



AGORA Final Conference
Tunis, June 12th 2012

Valuing forest goods and service and designing financing mechanisms to ensure their sustainable provision

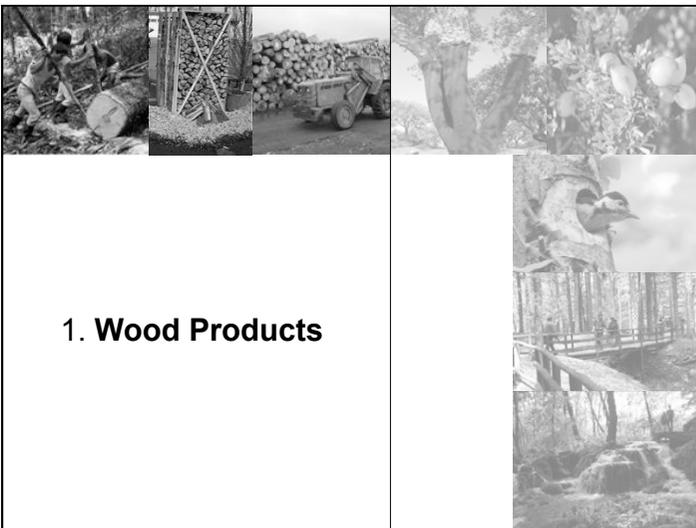
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Università di Padova

Objectives of the presentation

To discuss the relevance of **forest goods and service evaluation** and of **financing mechanisms** in a context of **changing the paradigm** of Mediterranean forest management and policies

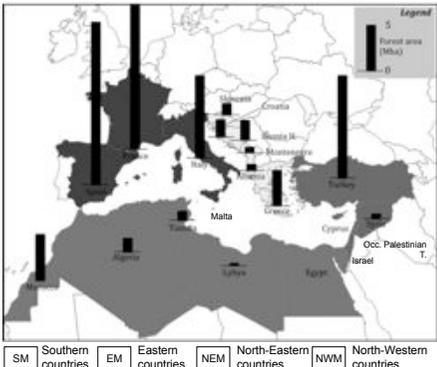
1. Forest goods: wood products
2. Forest goods: NWFPs
3. Forest-based environmental services
4. Financing mechanisms
5. Conclusions: changing paradigm

Slides may be downloaded from the Dept TeSAF web-site (www.tesaf.unipd.it/pettenella)



1. Wood Products

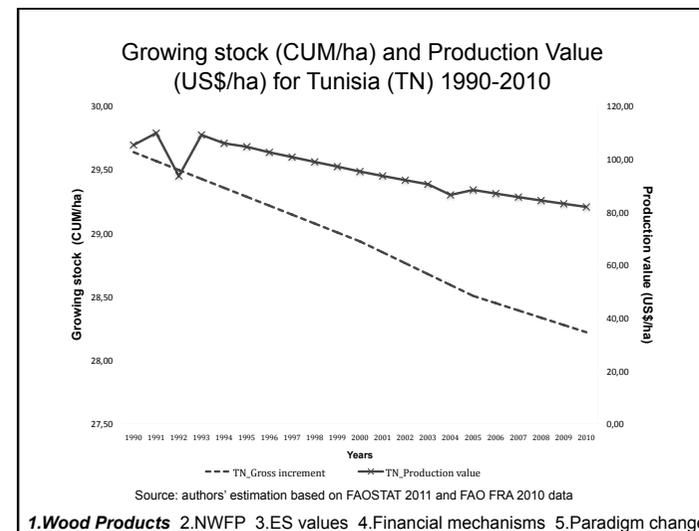
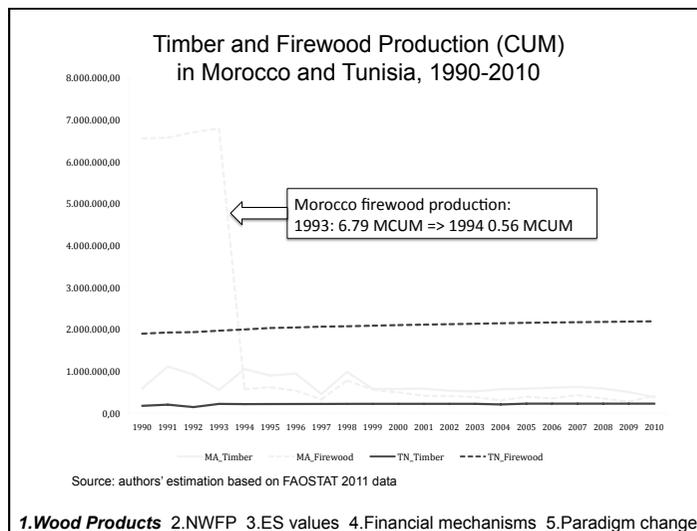
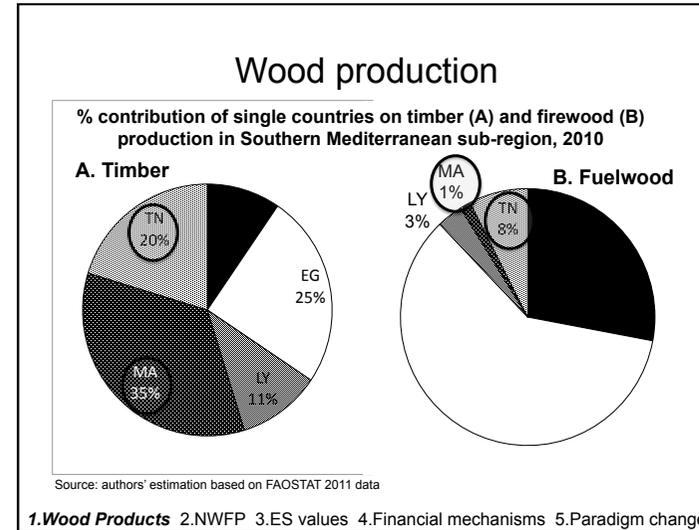
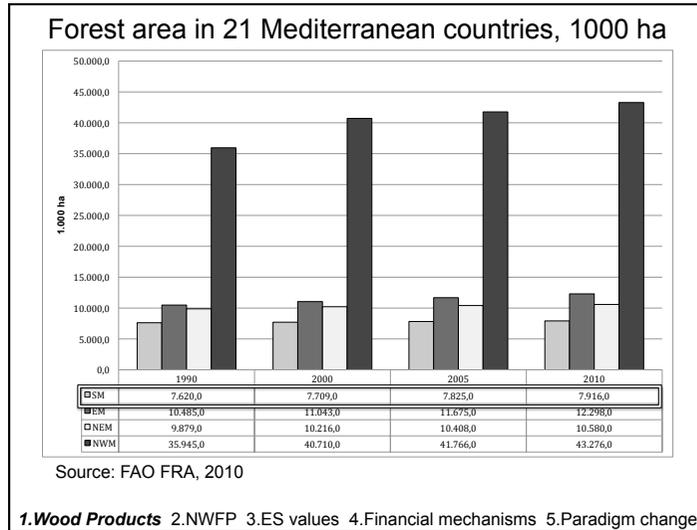
Forest cover in the 4 Med macro-regions

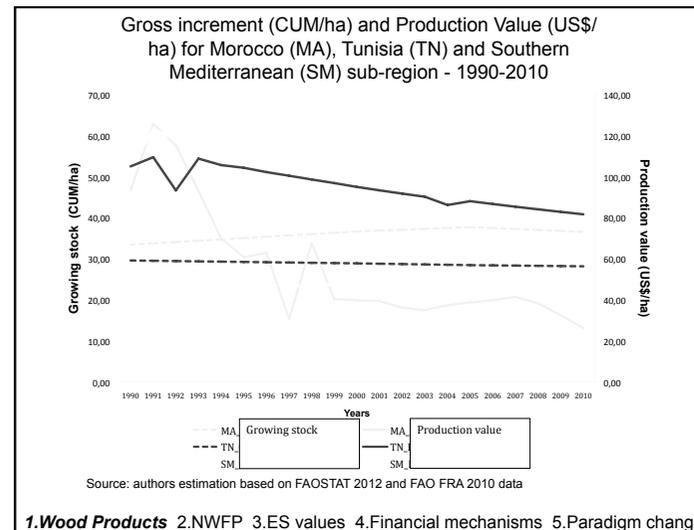
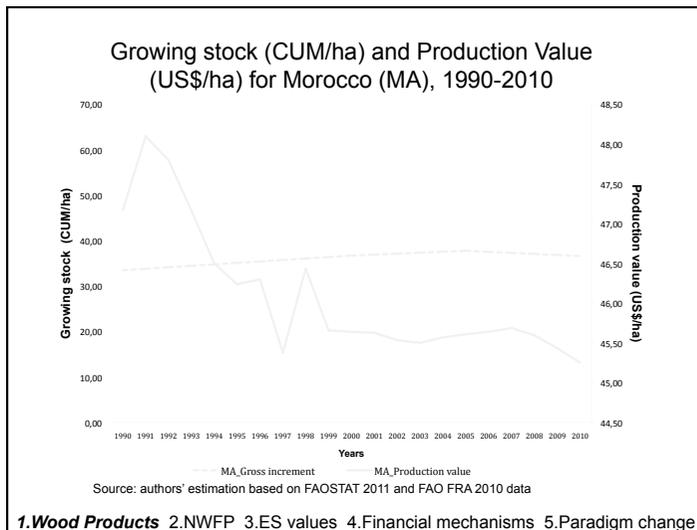


SM Southern countries EM Eastern countries NEM North-Eastern countries NWM North-Western countries

Source: authors' elaboration from FAO FRA 2010

1.Wood Products 2.NWFP 3.ES values 4.Financial mechanisms 5.Paradigm change





Main points for reflection

- A **decreasing role of wood production**, both in absolute and relative terms

Roundwood production value in Mediterranean countries compared to total gross and primary sector GDPs (1990, 2000, 2005, 2010)

Sub-regions	1990		2000		2005		2010	
	% on total GDP	% on primary sector GDP	% on total GDP	% on primary sector GDP	% on total GDP	% on primary sector GDP	% on total GDP	% on primary sector GDP
SM sub-region	0.4%	3.9%	0.3%	3.7%	0.2%	2.5%	0.2%	2.0%
EM sub-region	0.3%	2.9%	0.3%	3.5%	0.3%	3.4%	0.3%	4.5%
NEM sub-region	1.2%	19.2%	1.0%	17.8%	0.8%	15.3%	0.8%	15.0%
NWM sub-region	0.2%	10.1%	0.2%	10.8%	0.2%	7.6%	0.2%	7.5%
Tot. Mediterranean	0.3%	7.7%	0.2%	8.0%	0.2%	5.8%	0.2%	5.9%

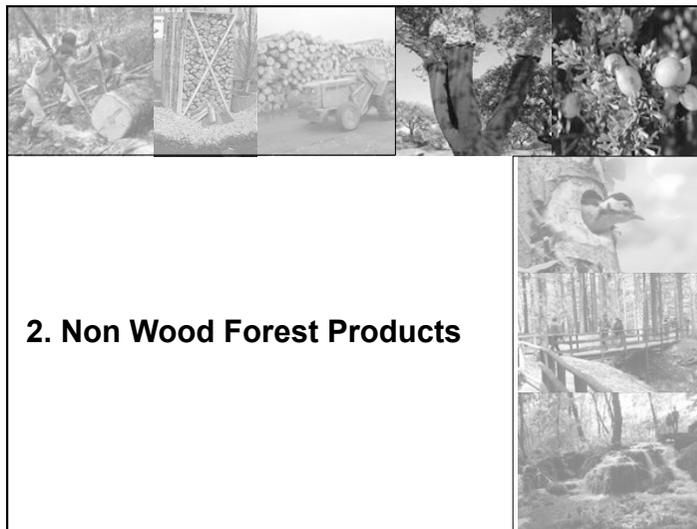
Source: own elaboration from FAOSTAT, 2012 and UN, 2012.

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Main points for reflection

- A **decreasing role of wood production**, both in absolute and relative terms
- No relevant gain in terms of forest cover and growing stock**
- No relevant investments** in productive forestry by foreign (or domestic) financial institutions
- Increasing **dependence** from abroad
- Problems of **data quality**

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2. Non Wood Forest Products

Non Wood Forest Products (NWFPs)

Cork, resin, mastic gum, honey, mushrooms & truffles, nuts, wild fruits and wild game, added to the value of trees used in livestock production (mainly as sources of fodder)

Production Value (2005):

- Morocco: **13.3 M US\$**
- Tunisia: **7.6 M US\$**
- Southern Mediterranean countries: **23.4 M US\$**

Source: authors' estimation based on FAO FRA 2010 National Reports

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Typologies of NTFPs enterprises

Source: Koen Kusters and Brian Belcher Forest products, livelihoods and conservation. Case studies of Non-Timber Forest products Systems

There is an evidence that NTFPs development are not always creating welfare conditions. 3 cases:

- **Coping:** self-consumption and subsistence use; low integration into the cash economy: poorest among the poor. Often it brings to un-sustainability
- **Diversified income strategy:** a cash economy (products are sold), but with a limited contribution to HHs incomes (multiple incomes); hobby craft use. Often a safety net: important in hard times
- **Specialized:** harvester is an entrepreneur, specialized, full time; high degree of resource dependency; innovator, often looking for a domestication

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Role of NWFP in rural economy:

Homma's economic model (from J.Wong's seminar at the Agora Summer School in Fez)

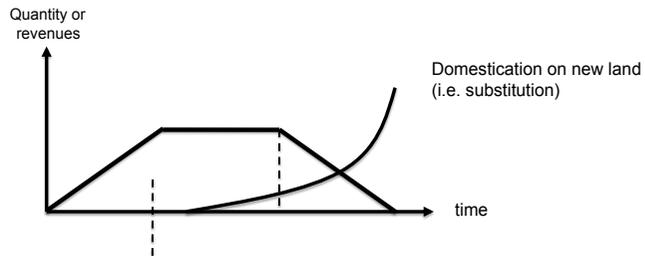
What happens when we commercialize wild products, taking into consideration the following assumptions:

- **inelastic supply** of forest wild products
- wild **harvest rate tends to exceed** regeneration rate
- **domestication** is possible (at some point in time)
- industrial **substitute** are possible

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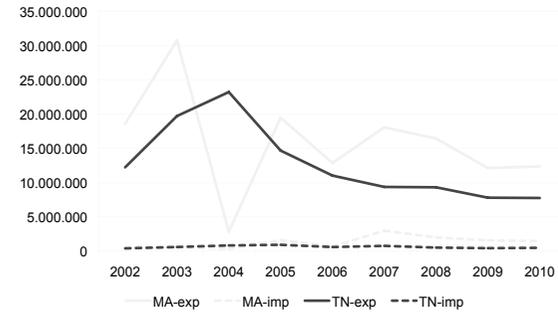
3 + 1 steps:

- Expansion
- Stabilization
- Decline



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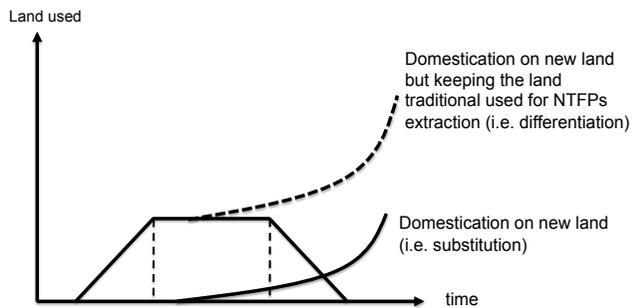
Morocco and Tunisia cork import-export (US\$), 2002-2010



Source: authors estimation based on COMTRADE data

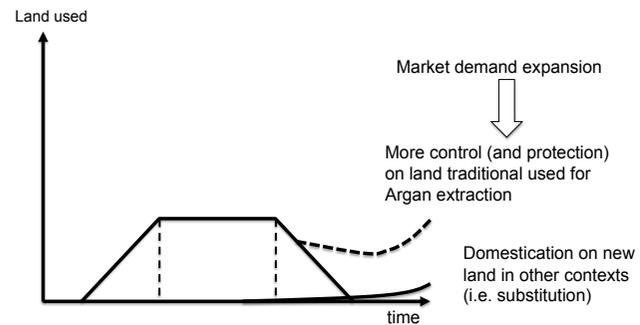
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The model (and the real production structure) can be improved



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The case of Argan (*Argania spinosa*)



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The problems of Argan market development

(...) "market-based mechanisms offer no magic bullet, that the benefits of commercialization need to flow to people who have secure rights in the resource and who then have an incentive to conserve it in both the short and long-term. In southwestern Morocco, argan oil commercialization appears to have motivated greater local protection of mature trees, but there are fundamental biological and institutional barriers to market-induced reforestation (...) Likewise, insecure tenure, including incursion from large herds from outside the region without protection from the state, threaten the trees and the ecosystem that depends on them, undermining incentives to invest in maintaining the forest (Lybbert et al., forthcoming)

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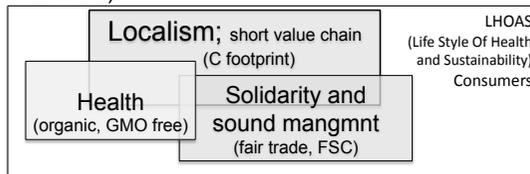
www.theargantree.com

Differentiation and substitution

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Main points for reflection

- NWFPs still important in **poverty alleviation** and as limited **cash source** in HHs economics
- **Insecure land tenure rights**: a basic issue to create incentives to conserve it
- When demand grows, new marketing instruments are needed, and Southern countries are not always able to face **hard competition** and to cope with new trends (like the LHOAS consumers)



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Main points for reflection

- Also in the case of income generation policies based on NWFPs the role of **added value services** tends to be **more important** than the rough material provision

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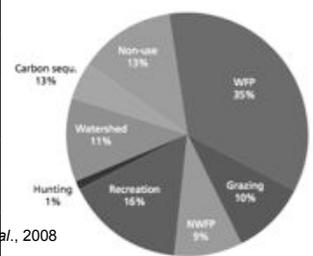


3. Forest-based Environmental services (ES)

Studies on forest externalities values

Mean average value of the services provided by Med forests (€/ha/year)

	Wood	NWFP	Grazing	Recreation	Hunting	Total	TEV
- South	12	4	32	n.a.	-	46	67
- East	22	5	10				
- North	67	16	10				
Mediterr. (total)	47	12	13				
%	49.5	12.6	13.7				
%	35.3	9.0	9.8				



Source: Merlo and Croitoru, 2005 (p.52); Palahi *et al.*, 2008

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Studies on forest externalities values (1)

Average biodiversity and recreational values in European Forests (*Benefit Transfer*; TEEB, 2009)

(Values per hectare– methodology: value transfer)

	Mediterranean EU Latitude 45-65	Northern and Central-Northern EU Latitude 65-71	Scandinavian EU Latitude 35-45
Range US\$ (2000)	356-615	123-182	123-255
Average \$ (2000)	485.5	152.5	189.0
€ (2000)	379.3	119.1	147.7
€ (2008)	467.1	146.7	181.9

Source: TEEB Report; CLIBIO project cit. in Den Brink *et al.* (2009); ha/year

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Studies on forest externalities values

Total Economic Value of Italian forests

(Contingent Valuation; Tempesta and Marangon, 2008)

Values of Forest Environmental Services:

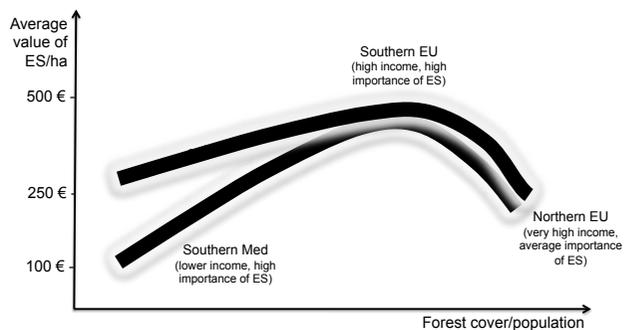
- WTP: 209 € per household/year
- WTP: 4,507 M €/year for all forest area
- WTP: **666 €/year/ha**

Including the value of market products (according to Nat.Statistics): **TEV= 723 €/hectare**

Values at a Regional scale:
With other methods: Gios and Goio (2003) **166 €/ha** for Trentino's forests;
Marangon and Gottardo (2001) for Friuli VG: **374 €/ha**

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A gradient in forest ES values



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The NEWFOREX Project

7° FP
New Ways to Value
and Market Forest
Externalities

6 case studies,
included Catalonia
as Med region

The screenshot shows the 'CASE STUDIES' section of the NEWFOREX website. It lists several studies with columns for 'Region', 'Case Study', 'Description', 'Status', and 'Contact'. The studies include:

- Catalonia (Med):** Focuses on the valuation of forest ecosystem services and the development of a payment for ecosystem services (PES) scheme.
- Spain (Med):** Focuses on the valuation of forest ecosystem services and the development of a PES scheme.
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www.newforex.org

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Main points for reflection

- Forests produce a **large array of ecosystem services (ES)**, most of which are externalities, therefore **no remuneration** is provided for producers
- If producers are not remunerated, their forest management regimes **do not achieve social optimum**
- The development of appropriate remuneration tools requires **good knowledge of values** at stake
- **Very little is known as regards South Mediterranean forest externalities values** on a comprehensive large scale. Evaluation needs to be undertaken
- Connections with **possible financial mechanism** can then be identified

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The collage includes images of forest workers, a truck, a tree, and a wooden bridge. A large dollar sign (\$) is overlaid on the collage, with arrows pointing from it towards the right side of the image, which shows a wooden bridge over a stream.

4. Financial mechanisms

Water-related ES: impacts of full accounting of the benefits

Table 4. Valuation approaches implemented in the CBA of Bou Hertma and Marguelli watersheds

CBA steps	Effects	Valuation	Objective functions
FA	— Agricultural and forest products (wood and non-wood)	Market prices of inputs and outputs	Net financial revenue
CEA	— Agricultural and forest products (wood and non-wood)	Use of spot market prices	
EEA	— Erosion	Modified (in a Google to forecast agricultural)	
	— Flooding occurrence	Lower cost services	
SEA	— Improved rural access due to road building*	Sale of timber	
	— Damages from flooding**	Number of transfer app houses	
SEA	— Tourism & outdoor recreation*	Carbon fix transfer app	
	— Climate stabilization*	Water supply agreements	
SEA	— Water table recharge**	Three sections area treated (no pollution (w	
	— Distribution		

Table 5. Main results of CBA application

	Watershed	NPV (1,000 \$S)	IRR
FA	Bou Hertma	1,186,039	12.7%
	Marguelli	-1,435,617	9.2%
	Total	-249,578	9.9%
CEA	Bou Hertma	4,623,708	19.9%
	Marguelli	5,784,849	13.9%
	Total	10,408,557	15.4%
EEA	Bou Hertma	6,231,660	23.3%
	Marguelli	10,534,898	17.6%
	Total	16,776,558	19.1%
SEA	Bou Hertma	9,325,018	28.0%
	Marguelli	22,474,503	21.6%
	Total	31,799,521	23.1%

H.Daly-Hassen, D.Pettenella, T.Jemal Ahmed, 2010

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How to support the supply of public goods by the forestry sector?

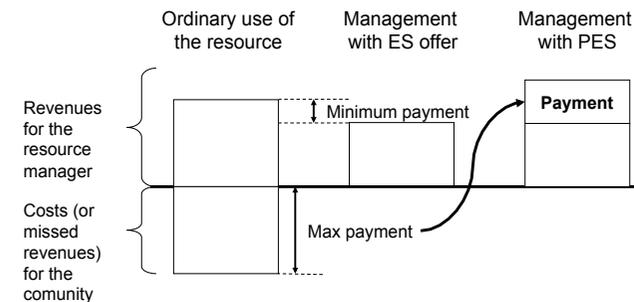
	Tools	Direct costs for the public sector	Transaction costs for the public sector	Approach by the privates	Participation by the privates	
Passive: Command and control	Thresholds, limitations, constraints	Relatively low	Relatively low	Top down	Compulsory	sticks
	Tax deductions, tax exemption	Relatively high			Voluntary or imposed by the State	
Active: creation of new sources of incomes	Fixed compensation				Voluntary	carrots
	- PES schemes	Zero costs	Relatively high	Bottom up	Voluntary	
Soft tools	- PES-like schemes	Very low	Low	Mixed	Compulsory for some parties	sermons
	- PPP	Relatively high	Low	Top down	Voluntary	
Market-based instruments	- Land acquisition by public authorities or large companies (lease, concessions, ...)	Relatively high	Low	Top down	Normally voluntary	carrots
	- Tradable permits (cap & trade schemes)	Relatively low	Low	Mixed	Compulsory for some parties	
Soft tools	- Certification and labelling (premium price)	Zero costs	Zero costs	Bottom up	Voluntary	sermons
	- Sponsoring, donations (philanthropy)					
	- Information, provision of services, goods free of charge or a low prices	Relatively high	Low	Mixed		

Payments for Environmental Services (PES)

Definition (Wunder, 2005):

- "a **voluntary** (1) transaction where
- a **well-defined ecosystem service** (2) (or a land-use likely to secure that service)
- is being bought by a (**minimum one**) ecosystem buyer (3)
- from a (**minimum one**) ecosystem provider (4)
- if and only if the ecosystem service provider secures ecosystem service provision (5) (**conditionality**)".

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Source: S.Pagiola e G.Platais (2005) mod.

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Still very far from implementing a process of internalization (PES, PES-like schemes or others)

service	tool	
biodiversity	Natura 2000	Value of service Value of compensation (in Italy)
Erosion prevention	Hydrogeological constraint	
Carbon sequestration	Kyoto P. National Plan	
Mushrooms and truffles	Licences and permits	
Supply of drinking water	Water regulations (Galli Act)	
Energy power generation	L. 959/1953	

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Water related PES

Table 2: Summary of Transaction Data for 2008 and Historically

	Programs Identified	Active Programs	Transactions 2008 (US\$ Million)	Hectares Protected 2008 (million ha)	Historical Transactions through 2008 (US\$ Million)	Hectares Protected Historically
Latin America	501	36	31	2.3	177.6	NA
Asia	33	9	1.8	0.1	91	0.2
China	42	42	2,800	330	40,800	230
Europe	5	1	NA	NA	30	0.03
Africa	20	10	62.7	0.2	570	0.4
United States	10	10	1,350	16.4	8,355	2,970
Total FWS	216	113	9,245	289	50,048	3,240
Water Quality Trading	72	14	10.8	NA	52	NA
Totals	288	127	8,256	289	50,100	3,240

Stanton, Tracy; Echavarria, Marta; Hamilton, Katherine; and Ott, Caroline. 2010. State of Watershed Payments: An Emerging Marketplace. Ecosystem Marketplace. <http://www.foresttrends.org>

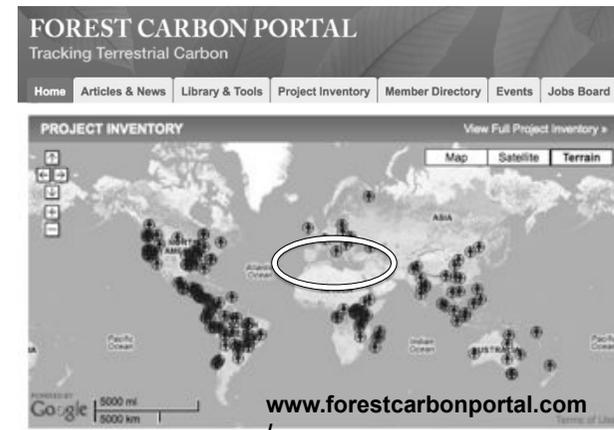
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Water related PES



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Carbon PES



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Main points for reflection

- **MBMs still to be developed** in the region (more delay than in other regions), notwithstanding the strategic role of water, biodiversity and landscape (tourism along the coast)
- Not always so easy to **clearly define the links** between forest management practices and provision of ES
- PES implementation needs **high transaction costs** (negotiation) and **good networking** (mutual trust, shared vision and responsibilities)
- **Ethical concerns:** *"We already pay taxes; why should we also pay for ES?"*. *"Water, air quality, biodiversity are basic rights; no privatization, no commoditization"*

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Two paradoxes in the (Mediterranean) forestry



1. A paradox connected to the **targets** of policy action:

- The increasing importance of the **non-market component** of forestry economics (from an economy based on wood and other commodities to a an economy based on services)
- The key-idea of of **nature-based economy** ("Bio-economy"*) and "green economy", where forestry, together with agriculture, fishery, food and biotechnology should be the engine of the growth

(*) Innovating for Sustainable Growth: A Bioeconomy for Europe. Brussels, 13.2.2012 COM(2012) 60 final.

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<http://ec.europa.eu/research/bioeconomy/>

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Two paradoxes in the (Mediterranean) forestry



2. A paradox connected to the **instruments** of policy action:

- The need to protect natural resources much exposed to degradation through an active and intense **regulative policy action** (command and control instruments: regulations, taxes, thresholds and standards, legal requirements, at national and international level)
- The need to enhance the use of **voluntary, market-based mechanisms**, also to actively involve civil society in the management of natural resources

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How to deal with these two paradoxes? Opposite views of nature-based economy

1. **Adaptive strategy** ("Old wine in new bottles") → conventional wisdom of externality correction (i.e., "getting prices right" giving the true value to resources, reducing the consumption of natural capital; weak sustainability concept; low Carbon economy)
2. Alternative strategy: "**Strategies for synergies**" (M.Toman, 2012): which consider not only the protection of natural capital, "*but it stresses as well the importance of addressing equity and social inclusion challenges in moving toward a green economy*".

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The social and political components of the Green economy

"Policy action requires looking across a very wide range of policies, not just explicitly „green" (i.e. environmental) policies." (OECD 2011, page 18)

(Green economy) "will also involve achieving smooth and just adjustment in labor markets by ensuring that workers have the means to find opportunity in change. **More generally, the success of a green growth strategy will rest on addressing political obstacles and distributional concerns about the costs of change.**" (OECD 2011, page 20)

"The key aim for a transition to a green economy is to eliminate the trade-offs between economic growth and investment and gains in environmental quality and social inclusiveness... the environmental and social goals of a green economy can also generate increases in income, growth, and enhanced well-being" (UNEP 2011, page 16)

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The real innovative and crucial aspects of the **green economy** for the Med forestry sector are related to **equity, social inclusiveness, tenure security, employment**, i.e. to social and political issues, more than to problems connected to natural science or technology

We are **not starting from zero**: many positive experience at local level

→ **Scaling up the experience of local governance** based on participation and responsible management of natural resources

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Is this a “lesson learned” from the
Arab spring?



Une coupe responsable

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