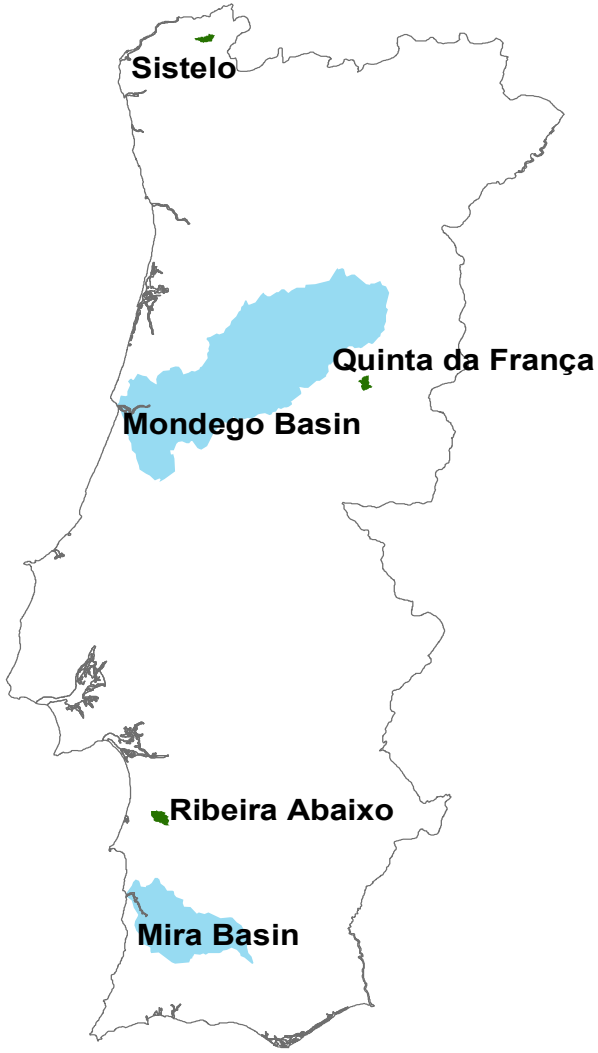
Sub-global Assessments: Synthesis and Case Studies (Portugal)

Tiago Domingos

June 2004

The Portuguese Assessment

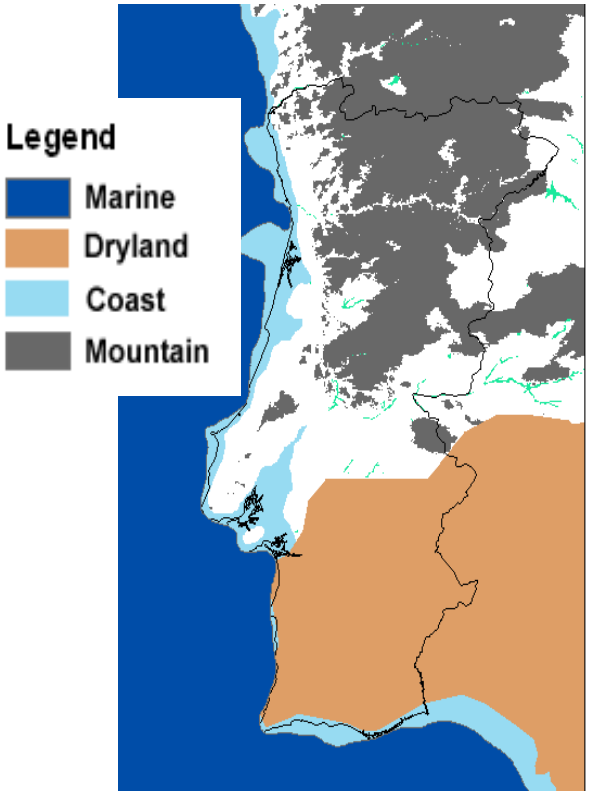
- Answers the needs of Portuguese users and the MA global assesment.
- Carried out by a multidisciplinary team
  - Ecology, Agronomy, Forest Science, Soil Science, Hydrology, Ecological Economics, Economics, Sociology
- Multi-scale: national, basin, local
- Assesses conditions and trends in multiple ecosystem services
- Develops scenarios for the next 50 years
- Analyses a selected set of responses

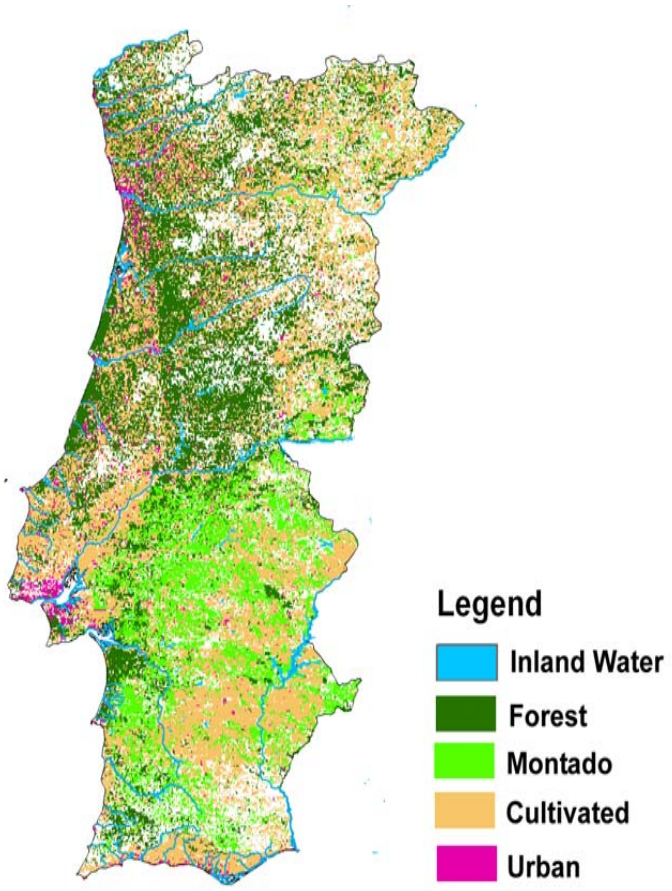


Users

- Government - Ministries
  - Public Construction, Transportation and Housing
    - Environmental Auditor
  - Agriculture, Rural Development and Fisheries
    - Environmental Auditor
  - Environment and Land Planning
    - Nature Conservation Institute
    - Water Institute
    - National Park of Peneda-Gerês
- Business
  - National Confederation of Small Farmers
  - National Association of Pulp and Paper Producers
  - Project EXTENSITY
- Environmental NGO's
  - League for the Protection of Nature

National Scale
Reporting Units





At the national scale the assessment is being organized into reporting units based on the global MA systems, but adapted to the needs of the Portuguese users.

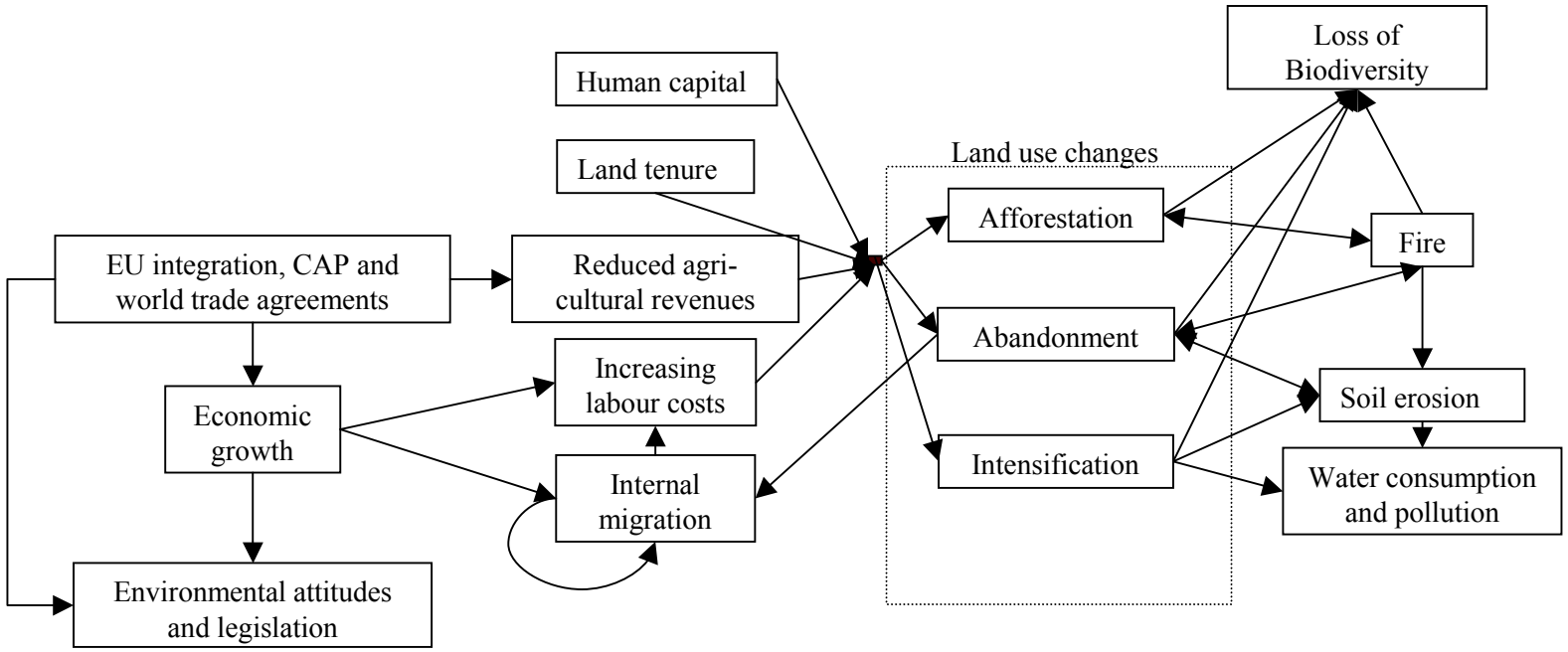
Reporting Units
Montado

Montado is an agroforestry system, where the predominant tree species are cork-oak (*Quercus suber*) or holm-oak (*Quercus rotundifolia*) and the main economic activities are cork, livestock and cereal crop production.

Country	Area (ha)	%
Portugal	730,000	32.5
Spain	500,000	22
Alger	410,000	18
Morocco	340,000	15
France	100,000	4.5
Tunisia	99,000	4.3
Italy	90,000	3.7
Total	**2,269,000**	**100**

Drivers

Forest, *Montado*, Cultivated



Global Findings: The CO2 sink was partially due to afforestation/ reforestation in Europe and other regions

Conditions and Trends
Overall Assessment

	Food	Water	Fiber	Biodiversity	Soil and Flood Protection	Climate Regulation	Primary Productivity	Recreation
Marine	↗ ☟			↘		?	→	→ ☝
Coastal	↘ ☝			↘	↘		↘	↘ ☝
Inland Water	→ ☝	↘ ☝		↘	↘		↘	↗ ☝
Forest	→ ☝	↘	→ ☝	→	→	↗	↗	→ ☝
Montado	→ ☝	→	→ ☟	→	→		→	→ ☝
Cultivated	↗ ☞	→ ☝		→	↗	?	↗	↘ ☝
Urban				↘	↘			↗ ☝

Not Assessed | Bad | Poor | Fair | Good | Excellent

Conditions and Trends
Economic Valuation

Economic valuation of ecosystem services has been provided comprehensively for the forest and montado ecosystems.
In other ecosystems, only market-valued services have been economically valuated.

Service/Commodity	Value (million €)
Timber	257.6
Cork	221.9
Total of timber goods	**479.5**
Resins	13.1
Honey	5.6
Fruits	41.2
Wild mushrooms	32.5
Aromatic and medicinal plants	1.9
Game	58.7
Fodder	125.2
Acorn	6.7
Woodland production	17.8
Total of non timber goods	**302.7**
Recreational use	5.9
Carbon sequestration	26.5
Agricultural land protection	75
Water resources protection	29
Environmental protection	20.1
Total of environmental services	**156.5**
TOTAL	**938.7**

Scenarios

Scenario A1:
Adaptive Mosaic

Ecotourism
Biological agriculture
Recycling
Renewable energies
Environmental responsibility
Fire frequency decreases

Environmentally Friendly Society

↑ Biodiversity
↘ Food
→ Water
↗ Soil Protection
↑ Recreation

↑ Biodiversity
↗ Food
↑ Water
↑ Soil Protection
↑ Recreation

Scenario A2:
Technogarden

Agriculture responding to markets

Geographic distribution of cultures changes
Abandon of rural landscape and intensification of agriculture
Foreign immigration to rural landscape
Agriculture becomes more entrepreneurial

Abandon of rural landscape
Aging of the rural populations

Status Quo

↘ Biodiversity
↘ Food
↘ Water
↘ Soil Protection
↓ Recreation

→ Biodiversity
↗ Food
→ Water
→ Soil Protection
→ Recreation

Scenario B1:
Order from Strength

Doesn't Care Society

Tourism of high environmental impact
Fire frequency increases
Environmental irresponsibility
No highway tolls
Mini-dams
Deregulation of hunting

Scenario B2:
Global Orchestration

Responses

EXTENSITY – Environmental and Sustainability Management Systems in Extensive Agriculture

- Funded by Life-Environment
- Aims:
  - Create a sustainability management system for extensive agriculture
  - Obtain sustainability indicators at farm level
  - Apply innovative aggregation methods
  - Promote the viability of the system

Responses

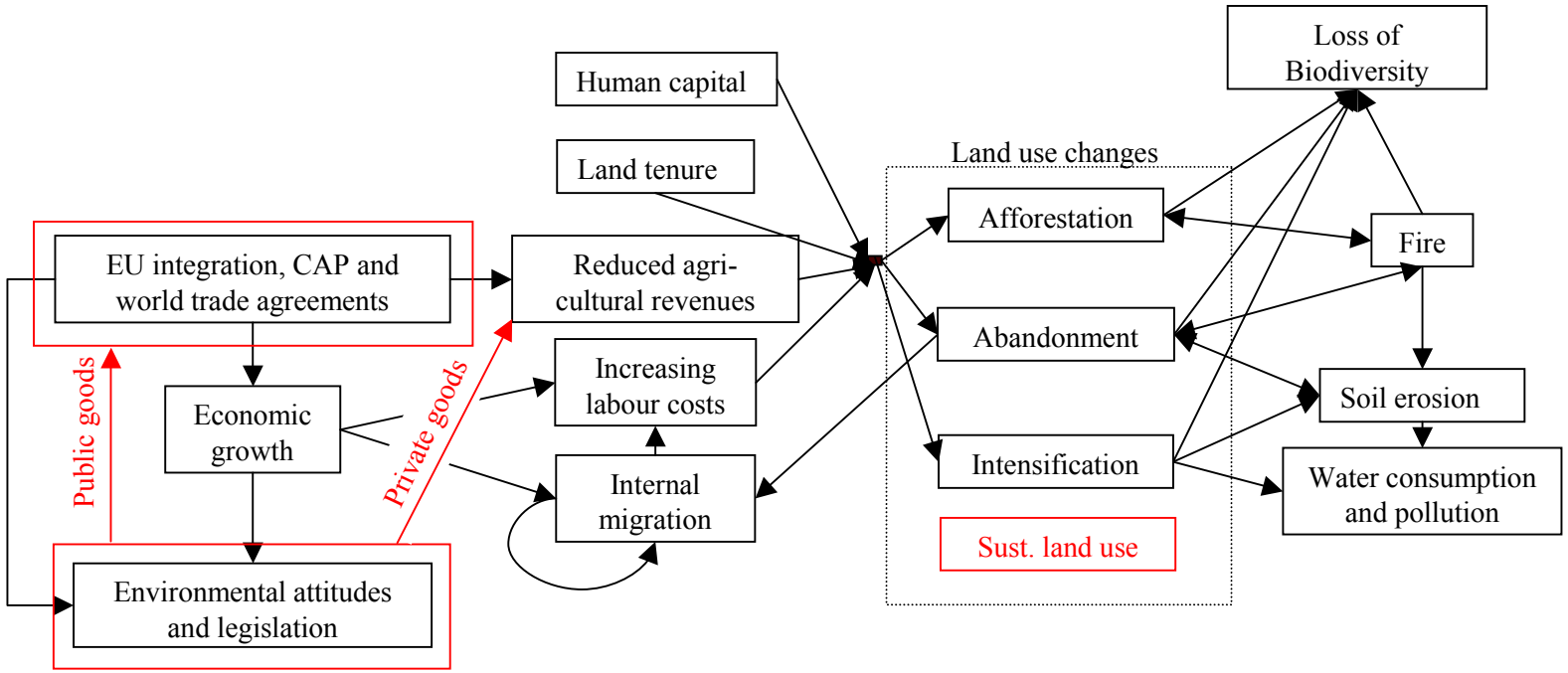
EXTENSITY – Services Addressed

	Food	Water	Fiber	Biodiversity	Soil and Flood Protection	Climate Regulation	Primary Productivity	Recreation
Marine								
Coastal								
Inland Water								
Forest								
Montado	→ ☝	→	→ ☝	→	→		→	→ ☝
Cultivated	↗ ☞	→ ☝		→	↗	?	↗	↘ ☝
Urban								

Not Assessed | Bad | Poor | Fair | Good | Excellent

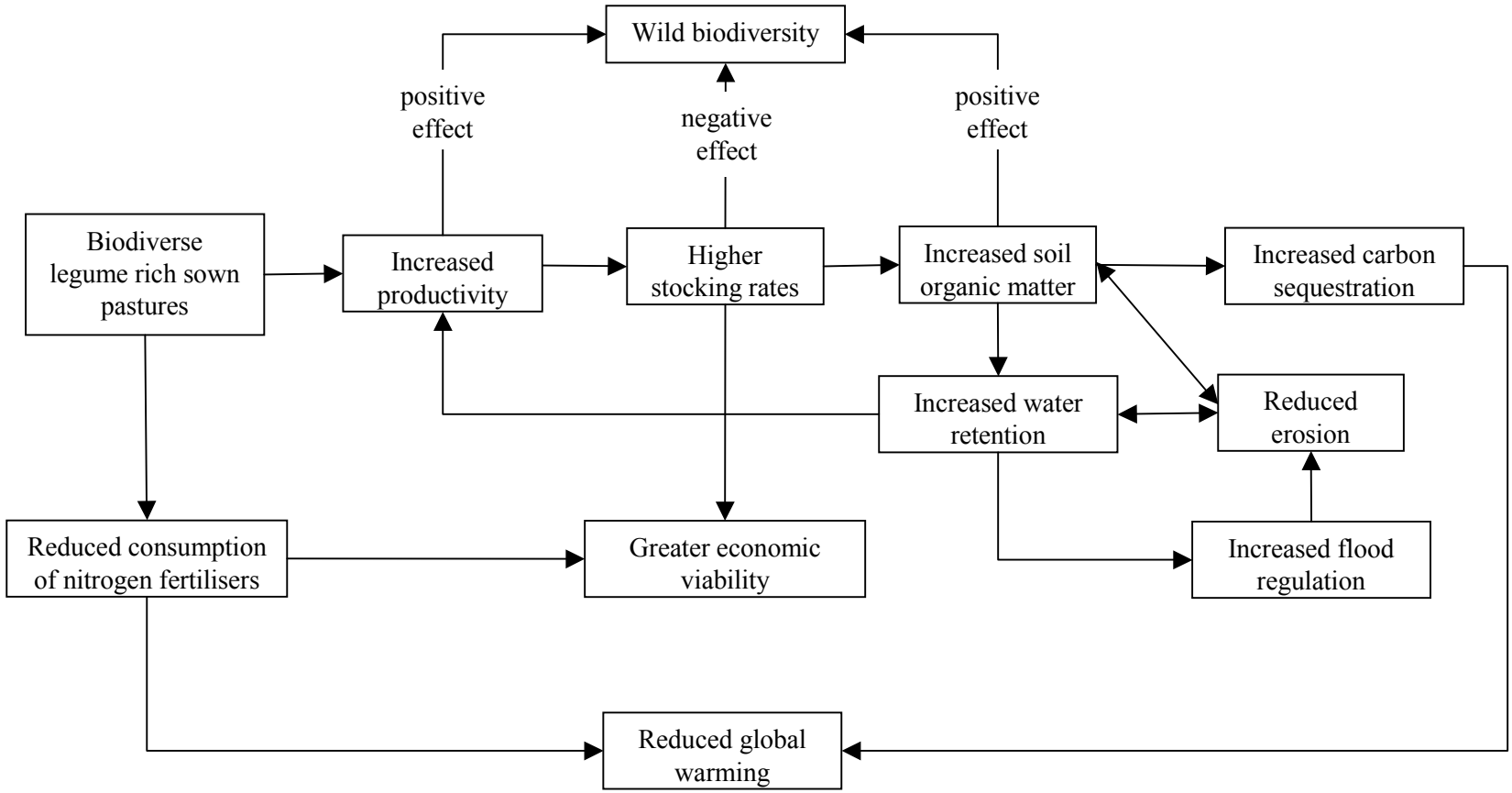
Major services to address: water, biodiversity, soil and flood protection

Responses
EXTENSITY – Drivers Addressed



Responses

EXTENSITY – Sustainable Land Use in Mediterranean Areas



Contrasts to the Global Assessment
Agriculture and Biodiversity

- The crucial importance of agriculture in maintaning biodiversity in Mediterranean countries
  - Not included in the four major effects at the global scale
    - Loss of habitat and species associated to conversion from natural to cultivated
    - The effect of cultivated landscapes on the value of habitat remaining post conversion
    - The loss of wild species as a consequence of the (mis)-use of agricultural inputs
    - The diversity and maintenance of the genetic diversity of cultivated species

Contrasts to the Global Assessment

- The importance of the *montado* ecosystem
- A greater stress placed on economic valuation of ecosystem services
  - As assessment of conditions and as a support to responses

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