

**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**

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Organization type	Non-governmental organization
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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"> <li>• Forest and biodiversity conservation</li> <li>• Productive economic activities</li> <li>• Strengthening national and local environmental policies</li> </ul>

**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**

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**IV Other Partners**

Name of Partner Organization	Departmental Government of Santa Cruz
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Name of Partner Organization	Winrock India
Type of Organization	NGO
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Name of Partner Organization	International Center for Agroforestry Research
Type of Organization	CG Centre
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Name of Partner Organization	Kwazulu Natal (KZN) Wildlife
Type of Organization	South African Private Foundation (Quasi-provincial Government)
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Name of Partner Organization	Working for Water
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## V. Project Questions

1) **PROBLEM DEFINITION:** *the challenge, why it is significant, the causes of the problem and people affected.*

Watershed environmental services, upon which many agricultural producers depend, are often being rapidly degraded 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. In early 2007, tens of thousands of cattle drowned in Beni Department after weeks of El Niño-exacerbated rain ran-off deforested upstream slopes into already-flooded channels. Meanwhile, most of the water for agriculture around Bhopal, India, comes from the Kolar reservoir, where upstream deforestation by 30,000 villagers is causing increased sedimentation. Decreased dry season water flow from the reservoir negatively affects downstream livelihoods. In Bolivia, India and elsewhere, tens of thousands of downstream farmers benefit from the upstream provision of watershed services. Frequently, it is poor, individual upstream farmer-landowners who must pay the opportunity costs of protecting water-producing forests. The institutional mechanisms by which these differing interests can be aligned are not yet in place. Current incentive structures rarely provide the producers who pay the cost of providing watershed service 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.

2) **OBJECTIVE:** *List the specific objectives of your project*

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 the size of the United Kingdom—in their stated goal of developing a Department-wide environmental services compensation system, that will manage areas such as 780,000 ha 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, Madhya Pradesh, and South Africa.

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.**

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 small-scale, incentive-based payments for watershed services management schemes (Bolivia, India, South Africa) 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 Kola 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

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 model examples—ICRAF-led hydrological research on watershed best practices in Asia, CIFOR expertise on small scale payments for watershed services schemes in Latin America and India, and interventions using direct incentive payments to improve natural resource management —Working for Water and community-based natural resource management (CBNRM) —in Africa. We will build on on-the-ground experiments in three continents, 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 three tropical continents.

3) **PROJECT IMPLEMENTATION:** *How will you implement the idea? What is new? Have you tested it?*  
 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 experiences in small scale pilot projects in India (Winrock), southern Asia (ICRAF), Bolivia (Natura), South Africa (Working for Water) and Latin America (CIFOR). 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 demonstrate replicability 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, which is trying to manage the Maloti-Drakensburg Mountains to ensure water supplies for the highveld bread basket of South Africa. Although

this is a new project, some of the partners (CIFOR-Natura) have successfully 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 km<sup>2</sup> Los Negros project, and Winrock's 380 km<sup>2</sup> 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. In addition, Natura staff partnered with Santa Cruz local government to draft a departmental environmental services policy, announced in preliminary form in 2007. 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 global lesson-learning through a cross-site network that includes CG Centers and other partners.

4) **INNOVATION:** *How is your project idea innovative or unique?*

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 sources of commodities that must be transported out. 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 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, which in dry season constitute 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 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 do currently not know how to implement such a scheme. Natura, a Bolivian NGO, can help, but does not have the knowledge base to effectively synthesize research lessons from around the world. CIFOR, ICRAF and partners will catalyze exchanges to ensure that partners learn from locally designed, CG-assisted research, carried out within the framework of cross-site global learning.

5) **RELEVANCE AND INNOVATIVENESS OF PARTNERSHIP:** *How is each partner contribution critical?*

Fundación Natura Bolivia	Project leader, experience with env. service policy and field projects
CIFOR	Synthesize environmental services payments experiences in Latin America
Winrock India	Led 80-farmer pilot project in Bhoj, in-depth field implementation knowledge
ICRAF	Synthesize environmental services payments experiences in Asia
KZN Wildlife (S. Africa)	Developing large-scale env. services compensation project in Maloti
Working for Water	Implements field projects, and will lessons from S. Africa

This project was 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) with a research institution (CIFOR, ICRAF, and researchers at Working for Water).

6) **EXPECTED RESULTS:** *Expected results and contribution to food security and reducing poverty*

<b>SUB-OBJECTIVE RESULTS</b>	<b>RESULTS EXPECTED AND HOW MEASURED</b>
1a Lessons from small scale incentive-based management of watersheds	Lessons learned document produced, distributed and used by project partners and other stakeholders
1b Lessons from large-scale incentive based management of other natural resources	Lessons learned document produced, distributed and used
1c Implement and replicate environmental service compensation systems and policies	Santa Cruz environmental service policy detailed and implemented, with many service users contributing.
1d Design, create and manage the 780 000 ha Rio Grande environmental services reserve	Reserve designed, management plan implemented, funded by payments from downstream service users, <b>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</b>
2a Lessons from ongoing development of large scale compensation systems for environmental services	Lessons learned document produced, distributed and used
2b Implement plan for large scale compensation and protection of Bhoj Lake and Kola reservoir	Kolar reservoir system designed, management plan initiated, partially funded by payments by downstream service users <b>helping achieve water and food security for 15,000 downstream residents, and reducing poverty of 7,000 upstream residents by compensation for service provision</b>
3a Training and capacity building exchanges	Three workshops held (Cape Town, Bhopal, Santa Cruz)
3b Develop 3 new environmental service systems	Three additional compensation systems in process of creation
3c Lessons learned conference	Final workshop/conference held (Santa Cruz)
3d International journal article	At least one major journal article published

7) **REPLICABILITY:** *What is scaling-up potential? Or for implementing project in a different region/ globally?*  
 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.

8) **SUSTAINABILITY:** *What project characteristics ensure sustainability? How will your project continue?*  
 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, by definition, be self-sustainable beyond the period of donor seed support.

## VI. Proposed Budget

<b>Item</b>	<b>Proposed budget (in US\$)</b>
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
<b>TOTAL Project Cost</b>	<b>375 000</b>
Co-financing and Funding	160 000 (40% of total project costs)
<b>GRANT Funding Request</b>	<b>241 250 (60% of total project cost)</b>
Details of co-financing and funding sources (received)	Blue Moon Fund (\$120,000) and USFWS (\$40,000)

