these market-mechanisms—particularly from the stance of considering broader biodiversity and poverty alleviation objectives

For more information, please contact:

- *USAID:* Erik Streed (estreed@usaid.gov)
- *Forest Trends & the Katoomba Group*: Sissel Waage (swaage@forest-trends.org)
- *CIFOR*: Markku Kanninen (m.kanninen@cgiar.org) or Levania Santoso (l.santoso@cgiar.org)
- *ICRAF*: Brent Swallow (b.swallow@cgiar.org)

BACKGROUND

The relevance of markets and payments for ecosystem services is expanding as these approaches become a global experiment in resource management and pollution reduction. These markets include the booming carbon markets, the emerging water markets, and scores of markets for biodiversity and other ecosystem services. For more information on markets and payments for ecosystem services, please also see:

- CIFOR's publications on climate change, adaptation, mitigation, REDD and payments for environmental services (http://www.cifor.cgiar.org/Publications)
- The Katoomba Group's Ecosystem Marketplace (www.ecosystemmarketplace.com)
- USAID's SANREM *Best Practices for Pro-Poor Payment for Ecosystem Services* page (http://www.oired.vt.edu/sanremcrsp/PES.php)

PRE-EVENT READING

Prior to the event, please read through:

- "Facing an uncertain future: How forests and people can adapt to climate change" By Bruno Locatelli, Markku Kanninen, Maria Brockhaus, Carol J. Pierce Colfer, Daniel Murdiyarso, Heru Santoso (http://www.cifor.cgiar.org/publications/pdf_files/Books/BLocatelli0801.pdf)
- "Moving ahead with REDD: Issues, options and implications" By Arild Angelsen (http://www.cifor.cgiar.org/publications/pdf_files/Books/BAngelsen0801.pdf)
- "Payments for Ecosystem Services: Market Profiles" By Forest Trends and Partners (http://ecosystemmarketplace.com/documents/acrobat/PES_Matrix_Profiles_PROFOR.pdf)
- "The State of Play: Payments for Ecosystem Services in East & Southern Africa" By Alice Ruhweza (http://ecosystemmarketplace.com/pages/article.opinion.php?component_id=5108&component_version_id=7498&language_id=12)
- "Mainstreaming Payments for Ecosystem Services in the Developing World" By Sissel Waage (http://ecosystemmarketplace.com/pages/article.opinion.php?component_id=4258&component_version_id=6446&language_id=12)

Please also look over the following two power point presentations from a past USAID event:

- "Introduction to Payments for Environmental Services" By Stefano Pagiola (http://www.oired.vt.edu/sanremcrsp/documents/PES.Sourcebook.Oct.2007/PolicySeminarPPTs/PagiolaIntroToPES.pps)
- "Payments for Environmental Services: Design Issues" By John Kerr and Rohit Jindal (http://www.oired.vt.edu/sanremcrsp/documents/PES.Sourcebook.Oct.2007/PolicySeminarPPTs/Kerr-JindalDesignIssuesI.pps#257,1,Payments for Environmental Services: Design Issues John Kerr and Rohit Jindal Michigan State University)

Finally, time-permitting, it would be ideal if you could glance through – online if feasible – the following materials:

- "Do Trees Grow on Money? The implications of deforestation research for policies to promote REDD" By Markku Kanninen, Daniel Murdiyarso, Frances Seymour, Arild Angelsen, Sven Wunder and Laura German (http://www.cifor.cgiar.org/publications/pdf_files/Books/BKanninen0701.pdf)
- "Infobrief 14: Do Trees Grow on Money? The implications of deforestation research for policies to promote REDD" By Markku Kanninen, Daniel Murdiyarso, Frances Seymour, Arild Angelsen, Sven Wunder and Laura German (http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/014-infobrief.pdf)
- "Infobrief 15: What is the right scale for REDD? The implications of national, subnational and nested approaches" By Arild Angelsen, Charlotte Streck, Leo Peskett, Jessica Brown and Cecilia Luttrell (http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/015-infobrief.pdf)
- "Infobrief 16: Measuring and monitoring forest degradation for REDD: Implications of country circumstances" By Daniel Murdiyarso, Margaret Skutsch, Manuel Guariguata, Markku Kanninen Cecilia Luttrell, Pita Verweij and Osvaldo Stella (http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/016-infobrief.pdf)
- "Infobrief 17: Financing REDD: Linking country needs and financing sources" By Michael Dutschke and Sheila Wertz-Kanounnikoff with Leo Peskett, Cecilia Luttrell, Charlotte Streck and Jessica Brown (http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/017-infobrief.pdf)
- "Infobrief 18: The role of REDD in stabilising greenhouse gas concentrations: Lessons from economic models" By Ruben N. Lubowski (http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/018-infobrief.pdf)

- "Infobrief 19: Adaptation at the interface of forest ecosystem goods and services and livestock production systems in Northern Mali" By Maria Brockhaus and Houria Djoudi (http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/019-infobrief.pdf)
- "Working Paper No. 39: Monitoring forest emissions: A review of methods" By Sheila Wertz-Kanounnikoff (http://www.cifor.cgiar.org/publications/pdf_files/WPapers/WP40Wertz-Kanounnikoff.pdf)
- "Working Paper No. 40: Reducing forest emissions in the Amazon Basin: A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them" By Sheila Wertz-Kanounnikoff, Metta Kongphan-Apirak and Sven Wunder (http://www.cifor.cgiar.org/publications/pdf_files/WPapers/WP40Wertz-Kanounnikoff.pdf)
- "Working Paper No. 41: Reducing forest emissions in Southeast Asia: A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them" By Sheila Wertz-Kanounnikoff and Metta Kongphan-Apirak (http://www.cifor.cgiar.org/publications/pdf_files/WPapers/WP41Wertz-Kanounnikoff.pdf)
- "Working Paper No. 42: Estimating the costs of reducing forest emissions: A review of methods" By Sheila Wertz-Kanounnikoff (http://www.cifor.cgiar.org/publications/pdf_files/WPapers/WP42Wertz-Kanounnikoff.pdf)
- "Payments for Ecosystem Services: Getting Started-A Primer" (2008) http://www.katoombagroup.org/documents/publications/GettingStarted.pdf
- "Negotiating for Nature's Services: A Primer for Seller's of Ecosystem Services on Identifying and Approaching Prospective Private Sector Buyers" (2007) (http://www.katoombagroup.org/documents/publications/NegotiatingforNature.pdf)
- "USAID PES Sourcebook" (2007) http://www.oired.vt.edu/sanremcrsp/menu_research/PES.Sourcebook.Contents.php

AGENDA

Day 1 (May 11, 2009)

8:30-9:00 **Registration & coffee/tea**

9:00-10:00 **Welcome, introductions, workshop objectives and contents**
Erik Streed, USAID and Brent Swallow, ICRAF

10:00-11:00 **Forests and climate change overview, ICRAF**
This session will introduce how climate change relates to forest sector activities within a general framework of sustainable development.

11:00-11:15 **Break**

11:15-12:30 **Forests and climate change adaptation – part 1, ICRAF**
Presentation and discussion on how forests provide adaptation benefits to the society and on how to better manage forests so they themselves are less vulnerable to climate change impacts.

12:30-1:30 **Lunch**

1:30-2:30 **Forests and climate change adaptation – part 2, ICRAF**
Adaptation case studies & discussion

2:30-3:30 **Forest carbon accounting – part 1**
What is carbon accounting and why it's needed? What are the levels of accuracy needed for different purposes, and what are associated costs, data needs, and methodologies?

3:30-3:45 **Break**

3:45-5:00 **USAID forest carbon calculator**
Erik Streed, USAID
A demonstration of USAID's new web-based forest carbon calculator and a chance for participants in small groups to enter real project data. Discussion of data needs and how to incorporate into USAID's programs.

5:00-5:30 **Wrap-up of the Day 1**
Brent Swallow, ICRAF

Day 2 (May 12, 2009)

8:30-9:00 **Registration & coffee/tea**

9:00-9:15 **Re-cap of Day 1 & overview of Day 2**
Brent Swallow, ICRAF

9:15-09:40 **USAID's Perspective on Climate Change and Development**
Duane Muller, USAID (25 minutes)
- Overview US Policy Approach to Climate Change
- Overview of USAID Global Climate Change Program

9:40-10:00 **USAID's efforts in PES from a development perspective**
Erik Streed, USAID (20 minutes)

10:00-10:15 **Questions & Discussion** *(15 minutes)*

10:15-10:30 **Break**

10:30-12:15 **What are environmental markets and Payments for Ecosystem Services (PES)? Why are they being established? What markets exist? Forest Trends**
Erik Streed, USAID
- Rationale for a market-based approach
- Types of markets & payments
- Ecological areas of focus
- Geographic spread

12:15-12:30 **Questions & Discussion** *(15 minutes)*

12:30-1:30 **Lunch**

1:30-2:30 **PES in East and Southern Africa: overview**
Alice Ruhweza, East & Southern Africa Katoomba Group Coordinator (45 minutes)
Questions & Discussion *(15 minutes)*

2:30-3:30 **PES in South Africa: case studies**
Hugo Van Zyl, C.A.P.E. (45 minutes)
Questions & Discussion *(15 minutes)*

3:30-4:00 **Break**

4:00-4:30 **USAID/TIST: A PES/GCC case study**
Erik Streed, USAID

4:30-5:15 **What are the key questions to ask – and steps to undertake – in assessing whether or not to encourage project engagement with markets and PES?**
Alice Ruhweza, East & Southern Africa Katoomba Group Coordinator (45 minutes)

Step 1: Identifying ecosystem service prospects & researching potential buyers
- Defining, measuring, and assessing the ecosystem services in a particular area
- Determining marketable value
- Identifying prospective buyers
- Considering whether to sell as individuals or as a group

Step 2: Assessing institutional & technical capacity
- Assessing legal, policy, and land ownership context
- Examining existing rules for PES markets and deals
- Surveying available PES-support services and organizations

Step 3: Structuring agreements
- Designing management and business plans
- Reducing transactions costs
- Reviewing options for payment types
- Selecting a contract type

Step 4: Implementing PES agreements
- Finalizing the PES management plan
- Implementing activities
- Verifying PES service delivery and benefits
- Monitoring and evaluating the deal

5:15-6:00 **Questions & Discussion**

6:00 **Closing remarks & adjourn**
Erik Streed, USAID

<u>Day 3 (May 13, 2009)</u>

8:30-9:00 **Re-Cap of Day 2 & Overview of Day 3**

9:00-10:30 **Forest Carbon Accounting – part 2**
This session will introduce IPCC guidelines for greenhouse gas inventories, and explain requirements for national and regional land use GHG inventories under the UNFCCC. There will be a related exercise/discussion.

10:30-10:45 **Break**

10:40-12:30 **Carbon markets and finance**
This session will introduce carbon markets relevant for forestry. It will introduce concepts like baseline, additionality, leakage, permanence, certification, verification, and co-benefits. A real life example will be used to show how these concepts are applied in the design of a specific project.

12:30-1:30 **Lunch**

1:30-3:00 **Reducing Emissions from Deforestation and Degradation (REDD)**
The presentation will provide an overview of the concept and its current status in negotiations. It will discuss remaining key issues and challenges (scope, baselines, finance, scale, accounting, co-benefits etc.) and options. It will also summarize the current major initiatives and regional trends. There will be a related exercise/discussion.

3:00-3:15 **Break**

3:15-4:30 **Exercise on a framework of a REDD scheme**
Design exercise on a national/sub-national REDD scheme. How do we apply what we have learned in this training in real or hypothetical situations and projects?

4:30-5:30 **Final discussion, adjourn**

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ATTACHMENT I:
TOOL BOX ON FOREST AND CLIMATE CHANGE
BY CIFOR AND ICRAF

Topic 1 Integrating climate change in forestry

Topic 2 Background
Subtopic 2.1. **Brief introduction to climate change and forests**
Subtopic 2.2. **Integrating climate change into forestry: Mitigation**
Subtopic 2.3. **Integrating climate change into forestry: Adaptation**
Subtopic 2.4. **Integrating climate change into forestry: Exercise on a conceptual framework**

Topic 3 Adaptation
Subtopic 3.1. **Introduction to adaptation**
Subtopic 3.2. **Forest for adaptation**
Subtopic 3.3. **Adaptation for forests**
Subtopic 3.4. **Adaptation: Examples and case studies**

Topic 4 Carbon Accounting
Subtopic 4.1. **Carbon accounting: Introduction**
Subtopic 4.2. **Carbon accounting: Quick steps**
Subtopic 4.3. **Carbon accounting: Field measurements**
Subtopic 4.4. **USAID carbon calculators**
Subtopic 4.5. **Carbon accounting: Modeling**
Subtopic 4.6. **Carbon accounting: Monitoring**

Topic 5 Carbon Mechanisms and Markets
Subtopic 5.1. **Introduction to mitigation mechanisms and markets**
Subtopic 5.2. **Introduction to Payment for Ecosystem Services (PES)**
Subtopic 5.3. **Forest and carbon mechanisms: Major issue**
Subtopic 5.4. **The Clean Development Mechanism (CDM): overview**
Subtopic 5.4b. **The Clean Development Mechanism (CDM): in depth**
Subtopic 5.4c. **Example of A/R CDM project in Sirsa, Haryana (India)**
Subtopic 5.5. **Reduction Emissions from Deforestation and Forest Degradation (REDD)**
Subtopic 5.5b. **REDD information about demonstration activities**
Subtopic 5.6. **Voluntary markets for afforestation, reforestation and avoided deforestation**

Topic 6 Biofuels
Subtopic 6.1. **Introduction to biofuels**
Subtopic 6.2. **Biofuels impact on climate**
Subtopic 6.3. **Biofuels policy issues related to economic development and environmental sustainability**

ATTACHMENT II:

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- Working Group II Report "Impacts, Adaptation and Vulnerability. http://www.ipcc.ch/ipccreports/ar4-wg2.htm
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- UNFCCC. 2006 Issues relating to reducing emissions from deforestation in developing countries and recommendations on any further process - submissions by Parties. 122p.
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ATTACHMENT III:
NAVIGATING THE ECOSYSTEM MARKETPLACE

The Ecosystem Marketplace (EM, www.ecosystemmarketplace.com) was born to provide you with the information services needed to build a revolutionary new economy that will pay for, and invest in, ecosystem services. In particular, EM covers payment programs for three kinds of ecosystem services:

- Climate stabilization (carbon sequestration in trees, plants and marine ecosystems)
- Water-related ecosystem services (water quality, groundwater recharge, flood control)
- Biological diversity benefits (scenic beauty, ecosystem resilience, pollination, pest control, disease control, etc)

The EM has tagged the different areas of its MarketWatch coverage simply as: carbon, water, and biodiversity.

The MarketWatch section is on the homepage at www.ecosystemmarketplace.com; you can use it to track transactions across 14 different markets around the globe. If you want to find out what buyers are paying for ecosystem services in different corners of the world, click on the MarketWatch section and then pick your market.

In addition to MarketWatch information, EM provides several other types of services that might be of interest. The homepage runs new features focusing on important issues in the world of environmental markets, as well as wire reports and other news gathered from media sources around the world that touch on some aspect of payments for ecosystem services. Check the list of articles on the right hand side of the screen for a daily update.

After features run on the homepage, they are all permanently archived on the site, where you can find them by entering a keyword in the search bar at the upper right of the homepage. If you click on the news tab, you will see all the news articles of the past two months.

Beyond MarketWatch and news services, EM has a directory that you can use to find organizations working on setting up payments for ecosystem services in your area, and an event section where you can keep your eye out for conferences and meetings you may want to attend.

Last but not least, EM has a sizeable library of scholarly articles, case studies, and toolkits that you can access by clicking on the library tab on the homepage. You might use this area to find out how to measure soil carbon or to research other projects that may be similar to your own.

However you choose to use EM, we hope it will be of use to you and we welcome your feedback: info@ecosystemmarketplace.com

MODULE 2: LEGAL AND GOVERNANCE ISSUES FOR REDD: TRAINING OUTLINE

- **a) International Law on REDD**
  - i) History – Kyoto, CDM, JI, voluntary market
  - ii) Project vs. country level approach, or nested
- **b) Regulatory Issues**
  - i) Tenure – legal control over ecosystem services
    - (1) Precondition because it provides certainty, avoids the risk of:
      - (a) Elite resource capture
      - (b) Displacement of vulnerable people
    - (2) Minimum: right to perform promised activities + right to exclude incompatible activities
    - (3) Duration also important
    - (4) Difficulties in developing countries
      - (a) Land title not validly vested in local users
      - (b) Land use arrangements poorly defined and recorded
  - ii) Regulatory compliance
    - (1) Government approval
    - (2) Permits and licenses
    - (3) Taxes
- **c) Legal mechanisms to ensure permanence**
  - i) Formal insurance
  - ii) Informal insurance – pooling
  - iii) Permanent land use restrictions - easements
- **d) Contract negotiation and drafting**
  - i) Key agreements
    - (1) Seller representation
    - (2) Project governance/benefit sharing
    - (3) Fund management
    - (4) Purchase or investment agreement
  - ii) Key aspects of a purchase agreement
    - (1) Carbon contract: buyer pays to secure seller's promise to do something seller is not otherwise required to do, or to refrain from doing something seller is entitled to do
    - (2) Purchase vs. investment
    - (3) Roles of the parties
      - (a) Buyer/investor's role - investment is a financial decision, considering risk and return
      - (b) Seller/provider's role - deliver ecosystem services as promised
    - (4) Difficult/key provisions
      - (a) Price and payment
        - (i) Setting the price
        - (ii) Fixed vs. indexed price
        - (iii) Advance payments
      - (b) Risk allocation
        - (i) Validation and verification
        - (ii) Act of God
        - (iii) Change of law
      - (c) Default and remedies

Supporting materials

Documents

Costenbader, J., ed. (2010). *Legal Frameworks for REDD: Design and Implementation at the National Level*. Environmental Policy and Law Paper No. 77. Gland, Switzerland: IUCN. 214pp.
Available at: http://www.iucn.org/dbtw-wpd/edocs/EPLP-077.pdf.

Grieber, T., ed. (2010). *Payments for Ecosystem Services: Legal and Institutional Frameworks*. Environmental Policy and Law Paper No. 78. Gland, Switzerland: IUCN. 314pp.
Available at: http://cmsdata.iucn.org/downloads/eplp_78_1.pdf

Nicholson, M.J. *A Review of Basic Contract Law for International Business Students*. Ontario, Canada: Ryerson Polytechnic University. 3pp. Available at:
http://www.globalview.org/student_files/libraries/A%20Review%20of%20Basic%20contract%20Law%20for%20International%20Business%20Students.doc

Streck, C., & O'Sullivan, R. (2007). *Legal Tools for the Encofor Programme*. Washington, DC: Climate Focus. 14pp. Available at: http://www.joanneum.at/encofor/tools/doc/Encofor%20Contracts%20Manual.pdf.

Takacs D., ed. (2009). *Forest Carbon: Law + Property Rights*. Arlington, Virginia: Conservation International. 77pp. Available at: http://www.conservation.org/Documents/CI_Climate_Forest-Carbon_Law-Property-Rights_Takacs_Nov09.pdf.

Ruhl, J. B. and Salzman, J.E. *The Law and Policy Beginnings of Ecosystem Services*. Journal of Land Use & Environmental Law, Vol. 22, No. 2, 2007. FSU College of Law, Public Law Research Paper No. 290. Available at SSRN: http://ssrn.com/abstract=1028759.

PowerPoint presentations

Grieber, T. *Payments for Ecosystem Services: Legal and Institutional Frameworks*. IUCN-Katoomba Group Seminar. Gland, Switzerland: IUCN. 40 slides. Available at:
http://cmsdata.iucn.org/downloads/6__iucn_presentation_pes___at_5th_wwf.pdf.

- Presents findings from a report of the same name about payments for watershed services in Latin America, with case studies from Bolivia, Brazil, Colombia, and Peru, produced by the IUCN Environmental Law Centre and the Katoomba Group.

Sheperd, A. Emissions Reduction Purchase Agreements. Given at the regional workshop on legal, institutional, and financial aspects of carbon finance transaction for Europe and CIS, Istanbul, Turkey. 21-22 January 2008. New York: UNDP Regional Bureau for Europe and the CIS. 14 slides. Available at:
http://europeandcis.undp.org/uploads/public/file/CarbonFinanceTrainingIstanbulJan08/Emission%20Reduction%20Purchase%20Agreements.ppt.

O'Sullivan, R. *Legal Aspects of Implementing REDD: a Private Sector Perspective*. People and Environment Spring 2008 Lecture Series. Washington, DC: Climate Focus. 20 slides. Available at: http://www.equatorinitiative.org/images/stories/events/2008events/climate_focus.ppt.

- Main topics:
    - Bali decision
    - National approach vs. subnational/nested approach
    - Governance challenges

O'Sullivan, R. Introduction to Legal and Contractual Aspects of CDM Projects. Presented at the University of Twente, Netherlands, 23 May 2006. Washington, DC: Climate Focus. 51 Slides

Vidal, A. *Aspectos Legales en el desarrollo de proyectos REDD*. 5 de mayo de 2009. Lima, Peru: Osterling Abogados. 16 slides. Available at: http://www.acca.org.pe/espanol/REDD/pdf/redd_Opportunities_Challenges_and_Risks-Adriana_Vidal.pdf.

- Covers basic topics in Spanish

Videos

FRONTLINE/World & the Center for Investigative Reporting. Brazil: The Money Tree. PBS, 2009.

- 9 segments, each 2-3 minutes long, about carbon markets in Brazil
- Topics:
    1. Measuring carbon
    2. The carbon deal
    3. Interview with a park ranger
    4. Palm and exclusion from resource use
    5. Enforcement
    6. Statutory vs. customary law
    7. Perverse outcomes
    8. Displacement of people
    9. Interview with a head of enforcement
    10. Indigenous issues: the Guarani

MODULE 3: PAYMENTS FOR ECOSYSTEM SERVICES IN COASTAL AND MARINE ECOSYSTEM SERVICES - TRAINING PROGRAM OUTLINES & RECOMMENDED MATERIALS

Welcome and Introduction

- Course introduction
- Participant introduction: name, title, organization, geographic location of work, and reason for participation

Resources

- Ice breakers http://www.icebreakers.ws/get-to-know-you

Introduction to coastal and marine ecosystem services

- Ecosystem services: Basic Concepts and types of environments
  - Coastal (mangroves, beaches, estuaries, salt marshes)
  - Marine (aquaculture/fisheries, seagrass, biogenic reefs)
- The difference between environmental services and environmental goods
- Class discussion: potential types of environmental services
- Estimates of Valuing Environmental Services
  - Existing coastal and marine valuation data
  - How to evaluate new ecosystem services and environment

PowerPoint

- Marine Getting Started

Videos

- Dan Donato: Coastal and Marine Markets http://live.katoombagroup.org/?cat=8
- Blue Planet: Coral Reefs and Fish http://www.youtube.com/watch?v=cbN161yBBGA
- World Resource Institute: Reefs-at-Risk http://www.youtube.com/watch?v=Jj_OkSRN9oU
- Sven Wunder: What are Payments for Environmental Services http://www.youtube.com/watch?v=uNGPF1CdK-4

Resources

- Naber H, Lange G-M, and Hatziolos M. 2008. Valuation of marine ecosystem services: a gap analysis. The World Bank. Washington DC.
- The World Bank Group. 2009. *Environment Matters: Valuing Coastal and Marine Ecosystem Services.*
- Costanza R, d'Arge R, de Groot R, Farber S, Grasso M, Hannon B, Limburg K, Naeem S, O'Neill R, Paruelo J, Raskin R, Sutton P, and van den Belt M. 1997. The value of the world's ecosystem services and natural capital. *Nature* 387: 253 – 260.
- Spergel B, and Moye M. 2004. Financing marine conservation- a menu of options. World Wildlife Fund Center for Conservation Finance. Washington D.C.
- Boyd J, Spencer B. 2006. What are Ecosystem Services? The Need for Standardized Environmental Accounting Units. RFF DP 06-02

- Conservation International. 2008. Economic values of coral reefs, mangroves, and seagrasses: a global compilation. Center for Applied Biodiversity Science, Conservation International, Arlington, VA, USA.

Types of Coastal and Marine Ecosystem Services

- Marine Biodiversity Conservation
- Carbon Sequestration and Stocks
- Ocean Climate Regulation
- Cultural Preservation
- Fish nursery habitat conservation
- Ecotourism (snorkeling and dive operations)
- Nutrient Cycling
- Marine Protected Areas and No-Take zones
- Shoreline Protection and Stabilization

PowerPoints

- Marine Ecosystem Services
- Marine and Coastal Services

Video

- Our Mangroves Our Future

http://www.youtube.com/watch?v=7UXd3-gasX4&feature=related

- Mangrove Makeover: Planting trees fights coastal erosion in southern Vietnam http://digitalmedia.worldbank.org/SSP/mangrove/index.html
- The Endless Voyage: Introduction to Oceanography: Fishery Management http://www.youtube.com/watch?v=K-isjmHj15E

Resources

- UNEP-WCMC. 2006. In the front line: shoreline protection and other ecosystem services from mangroves and coral reefs. UNEP-WCMC, Cambridge, UK.

Coastal and Marine carbon sequestration and storage

- Carbon sequestration in coastal and marine environments
    - Mangroves
    - Corals
    - Seagrass meadows
    - Salt marshes
- Overview of the carbon cycle
- Photosynthesis (from mangroves to phytoplankton)
- Environments (by geography and age)
- Calculating Carbon Stocks in coastal and marine habitats
- Role of coasts and oceans in climate change mitigation
    - Mangrove Reforestation
    - Overview of Blue Carbon Report

PowerPoint

- Marine Markets

Video

- Marine Ecosystems: Climate Variability and Change http://www.youtube.com/watch?v=N1HvNm3mFYQ
- Adapting to Climate Change: Mangrove Restoration for Coastal Protection http://www.wetlands.org/WatchRead/Videos/AdaptingtoClimateChangeMangroveforests/tabid/1165/Default.aspx
- YL Invest: Mangrove Afforestation Project at Indonesia http://www.youtube.com/watch?v=m_mta-Bpha8
- Wetlands Int: Adapting to Climate Change: mangrove forests for coastal restoration http://www.youtube.com/watch?v=G3KCThs4XQU

Resources

- Laffoley D, Grimsditch G. 2009. The management of natural coastal carbon sinks. IUCN, Gland, Switzerland.

REDD and Marine Systems

- REDD: History, opportunities and limitations
- The Three REDD Bottlenecks: scale, baseline and funding
- Role of REDD in marine Carbon sequestration

Resources

- Angelsen, A. (ed.) 2008. *Moving ahead with REDD: Issues, options and implications.* CIFOR, Bogor.
- Bond, I., M. Grieg-Gran, S. Wertz-Kanounnikoff, P. Hazlewood, S. Wunder and A. Angelsen. 2009. *Incentives to Sustain Forest Ecosystem Services: A Review and Lessons from REDD.* International Institute for Environment and Development (IIED), London.
- Griffths, T. and F. Martone. 2009. *Seeing 'REDD'? Forests, Climate Change Mitigation and the Rights of Indigenous Peoples and Local Communities.* Forests and Peoples Programme, London.

Coastal and Marine biodiversity

- Role of biodiversity as an ecosystem service
- Relationship of biodiversity to marine environments and carbon sequestration
- Natural, social, and economic connection between carbon, and biodiversity
- Types of marine environmental biodiversity services and scales

Video

- Census of Marine Life: Ocean Observations Biodiversity

http://www.youtube.com/watch?v=kXXzvGJCVAc (video)

Resources

- OECD Environment Series. 2003. Harnessing Markets For Biodiversity: Towards Conservation And Sustainable Use.
- Palumbi, SR, Sandifer, PA, Allan, JD, Beck, MW, Fautin, DG, Fogarty, MJ, Halpern, BS, Incze, LS, Leong, JA, Norse, E, Stachowicz, JJ, Wall, DH. 2009. Managing for ocean biodiversity to sustain marine ecosystem services. Front Ecol Environ. 7(4) 204 – 211.

- ten Kate K, Bishop J, Bayon R. 2004. Biodiversity offsets: Views, experience, and the business case. IUCN, Gland, Switzerland and Cambridge, UK and Insight Investment, London, UK.
- Walser M, Neumann C. 2008. The value of our oceans: the economic benefits of marine biodiversity and healthy ecosystems. World Wildlife Fund. Germany
- Worm B, Barbier EB, Beaumont N, Duffy JE, Folke C, Halpern BS, Jackson JB, Lotze HK, Micheli F, Palumbi SR, Sala E, Selkoe KA, Stachowicz JJ, Watson R. 2006. Impacts of biodiversity loss on ocean ecosystem services. Science. 314

Coastline Protection and Beach Stabilization

- Function of coastline protection and beach stabilization as an environmental service
- Types of coastal environments that protect coastline (mangroves, seagrass, coral)
- Coastlines and natural disasters: case examples

Video

- Vietnam Red Cross Mangrove "Green Wall" http://www.youtube.com/watch?v=Nf3PVNxGbsw

Resources

- Sanford M. 2009. Valuating Mangrove Ecosystems as Coastal Protection in Post-Tsunami South Asia. Natural Areas Journal. 29(1): 91-95

Fish Nursery Habitat Conservation

- Role of fish nursery habitat protection in commercial and artisan fisheries
- Function of fish nursery protection as an environmental service
- Types of coastal and marine environments that conserve fish nursery habitats

Resources

- Rönnbäck P. 1999. The ecological basis for economic value of seafood production supported by mangrove ecosystems. Ecological economics. 29: 235-252
- South Atlantic Fishery Management Council. IFQs/ITQs - An Overview. SAFMC Meeting December 4-8, 2006 Atlantic Beach, NC, USA.

Group Activity

Participants can be divided in three groups to review materials about the following case studies and present to the class.

Case study 1: Mangroves – Carbon Storage and Markets

- Current carbon mangrove restoration projects in region
- Challenges that face mangrove forest carbon market projects
- Lessons from existing projects and ideas for future initiatives

Case study 2: Mangroves – Shoreline Protection and Stabilization

- Current shoreline protection mangrove restoration projects in region
- Challenges that face mangrove forest shoreline protection projects
- Lessons from existing projects and ideas for future initiatives

Case study 3: Mangroves – Fish Nursery Habitat and Biodiversity Conservation

- Current fish nursery habitat and biodiversity mangrove restoration projects in region

- Challenges that face mangrove forests fish nursery habitat and biodiversity conservation
- Lessons from existing projects and ideas for future initiatives.

In-depth Case Study:

- Review of MPAs in country or region
- Lessons learned from established MPAs
- Specific framework for one site
    - Legal considerations
    - Social and community considerations
- Opportunities for self-sustaining finances (ecotourisim, entrance fees, etc)
- Challenges for meeting PES conditionality

Field Site Visit:

- Review and demonstrate mangrove forest ecosystem and services
    - Carbon storage
    - Coastal protection and stabilization
    - Aquaculture nursery conservation and biodiversity protection
- Hands-on group activities:
    - calculate plant biomass for potential carbon sequestration
    - survey biodiversity and species richness at water/mangrove fringe
    - compare above findings with deforested mangrove site
- Talk from local fishermen about mangroves and daily livelihood
- Review of mangrove conservation importance

Resources

- Aburto-Oropeza O, Ezcurra E, Danemann G, Valdez V, Murray J, and Sala E. 2008. Mangroves in the Gulf of California increase fishery yields. Proceeding National Academy of Sciences: Environmental Science. 105(30)
- Designing Payments for Ecosystem Services - Report from the East Asian Regional Workshop (Hanoi, April 2008). IUCN, Global Environment Facility, and The World Bank
- Sanford M. 2009. Valuating Mangrove Ecosystems as Coastal Protection in Post-Tsunami South Asia. Natural Areas Journal. 29(1): 91-95.
- Tong Kind Delta, Vietnam (Mazda et al. 1997 – Mangroves as a coastal protection from waves in the Tong King delta, Vietnam. Mangroves and Salt Marshes 1: 127-235
- Nellemann, C., Corcoran, E., Duarte, C. M., Valdés, L., De Young, C., Fonseca, L., Grimsditch, G. (Eds). 2009. Blue Carbon. A Rapid Response Assessment. United Nations Environment Programme, GRID-Arendal.
- Designing Payments for Ecosystem Services - Report from the East Asian Regional Workshop (Hanoi, April 2008). IUCN, Global Environment Facility, and The World Bank
- Hall, S.J. 1999. The effects of fishing on marine ecosystems and communities. Blackwell Science, Oxford. p. 274
- How is your MPA Doing? *IUCN* http://www.iucn.org/about/union/commissions/wcpa/wcpa_puball/wcpa_pubsubject/wcpa_marinepub/?2094/How-is-your-MPA-doing-

- Kelleher, G. and Kenchington, R. 1991. Guidelines for Establishing Marine Protected Areas. A marine conservation and development report. IUCN, Gland, Switzerland. p. 79
- Green S., Meneses A., White A., Kilarski S., Christie P., Best B., Samonte-Tan G., Fox H., Newman K., Karrer L., McClennen C., and Campbell S. 2009. Marine Protected Area Networks in the Coral Triangle: Development and Lessons from the Marine Learning Partnership. Paper presented at the annual meeting of the International Marine Conservation Congress, George Madison University, Fairfax, Virginia
- Nature's Investment Bank: http://video.google.com/videoplay?docid=4446714816518240679# (video)

Additional Videos

- Blue Planet: Coral Reefs and Fish http://www.youtube.com/watch?v=cbN161yBBGA
- World Resource Institute: Reefs-at-Risk http://www.youtube.com/watch?v=Jj_OkSRN9oU
- Sven Wunder: What are Payments for Environmental Services http://www.youtube.com/watch?v=uNGPF1CdK-4
- Our Mangroves Our Future http://www.youtube.com/watch?v=7UXd3-gasX4&feature=related
- Mangrove Makeover: Planting trees fights coastal erosion in southern Vietnam http://digitalmedia.worldbank.org/SSP/mangrove/index.html
- The Endless Voyage: Introduction to Oceanography: Fishery Management http://www.youtube.com/watch?v=K-isjmHj15E
- Marine Ecosystems: Climate Variability and Change http://www.youtube.com/watch?v=N1HvNm3mFYQ
- Adapting to Climate Change: Mangrove Restoration for Coastal Protection http://www.wetlands.org/WatchRead/Videos/AdaptingtoClimateChangeMangroveforests/tabid/1165/Default.aspx
- YL Invest: Mangrove Afforestation Project at Indonesia http://www.youtube.com/watch?v=m_mta-Bpha8
- Wetlands Int: Adapting to Climate Change: mangrove forests for coastal restoration http://www.youtube.com/watch?v=G3KCThs4XQU
- Census of Marine Life: Ocean Observations Biodiversity http://www.youtube.com/watch?v=kXXzvGJCVAc
- Vietnam Red Cross Mangrove "Green Wall" http://www.youtube.com/watch?v=Nf3PVNxGbsw
- Nature's Investment Bank MPA Poverty Reduction: http://video.google.com/videoplay?docid=4446714816518240679#

Additional Resources

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- Forest Trends 2010. *Getting Started in Marine and Coastal Ecosystems: A Primer*. Forest Trends, Washington DC.
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- Millennium Ecosystem Assessment. 2005. "Ecosystems and Human Well-Being: Synthesis" Washington, D.C.: World Resources Institute
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- Waage S. Roberts J. 2007. "Negotiating For Nature's Services: A Primer For Sellers Of Ecosystem Services On Identifying & Approaching Private Sector Prospective Buyers." Forest Trends.

Additional Websites

- Forest Trends MARES Program: www.forest-trends.org/mares
- Katoomba Group PES Learning Tools: www.katoombagroup.org
- United States National Oceanographic and Atmospheric Administration (NOAA): www.noaa.gov
- WWF Marine Program: www.panda.org/what_we_do/how_we_work/conservation/marine
- TNC Marine Conservation Program: www.nature.org/initiatives/marine
- The Ocean Conservancy: www.oceanconservancy.org
- Wetlands International: www.wetlands.org
- NC Marine Conservation Agreements Toolkit: www.mcatoolkit.org
- Mangroves for the Future: www.mangrovesforthefuture.org
- Marine Protected Area Network- Vietnam: http://mpanet.agroviet.gov.vn
- Census of Marine Life: www.coml.org
- The Nature Conservancy: Conservation Training: www.conservationtraining.org
- Locally-Managed Marine Area Network: www.lmmanetwork.org
- International Coral Reef Initiative: www.icriforum.org
- Coral Center Vietnam: www.coralcenter-vn.com/en/home.html
- United Nations Convention on Biological Diversity: www.biodiv.org
- FAO Fisheries Marine Protected Areas: www.fao.org/fishery/topic/13502/e

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Armas A, Borner J, Tito MR, Díaz L, Tapia-Coral, SC, Wunder S, Reymond L, Nascimento N. 2009. Pagos por servicios ambientales para la conservación de bosques en la Amazonía peruana: un análisis de viabilidad. SERNANP, Lima, Peru.

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Larson AM, Barry D, Dahal, GR, Colfer CJP. 2010. Bosques y derechos comunitarios: las reformas en la tenencia forestall. Center for International Forestry Research. Bogor, Indonesia.

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Ortega-P SC, García-Guerrero A, Ruíz C-A, Sabogal J, Vargas JD (eds.) 2010. Deforestación evitada: una guía REDD + Colombia. Ministerio de Ambiente, Vivienda y Desarrollo Territorial; Conservación Internacional Colombia; Fondo Mundial para la Naturaleza (WWF); The Nature Conservancy; Corporación Ecoversa; Fundación Natura; Agencia de Cooperación Americana (USAID); Patrimonio Natural - Fondo ‘para la Biodiversidad y Áreas Protegidas y Fondo para la Acción Ambiental. Bogotá.

Rai Chi K, MacGregor J, King R. 2009. Fair miles: recharting the food miles map. International Institute for Environmental and Development and Oxfam GB. London, UK.

Reid H, Alam M, Berger R, Cannon T, Milligan A. 2009. Community-based adaptation to climate change. Participatory Learning and Action (60). International Institute for Environment and Development. London, UK.

Seeberg-Elverfeldt C. 2010. Carbon finance possibilities for agriculture, forestry and other land use projects in a smallholder context. Food and Agriculture Organization. Rome, Italy.

Sulle E and Nelson F. 2009. Biofuels, land access and rural livelihoods in Tanzania: land tenure and resource access in Africa. International Institute for Environmental and Development. London, UK.

Tauli-Corpuz V, de Chavez R, Baldo-Soriano E, Magata H, Golocan C, Bugtong MV, Enkiwe-Abayao L, Cariño J. 2009. Guide on climate change & indigenous peoples: second edition. Tebtebba Foundation. Baguio City, Philippines.

Videos

Arthus-Bertrand Y. 2009. Home. Europa - PPR Group.

Liu JD. 2009. Hope in a Changing Climate. Environmental Education Media Project.

Online Learning Materials

Center for Sustainable Development. Online learning: http://www.csd-i.org/online-learning/
Contact 202-657-4760 (VoIP line to Guatemala)

Amity School of Natural Resources and Sustainable development(ASNRSD) - MBA course in Natural Resources Management. Contact: Debojyoti Chakraborty (Lecturer). Amity Institute of Global Warming and Ecological Studies Amity University campus, Block D, II floor, Sector 125, NOIDA, India. Email: dchakraborti@amity.edu website: http://www.amity.edu/aigwes

The Greenhouse Gas Management Institute (GHGMI) partnership with The Climate Registry (TCR) to provide online training courses on GHG accounting and verification. Training courses can be found online here: http://ghginstitute.org/training-programs/courses/

Executive Education in Forestry Program. The Global Institute of Sustainable Forestry, Yale School of Forestry and Environmental Studies, Yale University, New Haven, CT. Contact Info: email: barbara.ruth@yale.edu website: http://gisf.research.yale.edu/exec_course.htm

Management Education Center on Climate Change. Gujarat University Ahmedabad. M.Sc. course on Climate Change Impacts Management.

MODULE 4: GETTING STARTED WITH PAYMENTS FOR ECOSYSTEM SERVICES: TRAINING PROGRAM OUTLINES & RECOMMENDED MATERIALS

Note: Please see CD-Rom for full 59 slide power point presentation.

- Background

- Introduction
  - What are ecosystem services?
  - What are payments for ecosystem services (PES)?
  - What markets exist?

- Getting Started with PES
  - What is the opportunity for landowners?
  - What are the risks?
  - What are the ideal conditions?
  - How do you get started and move through the steps to develop a payment for ecosystem services project?

TRAINING COMMUNITIES IN UGANDA ON PAYMENTS FOR ECOSYSTEM SERVICES

In Collaboration with
The Government of Uganda's National Environment Management Authority (NEMA)

A Partnership for Training Stakeholders on Payment for Ecosystem Services (PES) Under the Project on "Developing an Experimental Methodology for Testing the Effectiveness of PES to Enhance Conservation in Productive Landscapes in Uganda"

DRAFT AGENDA: Local Resource Users/ Community Training

Day 1			
Time	**Title**	**Content**	**Instructor**
08:00	Welcome	- Welcome & Introduction - Workshop Objectives & Agenda - Introductions of Participants and Instructors	Representative from Government of Uganda's NEMA Beto Borges, Director, Forest Trends' Communities and Markets Program
09:00	Introduction to Environmental Services	Introduction to Ecosystem Services - What are ecosystem services? - Why are they important? - Basic concepts - Carbon, water, biodiversity	Rebecca Vonada and Ole? (*to be invited)* Pauline Nantongo, EcoTrust? (*to be invited)*
9:45	Question and Answer		
10:00	Coffee Break		
10:15	Environmental Services: Payment and Compensation Schemes	- Payments for Ecosystem Services: Concepts, Approach, & Applications - Types of payments, markets, schemes (carbon, biodiversity, water) - Who pays, who receives, and why? - Externalities - Public and private benefits - Opportunity and transaction costs - Valuing environmental services	Beto Borges Pauline Nantongo? (*to be invited)* Beatrice A.? (*to be invited)*
11:00	Question and Answer		

11:15	Case Study #1	Presentation on regional PES project in development	*Pauline & Beatrice? Sara Namriembe, ICRAF's PRESA? Alice Ruweza, UNDP?*
12:00	Question and Answer		
12:15	Lunch		
13:30	Ugandan Context	- Uganda's role in mitigating climate change - Ugandan environmental services: a brief summary of the significance of regional biodiversity et al. - Current policy initiatives - Importance of productive lands and communities	NEMA
14:15	Question and Answer		
14:30	Watershed Services and Markets	- What are they? - How do they work? - Current trends - Case Study	Sara Namriembe, ICRAF's PRESA (*to be invited)*
15:15	Question and Answer		
15:30	Coffee Break		
16:00	Biodiversity Markets and other Initiatives	- What are they? - How do they work? - Current trends - Case Study	TBD
16:45	Question and Answer		
17:00	Closing		

Day 2			
Time	**Title**	**Content**	**Instructor**
08:30	Opening	- Summarize Day 1 - Review Day 2 agenda - Introduce presenters	NEMA representative Beto Borges, Forest Trends
9:00	Introduction to Climate Change	Introduction to Climate change - What is climate change? What are its effects? - Greenhouse Gases – definition, sources, global trends - Mitigation and the role of forests, biodiversity, water, agriculture	TBD KG
10:00	Question and Answer		
10:15	Coffee Break		

10:30	Carbon Markets	- What are they? - Voluntary vs. regulatory? - International negotiations – brief summary - Current trends	Sara Namriembe, ICRAF's PRESA (*to be invited)*
11:15	Question and Answer		
11:30	Carbon: Reduced Emissions from Deforestation and forest Degradation (REDD)	- What is REDD? - How does it work? - Baselines, additionality, leakage and other important concepts - REDD+	Sara Namriembe, ICRAF's PRESA (*to be invited)* Beto Borges, Forest Trends
12:00	Question and Answer		
12:15	Lunch		
13:30	Case Study #2	- Presentation PES project in development (community level, community rep)	*Lilly?* *Pauline?* *Beatrice?* *BB?* *Alice?*
14:15	Question and Answer		
14:30	Agricultural Carbon	- Basic elements of Agricultural Carbon PES - Current projects and opportunities in Uganda - Global trends	Eduard from Unique (in Kampala)? Lilly? Pauline? BB?
15:15	Question and Answer		
15:30	Coffee Break		
16:00	Stacking and Bundling	- How to combine carbon projects with biodiversity or water projects	TBD
16:45	Question and Answer		
17:00	Closing		

Day 3			
Time	**Title**	**Content**	**Instructor**
08:30	Opening	- Summarize Day 2 - Review Day 3 agenda - Introduce presenters	NEMA Beto Borges, Forest Trends
09:00	Basic Elements of a PES Project	- Scoping analysis - Site selection and scale - Project Design and Activities - Technical aspects: baseline, leakage, permanence, additionality, measuring and	Beto, Rebecca, Tommie

		monitoring, certification - Cost estimates, funding - Project Timeline - Benefits and payments - Monitoring and Evaluation plans	
09:45	Question and Answer		
10:00	Contracts and Legal Requirements	- What might a contract look like? - What will the community's obligations be? - What should a community look for in a contract? - Discussion of potential legal obligations for land use changes	Sara Namriembe? Alice Ruhweza? Christine Akello , NEMA legal counsel
10:30	Question and Answer		
11:00	Facilitated discussion	- Opportunities - Risks - Benefits *Have participants write 1 item/note card. Then, as a group, work to place each item in a category and discuss the implications of said characteristic of PES projects.*	Beto, Rebecca, Tommie
12:00	Summary of facilitated discussion		Beto Borges, Forest Trends
12:15	Lunch		
13:30	Indigenous Rights, Best Practices, Social/ Environmental Principles and Criteria	- Social and economic impacts of PES - Free prior and informed consent - Social Environmental Principles and Criteria of REDD	Beto Borges
14:15	Question and Answer		
14:30	Land Management for Carbon Sequestration, Biodiversity Conservation, and increased	- Review of land management practices which have been proven to yield environmental services benefits - Review of conservation practices which also lead to increased yields	Eduard from Unique (in Kampala)?

	productivity		
15:15	Question and Answer		
15:30	Coffee Break		
16:00	Adaptation	http://www.undp.org/climatechange/adapt/program.html See “Awareness and capacity”	Alice or other UNDP rep
16:45	Question and Answer		
17:00	Closing		

MODULE 6: PRIVATE SECTOR MODULE – TAILORED FOR BRAZIL'S FGV EXTENSION COURSE "MANAGEMENT FOR LOW CARBON"

Country:	**Brazil**
University:	**Fundação Getúlio Vargas (FGV),** one of the premier business and economic schools in Brazil. FGV's Center for Sustainability Studies was created in 2003 to educate companies, their financers, stockholders, leaders, insurers, consultants and auditors in the risks and opportunities associated with the environment, corporate social responsibility, and corporate governance. Its mission is to contribute to implementing sustainable development through the study and dissemination of concepts and best practices. Through its public education division, FGV offers short-term courses that reach hundreds of students annually. FGV aims to raise the profile of PES within Brazil, through increasing public awareness and understanding of the opportunities presented by PES at both international and domestic levels.
Contacts:	**Mario Monzoni and Rachel Biderman**
Course Title:	Management for Low Carbon
Description:	Provide business executives, public sector decision makers, members of the press, leaders of NGOs and social organizers with the main aspects of science, politics, economics, and law related to the management of GHG emissions, focusing on challenges and opportunities presented by global climate change, and the need to construct models for low carbon economic development.
Details:	A 60 hour course offered by FGV's Center for Sustainability Studies through the Continuing Education Program (PEC)
Type of Instruction:	Lecture, exercises, group dynamics, field visits, to carbon emissions offset projects.
Instructors:	Rachel Biderman, Ph.D Public Administration and Governance – FGV, Deputy Coordinator for the Center for Sustainability Studies, FGV and Beto Borges, Director, Communities & Markets Program, Forest Trends *(for Module IX on PES and climate change)*

PES & Climate Change Module Description:

- Introduction to the basic concepts and national and international practice of PES.
- The interface of environmental services and emerging environmental markets and climate change in the context of the new biomass economy.
- Essential components for the design of carbon and other PES projects. Reflection on the potential for REDD+ initiatives in Brazil.
- Socio-environmental principles and criteria for the implementation of REDD+ in Brazil.
- The application of Social Impact Assessment in forest carbon projects.
- Reflection about markets beyond carbon: water, biodiversity, mitigation banks, marine systems.

Please see the final FY10 Forest Trends & Katoomba Group outputs CD-Rom for the full power point and associated materials

Languages: English and Portuguese

Full Course Outline of Modules:

I. Scientific and regulatory framework on climate change
   a. Science
      i. IPCC studies on global climate change
      ii. Scientific studies addressing major impacts on Brazil
   b. International Regulatory Framework
      i. UNFCCC
      ii. Kyoto Protocol
      iii. New global climate regime
   c. Mitigation and Adaptation: Concepts:
      i. Mitigation
      ii. Adaptation
      iii. New public and private policies taking into account climatic vulnerabilities

II. Climate economics
   a. Stern review
   b. Climate economics and Brazil
   c. Sustainable development and the challenges of climate change

III. Public policies on climate change in Brazil – challenges and opportunities
   a. Strategic vision
   b. National policy on climate change
   c. Policy of the state of Sao Paulo
   d. Other policies adapted in the sub-national context
   e. Government emissions inventories

IV. Corporate governance/ business management and climate change
   a. Strategic vision
   b. Corporate policies
   c. Management systems for GHG emissions
   d. Inventory of corporate GHG emissions
   e. Cases and best practices

V. International trade and climate change
   a. Repositioning the industry
   b. Regulatory restrictions in industrialized countries

VI. Sustainable finance and climate change
   a. Constraints of the financial system
   b. Financing/ funding opportunities

VII. The Carbon Market
   a. Kyoto Protocol regime and other formal market schemes
   b. Voluntary markets

VIII. Press and climate change
   a. Scientific journalism
   b. Impact on the formation of Brazilian and international public opinion
   c. Challenges to maintaining journalistic coverage

IX. Payment for Environmental Services (or ecosystem services) - PES and climate change
   a. Concepts and national/ international practices
   b. Potential of REDD projects
   c. Thematic workshop and visits to research pilot projects operating in the Sao Paulo and southern Minas Gerais regions

El Papel de Fundos Ambientales en Pagos por Servicios Ambientales
Un taller en la serie de Desarrollando Capacidades de RedLAC

12 Noviembre 2010		
Hora	**Tema**	**Instructor**
9:00 – 9:30	Bienvenida e Introducción	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets Management Partners Representante FUNBIO Representante FMCN
9:30 – 10:15	¿Qué son los servicios ecosistémicos? ¿Por qué son importantes? ¿Qué mercados existen?	Rebecca Vonada, Forest Trends Ricardo Bayón, Eko AMP
10:15 – 10:45	Preguntas y Aclaraciones, Discusión Abierta	
10:45 – 11:00	Descanso para café	
11:00 – 11:45	Mercados de Carbono - Mercados globales: regulados - Mercados globales: voluntarios	Michael Jenkins, Forest Trends Ricardo Bayón, Eko AMP
11:45 – 12:15	Preguntas y Aclaraciones, Discusión Abierta	
12:15 – 13:15	Otros Mercados Ambientales - Mercados de agua - Mercados de biodiversidad - Servicios Marítimos	Ricardo Bayón, Eko AMP Ray Victurine, WCS (TBC) Winnie Lau, Forest Trends
13:15 – 14:00	Preguntas y Aclaraciones, Discusión Abierta	
14:00 – 15:30	Almuerzo	
15:30 – 16:15	Presentación de Estudios de Caso #1 y #2	FMCN
16:15 – 16:45	Preguntas y Aclaraciones, Discusión Abierta	
16:45 – 17:15	Explicación sobre los grupos de trabajo Conclusión del día	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets
17:15 – 18:00	Descanso para café y conversación libre	

13 Noviembre 2010		
Hora	**Tema**	**Instructor**
9:00 – 9:15	Bienvenida, Resumen del día 1, Introducción al día	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets Management Partners
9:15 – 10:00	Como diseñar un proyecto de PSA	David Tepper, Forest Trends (TBC)
10:00 – 10:30	Preguntas y Aclaraciones, Discusión Abierta	

10:30 – 11:00	Descanso para café	
11:00 – 11:45	Vendiendo el Proyecto - ¿Quiénes son los compradores y qué buscan?	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets
11:45 – 12:30	Preguntas y Aclaraciones, Discusión Abierta	
12:30 – 13:30	Papel de los Fundos Ambientales en el Desarrollo de Proyectos PSA	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets
13:30 – 14:15	Preguntas y Aclaraciones, Discusión Abierta	
14:15 – 15:30	Almuerzo	
15:30 – 17:00	Grupos de Trabajo* - Diseñando un RfP - Diseñando un proyecto PSA	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets
17:00 – 17:15	Conclusión del día	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets
17:15 – 18:00	Descanso para café y conversación libre	

14 Noviembre 2010		
Hora	**Tema**	**Instructor**
9:00 – 9:30	Bienvenida, Resumen del día 2, Introducción al día	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets Management Partners
9:30 – 10:30	Preparación final de los grupos de trabajo	
10:30 – 11:00	Descanso para el café	
11:00 – 12:30	Presentaciones de los grupos de trabajo	
12:30 – 13:00	Preguntas y Aclaraciones, Discusión Abierta	
13:00 – 14:00	Conclusión del taller	Michael Jenkins, Forest Trends Ricardo Bayón, Eko Assets Management Partners Representante FUNBIO Representante FMCN
14:00 – 15:30	Almuerzo	
15:30 – 16:30	Reflexiones escritas hacia el futuro (requisito RedLAC).	Camila Monteiro, FUNBIO

Forest Trends is an international non-profit organization that works to expand the value of forests to society; to promote sustainable forest management and conservation by creating and capturing market values for ecosystem services; to support innovative projects and companies that are developing these new markets; and to enhance the livelihoods of local communities living in and around those forests. We analyze strategic market and policy issues, catalyze connections between forward-looking producers, communities and investors, and develop new financial tools to help markets work for conservation and people.

The Katoomba Group is an international network of individuals working to promote and improve capacity related to markets and payments for ecosystem services (PES). The Group serves as a forum for the exchange of ideas and strategic information about ecosystem service transactions and markets, as well as a means for collaboration between practitioners on PES projects and programs. It has held numerous global conferences, published and contributed to a number of publications, and supported the development of a range of new PES schemes including the BioCarbon Fund at the World Bank and the Mexican PES Fund. The Katoomba Group has also advised national policy discussions on financial incentives for conservation in numerous countries including China, Brazil, India, and Colombia.