

***Trofcca meets with the hydroelectric sector of Costa Rica
San Jose, Costa Rica (24 and 25 July 2007)***

***CATIE-IUCN-TRoFCCA Meeting with the hydroelectric actors of Costa Rica:
National Electric Company (ICE) and Municipal Administrative Board for
Management of Electric Service (JASEC)***

Introduction

In the context of climate change and the actual global trends of fossil fuel prices, hydropower generation is an important energy strategy in Central America. However, the combined effects of climate change and upstream land management decisions are increasing the vulnerability of such energy source. Indeed, observed and projected increased erosivity of precipitation and inappropriate upstream land use decisions increase the maintenance and operation costs of hydropower plants by demanding more sediment-dredging efforts and the buying of fossil fuels to guarantee energy provision during such activities. Upstream and downstream decision-makers need finding negotiation mechanisms that enhance their cooperation to identify win-win strategies. In such a context, policy making at different levels of decisions must frame an appropriate legal and funding mechanism to facilitate such cooperation. In this respect, there is a need to account for the belief systems and risk perception of key actors such as upstream land users, downstream representatives of hydroelectric company and policy makers with a stake on landscape management.

CATIE is running a IUCN funded project inserted in the TroFCCA project. The aim of this project is to support the national dialogue on adaptation to Climate Change of the Hydroelectric sector of Costa Rica. More specifically, based on continuous consultation with the National Electricity Company and the upstream Producers' Association, the establishment of a payment scheme is foreseen for assigning resources to upstream land users according to their territorial relevance for erosion control. To support negotiations among these actors, a biophysical and a socio-economic study is conducted. More specifically, a territorial study of decision-making (i.e. belief systems, risk perception, willingness to join the payment scheme) has been combined with a sediment assessment under different land use scenarios. A sensitivity analysis of the application of a payment scheme has been developed contrasting benefit/costs of ideal land use options against those resulting from available funding resources from hydroelectricity producers, and the subjective utility function of upstream farmers associated with soil conservation activities (e.g. forest protection and improved soil management). Hypothetical scenarios of increased precipitation erosivity will be applied using observed trends for the past 40 years. The scenarios enable exploring preferences and decision-making of relevant actors to design a payment scheme.

As a first phase of the erosion and sediment transport model, the project plan is to share the intermediary results of the work developed by Dr. Marchamalo of the Forest Engineering Department of the Politechnique University of Madrid, Spain. To organize these meetings, we have coordinated strictly with Dr. Rodriguez of Basic Studies Department of ICE and of William Blanco of JASEC's production unit in order to guarantee having the persons that could at this stage help in the improvement of data and adjust the aims to relevant objectives.

Objectives:

- Present and discuss the progress made on modeling sediments in the watershed and identification of priority areas for conservation
- Identify updated data sources to improve the model
- Establish agreements of scientific collaboration with technical departments of the hydroelectric actors

Methodology

- introductory presentation of the project CATIE-UICN to introduce it and to illustrate the methodological phases; by Raffaele Vignola, CATIE/UICN coordinator, Gustavo Calvo Coordinator of Watershed Management Unit of ICE
- Erosion and Sediment transport model for the watershed, identification of priority areas for conservation considering increase in extreme precipitation observed and projected under climate change, Dr. Miguel Marchamalo, Politechnique University of Madrid.

Discussions

There has been a general consensus on establishing formal agreements to facilitate the information and data flow specially to diminish the uncertainty on cost of conservation practices as well as costs of dredging the dams due to sediments. The national discussion on climate change and the set priorities on adaptation in the hydroelectric sector increase the relevance of the results of this study. Actual technical department for basic studies of National Electric Company has run a study on base and peak flow which can be very relevant for this TroFCCA initiative. Indeed, factor “r” erosivity input in the model can be improved with such information and better estimate the eventual benefits of an upstream conservation program. The know-how generated with this initiative will be transferred to this hydroelectricity actors to enhance the application of this same model to other relevant watersheds.

Relevant results for the policy science-dialogue

- Science-policy dialogue needs to be built based on continuous interaction with relevant actors constructing the research design from the very start. In this respect, the meeting was successful as to involving relevant actors in the same science-policy dialogue. Indeed, the presentation of the project and of the expected results was done in conjunction with the institution as a sign of ownership of project idea, process and results
- According to the discussion, the advancing of the results of the project will facilitate lobbying work with relevant actors for discussing the opening of the focus of the actual National Payment for Environmental Service Scheme to include ecosystem management solutions important for the provision of hydrological ecosystem service but actually not included.
- The contacts established during the meeting and in light of the strict collaboration established are facilitating access to data and sharing of politically-relevant outcomes of the project.

- The presentations allowed strengthening the relationship with these actors and facilitate future lobby work for sharing TroFCCA results

Next steps

- strengthen the formal linkage with these actors
- improve the sediment model with updated data
- combine the socio-economic and bio-physical model to create scenarios of adaptation measure outputs under climate change hypothetical increase of precipitation extremes

Participants

William Blanco, responsable Production Unit of JASEC

Roberto Brenes, Vice-presidente de Junta de JASEC

Oscar Presidente de Junta de JASEC

Responsable del programa de educación ambiental de JASEC

Raffaele Vignola, Coordinador del proyecto

Thomas Koellner, consultor Grupo Cambio Global, CATIE-ETH

Miguel Marchamalo, consultor CATIE-UICN/Politécnico de Madrid (UPM)

Elena Lianes, estudiante de intercambio de la UPM en apoyo a CATIE/UICN

Sadi Laporte, Director Estudios Básicos de ICE

Omar Vargas, Ingeniero civil ICE

Jose Pablo Cantillano, Ingeniero Civil responsable manejo de datos de precipitación

Carlos Roberto Rodríguez, Ing. Civil, responsable manejo de datos de monitoreo de sedimentos

Alberto Ramírez Quiros, director ICE-RIOCAT

Gustavo Calvo, Coordinador ICE-UMCRE

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Alexis Rodríguez, Ingeniero Civil ICE

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Luz Marina Rodríguez, Bióloga responsable estudio impactos de desembalses en biodiversidad de agua dulce

Ronny Bonilla Zúñiga, Coordinador planta de Angostura

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