

Enhancing the Impact of Research for Development
A Pilot Competitive Grants Program to support innovative partnerships and projects

**SCALING-UP PAYMENTS FOR WATERSHED SERVICES (PWS):
DESIGNING REGIONAL COMPENSATION SYSTEMS TO SAFEGUARD
WATER SUPPLY FOR DOWNSTREAM AGRICULTURE**

**Proposal from Fundación Natura Bolivia
and the Center for International Forestry Research**

in collaboration with the Departmental Government of Santa Cruz, Bolivia; Winrock India; the World Agroforestry Center (ICRAF); KZN Wildlife, South Africa; Working for Water Program, South Africa

I. Contact Information

Last Name	Vargas
First Name	Maria Teresa
Email address	mteresavargas@naturabolivia.org
Organization Name	Fundación Natura Bolivia (<i>Nat</i>)
Organization address	Av. Irala 421 2do piso, Santa Cruz, Bolivia
Organization website	www.naturabolivia.org
Organization type	Non-governmental organization
Telephone/Fax	+591 3 3395133
Organization description and date established	Fundación Natura Bolivia is a non-governmental environmental organization established in 1997. Our mission is to help improve the quality of life of Bolivians, while protecting and sustainably managing renewable natural resources and the environment. We began our work in 2002 in Santa Cruz, Bolivia, with a geographic focus on the valleys of Santa Cruz and the Amazon, and a strategic focus on: <ul style="list-style-type: none"> • Forest and biodiversity conservation • Productive economic activities • Strengthening national and local environmental policies

II. Project Details

Title of Proposal	Scaling up payments for watershed services: Designing regional compensation systems to safeguard water supplies for downstream agriculture
Project Duration using Grant Funds (in months)	22
Countries of Implementation	Bolivia, with research and lesson learning in India and South Africa

III. Primary CGIAR Center Partner

Last Name	Wunder
First Name	Sven
Email address	s.wunder@cgiar.org
CGIAR Center Name	Center for International Forestry Research (<i>CIFOR</i>)
Position at Center	Senior Economist
Telephone/Fax	+55 (91) 3259 5724
City	Belem
Country	Brazil

IV. Other Partners and Associates

Deleted: ¶

Name of Partner Organization	Departmental Government of Santa Cruz (<i>SC Government</i>)
Type of Organization	Bolivian Local Government
Name of partner	Erwin Aguilera
e-mail address	croca@santacruz.gov.bo

Name of Partner Organization	Winrock India (<i>WI</i>)
Type of Organization	NGO
Name of partner	Chetan Agarwal
e-mail address	chetan@winrockindia.org

Formatted: Font: 11 pt

Formatted: Font: 11 pt

Name of Partner Organization	International Center for Agroforestry Research (<i>ICRAF</i>)
Type of Organization	CG Centre
Name of partner	Meine van Noordwijk
e-mail address	m.vannoordwijk@cgiar.org

Name of Partner Organization	Kwazulu-Natal Wildlife in conjunction with Futureworks (<i>KZN/F</i>)
Type of Organization	South African Private Foundation (Quasi-provincial Government)
Name of partner	Steve McKean
e-mail address	Steve@kznwildlife.com

Formatted: Font: 11 pt

Formatted: Font: 11 pt

Formatted: Font: 11 pt

Name of Partner Organization	Working for Water (<i>W/W</i>)
Type of Organization	South African Working for Water Program, Dept. Forestry and Water
Name of partner	Christo Marais
e-mail address	chris@dwaf.gov.za

Formatted: Font: 11 pt

Formatted: Font: 11 pt

V. Project Description

1) PROJECT TITLE

Scaling up payments for watershed services (PWS): Designing regional compensation systems to safeguard water supplies for downstream agriculture

2) PROBLEM DEFINITION

Watershed environmental services, upon which many agricultural producers depend, are being rapidly degraded around the world because of upstream land use change. In Bolivia's Rio Grande-Mamore, for example, annual floods cause the loss of millions of dollars of agricultural production. Between 1992 and 2003, losses caused by flooding on the Rio Grande cost Bolivia's economy 0.1% of GDP. In early 2007, tens of thousands of cattle drowned after weeks of El Niño-exacerbated rain ran-off deforested upstream slopes into already-flooded channels. The agricultural sector in Santa Cruz lost \$90 million in one month, and the Department of Beni (annual budget \$30 million) lost \$200 million, with 5 000 families forced to flee their homes, and more than 300 000 people affected (UN estimates).

Meanwhile, most of the water for agriculture around Bhopal, India, and half the city's water supplies come from the Kolar reservoir, where upstream deforestation by 30 000 villagers is causing increased sedimentation. Decreased dry season water flow from the reservoir is negatively affecting downstream livelihoods. Similarly, the highly-populated Thukela watershed in South Africa's Maloti-Drakensburg Mountains plays a vital role in water provision to the country's economic hub, Gauteng, through a series of dams, canals and pipelines. However, large parts of the Thukela catchment have been degraded, and the loss of grass cover on the steep mountain slopes has resulted in poor water infiltration, increased

runoff and severe soil erosion. Water supplies to the poor communities of Okhombe (4 000 people) and the highveld bread basket of Gauteng are thus increasingly threatened.

In Bolivia, India and South Africa, and elsewhere around the world, millions of downstream farmers benefit from the upstream provision of watershed services. However, it is often poor, individual upstream farmer-landowners who must pay the opportunity costs of protecting the natural vegetation that provides water. The institutional mechanisms by which these differing interests can be aligned are not yet in place.

Globally, existing incentive structures rarely provide the producers who pay the cost of providing watershed services even a small part of the economic benefits that society gains from their provision. As a result, land uses that provide watershed services are rarely protected at a socially optimal scale, marginal upstream landowners remain poor, and downstream agricultural users are gradually losing their water supplies.

3) PROJECT RATIONALE AND OBJECTIVES:

Fundación Natura Bolivia, CIFOR and partners will seek to address this problem through an applied action-learning research program. Our primary objective is to assist the Departmental Government of Santa Cruz, Bolivia—a jurisdiction 50% larger than the United Kingdom—in its stated goal of developing a Department-wide environmental services compensation system, that will manage areas such as 780 000 hectares of the Rio Grande watershed based on the environmental services they provide. Our second and third objectives are to document the lessons learned in the process, and to apply them in other contexts through a cross-site learning network, starting elsewhere in Bolivia, India, and South Africa.

Deleted: ¶

The project will directly support the following four **CG System Priorities**: **3D Sustainable income generation from forests and trees**, **4A Integrated land water and forest management at landscape level**, **4C Improved water productivity** and **5B International and domestic markets working for the poor**. The project will also indirectly support **CG System Priority 1 Sustaining biodiversity for future and current generations**.

Deleted: ¶
¶

Given the expertise of CGIAR partners, our focus is on developing an international public good—globally relevant best practices for large scale, incentive-based watershed management. We will draw lessons from a wide range of relevant CGIAR-developed models—ICRAF-led hydrological research on watershed best practices in Asia, CIFOR expertise on small scale payments for watershed services schemes in Latin America, and each of the CG institutions’ experiences in global syntheses/ comparison of lessons learnt with payments for watershed services (PWS)¹. We will also learn from other types of interventions that have used direct incentive payments to improve natural resource management—for example Working for Water and community-based natural resource management (CBNRM)—in Africa. The project will build on on-the-ground experiments in three continents (Bolivia, India and South Africa), and use a comparative analysis to generate knowledge and capacity building tools that can be shared globally, including trying to explain the different degree of watershed payment schemes’ development across the tropical continents. Adapting the approach from Bolivia and incorporating the lessons from two other developing-country continents will help us set the lessons learnt in Bolivia in perspective. This will ensure that the international public goods we produce are more adaptable and the recommendations are more robust, and will increase the replicability potential of the model.

¹ For example, ICRAF recently completed an assessment of global PWS experiences to date, and has successfully developed the RUPES (Rewarding the Upland Poor for Environmental Services) research program in Asia that is now expanding to Africa with IFAD funding. CIFOR organized a global PES workshop in Titisee, Germany, in 2005, and is co-editing a forthcoming Special Issue of *Ecological Economics*. CIFOR and ICRAF have previously partnered on PWS global lessons learned via CIFOR participation on the RUPES steering committee.

OBJECTIVE	SUB-OBJECTIVE
1. Design and implement a land-use system that safeguards sustainable water supplies downstream, and compensates upstream landowners the opportunity cost of service provision in one Bolivian Department, and initiate process in another, through action-learning research.	1a Analyze and draw pertinent lessons from existing incentive-based payments for watershed services management schemes (Bolivia, India, South Africa and others) 1b Analyze and draw pertinent lessons from experiences of large-scale incentive based management of other natural resources (South Africa) 1c Improve and implement Santa Cruz Department environmental service policies, define policies and initiate political process in another Department (Pando) 1d Design, create and manage the 780 000 ha Rio Grande environmental services reserve that compensates upstream landowners for the opportunity cost of sustainable natural resource management.
2. Learn lessons about the development of Bolivian and South African systems for environmental services, and adapt model for use in Madhya Pradesh	2a Analyze and draw lessons from development of large scale compensation systems for environmental services (Rio Grande, Bolivia, Maloti-Drakensburg, South Africa) 2b Refine Bolivia and South Africa lessons, and develop and implement plan for large scale compensation system that protects the upper watershed of the Bhoj Lake and the Kolar reservoir, Bhopal.
3. Exchange lessons with other partners in Africa, Asia and Latin America, refine processes, and diffuse environmental services compensation model and adapt it for use in different contexts.	3a Develop cross site learning network and hold capacity building exchanges and workshops for local government officials in Bolivia, India and South Africa 3b Catalyze the development of 3 new large-scale environmental services compensation systems, one in each of Bolivia, Madhya Pradesh and South Africa. 3c Hold end-of-project lessons learned conference to discuss experiences 3d Publish internationally reviewed journal articles on the process

The strength of this proposal is the complementary expertise of each institution in the team. The main partners, Natura and CIFOR, have worked together for more than five years researching incentives for improved forest management in Bolivia. This collaboration has already helped persuade the Government of Santa Cruz to develop a regional incentive mechanism for watershed management, and has provided the theoretical basis for such watershed interventions by answering the fundamental question of whether payments-for-environmental-services can actually improve rural livelihoods.

4) PROJECT IMPLEMENTATION WITH TIMELINE

Our primary development outcome is to help Santa Cruz' Departmental Government implement a model system of the institutional, economic and political mechanisms required to allow downstream agricultural water users to compensate their upstream colleagues for watershed services in a **large-scale, equitable, efficient and sustainable** manner that allows for long term growth of agricultural production. The model will be developed through stakeholder analyses of project experiences in India (*WI*), south Asia (*ICRAF*), Bolivia (*Nat*), South Africa (*WfW*) and Latin America, especially Mexico and Costa Rica (*CIFOR*). After our initial data collection phase we will then test the hypothesis that such experiences can be replicated and scaled up, by assisting the Santa Cruz government implement a department-wide environmental services policy, that aims to protect areas such as the 780 000 ha Rio Grande watershed using funds from downstream watershed service users. In order to test the replicability of an adapted form of the model, we will then work and share lessons with 1) Bolivia's Departmental Government of Pando, which is in the early stages of considering such a program, 2) Winrock India and the Bhoj Lake Authority which will use economic incentives manage the Kolar reservoir watersheds, and 3) KZN Wildlife and Futureworks, which are trying to manage the Maloti-Drakensburg Mountains that currently provide 25% of South Africa's water supplies.

ACTIVITIES	OUTPUTS/DELIVERABLES	TIMELINE
1a.i Revise partner and other experiences through literature review and interviews (<i>Nat, CIFOR, ICRAF, Winrock, WfW</i>) 1a.ii Develop hypotheses for how best to scale-up (<i>Nat, CIFOR</i>)	1a Lessons from small scale incentive-based management of watersheds documented	July 2008
1b.i Revise global experiences of large scale incentive schemes (e.g. experiences of CAMPFIRE, CBNRM, and PES schemes in Costa Rica and Mexico) (<i>Nat, CIFOR, KZN/F, WfW</i>) 1b.ii Develop hypotheses for how to apply lessons (<i>Nat, CIFOR</i>)	1b Lessons from other large-scale incentive-based management of natural resources documented	July 2008
1c.i Draft and publish Santa Cruz environmental services law (<i>Nat, SC Gov, already accomplished</i>) 1c.ii Hold meetings with SC stakeholders to build awareness and compliance with law (<i>Nat, SC Gov, CIFOR in process</i>) 1c.iii Repeat process in Pando Department (<i>Nat</i>) (<i>Nat, Santa Cruz Government and CIFOR</i>)	1c Implement and replicate environmental service compensation systems and policies in Bolivia	December 2008
1d.i Complete basic studies to define key areas to manage for watershed services 1d.ii: Undertake meetings in upper watershed to develop support for incentive-based management 1d.iii Undertake meetings with downstream water users to build consensus about scale of flooding problem and potential solutions 1d.iv Develop reserve management plan 1d.v Negotiate with downstream users to develop payments scheme 1d.vi Finalize design of payments system, so when reserve is created, downstream users have funding mechanism ready	1d Design, create and help manage the 780 000 ha Rio Grande environmental services reserve	September 2009
2a.i Synthesize lessons from Bolivia (<i>Nat, SC Government, CIFOR</i>) 2a.ii Synthesize lessons from South Africa (<i>KZN/F, WfW</i>) 2a.iii Synthesize lessons from India (<i>WI, ICRAF</i>) (<i>WI, ICRAF support from Nat</i>)	2a Lessons from ongoing development of large scale compensation systems documented	September 2008
2b.i Complete basic studies to define key areas for management for watershed services 2b.ii: Undertake meetings in upper watershed to develop support for incentive-based management 2b.iii Undertake meetings with downstream water users to build consensus about scale of flooding problem and potential solutions 2b.iv Develop reserve management plan 2b.v Negotiate with downstream users to develop payments scheme	2b Implement plan for large scale compensation and protection of Bhoj Lake and Kolar reservoir	September 2009
3a.i Hold one capacity building exchange in each of Santa Cruz (<i>Nat</i>), Cape Town (<i>KZN/F, WfW</i>) and Bhopal (<i>WI</i>), to verify hypotheses developed in 1a.ii, and 1b.ii, and involve local actors (<i>Nat, CIFOR, WI, ICRAF, KZN/F, WfW</i>)	3a Develop cross site learning network and hold three training and capacity building exchanges	September 2008
3b.i Identify potential areas participatively with local actors/govs. 3b.ii Complete basic studies to define key areas for management	3b Catalyze development of 3 new environmental service systems	August 2009
3c.i Hold conference in Santa Cruz (<i>Nat</i>)	3c Lessons learned conference	Sept. 2009
3d.i Article written (<i>Nat, CIFOR</i>) and reviewed by partners	3d International journal article	Sept. 2009

5. Project Results and Impact

5.1 Description of Intended Impact Pathway

INPUTS will produce OUTPUTS which will result in OUTCOMES which we expect will have IMPACTS			
Literature reviews undertaken and hypotheses developed (<i>Nat, CIFOR, ICRAF, Winrock, WfW</i>)	1a Lessons from small scale incentive-based management of watersheds	Lessons learned document produced, distributed and used by project partners and other stakeholders	7 project partners and at least 50 other practitioners learn lessons and improve their initiatives
Literature reviews undertaken and hypotheses developed (<i>Nat, CIFOR, KZN/F, Winrock, WfW</i>)	1b Lessons from large-scale incentive based management of other natural resources	Lessons learned document produced, distributed and used by project partners and other stakeholders	7 project partners and at least 20 other practitioners learn lessons and improve their initiatives
Review of similar schemes, meetings with stakeholders, technical support from <i>Nat</i> and <i>CIFOR</i> to <i>SC Gov.</i>	1c Implement and replicate environmental service compensation systems and policies	Santa Cruz environmental service policy detailed and implemented, with many service users contributing, Pando policy initiated.	2 Bolivian Departments have compensation schemes that protect the environment, ensure supplies for service users and reward providers
Basic studies, meetings with upstream providers and downstream users, draft and refine management plan and compensation scheme (<i>Nat, SC Gov. and CIFOR</i>)	1d Design, create and help manage the 780 000 ha Rio Grande environmental services reserve	Reserve designed, management plan implemented, funded by payments from downstream service users	780 000 ha is managed for environmental services, helping achieve food security for 20,000 downstream residents through secure water supplies, and reducing poverty of 5,000 upstream residents by compensation for service provision
Literature reviews undertaken and hypotheses developed (<i>Nat, CIFOR, Gov SC, WI, ICRAF, WfW, KZN/F</i>)	2a Lessons from ongoing development of large scale compensation systems for environmental services	Lessons learned document produced, distributed and used	7 project partners and at least 50 other practitioners improve their initiatives
Basic studies, upstream and downstream meetings, draft and refine management plan and compensation scheme (<i>ICRAF, WI</i>)	2b Implement plan for large scale compensation and protection of Bhoj Lake and Kolar reservoir	Kolar reservoir system designed, management plan initiated, partially funded by payments by downstream service users	Kolar is managed for environmental services it provides, helping achieve water and food security for 15,000 downstream residents, and reducing poverty of 7,000 upstream residents by compensation for service provision
Meetings and exchanges (<i>Nat, KZN/F, WfW, and WI</i>)	3a Training and capacity building exchanges	Three workshops held (Cape Town, Bhopal, Santa Cruz)	7 project partners and > 50 other practitioners improve their initiatives
Site identification and basic studies (<i>Nat, KZN/F, CIFOR, ICRAF, WI</i>)	3b Develop 3 new environmental service systems	Three additional compensation systems in process of creation	Global process initiated to manage > 1 000 000 ha for env. Services
Organization of conference (<i>Nat</i>)	3c Lessons learned conference	Final workshop/conference held (Santa Cruz)	7 project partners and > 50 other practitioners improve their initiatives
Draft, revise and review article (<i>Nat, CIFOR</i>)	3d International journal article	At least one major journal article published	At least 200 practitioners improve their initiatives

5.2 Project Results Framework

OUTPUT (include date for delivering output)	OUTCOME	OUTCOME INDICATOR	BASELINE (for indicator)	TARGET (for outcome indicator)
1a Lessons from small scale incentive-based management of watersheds / by July 2008	Lessons learned document produced, distributed and used by project partners and other stakeholders	Global small scale lessons learned document	In 2007, no global small scale lessons document used	Document published and used by partners and other actors in 50 watersheds
1b Lessons from large-scale incentive-base management of other natural resources / by July 2008	Lessons learned document produced, distributed and used by project partners and other stakeholders	Global large scale lessons learned document	In 2007, no incentive-based management document used	Document published and used by partners and other actors in 20 watersheds
1c Implement and replicate environmental service compensation policies / by December 2008	Santa Cruz environmental service policy detailed and implemented, with many service users contributing.	Environmental services laws and policies	In 2007, no functioning environmental services policy	Two environmental services policies defined, one (SC) fully functional
1d Design, create and help manage the 780 000 ha Rio Grande environmental services reserve / by September 2009	Reserve designed, management plan implemented, funded by payments from downstream service users	Hectares managed for environmental services, level of poverty of service users and providers	In 2007, no area managed for environmental services, down stream floods (5 000 families forced to flee their homes), and severe upland poverty	780 000 ha managed for environmental service provision, food security for 20,000 downstream residents via secure water supplies, and reduced poverty of 5,000 upstream residents through compensation
2a Lessons from ongoing large scale compensation systems / by Sept 2008	Lessons learned document produced, distributed and used	Lessons learned document	In 2007, no global large scale lessons document used	Document published and used by partners and other actors in 50 watersheds
2b Implement plan for large scale compensation and protection of Bhoj Lake and Kolar reservoir / by September 2009	Kolar reservoir system designed, management plan initiated, partially funded by payments by downstream service users	Hectares managed for environmental services, level of poverty of service users and providers	In 2007, no area managed for environmental services, down stream water scarcity and severe upland poverty	30 000 ha managed for environmental services, helping achieve water and food security for 15,000 downstream residents, and reduced poverty of 7,000 upstream residents
3a Capacity building exchanges / Dec. 2008	3 workshops held (SC, Cape Town, Bhopal)	Workshops held	In 2007, no workshops held	Three workshops held
3b Develop 3 new environmental service systems / by August 09	Three additional compensation systems in process of creation	Env. Services compensation systems	In 2007, no env. services systems created	Three additional compensation systems in process of creation
3c Lessons learned conference / by Sept. 2009	Final workshop/ conference held (S. Cruz)	Workshop held	In 2007, no global conference held	One final workshop/ conference held
3d International journal article / by Sept. 2009	At least one major journal article published	Journal article	In 2007, no journal article published	At least one major journal article published

6. Project partnership: innovation, roles, responsibilities & organization sustainability

(i) Roles and responsibilities of each partnership organization in achieving the project outcomes

Fundación Natura Bolivia (*Nat*), the project co-leader, has five year's experience with environmental service policy development and field development projects. Working in three watersheds in Santa Cruz Department, Fundación Natura Bolivia has pioneered use of market mechanisms to improve watershed management. Downstream irrigators compensate upstream landowners for the opportunity cost of forest conservation through the provision of one artificial bee hive and training in honey production for ten hectares of water-producing biodiverse cloud forest conserved for a year. The role of Natura will be to coordinate the project, support field work in each country, and liaise with the Santa Cruz Government to ensure the projects results and immediately turned into policy and action. The **Center for International Forestry Research** (*CIFOR*) the project co-leader will synthesize environmental services payments experiences in Latin America, especially lessons from Mexico, Costa Rica, Colombia and Ecuador. CIFOR will also ensure that the research design and implementation follows global best practices. Natura and CIFOR have partnered on research projects since 2001². The objective of the collaboration has been to develop mutually reinforcing feedback loops between Natura-led development interventions and CIFOR-led applied research, each component sequentially improving and building on the other. CIFOR acts as Natura's outsourced research department, while Natura's field initiatives are designed to allow CIFOR to test specific research hypotheses. The **Departmental Government of Santa Cruz** (*SC Gov.*) is the competent authority to ensure that the Bolivian results are translated into the creation and effective implementation of the Rio Grande environmental services reserve, and the application of the Department-wide policy. **Winrock India** (*WI*) led an 80-farmer pilot project in Bhoj to assess the potential for a large scale environmental services management in the Kolar watershed. WI has in-depth field implementation knowledge and will lead implementation and lesson learning in India. The **World AgroForestry Centre** (*ICRAF*) has extensive global PWS experience through the RUPES Program. ICRAF's role in the project will be to synthesize environmental services payments experiences in Asia, and to support/backstop Winrock's work in Bhoj and Kolar. This will include capacity building and application of the 'rapid hydrological appraisal' methods, to get quantifiable clarity on the hydrological services provided by the Kolar watershed. **KwaZulu-Natal Wildlife** and **Futureworks** (*KZN/F*) are currently developing a large-scale environmental services compensation project in the Maloti-Drakensberg complex, and will lead field implementation and lesson learning in South Africa. In collaboration with Futureworks, KZN is undertaking hydrological modeling and cost-benefit analyses of management options for the Thukela watershed. Our proposed project will build on the lessons from this research, which will cost approximately \$285 000 and has been co-funded by the World Bank, and the Development Bank of Southern Africa. **Working for Water** (*WfW*), part of the South Africa's Department of Water Affairs and Forestry, implements field programs to reduce poverty and ensure environment service provision, and undertakes strategic research on vegetation-water-poverty linkages. WfW are providing scientific oversight on a Council for Scientific and Industrial Research (CSIR) assessment of the potential to restore the ecological functioning and to improve hydrological services of small catchments in the upper Drakensberg. WfW will synthesize these and other lessons, and ensure the scientific rigor of the project's interventions in South Africa.

² For example see papers by Boscolo, M, & M.T. Vargas. 2001. *Incentives for the Bolivian Forest Sector*. CIFOR, Bogor; Contreras A., & M.T. Vargas 2001. *Social, environmental, and economic impact of forest policy reforms in Bolivia*. CIFOR/Forest Trends, Washington; Asquith N.M., M.T. Vargas & J. Smith. 2002. Can forest carbon projects improve rural livelihoods? Analysis of the Noel Kempff Mercado Climate Action Project, Bolivia. *Mitigation and Adaptation Strategies for Global Change* 7: 323-337; Robertson, N. & S. Wunder 2005. *Fresh tracks in the rain forest: assessing incipient payments for environmental service initiatives in Bolivia*. CIFOR, Bogor; and Asquith, N.M., M.T. Vargas & S. Wunder. Bundling environmental services: Decentralized in-kind payments for bird habitat and watershed protection in Los Negros, Bolivia. *Ecological Economics* (accepted).

- (ii) *How does the partnership embrace principles of joint decision-making, inclusiveness, mutual learning and knowledge-sharing?*

This project was first envisaged and then designed at a workshop in the Rockefeller Foundation's Bellagio Centre in Italy in March 2007. This workshop, a result of the Natura/CIFOR partnership that won the CGIAR-CSO Innovative Collaborations Award in 2006, brought together incentive-based watershed management practitioners from nine countries to discuss implementation difficulties and potentials, and possibilities for scale up. Five of the six project partners attended the Bellagio meeting and co-drafted this proposal. It was jointly agreed that each country will synergistically team a local implementing NGO (Natura, Winrock and KZN/F) with a research institution (CIFOR, ICRAF, and researchers at Working for Water).

As the Natura/CIFOR partnership has developed, and the value of mutual decision-making has become clearer, Natura has strengthened the partnership by inviting two CIFOR staff (Peter Cronkleton and Pablo Pacheco) to join the Natura board, thus institutionalizing the research/implementation adaptive management approach. Nigel Asquith, Natura's Director of Science was a CIFOR research fellow from 1999-2000, and has since worked closely with CIFOR and ICRAF staff on various projects, each time using the model of joint decision-making. Natura has partnered with Winrock India since 2003 on a project coordinated by the International Institute for the Environment and Development which assessed the feasibility of market-based intervention for watershed management. Through workshops in Johannesburg, Capetown, Milan and London, Natura and Winrock India have already begun to share best practices on PWS research/implementation. The proposed project will strengthen these collaborations.

- (iii) *How an organizational sustainability of this partnership is envisaged?*

Many of the project partners have already worked extensively with each other. The CIFOR-Natura partnership has developed over the last five years, while Natura and Winrock India have collaborated since 2003. Other partnerships are newer, such as between Natura and KZN, which began during a month-long training workshop in markets and the environment in 2005 in Bozeman, Montana. Other of the partners have worked together prior to this proposal: KZN have long collaborated with Working for Water within Kwazulu-Natal, CIFOR and ICRAF share offices in Bogor, Indonesia and have worked together on the RUPES program, and in 2005 Winrock, Natura and Working for Water undertook a joint field study/research tour to assess the effectiveness of Costa Rica's payments for environmental services program. In summary, each of the partners have partnered already, but mostly on specific, one-off meetings or small research questions of mutual interest. We all see this project as an opportunity to institutionalize these existing partnerships, and to allow us to collaboratively develop a larger umbrella program that allows us to link, and learn lessons from each of our existing interventions and research projects. We see the CSO-CGIAR program as a way to 'glue' together our disparate initiatives and synergistically learn from extensive investments by us and others across the three tropical continents. Given our previous partnerships, we see this is a logical next step, and expect that this will be simply the first of a series of long term, more institutionalized partnerships.

INNOVATION: The CG System Priority 3 is to reduce rural poverty through agricultural diversification and emerging opportunities for *high value commodities and products*. However, some of the major barriers to agricultural sustainability in the developing world are the transportation costs of market access, especially in places such as landlocked Bolivia. This project aims to help transform forests into geographic areas that provide services that can be managed sustainably *in situ*, rather than extracting commodities in an unsustainable way. The project cannot stop wet season rainfall. What project partners can do is to try to put a brake on or halt the deforestation that exacerbates the catastrophic downstream flooding effects. In order to achieve this we will, for example, adopt lessons from some of the more

successful incentive-based management of one natural resource—wildlife—in Africa, and try to apply them across continents to another resource—water—to short circuit the usually slow innovation-uptake routes. Ostrom showed how political economy theory and economic incentives can be used to help local custodians manage common property resources such as fisheries. However, few upstream areas around the world are deliberately managed for the services they provide to users. We will use economic theory and global experience to induce how such a shift could be initiated. Our goal is to help provide secure and stable water supplies, the lack of which in dry season constitutes a key bottleneck for downstream agricultural production. This is especially important given current scenarios of climate change, exacerbating fluctuations in rainfall. This project aims to help protect against the uncertainty caused by subtle changes in rainfall patterns through essentially a natural insurance against flooding and massive sedimentation. Ultimately, management of areas like the Rio Grande needs to be funded entirely by those who use its services. Civil society, farmers groups and local government have explicitly demanded large-scale protection of environmental services, but currently do not know how to implement such a scheme.

Natura, a Bolivian NGO, can help at the local level, as can Winrock in India and KZN in Africa, but these small institutions do not have the knowledge base to effectively synthesize research lessons from around the world. CIFOR and ICRAF will therefore catalyze exchanges to ensure that partners learn from locally designed, CG-assisted research, carried out within the framework of cross-site global learning.

Further, we view this project as a unique opportunity not simply to work together on an innovative issue, but also to work together as an innovative partnership. We are teaming two global research institutions (CIFOR, ICRAF) with the mission of developing international public goods, with three implementing organizations with a mission of developing innovative solutions to local problems (*Nat*, *KZN/F*, *WI*). Added to this we have created a significant potential within the project for immediate uptake of results by governments (*WfW*, *SC Gov*). We believe that this democratic model, in which no one partner is bringing the majority of the funds, has the potential to transform research methodologies. Each partner already has their own fully funded research and/or implementation agenda, and this project has been participatively designed to capitalize on these investments and synergistically ‘glue’ them together.

Within the design of the project and the general results we have described above, we have deliberately left space for the testing of specific hypotheses. Such hypotheses will be developed during the process, and discussed by the partners, to ensure that we test ideas that emerge from real world experiences. While the specifics will not be decided upon until project initiation, one likely sub-question might be:

What is the optimal scale for implementing watershed protection scheme, considering variability in hydrological scenarios, users and benefit types, service-provider groups' socioeconomic characteristics and organization, and governance and institutional background?

Indeed, an implicit research question of the whole initiative is “when are payments-for-watershed-services an adequate tool?” For example should situations of de facto insecure upstream land tenure be automatically rejected, as some researchers might tell us (but various implementers would not!)? An important early task will be to define some of the more specific research questions: this will be done after the first round of literature reviews and during the first actor meetings in each of the three countries.

RELEVANCE AND INNOVATIVENESS OF PARTNERSHIP: We will build upon the successful operating procedures from our previous partnerships, by which CSO and partner capacity has been built through joint meetings, field trips, and e-mail conferences with other CGIAR staff. For example, in previous Natura/CIFOR research, in addition the primary research partnership between CIFOR’s Sven Wunder and Natura’s Maria Teresa Vargas, other CIFOR staff (Daniel Murdiyarso and Ulrik Ilstedt) worked with Natura to resolve technical issues. CIFOR staff/board members have also supported Natura with strategic planning, proposal writing, and intervention and experimental design, while Natura

technicians have guided CIFOR staff in grounding their research questions in local realities, and provided access to local politicians to enhance the uptake of research results. Perhaps uniquely for a grassroots NGO, Natura thus has had the luxury of approaching new donors and policy makers with copies of CIFOR's internationally-credible research highlighting project advances and lessons learned. This research model will be continued and reinforced throughout the project and with the other partners.

Although this is a new project, a number of the partners (for example CIFOR and Natura) already have had significant success worked together on similar initiatives. We have previously tested the compensation concepts underlying the initiative, albeit on a smaller scale, such as in Natura's 260 km² Los Negros project, and Winrock's 380 km² Bhoj wetlands project. The project's fundamental question is if and how successful pilots such as these can be scaled up by two or more orders of magnitudes. Natura staff recently partnered with Santa Cruz local government to draft a departmental environmental services policy. Natura thus has significant local political leverage, ensuring that this initiative will move forward. In order to design an efficient and effective model, this political momentum will be complemented by lesson-learning through a cross-site network that includes CG Centers and partners.

REPLICABILITY: The goal of this project is to develop a globally replicable model for improved upstream land uses, funded through economic compensation for the environmental services they provide. We will develop this model in Santa Cruz Department, Bolivia, and then test it elsewhere in Bolivia, and in India and South Africa. We expect that the model we develop across the three continents will be robust enough to be applied in other countries and contexts.

SUSTAINABILITY: Our main product will be an operational, self-sustainable environmental services compensation system for the Department of Santa Cruz, which provides economic benefits to the providers of watershed services, and thereby ensures water provision for downstream agricultural producers. We will then adapt and replicate this model. Because the model is based on perpetual, conditional, voluntary transactions using local resources, it will be financially self-sustainable beyond the period of donor seed support. Indeed payments for environmental services schemes are by definition designed to be self-sustainable. If such schemes are designed and implemented effectively, then water will continue to flow and/or floods will continue to be reduced indefinitely. We will thus have in principle created a perpetual—and hence sustainable—payment vehicle.

ENVISAGED OUTCOME AND POVERTY IMPACT: This project has not been designed primarily for publication as a research paper. Rather, the research specifically aims to reduce poverty through applied action learning from field interventions in Bolivia and India, and by strengthening research for development in South Africa. Our goal is to increase food security of both upstream and downstream farmers in watersheds that are increasingly threatened from clearing of natural vegetation in their upper reaches. The poverty impacts of the development of an international public good—globally relevant best practices for large scale, incentive-based watershed management—will be indirect albeit potentially large, but in addition, the project will have the following direct, immediate, poverty reduction impacts:

- In the Rio Grande watershed in 2007 serious downstream flooding forced 5 000 families to flee their homes. Upland poverty is severe, in some of the poorest municipalities in Bolivia. By project end in September 2009 we will have helped provide food security for 20,000 downstream residents via secure water supplies, and reduced poverty of 5,000 upstream residents through compensation for environmental services deals.
- In the Kolar watershed, India, in 2007 there is increasing downstream water scarcity and severe upland poverty. By project end in September 2009, 30 000 ha we will have helped achieve water and food security for 15,000 downstream residents, and reduced poverty of 7,000 upstream residents through compensation for environmental services deals.

7) Proposed Budget

Item	Proposed budget (in US\$)
Personnel	145 000
Research supplies and services	30 000
Equipment	50 000
Training and other knowledge sharing activities	60 000
Travel	50 000
Communication	40 000
General Administrative Expenses	26 250
TOTAL Project Cost	375 000
GRANT Funding Request	241 250 (60% of total project cost)

Formatted: Font: 11 pt

Details of other co-financing and funding sources

Formatted: Font: 11 pt

Natura Bolivia will provide co-financing of \$160 000 (40% of project costs) from the Blue Moon Fund (\$120 000) and the US Fish and Wildlife Service (\$40 000). These funds are already secured, and are focused on supporting the creation of the Rio Grande environmental services reserve. Extensive additional funding has also been secured for research activities that are complementary to the proposed initiative. Notably, Working for Water will spend ZAR750 000 (approximately \$100 000, from the Water Research Commission via CSIR) on scientific oversight of the Maloti-Drakensberg project, while Natura and CIFOR expect to spend \$30 000 of the 2006 CGIAR-CSO Innovative Collaborations Award on complementary research. KZN and Futureworks are currently investing \$285 000 in research to provide the basis for development of a compensation system in Drakensburg.

The collaboration between the different partners and associates is based on the operating principle that each institution brings its own funds, and the results of its own existing research/implementation initiatives to the project. CGIAR funds are being requested to complement these existing funds, and to provide a value-added global synergy that none of the partners could achieve on their own.

8) Attachments

1. Cover letter from Fundación Natura Bolivia
2. Letters of support/involvement from CIFOR, Winrock India, and the Departmental Government of Santa Cruz
3. 2006 Audited Financial Reports of Fundación Natura Bolivia