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AGORA Making the Difference:

Towards a Mediterranean
Forest Research Area

EFI Policy Brief 8

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Foreword

The Mediterranean region is considered as one of the globe's "conflict hotspots" due to its political instability, difficult socio-economic conditions, its geo-energy position and the state of its natural resources: 60% of the water-poor countries in the world and more than half of the region is affected by desertification processes. At the same time, the Mediterranean basin contains a unique mosaic of diverse ecosystems, landscapes and cultures, which are a result of a distinct regional climate and long-lasting human pressure imprinted on a dynamic topography.

The socio-ecological challenges facing this area are particularly pronounced in Mediterranean Partner Countries (MPCs) in the southern Mediterranean region, creating complex scientific challenges. Meeting these challenges requires sufficient research capacity – something which is lacking in the field of forest research.

This policy brief focuses on the work of the AGORA – Advancing Capacities in Mediterranean Forestry Research project, a European project financed by the EU 7th Framework Programme. AGORA provided a focused, innovative and ambitious response to the problem by implementing research partnerships, networking, capacity building and knowledge transfer in two North African countries, Tunisia and Morocco.

The policy brief sets out the lessons learned, and provides recommendations for future policy development.



Advancing forest research capacities

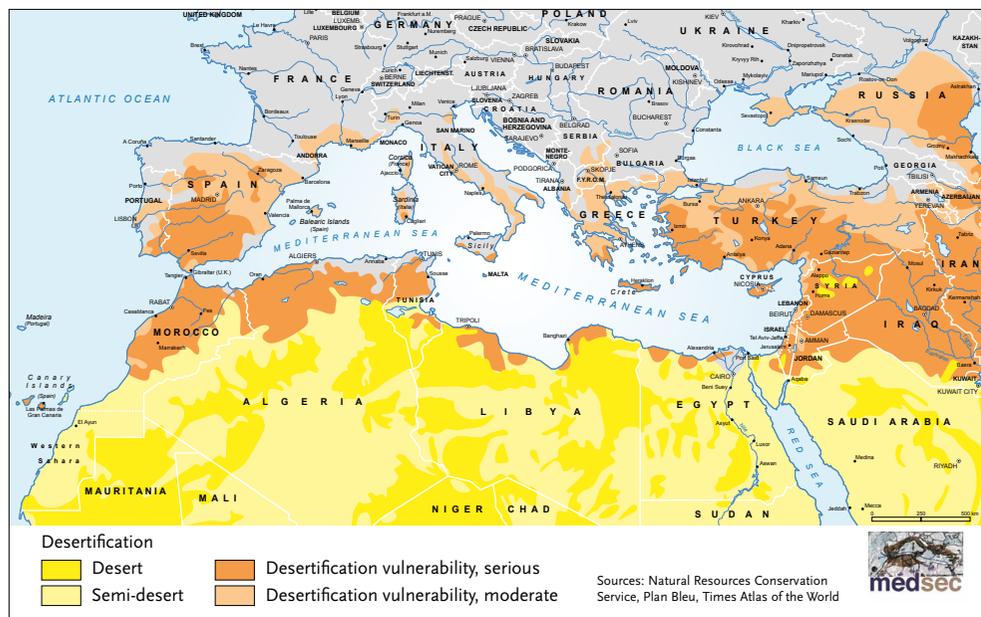
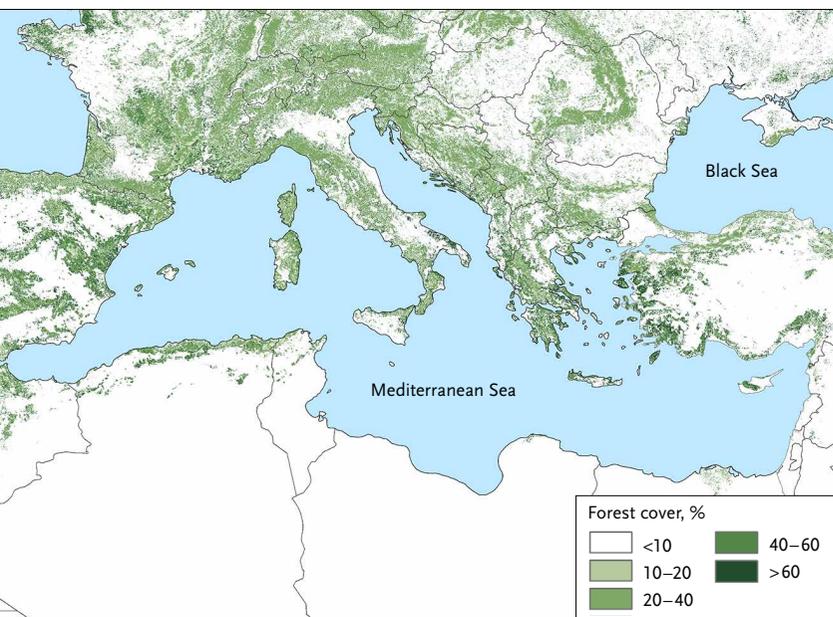
Mediterranean forests are a key socio-ecological system, playing a crucial role in a transition towards a green bio-economy in the region. In an area with difficult socio-economic conditions, forests are vital for ensuring the economic viability and resilience of rural communities.

However, their future is seriously threatened by climate and land use changes, particularly in southern Mediterranean countries like Tunisia and Morocco, where these changes are more rapid and intense.

National forest programmes are being developed. However, while forest research in North Africa has improved in recent years, it still suffers from fragmentation, and lack of large-scale infrastructures or long-term experiments with proper long-term funding. Poor coordination among southern Mediterranean countries also hinders the efficient sharing of knowledge.

The AGORA project aimed to advance forest research capacities in North Africa based on dynamic and transnational research partnerships, networking, targeted capacity building and knowledge transfer.

In this policy brief we look at the project's work in Tunisia and Morocco, and focus on the recommendations for future action.



Forest cover (left) and desertification (right) in the Mediterranean region. Sources: Neus Pampalona, EFI and Zoë Environment Network.

Mediterranean forests: a key pillar for a green bio-economy

Mediterranean forests and woodlands, which cover 73 mill. ha, play a crucial role in a transition towards a green bio-economy. As the main ecological infrastructure in the region, they provide:

- Valuable ecosystem services, vital for the most strategic, life-sustaining resources of the region: water, soil and biodiversity. Mediterranean forests are a biodiversity hotspot, hosting around 25,000 species of vascular plants (50% are endemic species) and a high

degree of tree richness with extraordinary genetic diversity.

- Wood resources (for energy, timber, fibres, etc.) and very valuable non-wood products (e.g. cork, pine kernels, mushrooms, medicinal plants, honey, etc.), which play an important role in the economy of rural communities.

However, Mediterranean forests and the important goods and services they provide are seri-

ously threatened by drastic and rapid climate and land use changes. The Intergovernmental Panel on Climate Change 4th Assessment in 2007 predicted an average temperature increase for the region at the end of the century of about 4–6 °C, and 20 to 50% less rainfall during the summer months. These changes add to long-standing problems related to desertification processes, forest fires and land degradation.



Man leading two camels loaded with foliage in the dunes behind Essaouira beach, Morocco.

Forests in Tunisia and Morocco: a key socio-ecological infrastructure

In Tunisia and Morocco, as in most of North Africa, forests are publicly owned while the local communities living within them have specific user rights. The high population density in forest-based rural communities, the household subsistence economy and the limited diversification of rural economic activities combine to make local communities very dependent on forest resources.

At the same time, the rapid advance of desertification, the climate change context and water scarcity makes forests a key socio-ecological system to ensure the economic viability as well as the resilience of rural communities.

Both Tunisia and Morocco have recognised that forests are a strategic socio-ecological infrastructure and are developing national forest programmes. These aim to alleviate poverty in

rural areas, preserve key strategic resources like soil and water and combat desertification, and provide renewable energy sources.

The Tunisian development strategy's main priorities include conserving natural resources and biodiversity, promoting forests' socio-economic role, enhancing their ecological functions, and fighting desertification. Its main activities and tools include:



Argan oil from the kernels of the argan tree (*Argania Spinosa* L.) is valued for its nutritive, cosmetic and numerous medicinal properties. Women's co-operatives in Morocco still produce the oil with traditional methods.

- increasing forest cover by using tree species adapted to changing climate conditions
- developing integrated forest management plans for existing forests
- valuing and marketing forest products and services.

The Moroccan decennial forest programme (2005–2014) aims to develop and implement the concept of multi-functionality for the management of forest ecosystems. Its key objectives are:

- to fight against desertification with appropriate forestry measures
- the conservation and development of forest resources

- the improvement of living standards and economic development of rural communities in forested areas.

Forest research in North Africa

The socio-ecological situation in North Africa, and the development strategies aiming to combat it raise several challenges for forestry research in the region.

Forest research in North Africa has improved in recent years, especially in areas related to droughts, impacts of climate change on local species, forest modelling and management, valuation of forest goods and services. More and more scientists participate in inter-

national research projects and publish internationally.

But forest research still suffers from fragmentation, limited means, and occasional outdatedness. Many resources are narrowly specialized, resulting in a lack of interdisciplinarity, synthesis and integration. At the same time, there is a lack of large-scale infrastructures as well as a lack of long-term experiments with proper long-term funding.

A lack of coordination among southern Mediterranean countries also hinders the efficient sharing of knowledge, infrastructures and exchange of data to address common regional questions.



Victor Zastol'sky / fotolia.com

THE EU RESPONSE

The European Union (EU) is supporting the historic changes taking place in the Southern Mediterranean region with a focused, innovative and ambitious response. The European Commission sees the Neighbourhood Countries of the European Union as a key priority, and in 2011 presented a new strategy for a changing Neighbourhood, together with the High Representative of the Union for Foreign Affairs and Security Policy.

A key element of the drive for greater prosperity and democracy in the Mediterranean is closer ties between people and businesses. This includes a strong momentum to establish a renewed, closer partnership in research

and innovation between the EU and its Mediterranean neighbours. A Common Knowledge and Innovation Space (CKIS) is part of the new strategy, and will embrace and encourage policy dialogue, national and regional capacity-building, cooperation in research and innovation as well as increased mobility opportunities for students, researchers and academics. These are all vital elements for the Mediterranean's future success.

The "Euro-Mediterranean Conference on Research and Innovation: An agenda for a renewed partnership" took place in Barcelona in April 2012 and set out a path for Euro-Mediterranean Cooperation in Research and Innova-

tion, based on closer cooperation on research and innovation policy.

During the conference, the AGORA project was presented as one of the success stories in improving scientific collaboration, policy dialogue, networking and twinning activities in the Mediterranean countries.

Source: Investing in European success European Commission, Directorate-General for Research and Innovation. 2012. ec.europa.eu/research/conferences/2012/euro-mediterranean/pdf/success_stories_euro-med_2012.pdf



Nikolai Sorokin / fotolia.com

An AGORA for Mediterranean forests

AGORA – Advancing Capacities in Mediterranean Forestry Research was a three-year project (2010–2012), aiming to advance scientific knowledge on the sustainable management of forests in Tunisia and Morocco. It did this via Euro-Mediterranean scientific cooperation, networking and targeted capacity building, using the existing

multidisciplinary knowledge available in different European forest research institutions.

The AGORA approach

AGORA implemented an international twinning action plan, to exchange know-how and experiences between selected forest research

“centres of excellence” in EU Member States Mediterranean Regional Office of the European Forest Institute (EFIMED), Institut National de la Recherche Agronomique (INRA), Istituto Superior de Agronomia (ISA), University of Padova (UNIPD)), Turkey (Karadeniz Technical University (KTU)) and two research



My current research work aims at gaining understanding on the water and carbon balances of cork oak (*Quercus suber*) and its reaction to climate change. Being involved in AGORA means an opportunity to collaborate within a large Mediterranean researchers group dealing with common topics and problems about forest ecophysiology and genetic diversity of this region.

*Zouhair Nasr
National Research Institute on Rural Engineering,
Water and Forests (INRGREF), Tunisia*



My research is on 'spatial and temporal *Quercus suber* forest productivity on a climate gradient in Tunisia using new indicators of growth'. This is particularly important in view of climate change. AGORA is certainly an enriching experience which has allowed me to deepen my research areas and also to benefit from the help of students and future researchers.

*Amel Ennajah
National Research Institute on Rural Engineering,
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organisations from Tunisia (Institut National de Recherche en Génie Rural, Eaux et Forêts (INRGREF)) and Morocco (Ecole Nationale Forestière d'Ingénieurs (ENFI)).

Actions taken

- Mobility measures for senior and young scientists from Morocco and Tunisia to visit forest research institutions in Spain, Italy,

- France, Portugal and Turkey to upgrade their knowledge on strategic priorities.
- Scientific workshops and field and lab experiments.
- New recruitment to reinforce the research teams at INRGREF and ENFI.
- New scientific and technological research equipment at INRGREF and ENFI to support the scientific topics above.

- Organizing interactive consultation and dissemination activities, stakeholder workshops and meetings between scientists and stakeholders in the region to discuss new research findings as well as emerging forest management challenges.



Marc Palahi

AGORA: making a difference

AGORA implemented an interdisciplinary approach to build new forest research capacities in Tunisia and Morocco. Its Euro-Mediterranean research partnership included scientists from many disciplines – forestry, biology, ecology, economics, sociology, policy science, landscape planning.

This transnational partnership focused on advancing research in the understanding of forest ecosystems functioning as well as on the

demand and value of relevant forest goods and services. Such a knowledge base is crucial for a new model for Mediterranean forest management that takes into account the key role of forest resources in other strategic resources and issues, such as water, soil, biodiversity, energy, food security and climate change.

AGORA's three scientific priorities were:

1. Understanding the role of genetic diversity in the adaptive response of forest tree species;
2. Valuing forest goods and services, designing financing mechanisms and income generation strategies to ensure their sustainable provision;
3. Developing participatory tools for optimizing and adapting forest management in a context of multiple-use landscapes and changes in land-use and climate.



One of the international AGORA workshops dealt with the methods and tools for participatory and adaptive forest management. Young researchers were tutored by a group of internationally acknowledged scientists and joined them to learn about the practical aspects of forest management during a field trip.

Main AGORA achievements

- New research capacities in Morocco and Tunisia to support the development of new adaptive forest management models and policy instruments that ensure the provision of relevant goods and services.
- More than 100 scientists, particularly younger researchers, have improved their knowledge using AGORA mobility measures, contributing to the establishment of a new generation of forest scientists in the region.
- The project has contributed to the development of an Erasmus Mundus Master Course 'MEDFOR – Mediterranean Forestry and Natural Resources Management' that will have its first cohort in the 2012/2013 academic year (www.medfor.eu).
- AGORA has been the first international project to implement the Mediterranean Forest Research Agenda, providing the basis for an emerging Mediterranean forest research area. A new ERA-net scheme called FORESTERRA (Enhancing forest research in the Mediterranean through improved coordination and integration) began in 2012 as a follow-up to the AGORA project.



Photocomptoir / fotolia.com

AGORA recommendations for Tunisia and Morocco

1. New scientific knowledge based on advancing and integrating research from different scientific areas and disciplines is needed, to support decision-makers in Tunisia and Morocco in developing their national forest programmes.

This includes:

- new policy frameworks to generate innovative, high added-value and eco-friendly goods (especially based on non-wood forest products) to support the socioeconomic development of rural areas
- new economic instruments to internalize non-market forest services, especially related

to the enhancement of water, soil and biodiversity resources

- new adaptive management strategies based on the understanding of forest ecosystem functions and the value of different goods and services.

2. Overcoming the existing fragmentation of forest research in Tunisia and Morocco (and also at a regional level), requires ambitious transnational “south-south” research partnerships involving:

- The mutual opening-up of research programmes to avoid duplication of effort.

This will facilitate the allocation of freed-up resources to strategic transnational issues that go beyond the capacities of individual countries.

- The creation of joint research units by existing research organizations to address the complex interdisciplinary and cross-sectoral nature of emerging forestry challenges. Forest research institutions in the region lack critical mass and have difficulties meeting expectations with the current resources available to them. Therefore, more coordination and integration (this includes mobility of



UN Photo / John Isaac

Villagers drawing water from a traditional well using a pulley arrangement, on the outskirts of Kairouan, Tunisia in 1987.

researchers) among institutions (north-south and south-south) is required to address complex interdisciplinary questions.

- The development of joint experiments and regional networks is needed in key topics (information and monitoring of forest disturbances, genomics, impacts of climate change, etc.) to ensure the right data at the right scale to address emerging scientific challenges.

3. Overturning the traditional fragmentation of forestry higher education in the region should involve the promotion and strengthening of initiatives like the Erasmus Mundus Master Course ‘MEDfOR –Mediterranean Forestry and Natural Resources Management’. This will:

- Improve higher education and provide new knowledge in key areas relevant for developing new forest management models and for ensuring the marketing of existing and new goods and services to create a more structured knowledge-based bio-economy in the region.
- Provide proper, up-to-date forestry education (e.g., based on climatology, economics, decision science, biology, ecology, information technology and geomatics), creating the basis of innovation to develop efficient cross-cutting policies based on the real importance of Mediterranean forests and forestry in relation to other strategic resources and issues, (such as water, soil, energy, agriculture, biodiversity, fires and climate change).

4. Science-policy-practice interaction should be strengthened, to speed up the spread and integration of knowledge throughout the whole of society. This would enable the development of innovative products and services, turning challenges into business opportunities, and facilitating of evidence-based policy-making.

- Forest-based innovation platforms where scientists, policy makers and stakeholders jointly develop future research agendas are a potential tool to strengthen the science-policy dialogue.
- The systematic involvement of stakeholders in research projects as well as of scientists in development projects should be strategic criteria when approving future projects.

Final remarks



AGORA, beyond its purely scientific achievements, has laid the basis for a fluent science-policy dialogue around Mediterranean forests, to better understand and assess how new challenges, threats, and opportunities (e.g., green economy, payments for environmental services, etc.), affect sustainable forest management and related policies in the region.

Research and education appears to be crucial to turn emerging challenges and even threats into business opportunities that strengthen the position of the forest-based sector with regard to other sectors (energy, food, water, etc.) as well as becoming a pillar in a transition to a knowledge-based green economy.

To address the challenges and needs identified above, new interdisciplinary scientific knowledge, ambitious research partnerships and transnational coordination are needed. Tunisia and Morocco should take full advantage of the recently started ERA-net scheme FORESTERRA: Enhancing forest research in the Mediterranean region through improved coordination and integration (2012–2015) which provides a strategic scientific framework for international cooperation and coordination on Mediterranean forests to realize a Mediterranean forest research area.

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