

FAO - UNAM - E.C.

WOODFUELS INTEGRATED SUPPLY /
DEMAND OVERVIEW MAPPING
(WISDOM)

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BACKGROUND

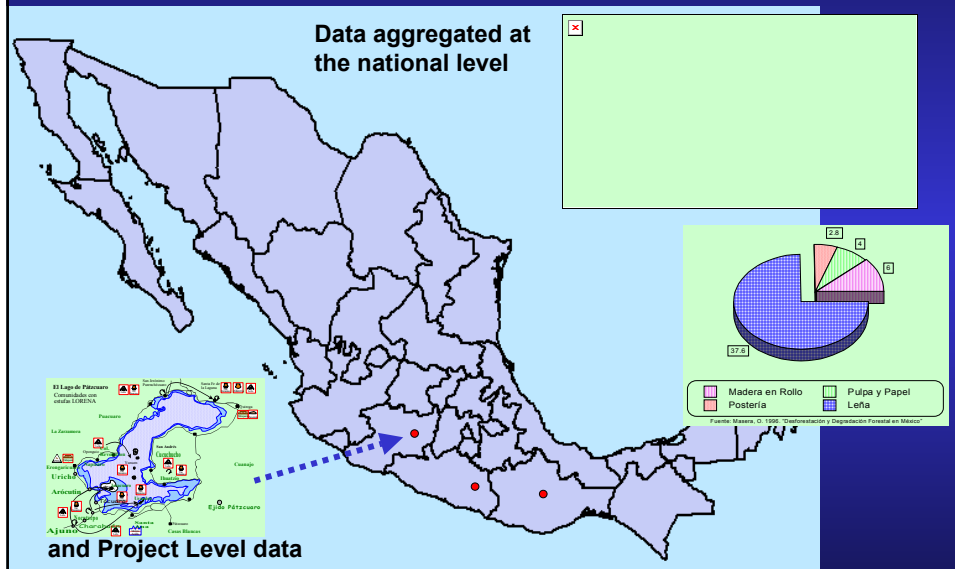
Importance of woodfuels

- Over 2 billion people use woodfuels
- Woodfuels account for the largest share of forest products in developing countries
- Woodfuels is and will remain an important source of energy
- Woodfuels are the most widely available renewable energy source

WHY WISDOM?

- The production/consumption patterns are complex and the impacts of wood energy systems are site-specific
- National wood energy data are too aggregated for policy and planning purposes
- The development of sustainable wood energy systems and its effective implementation requires a good spatial representation of the the information available on woodfuel resources and consumption

Dominant Situation for Woodfuel Use Planning



WISDOM

WISDOM is a GIS-based methodological tool designed to cope with the spatial heterogeneity of woodfuel demand and supply patterns

It allows

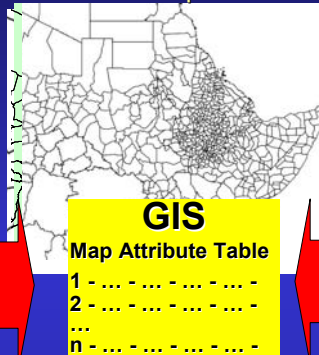
- to have a spatial representation of the woodfuel supply/demand situation at a country/regional level
- to foresee future priority regions according to woodfuel production/ consumption situation and trends
- the application of the tool may help improve the sustainability of woodfuel use

WISDOM METHODOLOGY

DEMAND MODULE

- WF consumption by type, by area,
- Users: Households/ Industries
- urban/rural population
- population growth
- socioeconomic data (cultural/income groups)
-
- local surveys

Selection of spatial base

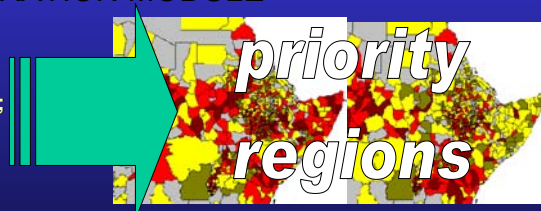


SUPPLY MODULE

- Land use/Land cover
 - Forests/ non-forests
- LU/LC change
- woody biomass stocking by LU/LC
- productivity
- accessibility
-
- local surveys

INTEGRATION MODULE

Woodfuel deficit areas;
Local pressure on woodfuel sources;
Sustainability indices
.....



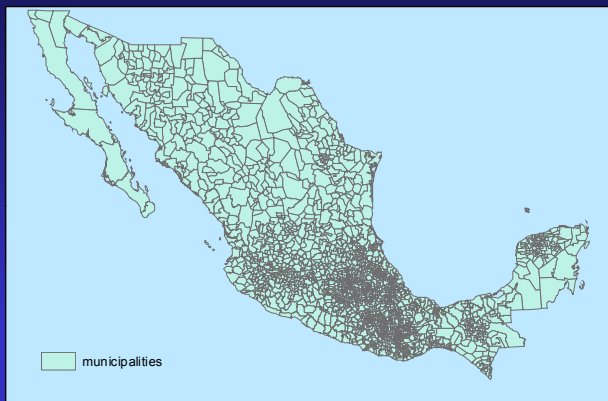


CASE STUDY NATIONAL LEVEL

PRIORITY FUELWOOD AREAS FOR MEXICO (2000)

STEPS

1. Selection of the minimum administrative unit of analysis
2. Construction of the DEMAND module
3. Construction of the SUPPLY module
4. Development of the INTEGRATION Module
5. Determination of Priority Municipalities



Demand module

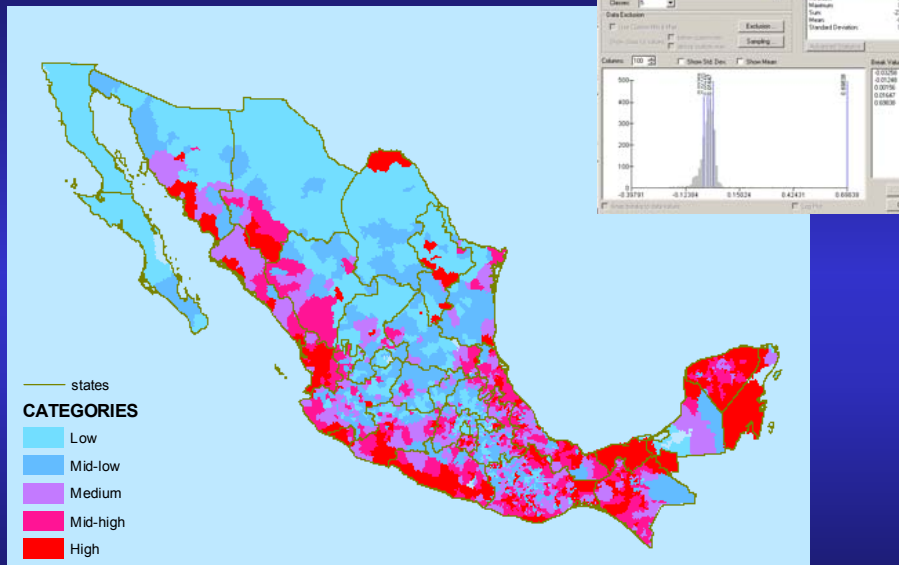
CVE_INEGI	NOM_MPO	TOT_VIV	POB_TOT	POB_RUR	LENG_IND	NIV_BEN	VIV_LENA	USU_LENA	CREC-USUAR	Por_Viv_lem	Consumo anual (ton/año)
1001	AGUASCALIENTES (AGS)	141671	643419	42191	1320	7	937	5084	-7.3%	1%	2,983
1002	ASENTOS (AGS)	7345	37763	27420	14	4	766	4385	-2.3%	10%	2,481
1003	CALVILLO (AGS)	10615	51291	27206	75	5	997	5516	-1.3%	9%	4,401
1004	COSIO (AGS)	2453	12619	8421	4	6	126	777	-5.1%	5%	425
1005	JESUS MARIA (AGS)	12373	64097	27102	106	5	249	1452	-4.8%	2%	1,027
1006	PIABELLON DE ARTEAGA (A)	6683	34296	7592	40	7	151	880	-2.7%	2%	594
1007	PANCON DE ROMOS (AGS)	7897	41655	12520	56	5	312	1859	-4.4%	4%	1,055
1008	SAN JOSE DE GRACIA (AGS)	1462	7244	3380	2	4	181	1001	-5.9%	12%	664
1009	TEPEZALA (AGS)	3165	16508	10293	2	4	173	959	-6.6%	5%	525



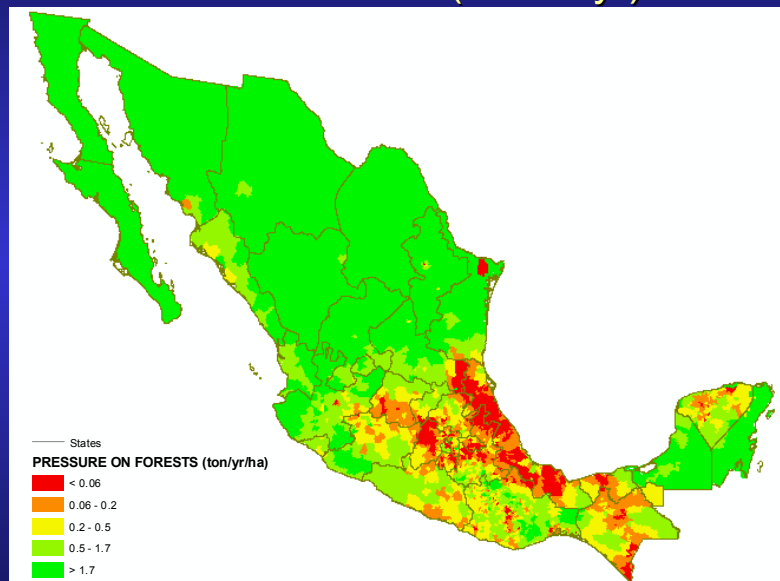
Supply module

CVE_INEGI	SUP_TOT (ha)	%Bos	%Selbaj	%Selalt	%Mat	%Mangl	%Otros	Sup Forestal (ha)
1001	118181	6%	8%	0%	14%	0%	72%	41529
1002	55421	0%	0%	0%	47%	0%	53%	18866
1003	94129	61%	38%	0%	0%	0%	1%	58859
1004	13041	0%	0%	0%	0%	0%	100%	3531
1005	50474	41%	23%	0%	4%	0%	32%	25502
1006	20162	4%	33%	0%	43%	0%	20%	5962
1007	37724	6%	3%	0%	13%	0%	79%	18696
1008	86578	62%	1%	0%	1%	0%	36%	74798
1009	23156	0%	0%	0%	95%	0%	5%	6073

Growth of fuelwood users 1990-2000



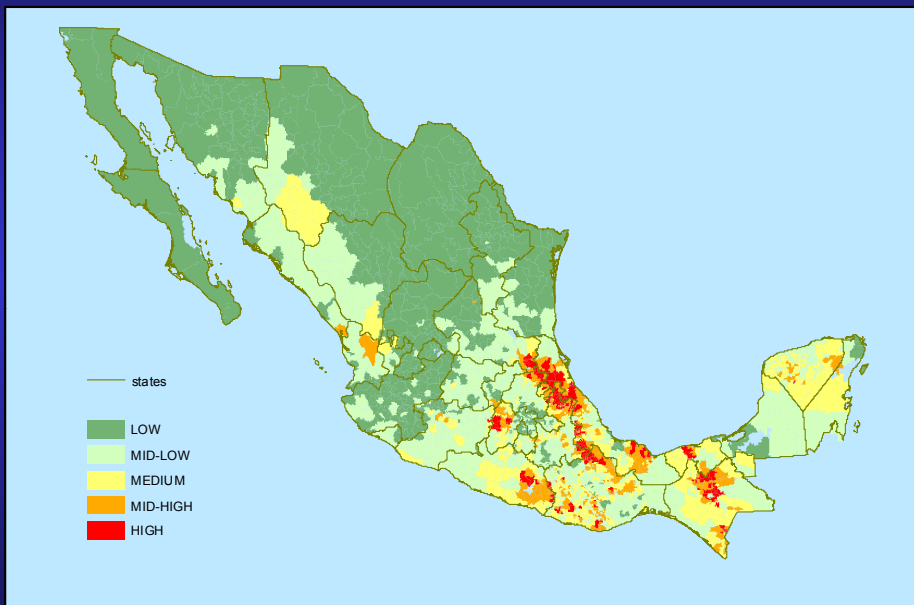
Potential Pressure on local forests from the extraction of fuelwood (ton/ha/yr)



DETERMINING PRIORITY MUNICIPALITIES FOR FUELWOOD SUSTAINABILITY

- Overall results
 - High priority → 273
 - Mid-high → 384 out of 2,460 munic.
 - Medium → 461
- Highest priority municipios show the largest average fuelwood consumption, the largest number, density and growth of users, the lowest fuelwood balance, and the largest percentage of indigenous population

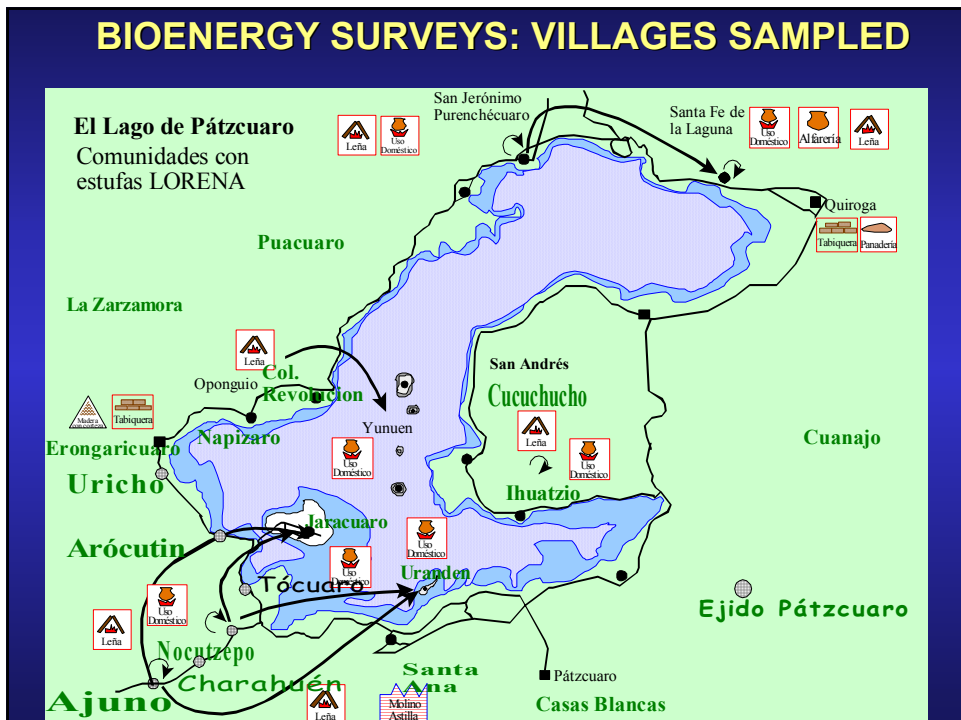
Priority Municipalities for Fuelwood Sustainability



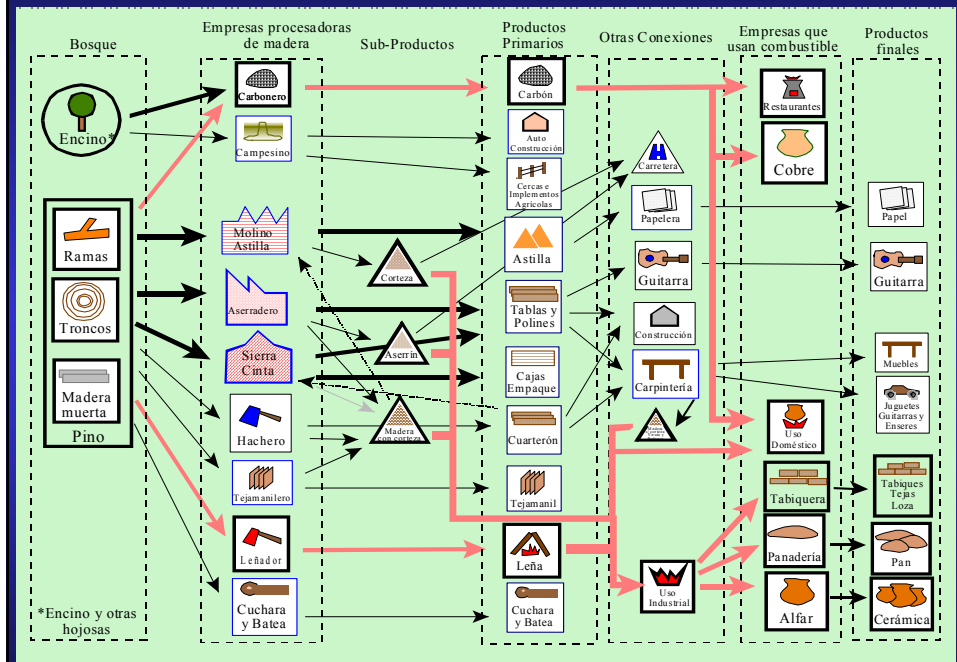
LOCAL APPROACH

WOODFUEL PRIORITY AREAS WITHIN THE REGION PUREPECHA, MICHOACAN

BIOENERGY SURVEYS: VILLAGES SAMPLED



FLUJO DE PRODUCTOS FORESTALES VISIÓN SISTÉMICA



GENERAL CONCLUSIONS

WISDOM benefits:

- Provides a **holistic vision** of the wood energy sector
- Enhances the visibility of wood energy situations to the by policy makers
- Helps identify “priority areas” (hot spots) at sub-national level regarding woodfuels and their related impacts
- Helps to identify & plan activities for the implementation of sustainable wood energy systems