Assessing how payments for watershed services programs interact with rural labor and land use practices

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Introduction

Payments for Watershed Services (PWS) is a market-based conservation mechanism that inscribes economic value onto ecological processes associated with a watershed. Downstream urban water users compensate upstream rural landholders for practices that promote the conservation of hydrologically important ecosystems responsible for water quality and quantity.

Promoted by international development and conservation organizations as having the potential to create win-win situations in terms poverty alleviation and environmental protection, PWS programs are being rapidly implemented in developing countries.[1] Despite the current proliferation of PWS programs, there has been very little research on the social effects of it within rural communities.

The focus of PWS within rural communities is to influence land use, and land use is intertwined with labor practices. **To understand the social dimensions of PWS in a community, it is critical to assess the interaction of PWS with land use and labor practices. I have innovated an approach to accomplish this task.**

Case Study

The case study for this project is **Fondo del Agua (FONAG),** a PWS program in Ecuador focused on serving Quito's metropolitan area (see Graphic 2). Payments from Ecuadorian public and private companies as well as international conservation and development organizations are invested into a $10 million fund. The interest accrued from that fund is used to support conservation interventions and compensatory development projects in rural communities that manage areas of páramo, a biodiverse high-altitude Andean grassland ecosystem that regulates and purifies water flows in the shared watershed. This program has existed for 13 years and is actively used as a model throughout Latin America for other PWS programs.

Interventions concentrate on halting agricultural land use in the páramo, with a particular focus on removing grazing animals. Projects, such as ecotourism or raising guinea pigs near households, are financially supported by the FONAG as compensation to provide a source of alternative income that doesn't rely upon páramo land use.

Graphic 1: Cattle grazing near a rural community influenced by FONAG

Graphic 2: Watershed Map. Quito within the Guayllabamba watershed, the focus area of FONAG's interventions

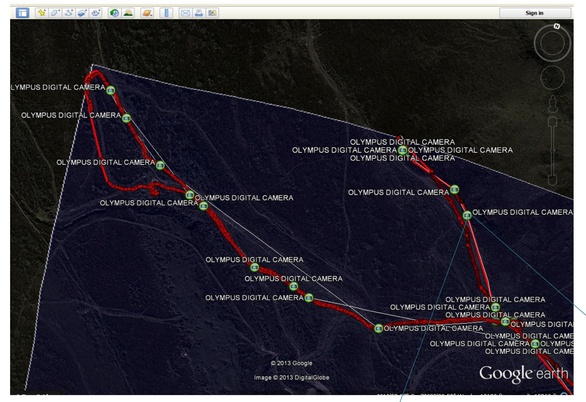
Methods

In an attempt to influence spaces of land use in a rural community, FONAG has created both conservation and development projects that require residents to give their time and effort, understood as labor. These individual residents are also members of households that have labor demands. Data on labor and land use patterns within several households must be created to assess how FONAG projects interact with land use and labor practices in the larger community.

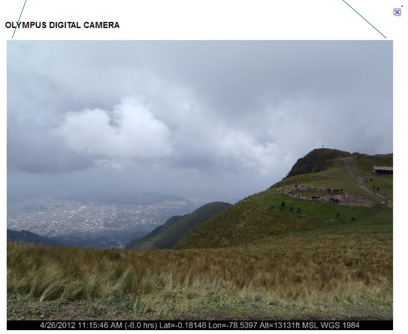
To accomplish this task, I have innovated an approach that integrates a close-ended survey with a land-use walking tour mapping exercise in which participants actively show and describe spaces of land use and the labor required for those activities.

Participants begin by answering a short questionnaire about FONAG involvement, household demographics, socio-economic variables, and land use. Then, I ask them to show me the locations within walking distance where these practices take place. During this walking tour, there are several prompted open-ended questions designed to assess various dimensions of labor practices. I also log waypoints on route and link them to photos depicting significant land uses (see Graphics 4 and 5). Post-walking tour, I confirm my understanding of land use and labor practices through co-creation of a hand-drawn map with the participant that also addresses land in which we were not able to tour. Data that can be spatially represented include what work is done on the land, who does the work, how much time is spent on activities, and the resulting products. I then repeat this activity among the other 15-20 households in a community that also have participated in FONAG projects.

Graphic 3: Women repairing a guinea pig pen



Graphic 4: Walking tour track with geotagged photos depicting land use practices



Graphic 5: Geotagged photo depicting a horse corral in the paramo with Quito in the background.

Results

From qualitative and quantitative data produced through mixed methods, I have created an integrative assessment of FONAG's interaction with land use and labor practices in páramo ecosystems. With a starting point at the household level, this approach can reveal patterns that can be compiled and scaled-up to a community level. Furthermore, the demographic and socio-economic data collected can allow comparative analysis between households with different characteristics. As PWS programs continue to spread throughout developing countries, my research contributes important knowledge on how PWS actively affects the lives of people. Preliminary results indicate that this mixed methods approach is useful to capture the complexity of land use and labor practices involved in a PWS.

References

1 Tallis et. al (2008) An ecosystem services framework to support both practical conservation and economic development. Proceedings of the National Academy of Sciences, 105(28): 9457-9464.

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