Valuing Ecosystem Services :
Examples from the MENA-Region

TEEB Capacity Building Workshop, ESCWA, Beirut, 21-23 Feb 2012

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Different objectives of valuation of ES

1. **Raising awareness** towards decision-makers on the importance of ES

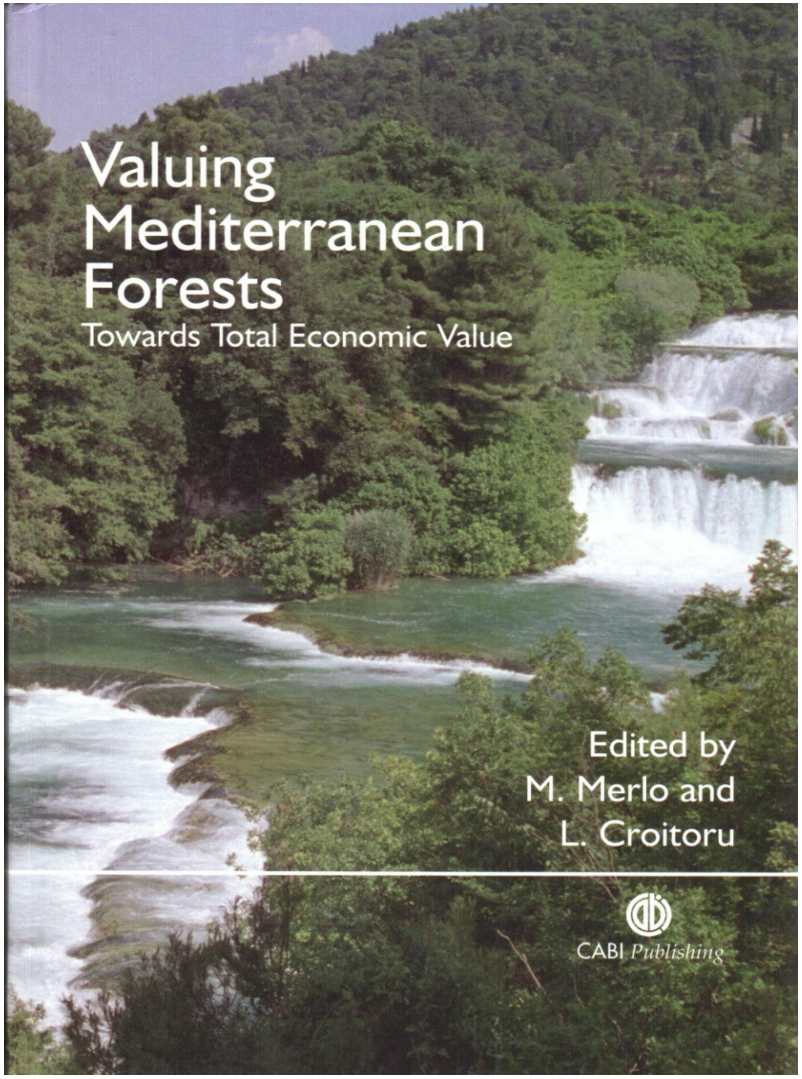
2. **Advocate the need for action** in face of pressures impacting ES

3. **Support for practical management of ES:**

3.a. Decision-making in management options

3.b. Design of compensation schemes and PES-mechanisms

1. **Raising awareness** towards decision-makers on the importance of ES



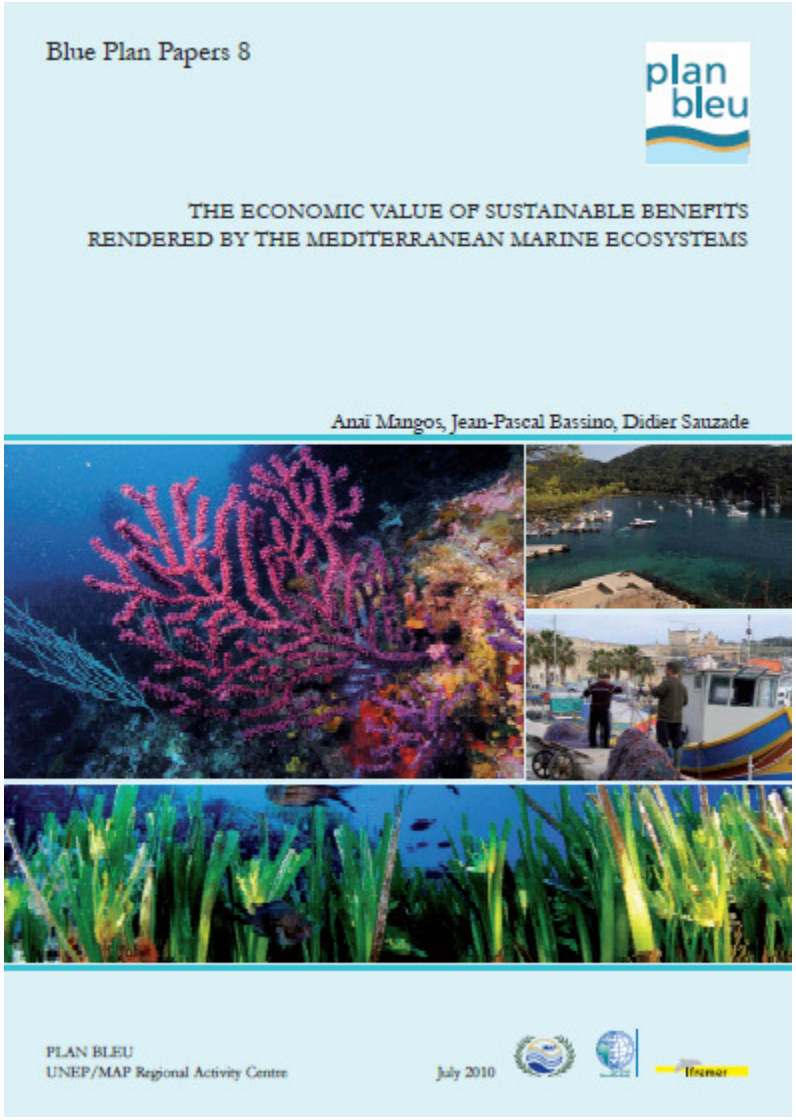
(Available in google.books)

Valuing Mediterranean Forests : Towards Total Economic Value (Merlo & Croitoru, 2005)

Among main results :

- Total Economic Value (TEV = Use Value + Non-Use value) of Mediterranean forests across 18 countries

- *Example from Lebanon:*
  TEV Lebanese forests = 161 US $/ha (in 2001)
  Ab. 1% GDP



http://www.planbleu.org/publications/Cahier8_marin_EN.pdf

The Economic Value of Sustainable Benefits rendered by the Mediterranean Marine Ecosystems (Plan Bleu, 2010)

Among main results :

- **Value of the flows produced by the environmental assets** constituting marine natural capital, without estimating the value of the stock of natural capital.

- Estimation of the overall value of benefits rendered by Med marine ecosystems : **over 26 billion Euros** (for 2005) = ab. 120% of Tunisia's GNP in 2005

- **Over 68% of this value is generated by the benefits related to the provision of amenities (recreational supports)**, benefits relating to the provision of food resources account for 11%.

Overview of key studies from the MENA-region for awareness-raising towards decision-makers

Study, Author, Date	Sector concerned	Main result
➢**Plan Bleu, 2010**	Fishery, Water, Tourism	Estimation of the benefits rendered by Med marine ecosystems
➢**TEV of Med Forests, Croitoru L., 2005**	Forests, Agriculture, Environment	TEV of Med Forests in 18 countries
➢**TEV of Tunisian Forest Ecosystems, Daly H. INRGREF, 2005 & 2012**	Forests, Agriculture, Energy, Water, Environement, etc.	TEV of the Tunisian Forests & values for partner sectors
➢**TEV of Tazekka National Park; Jorio A., 2011**	Environment, Forests, Tourism, Agriculture, etc.	TEV of the benefits rendered by a National Park

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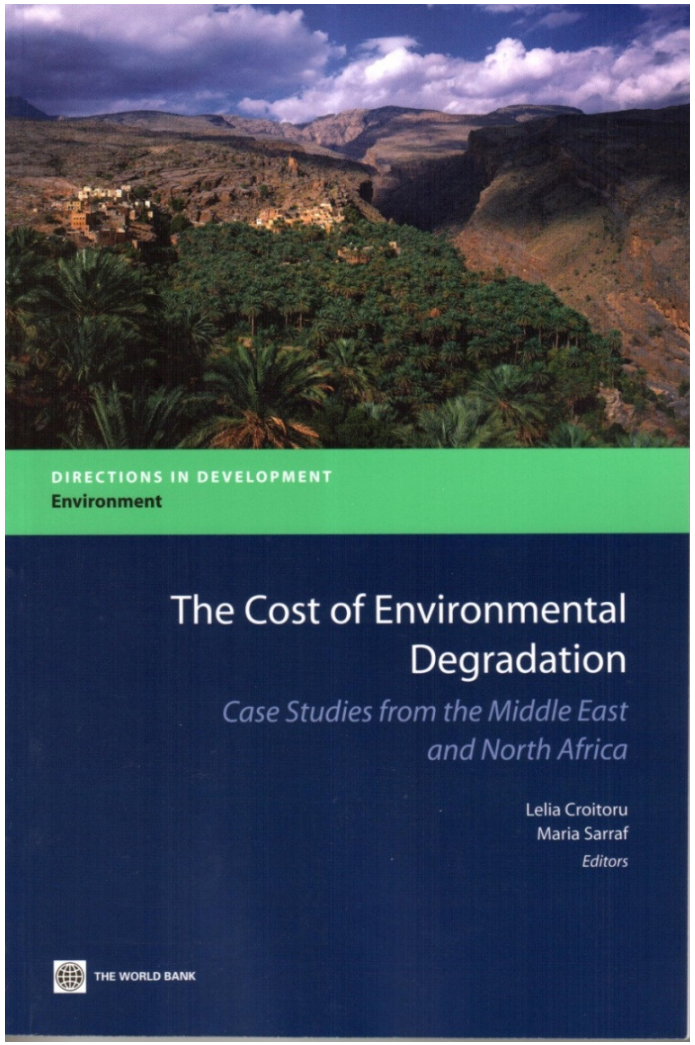
2. **Advocate the need for action** in face of pressures impacting ES



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The Cost of Environmental Degradation – *Case studies from the Middle East and North Africa* (Sarraf & Croitoru, 2010)

Among main results :

➢ The Cost of Environmental Degradation (COED) = X % GDP

➢Cost of Water Degradation in Tunisia = 0.6% GDP (in 2004)
➢Cost of Air Pollution in Jordan = 1.2% GDP (in 2006)
➢Cost of Deforestation and Forest Degradation in Iran = 0.7 % GDP (in 2002)
➢Cost of Land Degradation in Morocco = 0.4% GDP (in 2000)
➢Oil spill and waste due to conflicts in Lebanon = 2.4 % GDP (in 2006)

Overview of key studies advocating the need for action in face of pressures on ES

Study, Author, Date	Sectors involved	Main results
COED, Cost of Environmental Degradation Sarraf & Croitoru; 2010	Environment, Finance, Forestry, etc.	COED for Water, Air, Forest, Land in MENA countries
Cost of desertification/land degradation in Morocco, Jorio A.; 2000	Agriculture, Forestry, Environment, etc.	Cost of Land degradation = 0.4% GDP (in 2000)
Economic valuation of CC impacts on Forest ES in Tunisia, Daly H. 2011	Forest, Agriculture, Environment, etc.	Value of loss due to climate change and other pressures

3. **Support for practical management of ES:**

3.a. Decision-making in management options

3.b. Design of compensation schemes and PES-mechanisms

3.a. Support choices in management options :

Sustainable management of the natural capital of the bouhachem forest (Chefchaouen, Morocco); Mavsar & Farreras (CTFC, 2010)

Choice-modelling/Choice experiment

Assess the WTP for changes in the level of attributes (in relation to changes in management options)

Set of choices

Parmi les alternatives suivantes, quelle est celle que vous préférez?

SANS CHANGEMENT DE GESTION	AVEC CHANGEMENT DE GESTION		
ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
SANS paiement annuel	Paiement annuel 30 MAD	Paiement annuel 50 MAD	Paiement annuel 100 MAD
CHANGEMENT DE LA FORÊT 35 hectares sur 100	CHANGEMENT DE LA FORÊT 25 hectares sur 100	CHANGEMENT DE LA FORÊT 25 hectares sur 100	CHANGEMENT DE LA FORÊT 20 hectares sur 100
ÉROSION 8 hectares sur 100	ÉROSION 6 hectares sur 100	ÉROSION 4 hectares sur 100	ÉROSION 2 hectares sur 100
Ramassage de bois et pâturage dans TOUTE LA FORÊT	SANS ramassage de bois et sans pâturage 15 hectares sur 100	SANS ramassage de bois et sans pâturage 25 hectares sur 100	SANS ramassage de bois et sans pâturage 20 hectares sur 100
TOURISME NON	TOURISME OUI	TOURISME NON	TOURISME OUI

3.b. Design of compensation & PES schemes :

Compensation mechanism to combat overgrazing in Morocco

➢ab. 10.000 Ha / year since 2005
➢15.000 beneficiaries

➢Calculation of opportunity cost for graziers
(=cost of not being able to feed its cattle)
➢compensation amount >> direct payment into the account of associations of farmers
•250 DH/Ha (cork oak, cedar trees, pines)
•350 DH/Ha (argan trees)

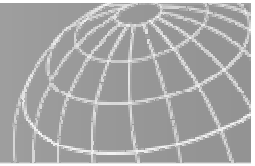
Using Payments for Environmental Services to improve Conservation in a Tunisian Watershed (Daly & Croitoru, 2010)

➢ Erosion prevention through subvention from the Office for Sylvo-Pastoral Development of the North West

➢How to make this programs more sustainable (for the farmers and for the Tunisian society) by making water users pay?

To sum up

Objective	Studies examples	Authors	Year
1. Raising awareness towards decision-makers	➢Valuing Mediterranean Forests : Towards Total Economic Value (TEV) ➢The Economic Value of Sustainable Benefits rendered by the Mediterranean Marine Ecosystems ➢TEV of Tazekka National Park	-Croitoru & Merlo -Plan Bleu -Jorio	2005 2010 2011
2. Advocate the need for action	➢COED (Middle East and North Africa) ➢Cost of Land Degradation in Morocco ➢Economic valuation of Climate Change impacts on tunisian forests	-Sarraf & Croitoru -Jorio -Daly	2010 2000 2011
3. Practical management of ES: **a)- decision-making**	➢Sustainable management of the natural capital of the bouhachem forest (chefchaouen, Morocco)	-Mavsar & Farreras (CTFC)	2010
b) Design of compensation schemes	➢Opportunity costs calculation (Morocco); ➢PES assessment (Tazekka NP) ➢Using Payments for Environmental Services to improve Conservation in a Tunisian Watershed	-HCEFLCD -Croitoru & Jorio -Daly & Croitoru	 2011 2010



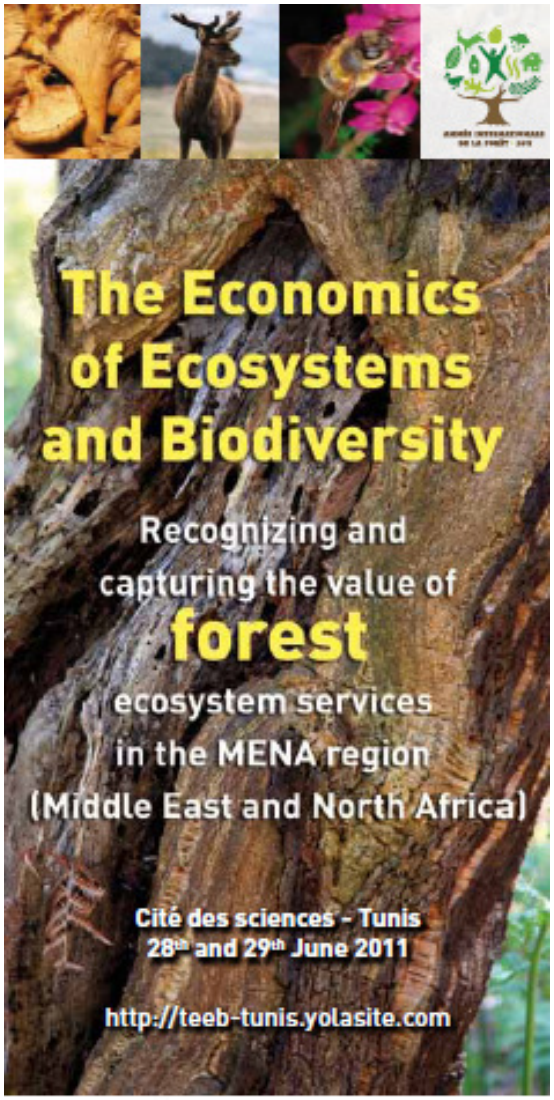
Future valuation-related initiatives :

- Support for the **choice in forestry management options in face of CC** (FFEM/Plan Bleu/EFIMED) in pilote areas of Morocco, Algeria, Lebanon, Turkey, Tunisia

- **REDD+ for the Mediterranean forests** (FFEM/ Plan Bleu/ONF International)

- **Integration of FGS in national accountancy in Morocco** (partnership Ministry of planning/High commissariat for Water, Forestry and Combat of Desertification)

- Support for the argumentation for **Ecosystem-based Adaptation**



TEEB regional conference in Tunis, June 2011

- 5 countries (TUN, MA, LEB, ALG, TUR)
- Information: Newsletter Silva Mediterranea n°8; http://teeb-tunis.yolasite.com

Recommandations and orientations for decision-makers in the MENA region on how to capture the value of Forest Goods and Services

Thank you for your attention
Shukran Lakum
Danke
Merci

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