

*From mandates to actions: Advancing
Payments for Ecological Services in the Americas*

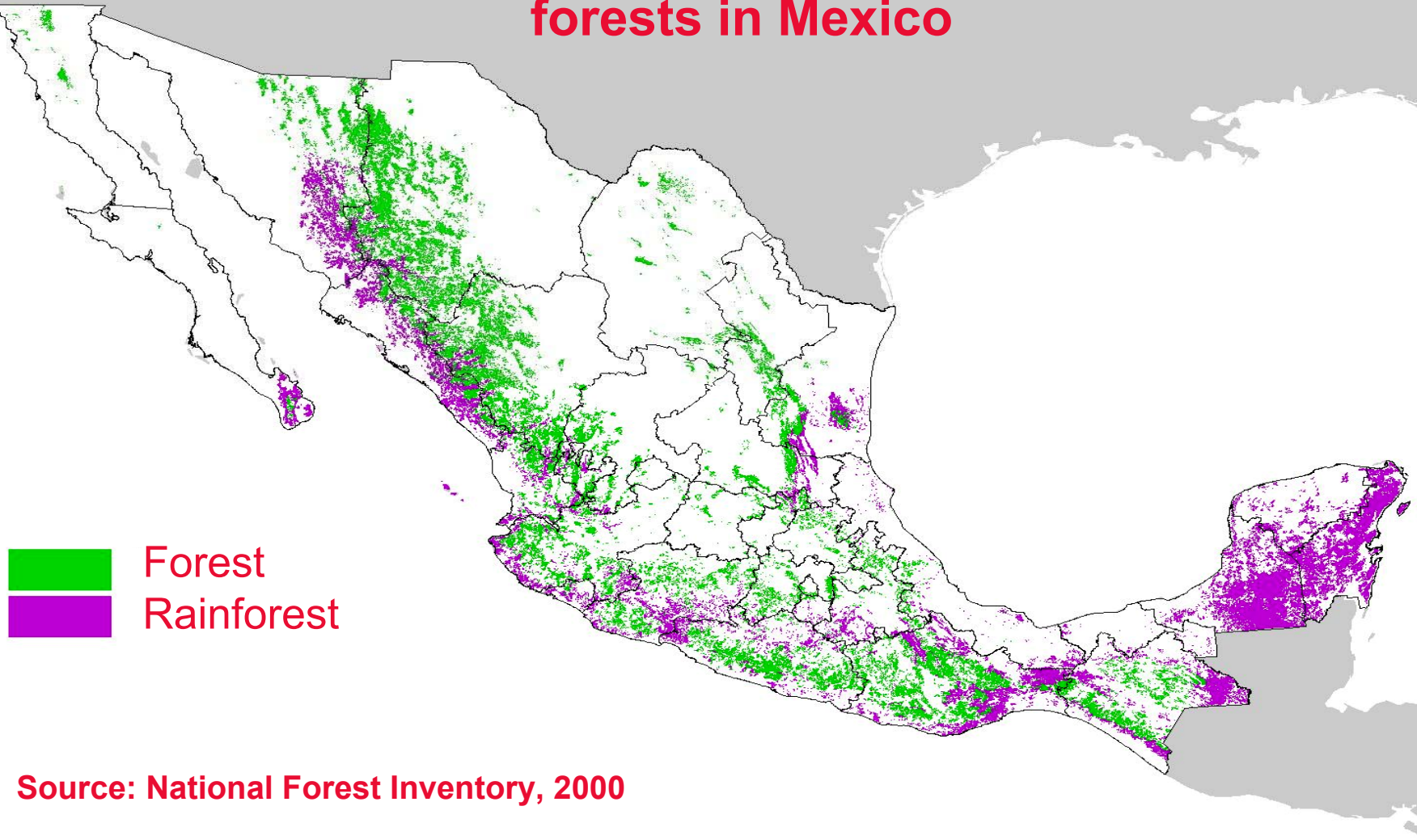
Organization of American States
November 7, 2007

**Payment for Environmental
Services in Mexico:
Watershed Protection**

Josefina Braña Varela,
University of Maryland

Forest Cover

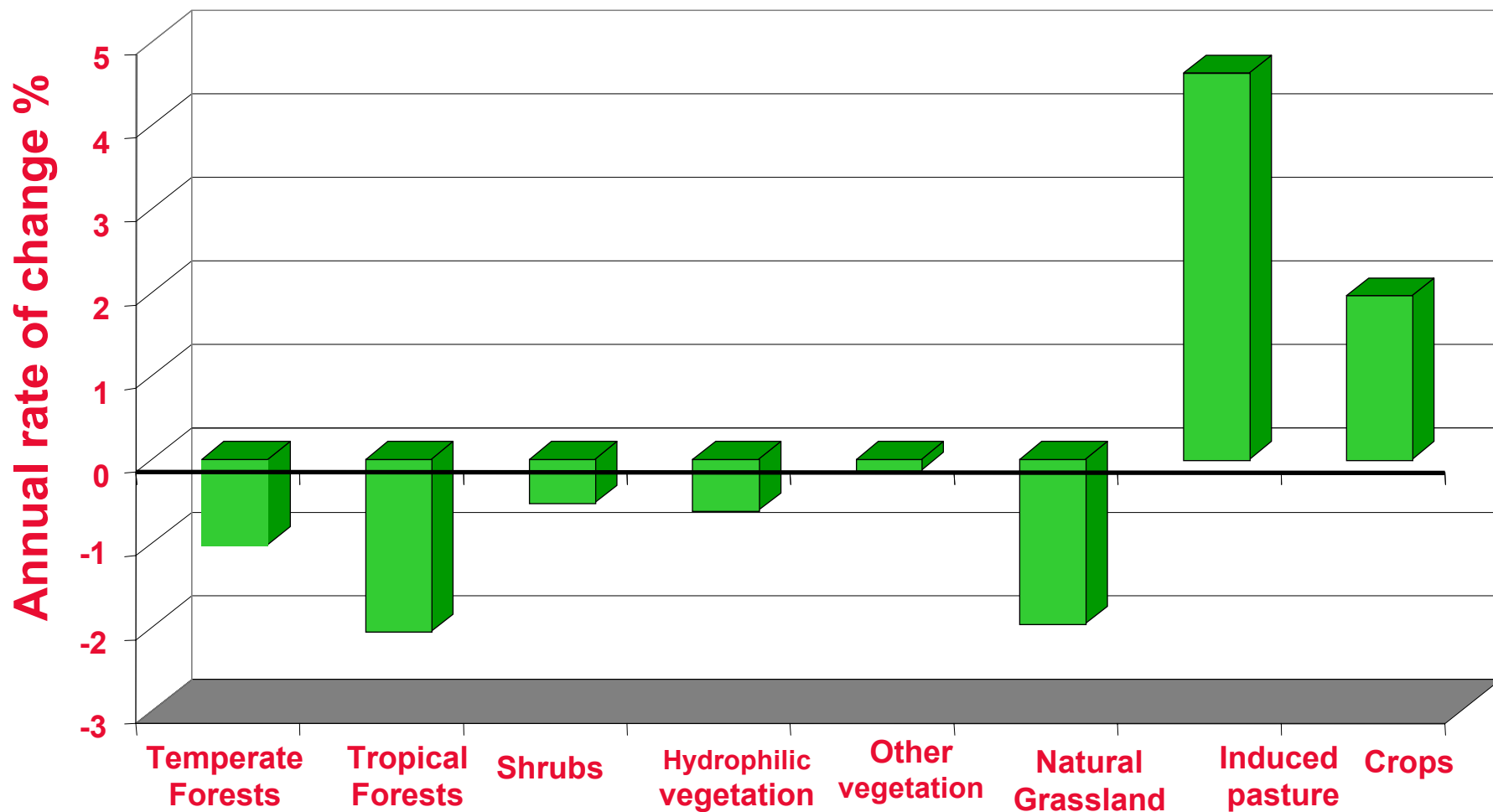
50 million hectares of temperate and tropical forests in Mexico



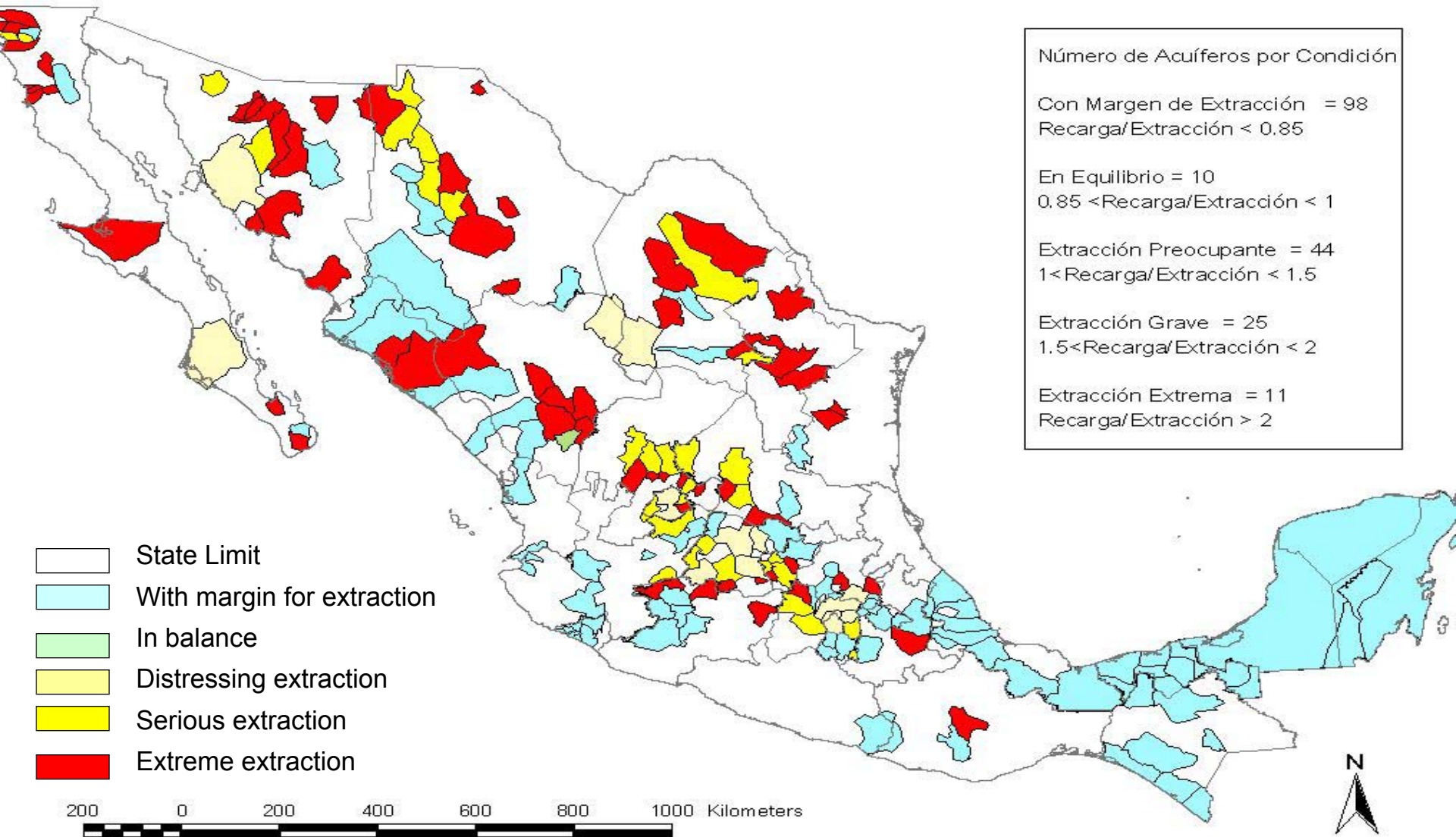
Source: National Forest Inventory, 2000

Deforestation

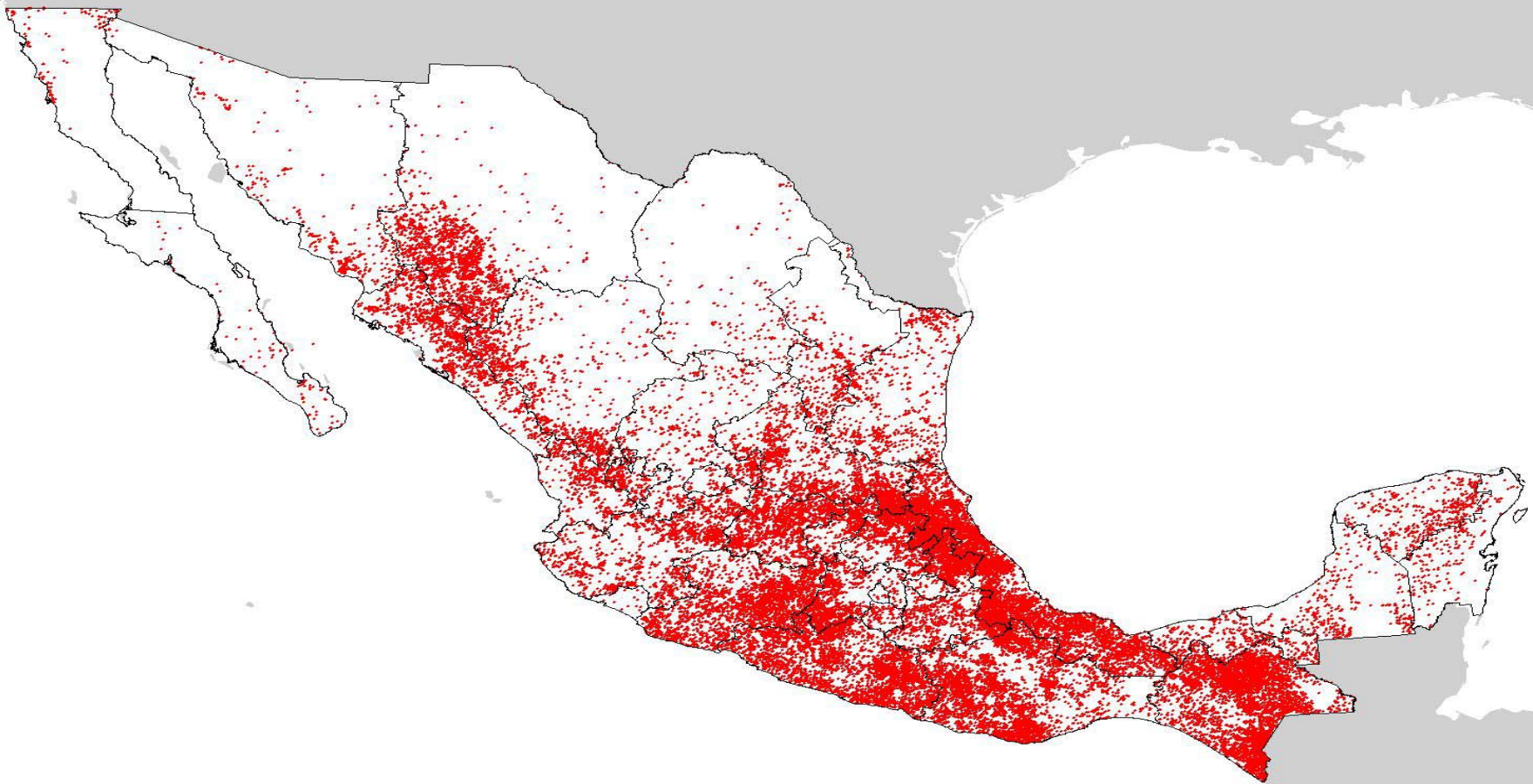
Land use change in Mexico 1993-2000



Overexploited Aquifers



Localities with high or very high marginalization



Fuente: CONAPO

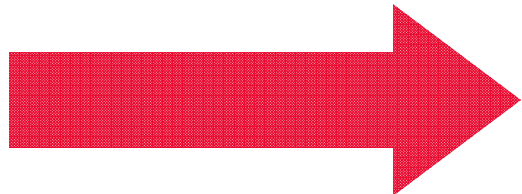
1 out of every 4 Mexicans is extremely poor

Who are the ES providers?

- More than 70% of forests are on communities or *ejidos* hands (~30,000)
 - Type of private property known as *social property*
 - Forests are commonly managed
 - They are “self-governed”, under the limits of law
 - Not all of them have property titles, sometimes there are conflicts over the land between communities.

Land Use Changes: control vs. incentives

- Government's control of land use changes is costly, not effective and potentially poverty increasing.
- Therefore, for communal owners taking land use decisions on favor of forest conservation:



Forests = Profit

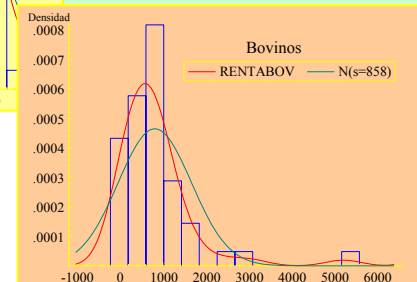
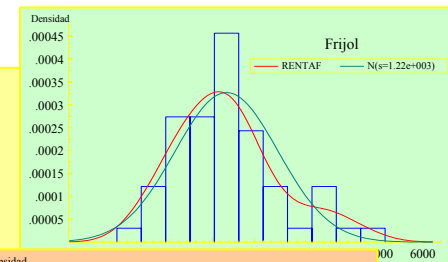
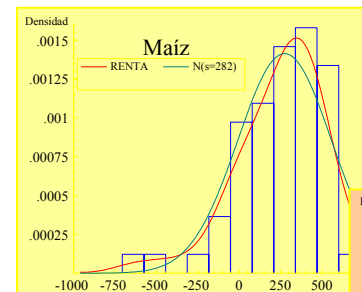
PES

Choosing how much to pay

Between two limits:

1. Value of the environmental service (measurement?)
2. Opportunity cost. How much would they earn in alternative activity?

🔴 Given a budget and an area, a price that would clear the market...

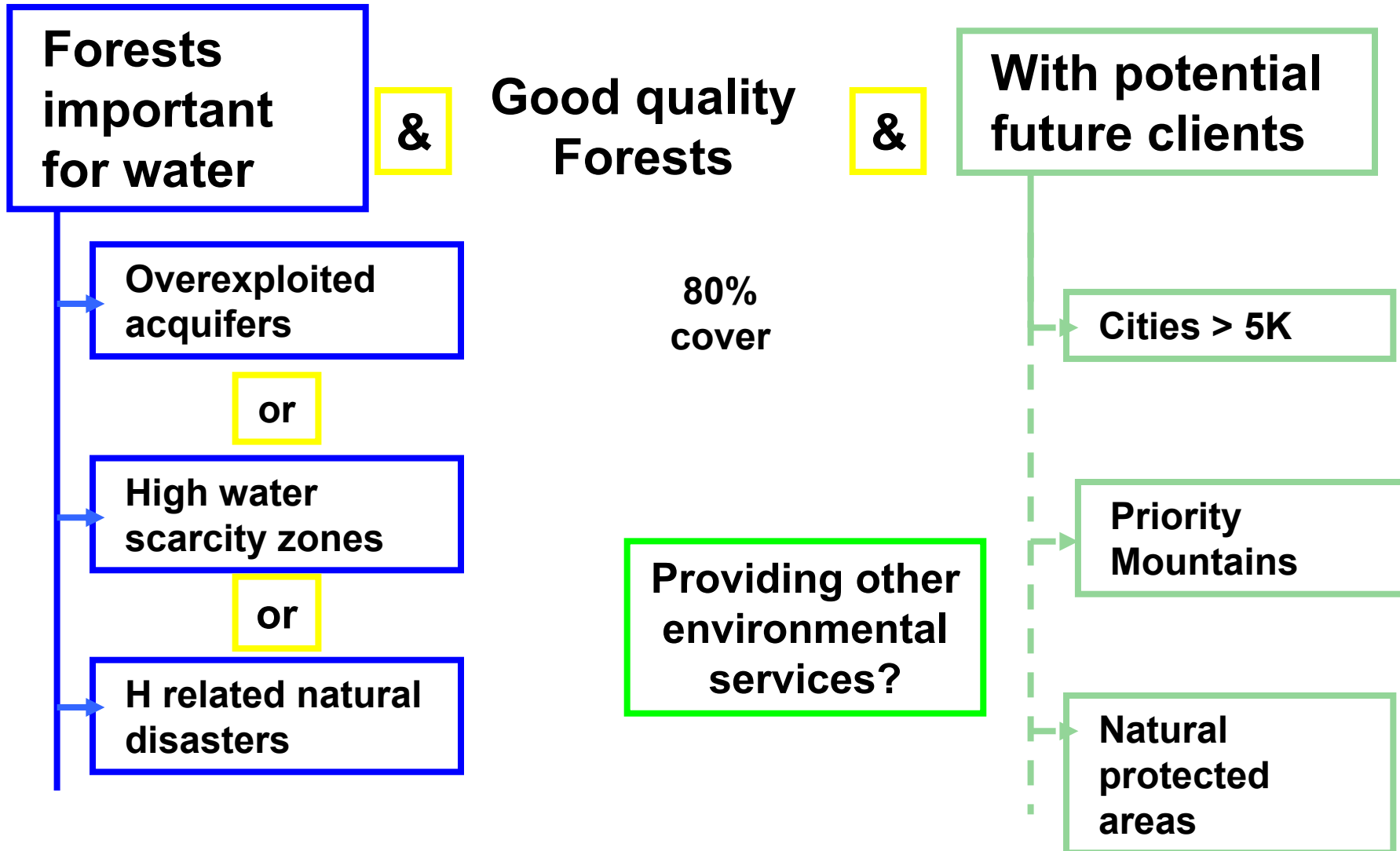


...Choosing how much to pay

A political economy mix, recommendation based on opportunity cost, combined with value of service & forestry lobby:

1. Cloud forests: **\$400 pesos** (~US\$37) per hectare per year
2. Rest of temperate and tropical forests: **\$300 pesos** (~US\$28) per hectare per year

Operative Rules (2003-2005)



Targeting

BUDGET:

2003= ~US\$ 18 M

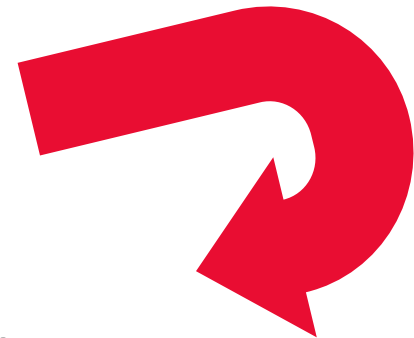
2004-2006= ~US\$ 27 M

2007= ~ US\$ 37 M

- By type of forests
- By type of environmental service
- By level of poverty
- By risk of deforestation

Important:

voluntary program implies self-selection



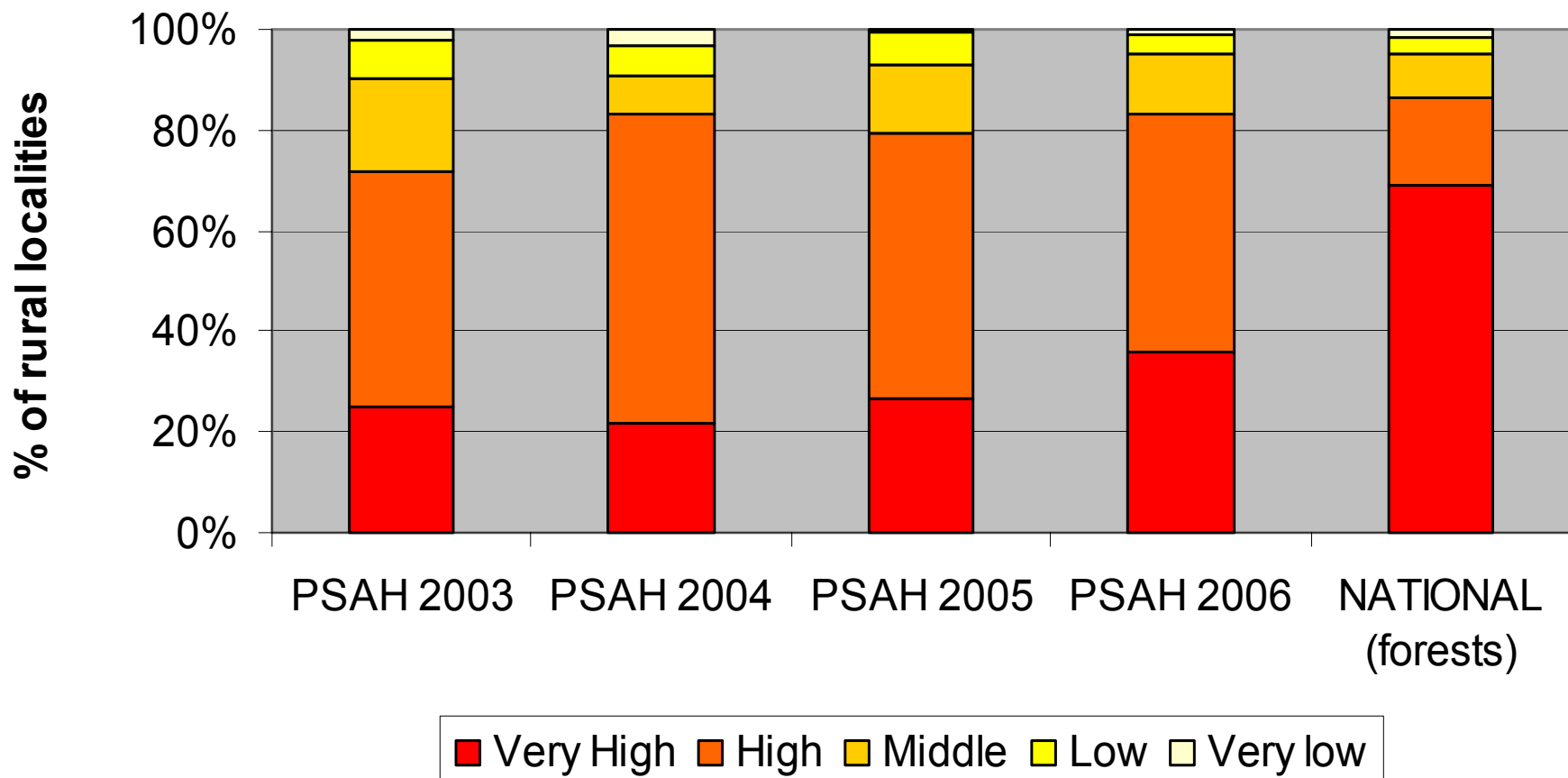
Type of forest

Vegetation cover	All of Mexico	Eligibility CONAFOR	PSAH 2003	PSAH 2004	PSAH 2005	PSAH 2006
Coniferous	38	42	60	44	54	57
Oak forest	23	18	17	25	23	25
Cloud forest	3	4	7	16	4	4
Dry tropical forests	25	7	3	5	3	4
Rainforest	11	24	13	10	15	11
Total	100	100	100	100	100	100

Poverty

Marginality	Forest communities national level	Eligibility CONAFOR	PSAH 2003	PSAH 2004	PSAH 2005	PSAH 2006
	Hectares (%)	Hectares (%)	Hectares (%)	Hectares (%)	Hectares (%)	Hectares (%)
Very high	69	35	25	22	26	36
High	17	43	47	61	53	47
Medium	9	6	18	8	14	12
Low	3	14	8	6	6	4
Very Low	2	1	2	3	1	1
Total	100	100	100	100	100	100

...Poverty



Seeking Efficiency

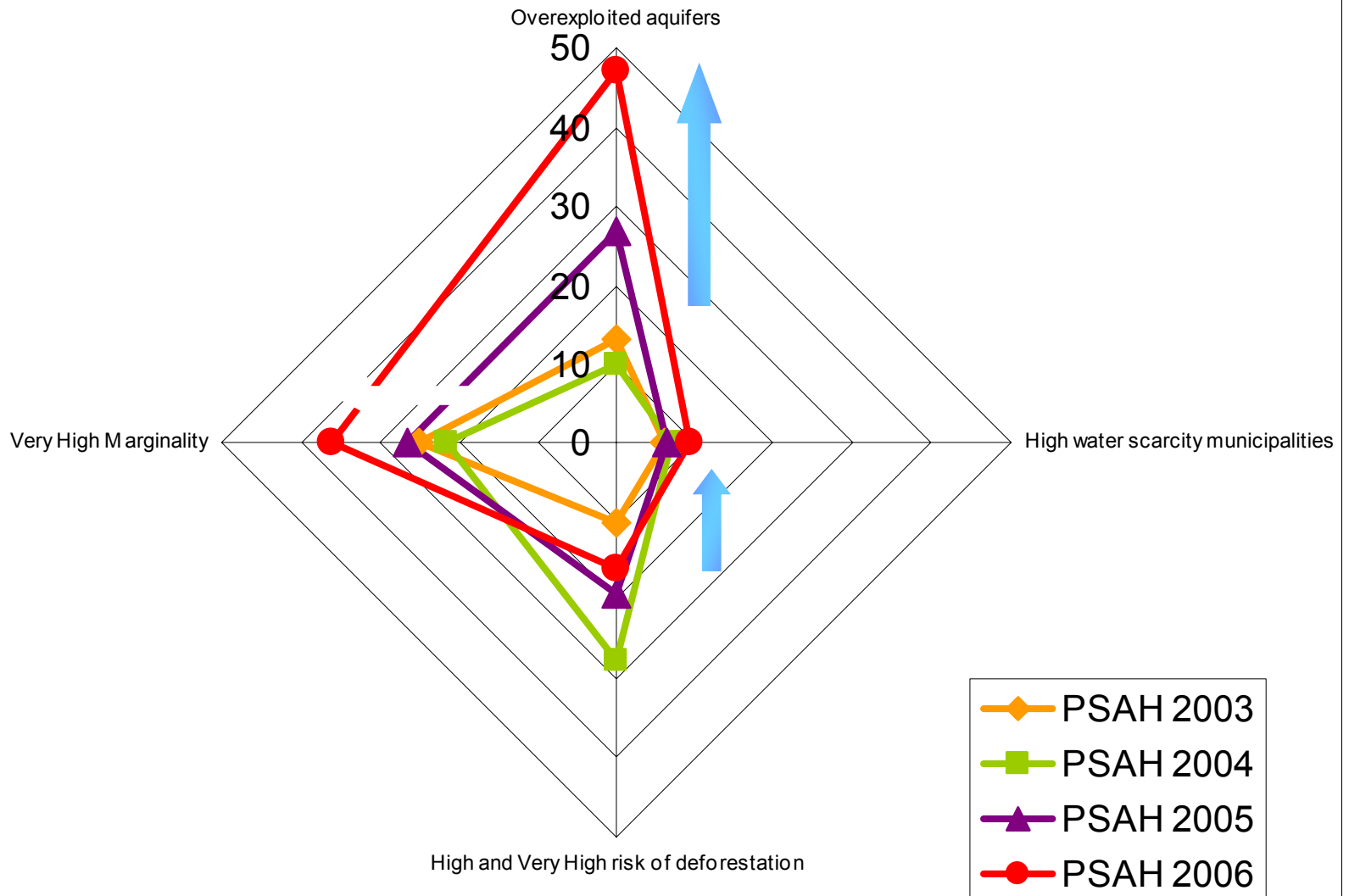
- ◆ **Objective:** Maximize protection of environmental services through avoiding deforestation
- ◆ **Efficiency:** Maximize value to fee-payers through avoiding maximum hectares deforested at minimum cost, within budget constraint.



Targeting: Deforestation Risk

Risk of deforestation (quintiles)	Forests at National Level	Eligible area CONAFOR	PSAH 2003	PSAH 2004	PSAH 2005	PSAH 2006
	%	%	%	%	%	%
Very high	20	12	4	11	7	6
High	20	6	7	17	13	10
Medium	20	18	17	20	21	16
Low	20	25	30	30	27	25
Very Low	20	39	42	22	33	43
Total	100	100	100	100	100	100

Targeting 2003-2006



Further Steps

1. Targeting criteria now explicit in selection process. Poverty and Scarcity have worked, but we need to modify use of Deforestation Risk index to maximize value to fee payers.
2. Need to assess and communicate the diverse benefits on the watersheds and aquifers.
3. Local watershed programs stage. Requires information and solving the public-good problem.

Payment for Environmental Services Programs: Results 2003-2007

	2003	2004	2005	2006 ^{p/}	2007 ^{p/}
Area under Hydrologic Environmental Services Program (has)	126 818.01	184 240.30	169 030.90	127,016	424,516
Number of beneficiaries	272	352	257	241	627
Assigned amounts	\$ 17,944,571	\$ 26,891,899	\$24,050,494	\$19,060,674	\$67,437,430
Area under Carbon, Biodiversity and Agroforestry Program (has)		31,448	26 989.41	18,876	64,835
Number of beneficiaries		17	25	24	155
Assigned amounts		\$ 4,861,758	\$ 4,373,648	\$ 2,144,979	\$ 9,956,059
Area under project elaboration		537,293	20,434	66,459	251,483
Number of beneficiaries		209	20	50	463
Assigned amounts		\$ 4,481,549	\$ 326,974	\$ 453,149	\$ 2,613,596
Total Budget Assigned	\$ 17,944,571	\$ 36,235,207	\$28,751,116	\$21,658,802	\$80,007,085
Total Area under PES ^{b/}	126 818.01	215,688	196,020	145,892	489,350

p/ Preliminary Numbers b/ Does not include project elaboration

Source: CONAFOR, SEMARNAT

Thank you!
Josefina Braña
jbrana@umd.edu

