

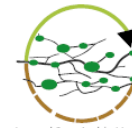
Payment for Environmental Services in Mexico: the case of four ejidos of Los Tuxtlas, Veracruz

(Preliminary Results)

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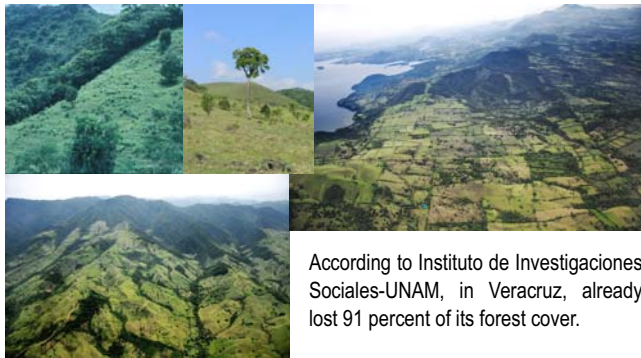
Conservation and Sustainable Management of
Below Ground Biodiversity

Objective

We present the goals of the Environmental Services Program (PES) that exists in Mexico, the beneficiary population and forest area covered nationwide for the years 2003 to 2009. In the case of Veracruz and in particular to the area of influence of the Biosphere Reserve of Los Tuxtlas include data obtained from the April 2010 survey of ejidatarios of the rural areas participating in the Below-Ground Biodiversity Conservation Project (ejidos Venustiano Carranza, San Fernando, Adolfo López Mateos-EI Marinero and Benigno Mendoza).

PSE in Mexico

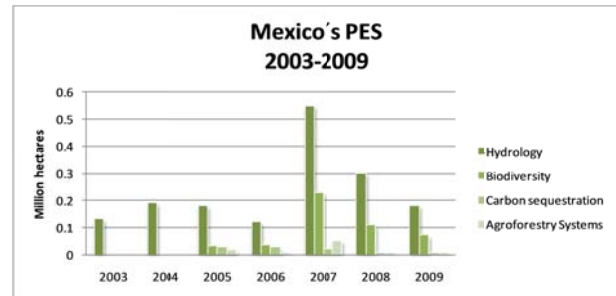
Mexico has the second highest deforestation rate in the world. In addition, it suffers from decreasing soil quality and increasing water scarcity, problems both associated with forest loss. According to the Mexican National Forestry Commission (CNF), 80 percent of the country's forests are located in ejidos.



According to Instituto de Investigaciones Sociales-UNAM, in Veracruz, already lost 91 percent of its forest cover.

Mexico's PSE was designed to incentivize the production of hydrological, forest, biodiversity and sequestration of carbon services. Mexico's program compensates both individual property owners and communal landowners. In contrast to many countries where most forested land is held privately or by the state, approximately 80 percent of forestland in Mexico remains under collective ownership by peasant associations known as ejidos or by indigenous communities.

The program compensates landowners in exchange for land use practices that enhance the production of environmental services. Between 2003 and 2009, approximately 2.27 million hectares of forestland were entered into the program. More than US\$360 million of federal funds were distributed to 4,893 communal or smallholder private property participants, making the program one of the largest in the world.



Source: Mexican National Forestry Commission (CONAFOR).

Results (Los Tuxtlas, Veracruz's PSE)

Data were collected by a survey conducted in April 2009 to assess the impact of the Below-Ground Biodiversity Conservation Project. Based on the survey we know that in 2003, 106 ejidatarios benefited from the PES and by 2009 this figure rose to 139 beneficiaries.

According to data from Tables 1 and 2, the PSE is the third program of the Mexican Government has the greatest number of beneficiaries in the ejidos surveyed.



Table 1: Mexican's Social Programs: 2003 and 2009 (Los Tuxtlas, Veracruz case study)

	2003										2009											
	Ejidos	Program to support livestock	Programs to support agricultural production (if official programs are included)	Payment of Environmental Services	Municipal program for sustainable development	Program for Natural Disasters	Program for Temporary Employment	Oportunidades (Opportunidades)	Program 70 and others	Support Program to Produce Production	Firm Ground state program	Ejidos	Program to support livestock	Programs to support agricultural production (if official programs are included)	Payment of Environmental Services	Municipal program for sustainable development	Program for Natural Disasters	Program for Temporary Employment	Oportunidades (Opportunidades)	Program 70 and others	Support Program to Produce Production	Firm Ground state program
Non participants	Venustiano Carranza	2	6	0	4	0	2	0	0	0	2	Venustiano Carranza	8	8	2	4	2	0	0	0	0	6
	San Fernando	0	93	53	13	0	0	80	0	0	40	San Fernando	0	93	40	13	0	0	66	0	0	40
	Adolfo López Mateos (El Marinero)	0	8	0	0	0	8	4	0	0	0	Adolfo López Mateos (El Marinero)	0	8	4	0	0	8	4	0	0	4
	Benigno Mendoza	11	11	11	0	0	0	0	0	0	0	Benigno Mendoza	23	23	23	0	11	0	0	11	0	11
	Subtotal	16	106	41	24	0	24	57	0	0	33	Subtotal	49	122	57	24	16	16	49	8	0	65
Participants	Venustiano Carranza	0	12	2	0	0	6	8	0	0	4	Venustiano Carranza	0	12	2	0	2	6	8	4	0	8
	San Fernando	0	133	66	27	13	66	106	0	0	27	San Fernando	0	146	93	27	66	53	93	13	0	66
	Adolfo López Mateos (El Marinero)	0	15	8	4	0	4	11	0	0	4	Adolfo López Mateos (El Marinero)	0	15	8	4	0	4	11	0	0	4
	Benigno Mendoza	0	23	0	0	0	0	11	0	0	14	Benigno Mendoza	0	23	0	0	0	0	11	0	0	14
	Subtotal	0	179	65	24	8	73	130	0	0	65	Subtotal	0	187	81	24	49	65	122	24	0	106
Total		16	285	106	49	8	98	187	0	0	98	Total	49	310	139	49	65	81	171	33	0	171

Economic valuation of soil biota: the case of four ejidos of Los Tuxtlas, Veracruz

(Preliminary Results)

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Objective

To describe and applied the contingent valuation method (CVM) To directly measured for Willingness to Pay for valuing of environmental Services of the Soil biota .



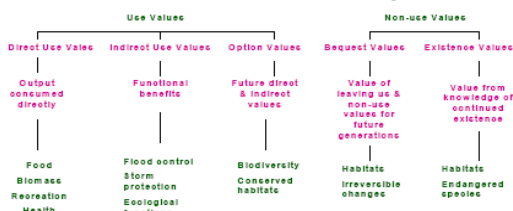
Source: <http://eussoils.jrc.ec.europa.eu/library/themes/biodiversity/>

We presents the preliminary results in four ejidos in Los Tuxtlas, Veracruz Mexico.

Methodology

The CVM is used to estimate economic values for all kinds of ecosystem and environmental services. It can be used to estimate both use and non use values. The CVM is referred to as a "stated preference" method, because it asks people to directly state their values, rather than inferring values from actual choices, as the "revealed preference" methods do.

Economic Valuation of Ecosystema



Source: Report of the Workshop on Economic Evaluation of Environmental Benefits of managing belowground biodiversity (BGBD) and lessons learned

We used this technique as a tool to assess soil biota that was inventoried by below-ground biodiversity project (BGBD-Mexico). The environmental functions of soil biota are considered environmental public goods and help quantify natural resources that have no market. The CVM allowed us to build simulated hypothetical market transactions that occur in a real market to measure changes in the welfare of participating individuals; a market in which individuals must express their maximum willingness to pay (WTP).

Data

The data were collected by a survey conducted in April 2010 to assess the impacts of the BGBD Project in the following ejidos: Venustiano Carranza, San Fernando, Adolfo Lopez Mateos-El *Marinero* and Benigno Mendoza. With the gathered information it was possible to ascertain the willingness to pay (WTP) for each group of below-ground microorganisms and the type of ejidatario.

Three possible scenarios were created:



All scenarios assume that the revenue would be to restore and create conditions to promote and protect the soil biota.

Results

To obtain the WTP by type of ejidatario, an auction format was used starting at \$0 pesos, leaving the interview to indicate the maximum amount payable for each one of the 20 groups that have been inventoried by the BGBD. We calculated the basic statistics and estimated the WTP by group and type of scenario (Table 1).

Table 1: WTP for Soil Biota in Los Tuxtlas Veracruz, México in 2009 (Dollar by hectare and type of ejidatario surveyed)

Types of <i>ejidatario</i>	Voluntary money fee to the government so that he is responsible to conserve.	Maximum amount willing to pay if fee imposed by the government and retaining	Maximum fee payable to the government when imposing fee and this resource is given to <i>ejidatario</i> to retain and manage the soil biota.
Participants	\$8	\$79	\$102
Non Participants	\$22	\$21	\$93

The data in Table 1 refer to the average value of the various groups of species recorded. It currently presents added WTP information. This information proves that the ejidatarios participating in the BGBD project had a higher WTP than those who did not participate. We found a positive correlation between the WTP above the average and the fact that the ejidatario receives the Payment for Environmental Services (PSE).

According to the survey we know that in 2003, 106 ejidatarios benefited from the PES and by 2009 this figure rose to 139 beneficiaries.

