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Globalisation, societal changes and the future of forests and forestry in the Mediterranean

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“The Romans also considered the forest people of North Africa “charming” and “simple” because they did not place a monetary value on sandarac trees, which were prized in Rome and would have brought great wealth to whoever exploited them; instead, the North African held the trees in high esteem for their shade and had no desire to remove them”

John Perlin 1989: A forest journey: The role of wood in the development of civilization

SUMMARY

Forests and forestry have played an important role in the political, social, cultural and economic history of the Mediterranean region. Changes in the external environment, especially on account of globalisation and the demographic, economic, political and technological changes within the countries will reshape the forestry situation in the region. All the indications are that forest cover will increase, although at varying paces in the different sub-regions. However, the declining economic viability of production forestry casts some concern on the quality of forest management. As globalisation advances the current trend of relocation of forest industries based on competitive advantage will gain momentum. Traditional producers will face increasing competition from imports and would have to focus on niche markets of high quality products requiring more attention on the design and development of new products and services. This would require higher investments in science and technology. Higher income in the region would also result in increased demand for environmental services from the forests. Policies that favour the use of renewables would also have significant impact on the forestry situation, especially if this results in increased use of woodfuel as a source of energy. In the long run, a rediscovery of the quality of rural landscape would encourage a better appreciation of the hitherto neglected values of forests and woodlands.

Key words: Mediterranean region, Globalisation, Forestry, Competitive advantage, Environmental services

INTRODUCTION

The Mediterranean region, consisting of 24 countries and accounting for 7 percent of the world’s population, has only about 2% of the world’s forests. Although this is a geographically contiguous region with the Mediterranean Sea, with countries linked economically, socially and ecologically, there are significant inter-country differences as regards forests and forestry, reflecting the differences in environmental, social, economic, political and institutional conditions. As elsewhere, the nature of demand on forests in the Mediterranean continues to change in response to broader social and economic changes. Globalization has further accelerated the pace of change, impacting the forest sector directly and indirectly. The situation in the Mediterranean in the next decade and beyond will

1 The views expressed here are those of the authors and do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

2 Respectively Chief and Consultant, Forest Economics Service, Forest Products and Economics Division, Forestry Department, Food and Agriculture Organization.
therefore be very different from what it is today. In this context it is pertinent to raise the following questions:

- What will be the society-forest relationship in the region in the coming decades taking into account the overall changes in the economic, social, environmental, policy and institutional environment?
- Will there be major shifts in the demand for forest products and services among the countries and in the region?
- What needs to be done to enable countries in the region to improve their responses to emerging opportunities and challenges?
- What is the scope for regional collaboration in facing the challenges collectively and what may be done by existing arrangements to foster such collaboration?

This paper, drawing upon the completed and ongoing FAO regional forest sector outlook studies\(^3\), attempts to answer some of the above questions and to indicate the probable future direction of developments in the Mediterranean forest sector. Section 2 gives an overview of the forests and forestry situation in the region, outlining the current state of forests and forestry and the important differences within the region. Key driving forces and their implications on the forest sector are discussed in Section 3. Possible scenarios of society-forest relationship and the implications for the current pattern of development are discussed in Section 4. The main conclusions and possible options are summarised in the concluding section.

CURRENT STATE AND TRENDS IN FORESTRY

Geographical sub-regions

Notwithstanding the geographical contiguity and the common historical and economic linkages, significant differences in economic, social and political/institutional environment exist between the countries in the region. These differences influence the present and future development of the forest sector. For convenience of analysis, this paper groups the countries into the following sub-regions:

- **South Western Europe**: Cyprus, France, Greece, Italy, Malta, Monaco, Portugal, Spain.
- **South Eastern Europe**: Albania, Bosnia & Herzegovina, Croatia, FYR Macedonia, Serbia & Montenegro, Slovenia.
- **West Asia**: Israel, Jordan, Lebanon, Syria, Turkey.
- **North Africa**: Algeria, Egypt, Libya, Morocco and Tunisia.

Differences in the forestry situation in the region is an outcome of a variety of factors, including environmental conditions, demand for forest products and other services and society’s ability and willingness to invest in management. A brief indication of the present situation and key trends are indicated below:

\(^3\) The FAO Forestry Department is implementing a series of regional and global outlook studies to ascertain the long term perspectives of forestry development. This paper draws from the completed Forestry Outlook Study for Africa, the European Forestry Sector Outlook Studies and the ongoing Forestry Outlook Study for West and Central Asia.
Forest cover and its change

The Mediterranean region has about 80.2 million ha of forests (FAO, 2005) accounting for about 9 percent of the land area. Evidently this is not uniformly distributed in the Region and there are obvious differences between the four sub-regions as indicated in Table 1.

Table 1. Overview of forests in the Mediterranean region

<table>
<thead>
<tr>
<th>Sub-region/Region</th>
<th>Total area of forests in 2005 (in million ha)</th>
<th>Natural and semi-natural forests as percentage of forests</th>
<th>Plantations as percentage of forests</th>
<th>Forests as percentage of land 2005</th>
<th>Growing stock per ha</th>
<th>Per capita forest area (in ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Western Europe</td>
<td>51.2</td>
<td>90</td>
<td>10</td>
<td>32.5</td>
<td>104</td>
<td>0.28</td>
</tr>
<tr>
<td>South Eastern Europe</td>
<td>10.0</td>
<td>96</td>
<td>4</td>
<td>35.4</td>
<td>157</td>
<td>0.38</td>
</tr>
<tr>
<td>West Asia</td>
<td>11.0</td>
<td>73</td>
<td>21</td>
<td>10.3</td>
<td>128</td>
<td>0.10</td>
</tr>
<tr>
<td>North Africa</td>
<td>8.0</td>
<td>74</td>
<td>26</td>
<td>1.4</td>
<td>51</td>
<td>0.05</td>
</tr>
<tr>
<td>Mediterranean Region</td>
<td>80.2</td>
<td>87</td>
<td>13</td>
<td>9.2</td>
<td>109</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Source: FAO 2005

In addition to the differences in the area of forests, considerable variation is seen in the composition and growing stock of forests, reflecting the differences in growing conditions. The overall situation in the region can be summarised as follows:

- Countries in the European sub-region are the most forested in the Mediterranean region. In contrast forest cover is extremely low in almost all the West Asian and North African countries. Several countries in these two sub-regions have forest cover less over than 5% of the land area. These differences reflect differences in the growing conditions and the varied pressure on forests.
- Most low forest cover countries in West Asia and North Africa have established extensive planted forests in order to meet the demand for industrial roundwood or woodfuel and also for protective functions, particularly as wind breaks and shelter belts.
- The low per capita area of forests and the low growing stock imply that most countries in West Asia and North Africa will not be able to meet the demand for wood and other products from the limited forests they have. Desertification and degradation of watersheds are some of the problems that many of the low forest cover countries in the region face.

For very different reasons the forest cover situation in the countries in the Mediterranean region has, however, been rather stable and available statistics indicate an upward trend in the extent of forests. Table 2 summarises the changes in forest cover since 1990 and lists the countries with significant increase in forest cover.
Table 2. Forest cover change in the Mediterranean region

<table>
<thead>
<tr>
<th>Sub-region/Region</th>
<th>Forest cover in 1990 (in percentage of land area)</th>
<th>Forest cover in 2000 (in percentage of land area)</th>
<th>Forest cover in 2005 (in percentage of land area)</th>
<th>Countries that have registered significant increase during 1990 and 2005 (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Western Europe</td>
<td>27.3</td>
<td>30.9</td>
<td>32.5</td>
<td>Spain (8.9%) Portugal (7.4%), Italy (5.4%),</td>
</tr>
<tr>
<td>South Eastern Europe</td>
<td>34.6</td>
<td>35.0</td>
<td>35.4</td>
<td>Slovenia (3.8%)</td>
</tr>
<tr>
<td>West Asia</td>
<td>9.7</td>
<td>10.1</td>
<td>10.3</td>
<td>Lebanon (1.5%)</td>
</tr>
<tr>
<td>North Africa</td>
<td>1.2</td>
<td>1.3</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Mediterranean Region</td>
<td>8.1</td>
<td>8.9</td>
<td>9.2</td>
<td></td>
</tr>
</tbody>
</table>

Source: FAO 2005

The more economically developed South Western Europe has registered nearly a 5 percentage point increase in area between 1990 and 2005 with some of the countries, like Spain, Portugal and Italy, accounting for most of the increase. Among the South Eastern sub-region, Slovenia is one country that has registered a significant increase (about 3.8% increase) in forest cover. Although marginal, there has still been a slight increase in the forest cover in both the West Asia and North Africa sub-regions.

While the area figures suggest a positive trend, caution needs to be exercised in interpreting the information, especially in view of the weak national information systems and the inability to capture qualitative changes, especially forest degradation. Fire has become a major factor contributing to forest degradation in many countries. Others, like illegal removal of wood and grazing, are also important causes of degradation in a number of countries.

Economic significance of forests and forestry

Although forests are important for their environmental, social and cultural values, wider adoption of sustainable forest management often depends on their economic importance. Indicators such as contribution to gross domestic product and employment, though they have limitations, provide a measure of the economic significance of forests and forestry. Fig 1 indicates the overall contribution of the forest sector to the gross value added and how the different components (including furniture industry, pulp and paper, other wood industries and forestry and logging) have changed between 1990 and 2000 (see FAO 2004). Some of the broad trends relating to the economic significance of the forest sector are summarised below:
Figure 1. Gross value added by the forest sector and furniture industry in Mediterranean countries

Between 1990 and 2000 the value added in the forest sector has registered a marginal increase from about US$ 39.0 billion to US$ 44.0 billion, giving an average annual growth rate of about 1.2 percent. Excluding the furniture industry, the gross value added has increased from US$ 30.0 billion in 1990 to about US$ 31.0 billion in 2000. Obviously the furniture industry has registered the fastest growth rate.

Analysing the different sub-sectors, it may be noted that the share of forestry (primarily wood production) has declined from about US$ 7.0 billion in 1990 to about US$ 5.5 billion in 2000. The wood industries segment has registered some marginal increase and so has the pulp and paper industry.

There are significant differences between the Mediterranean sub-regions in the overall contribution of the forest sector and in terms of the relative importance of the sub-sectors (see Table 3). South Western Europe accounts for almost 86 percent of the value added in the Region while the share of the South Eastern sub-region is only 3 percent of the value addition.

Table 3. Share of value added in relation to proportion of forests (for the year 2000)

<table>
<thead>
<tr>
<th>Sub-region/Region</th>
<th>Proportion of forests (in percentage)</th>
<th>Share of value added (in percentage)</th>
<th>Share of value added (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Forestry and logging</td>
<td>Wood industries</td>
</tr>
<tr>
<td>South Western Europe</td>
<td>68</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>South Eastern Europe</td>
<td>8</td>
<td>19</td>
<td>34</td>
</tr>
<tr>
<td>West Asia</td>
<td>14</td>
<td>33</td>
<td>26</td>
</tr>
<tr>
<td>North Africa</td>
<td>10</td>
<td>34</td>
<td>37</td>
</tr>
<tr>
<td>Mediterranean Region</td>
<td>100</td>
<td>18</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: FAO 2004
Countries in the South Western sub-region, although accounting for only 68 percent of the forest area, generate 86 percent of the value added, while the value added from other sub-regions is much lower in relation to the proportion of forests they have. Several factors are responsible for this, including the nature of tree growth and the intensity of management. More importantly, a significant part of the difference stems from the level of processing. In fact, 84 percent of the value added in the forest sector in South Western Europe is from industrial processing, with pulp and paper accounting for about 48 percent.

In the other sub-regions, there are also some countries where wood processing accounts for a sizeable share of the value addition. For example, in the case of Slovenia, wood processing - including pulp and paper - accounted for almost 92 percent of the value added, while the share of forestry and logging is only about 8 percent. If Slovenia’s share is excluded, wood processing accounts for a very small share of value addition in the rest of South Eastern Europe. In the West Asian sub-region, Turkey accounted for about US$ 1.3 billion dollars of value addition of the total of US$ 2.0 billion and wood industries (including pulp and paper) account for 48% of the total.

**Trends in value addition and employment generation**

The economic significance of forestry and logging - in terms of contribution to GDP - has declined in most of the countries (see Fig. 2) and this trend is likely to persist in the future. This mirrors the overall decline of the contribution of all primary sectors, including agriculture. In particular, while the share of wood production (forestry and logging) has declined both in absolute and relative terms, that of wood processing has increased to some extent. Economic performance of the sector has largely been due to an increase in the share of value added attributable to wood industries and pulp and paper industry and natural advantages from the existence of forests is no more a necessary and sufficient condition to have a vibrant wood processing sector.

**Figure 2. Forest sector and furniture industry contribution to GDP in Mediterranean countries**

![Figure 2. Forest sector and furniture industry contribution to GDP in Mediterranean countries](image)

Source: FAO 2004
Even when domestic wood resources are available, often countries have been compelled to use imported wood and other raw materials, largely due to:

- Relative low cost of imported wood, especially in the context of increased labour and other costs;
- Increasing emphasis on environmental protection, which in some cases has led to a drastic scaling down of harvesting, the expansion of protected areas and reductions in the extent of production forests.

Employment in the forest sector, including the furniture industry has remained more or less stable, registering a marginal increase from about 1.5 million in 1990 to about 1.7 million in 2000. However, as in the case of gross value added, the relative importance of employment in forestry and wood industries in the Mediterranean region remains low, at about 1 percent for the Mediterranean region, varying from 0.2 percent in North Africa to about 1.4 percent in the case of South Western Europe (see Fig 3).

**Figure 3. Employment in forest sector and furniture industry as proportion of total labour force in Mediterranean countries**

Source: FAO 2004

Data for the period after 2000 are being collected and there are no indications of changes in the trends observed during 1990 – 2000.

**Forest products trade**

Trade is a key element that indicates the extent of economic interlinkages, and thus an indicator of globalisation. As globalisation progresses, movement of products, services, technology and investments across national borders increases tremendously. It is therefore important to assess how the different Mediterranean sub-regions are taking advantage of the opportunities for trade of forest products.
Table 4. Wood products exports-imports Mediterranean countries (million US$)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Western Europe</td>
<td>12,451</td>
<td>11,965</td>
<td>14,373</td>
<td>22,461</td>
<td>22,032</td>
<td>23,947</td>
<td>-10,010</td>
<td>-10,067</td>
<td>-9,574</td>
</tr>
<tr>
<td>South Eastern Europe</td>
<td>766</td>
<td>772</td>
<td>866</td>
<td>649</td>
<td>721</td>
<td>803</td>
<td>117</td>
<td>51</td>
<td>63</td>
</tr>
<tr>
<td>West Asia</td>
<td>142</td>
<td>150</td>
<td>304</td>
<td>1,740</td>
<td>2,460</td>
<td>2,535</td>
<td>-1,598</td>
<td>-2,310</td>
<td>-2,231</td>
</tr>
<tr>
<td>North Africa</td>
<td>122</td>
<td>147</td>
<td>186</td>
<td>2,123</td>
<td>1,456</td>
<td>1,916</td>
<td>-2,001</td>
<td>-1,309</td>
<td>-1,730</td>
</tr>
<tr>
<td>Mediterranean Region</td>
<td>13,481</td>
<td>13,034</td>
<td>15,729</td>
<td>26,973</td>
<td>26,669</td>
<td>29,201</td>
<td>-13,492</td>
<td>-13,635</td>
<td>-13,472</td>
</tr>
</tbody>
</table>

Source: FAOSTAT 2005

Note: Most of trade goes with the countries outside the region. West Asia and North Africa imports from South Western Europe amounted for 0.3 and 0.2 billion US$ respectively (2003).

Table 4 indicates that South Western Europe is the major trading sub-region accounting for about 91 percent of the exports from and 83 percent of imports to the Mediterranean countries. However it is a net importer of forest products amounting to about US$ 10.0 billion in 2004. Most of the exports from South Western Europe primarily consist of high value added products, especially panel products and paper and paper products. In contrast, West Asia and North Africa import all products, including sawnwood, wood based panels and paper and paper products. The situation with regard to the other sub-regions can be summarised as follows:

- Import and export is more or less balanced in South Eastern Europe with a marginal surplus. But most of the exports are from Slovenia, largely on account of its vibrant and competitive wood industry. In the other countries, wood industry development is still in the early stages, partly on account of the long political and social uncertainties.
- In view of the resource limitations, West Asia and North Africa remain net importers of forest products. Within the West Asia region itself there are considerable differences in the situation as regards production and trade, largely related to resource availability and the competitiveness of the processing sector. For example, by the sheer size of population, resources and human capacity, Turkey has become a major producer of value added products, especially panel products, pulp and paper and, in recent years, furniture. Increasingly it is depending on imports of raw materials from Russia and other CIS countries.

Non-wood forest products

The Mediterranean region is also well known for the production and trade of several non-wood forest products and many of them have been traded in the global markets for centuries. Most important of the NWFPs are cork and cork products, carob, truffles, pine nuts, medicinal and aromatic plants. Since a significant proportion of non-wood forest products are collected and used for subsistence consumption, no estimates are available of the volume and value of production and consumption. Nevertheless they are important for many local communities as a source of supplementary income. The annual production of cork is estimated at about 296,000 tonnes (UNECE/FAO, 2005) with Portugal and Spain accounting for over 90 percent of the European cork production. The value of exports of cork and cork
products in 2000 is estimated at about EUR 1.3 billion. Cork products, especially bottle stops, are facing increasing competition (e.g. from plastic corks).

Other non-wood forest products include beeswax and various gums, resins and essential oils produced from wood, bark and leaves. Most of these products have relatively small and specialised markets, although the value of production can be quite high. Portugal and France are important producers of resin, but face a decline in view of increasing labour costs and competition from low-cost suppliers, especially China and Brazil.

**Forest services**

Increasingly, provision of services like recreation is gaining primacy and more and more forests are excluded from wood production with emphasis being given to their recreational and protection benefits. Conservation of biological diversity, arresting land degradation and desertification, protection of watersheds and provision of recreation and amenity values are the most important functions of forests. Urban forestry has gained considerable importance in many countries, especially in North Africa and West Asia where the harsh environmental conditions requires specific efforts to provide green spaces in the rapidly expanding urban centres. Combatting global climate change through carbon sequestration is another important function, although this is very much dependent on the productivity of forests.

Desertification is a major problem affecting almost all countries in North Africa and West Asia. The role of trees and forests in controlling desertification is well understood. Beneficial effects of shelterbelts and windbreaks (e.g. reducing the impact of desiccating winds and preventing sand intrusion) have been demonstrated and establishment of such protective measures is an integral part of farming in most of the countries.

Almost all countries in the Mediterranean region are signatories to the Convention on Biological Diversity and considerable efforts are underway to conserve this diversity through a system of protected area networks. With tourism becoming an important source of income for most of the Mediterranean countries, there is greater interest in protecting terrestrial and marine ecosystems and to take advantage of the potentials of eco-tourism.

**DRIVING FORCES IMPACTING FORESTS AND FORESTRY**

Several factors influence the evolution of the society-forest relationship and the cause effect relationship between forests and the various factors that influence the behaviour of society is extremely complex. Some directly affect the forest situation - forest cover, density, quality, production, etc. while others are more fundamental and have more of an indirect bearing on the forest situation. Important driving forces that directly and indirectly impact forests and forestry in the Mediterranean region are discussed below.

**Demographic changes**

Demographic changes, which include the change in the population, its age distribution and distribution of population between rural and urban areas, tend to have direct and indirect impact on the forests. Figure 1 highlights the differences in the growth of population in the different sub-regions.
- Between 1980 and 2005 the population in the region has grown from 336 million to 460 million and available projections suggest that this will grow to about 527 million in 2020, with an average annual growth rate of 1 percent between 2005 and 2030.
- Growth rate of population in the different sub-regions differ. Growth rates in the two European sub-regions are slowing down, while significant growth is expected in the North African and West Asian sub-regions.

**Figure 4. Population changes in the Mediterranean**

![Population changes in the Mediterranean](source: UN 2005)

Other population related factors that may have an impact on forests and forestry are indicated below:

- The Mediterranean region is urbanising rapidly and more than 50% of the population currently live in urban centres. The extent of urbanisation varies between the different sub-regions and between the countries. South Western Europe is the most urbanised part of the Mediterranean with about 72 percent living in urban areas. Even countries with a high rural population now (for example Albania) are urbanising rapidly.
- An important difference in the demographic situation in the various sub-regions is the age structure of the population. Countries in the South Western and South Eastern sub-regions have an aging population, while West Asia and North Africa have a high proportion of younger people. Again, this is bound to affect issues like employment, migration and demand for forest products and services.

The demographic trends along with other change drivers would suggest (a) a slowing down of demand for wood and wood products in South Western Europe and (b) a significant increase in demand in the other three sub-regions. Increases in demand will be particularly strong in West Asia and Northern Africa on account of the large population, higher growth rates and increases in income. In particular, changes in the population age structure in the next few years will lead to a substantial increase in the demand for construction materials (sawn wood, panel products), furniture and paper and paper products. Whether demographic changes will alter the extent of forest cover or not will largely depend on another important driving force, namely the state of the economy and the structural shifts that will change the relative importance of the different sectors.
Economic changes

One of the most important factors that impact forests and forestry is the change in the economic situation. In most cases an increase in income results in corresponding growth in the consumption of wood products. Higher income also brings about substantial changes in preferences and priorities, as a society with higher income is willing to pay for quality products and also to improve the environment. The Mediterranean region is characterised by significant differences in the economic situation with differing gross domestic product, per capita income and growth rates of income. There are also differences in the distribution of income and the levels of poverty. Another important factor that has a particular impact on forests and forestry is the change in the structure of the economy. These aspects are discussed below:

Changes in income

Table 6 provides a general indication of gross domestic product, per capita income and the growth rate of income. Obviously, South Western Europe is more prosperous than other sub-regions, and this is reflected in higher level of consumption of value added products (as reflected in the increased imports of forest products) and greater emphasis on environmental values. However, the growth rate of the economies and hence the growth rate of consumption of forest products is slowing down in these countries. On the other hand, countries in other sub-regions are growing rapidly with the attendant changes in per capita incomes and the consequent shifts in demand for products and services. Higher income implies improved ability and willingness of society to pay for environmental benefits.

Table 5. Gross domestic product and its growth in the region

<table>
<thead>
<tr>
<th>Sub-region/ Region</th>
<th>GDP (in US$ billion)</th>
<th>Agriculture GDP</th>
<th>Per capita GDP (US$) 2002</th>
<th>Annual growth rate of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>South Eastern Europe</td>
<td>111</td>
<td>9.8</td>
<td>4,240</td>
<td>4.3</td>
</tr>
<tr>
<td>South Western Europe</td>
<td>4,400</td>
<td>3.2</td>
<td>23,800</td>
<td>3.7</td>
</tr>
<tr>
<td>West Asia</td>
<td>676</td>
<td>12.4</td>
<td>6,250</td>
<td>6.6</td>
</tr>
<tr>
<td>North Africa</td>
<td>631</td>
<td>12.9</td>
<td>4,090</td>
<td>2.9</td>
</tr>
<tr>
<td>Mediterranean region</td>
<td>5,818</td>
<td>4.9</td>
<td>12,300</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Source: UN 2005

Structural changes in the economies

Along with the growth in GDP, there are also important structural changes in the economies. Agriculture is becoming less important and most of the growth in GDP comes from the growth of industrial and services sectors. As can be seen from Table 6, agriculture accounts for only 4.9 percent of the GDP for the whole region and this is expected to decline further. Urbanisation and increases in educational levels, especially as younger people seek better paid employment in the non-agricultural sectors, would further accelerate the process. A consequence of this is reduced land use conflict and forest re-growth as agricultural land is abandoned. In many countries, agriculture is supported heavily through subsidies; their removal could have significant impact on forests.
While structural changes may take place at the macro-level, there will still be areas where people continue to depend on agriculture and animal husbandry. This will be particularly so in countries with limited investment in human resource development, especially education. Land use conflicts could persist in such areas with their consequences on forest cover reduction and, more importantly, degradation due to grazing and collection of woodfuel.

One of the important structural changes in the Mediterranean region is the rapid growth of the tourism industry. The enormous natural, historical and cultural diversity makes the region a leading tourism zone, with a rapid growth in terms of the number of visitors and the income and employment generated through tourism. Increasing emphasis on tourism would require conservation of the natural landscape including forests and woodlands. In several countries in the Region, tourism is becoming an important source of income to forest owners, although its overall importance is unlikely to be significant.

**Policy and institutional changes**

While demographic and economic changes tend to have a strong influence on the forest sector, policy and institutional changes – within and outside the forest sector - amplify the impacts considerably. Policies in other sectors, such as agriculture, energy and environment, particularly affect the forest sector directly and indirectly. The interactions between different policies are complex and difficult to understand. This is because these policies often have conflicting objectives. Often they also have unintended impacts on markets. Within the Mediterranean region, considerable differences exist in the policy and institutional situation and most often changes are country-specific, making it difficult to provide a widely applicable analysis of the situation. Some of the general trends relating to policies and institutional arrangements are outlined below:

**Changing ownership**

There are considerable differences in the nature of ownership of forests in the different Mediterranean countries. Government ownership is the most dominant in West Asia and North Africa, while private ownership is well established in South Western Europe. The situation in the South Eastern Europe is in transition, especially as private ownership is being established in many countries which in the past had all the forests under public ownership. Another major trend in the forest sector is the increasing involvement of civil society organizations in decision-making relating to forests. Non-governmental organizations are particularly involved in pursuing conservation issues and, in some cases, even in managing protected areas.

All the indications are that, throughout the region, the diversification of stakeholders involved in forestry will continue to strengthen and influence the objectives of management. Such involvement will also influence forest and environmental policies. While the private sector plays a lead role in wood based industries and smallholder forest ownership is widely prevalent, large scale involvement of private sector in forest management faces the following constraints:

- declining economic viability of wood production;
- increasing costs of management, especially in the context of environmental regulations; and
• low productivity of forests and woodlands, especially in most of the West Asian and North African countries.

Policy changes in other sectors

In addition to what is happening in the forest sector, the following will have a significant impact on forestry in the Mediterranean:

• Greater emphasis on biodiversity and nature conservation: Specifically this would give more emphasis to nature conservation and protection of biological diversity of forest ecosystems, including nature-oriented forest management and increasing demand for certification of forest management and wood products.
• Agricultural, rural and regional development policies: Agriculture policy reform in Europe, especially as regards subsidies to agriculture, could have important impacts on land use in Europe (especially if withdrawal of subsidies results in abandonment of agriculture areas resulting in re-growth of trees) and elsewhere (where agricultural production may become more profitable in comparison with European production and thus could result in expansion of cultivation).
• Energy policies: There is greater recognition of the need to increase the use of renewable energy sources primarily in the context of environmental policies particularly to mitigate the climate change effects and also to decrease the vulnerability of dependence on fossil fuels sourced from a few countries. Promotion of wood as a source of renewable energy may have an effect on wood supply to industries, especially wood based panels and pulp and paper. Also, in view of the climate change issues, greater use of forest products may be encouraged to substitute more energy intensive products, especially for construction.

Technological changes

A number of technological developments within and outside the forestry sector have influenced the nature and extent of demand for wood and wood products. Some of the important developments in this regard are as follows:

• Substitution of wood with other products has been a major development over many decades. Steel, cement and aluminium have become major materials in the construction of residential and commercial structures and this has reduced the demand for wood. While wood has a comparative advantage as a renewable low energy material, more energy intensive products will continue to be used.
• Another major development that has impacted forest industries is the increasing emphasis on recycling. Recovered paper provides almost 45% of the fibre furnish and this is expected to increase during the next 15 – 20 years.
• There are several areas of cutting edge technologies that may change the nature of forestry and wood industry. While changes are certain, there are considerable uncertainties relating to the precise nature of change.
• The traditional forest cluster of technology (forest management, machinery, equipment and engineering) will undergo significant changes on account of the growth and adaptation of two major streams of technological change, namely Information and Communication Technology and Biotechnology. Emergence of nanotechnology could open up completely new areas as regards the technology for processing of non-wood forest products and a wide range of applications.
To a large extent, the developments in technology and their adaptation in the forest sector will depend on investment in human resources and, more importantly, investment in science and technology. The situation in this regard varies between the countries and the sub-regions. Some of the countries, on account of their well established ability in research and development, will continue to maintain their lead in science and technology and will be able to develop new products and services, while others will continue to focus on traditional products and services.

Globalisation and its impacts

Countries in the Mediterranean have been interacting with each other for centuries and this has had a significant impact on forests and forestry. As a product of multiple uses – for construction of ships, as fuel for producing bricks and smelting copper, iron and aluminium, and as structural material – wood has figured prominently as a strategic product. Developments in transport and communications have broadened the scope of trade and this has been further strengthened by flows of investment and technologies. Distance is no more a limiting factor and this would imply that countries in the Mediterranean will continue to strengthen their linkages with the rest of the world and will be able to benefit from their comparative advantages.

Globalisation has been a major driving force, resulting in the easing of movement of capital, technology and products, all helped by the rapid advancements in information and communication technologies. Some of the impacts of globalisation are (see UNECE/FAO, 2005):

- Emergence of large corporations who are able to shift the location of production entirely based on competitive advantages. Globally 10 to 20 forest product companies control most of the production of key products like pulp and paper.
- The location and development of the forest processing sector is less dependent on local supplies and more influenced by the prevailing investment climate and the general economic conditions. “Competitive advantage” has become more important than “natural advantage” (Brown, 2000).

Some of the impacts of globalisation on forest products sector in the Mediterranean region are as follows:

a) Shifts in the location of production. Already many leading producers of wood and wood products are investing in countries with substantial cost advantages. Eastern Europe and some of the emerging economies like China are becoming major producers of wood and wood products.

b) Increased competition from cheaper imports is undermining domestic production. For example China has become a major producer and exporter of furniture increasing the competition with the furniture industry in Europe.

c) Intensified innovations leading to new processes and products.

d) Declining prices of wood and fibre: At the global level, the prices of wood and fibre have declined since 1990, by between 5 percent (for wood chips, particles and residues) and 25 percent (for industrial roundwood). If the inflation over the period were taken into account, prices have probably fallen in real terms by about 30 percent (Whiteman, 2005).
Another element of globalisation is the expansion of European Union, which is being enlarged to include Turkey. This will bring about convergence of policies in several areas, strengthening the political, economic and institutional linkages between the EU countries.

PROBABLE SCENARIOS

Considering the divergent situation that exists in the countries in the Region and the current differences between the sub-regions, it is difficult to identify commonly applicable future scenarios of development. Taking into account the overall changes at the global, regional and national level, two key areas that will impact the development of the region are:

- The pace of globalisation and how the overall global environment, including the institutional arrangements, are conducive to the process;
- Internal social and economic environment that affects the ability of the countries to take advantage of the opportunities provided by globalisation.

External environment: pace of globalisation

The pace of globalisation will largely depend on the perception of countries and social groups as to whether they are gaining or losing in the process. Equitable and just arrangements for trade, investments and technology transfer and effective international institutional mechanisms that are able to provide a level playing field creating win-win situations are necessary conditions for a widely acceptable globalisation process. Global and regional trade agreements need to be seen as just and equitable and the bodies dealing with trade disputes should be able to enforce the rules and regulations. In the absence of such arrangements, the negative aspects of globalisation will gain prominence resulting in more inward looking policies.

Increasing globalisation would imply that countries in the Mediterranean region will interact more with countries outside the region and trade of products and services will be largely on the basis of perceived comparative advantage. Especially in the context of declining transport costs, countries in the region would be in a better position to tap resources and markets in distant places and geographical proximity will not be an important consideration. This would also imply intense competition in the Mediterranean markets from cheaper imports, including wood and wood products, undermining economic viability of forest management and wood industries.

Internal environment: Social, political, economic and technological vibrancy

Internal social, economic and political environment is another key factor that will determine the ability of countries to benefit from the process of globalisation. The situation in the region varies considerably especially in relation to the following:

- Democratic institutions, transparency and accountability of public and private sector institutions;
- Poverty, inequality and social stability;
- State of human resource development;
- Investment in science and technology.
- Economic performance.
The above elements would collectively determine the overall vibrancy of the internal environment and consequently the ability of a country to take advantage of the globalisation process. Even if the external environment is unfavourable, countries will be able to make substantial progress based on their internal strengths, whereas in the context of favourable external conditions, they will have significant competitive advantages, especially in accessing markets and resources outside the country.

Combining the internal and external environment, one could develop 4 broad scenarios as indicated below:

<table>
<thead>
<tr>
<th>Globalisation</th>
<th>Improved global and regional institutional arrangements</th>
<th>Weak institutional arrangements and anti-globalisation trends</th>
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| Improving social and economic environment          | • Society’s willingness to support forestry increases considerably.  
• Increase in the forest cover, especially as agriculture subsidies are removed or reduced drastically.  
• Technological advancements stabilise the demand for wood and wood products.  
• Greater emphasis on the service functions of forests.  
• Continued reduction in the trade barriers and countries able to fully benefit from their comparative advantages. | • Weakening trade and countries pursue an inward looking approach.  
• Persistence of subsidies to prop up domestic agriculture and industries.  
• Failure to benefit from comparative advantages. Forest products trade declines.  
• Constraints in technology transfer and countries less willing to share information and knowledge.  
• Decline in forest area as forests are used for more profitable alternative uses, especially in the context of self-sufficiency. |

| Social and economic situation in the countries      | Worsening social and economic situation                  | Countries continue to have a highly inward looking approach.  
• Declining capacity of governments and other actors to invest in sustainable forest management.  
• Fragmented society and inability to have a collective approach as regards management of forest and tree resources.  
• Increasing demand for food and other products and consequent clearance of forests.  
• Limited access to new technologies and inability to improve local technology.  
• Direct economic benefits become more important. |
|----------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
• Countries are marginalised and fail to take advantage of globalisation.  
• Domestic industries face severe competition from forest products imports.  
• Inability to invest in sustainable forest management. |  

**IMPLICATIONS FOR FORESTRY**

The scenarios described above give the whole range of possibilities and given the various uncertainties, it is difficult to indicate what may develop and how it will evolve over time. Uncertainties relating to policies on agriculture, energy, trade and environment make it extremely difficult to indicate what scenarios are likely to evolve. Some of the broad trends that may arise on account of the different scenarios are indicated below:
Forest cover

Forest cover will continue to increase in all the countries in the Mediterranean region. This will stem largely from (a) structural changes in the economies reducing the importance of agriculture reinforced, in part, by substantial migration from rural to urban areas and (b) increasing emphasis on multiple use values of forests, giving particular importance to the environmental values. In particular, removal of agricultural subsidies in Europe would result in abandoning less productive areas, enabling regrowth of trees and vegetation.

Economic importance of forests and investment in management

The relative importance of forests and forestry for value addition and employment will decline for a number of reasons. This will be particularly so in the case of forests in South Western Europe. Low growth in demand in some of the countries in South Western countries, combined with increasing imports of cheap products, will continue to have a negative impact on the economically viability of forestry. As cheaper imports of forest products depress the demand for wood, both government and private forest owners will face a problem of declining incomes. The quality of management may decline unless increases in income from the provision of environmental services make up the deficit. Increased incidence of fire, pests and diseases would be an outcome of this. This would be accentuated by the impacts of climate change increasing droughts and the number of fires.

Forests as a source of environmental services

Certainly the Mediterranean region will see continued increase in the demand for environmental services provided by forests. Increasing income and the declining dependence on forests for production of wood would direct more attention to their public good functions. The role of trees and forests in arresting desertification, enhancing watershed values and sequestration of carbon will receive most attention. Another area that is of particular importance to the Mediterranean region is tourism. The Mediterranean belt accounts for a major share of global tourism and the demand for recreational use of forests will increase considerably. Whether this will lead to increases in income that could be used for sustainable forest management depends on the development of markets for environmental services. More efforts will be required to enable capture of value from environmental services although this will imply high transaction costs.

Forests as a source of renewable energy

Urbanisation and wider availability of commercial fuels indicate a declining dependence on wood as a source of energy. However, this will depend very much on energy policies, especially in the context of the growing concern for climate change. Depending on energy policies which favour increased use of renewables in response to climate change, increased investment in R&D could enhance the efficiency of wood based energy production and this could be of particular importance at the local level. No doubt the economic viability of wood based energy systems will largely depend on biomass productivity and the efficacy of energy conversion technologies.
Changing location of wood processing

As globalisation advances, the Mediterranean wood processing industry will become well integrated in the global forest products industry, a substantial share of which will be controlled by a small number of large multi-national corporations. Industries will continue to be relocated based on their competitive advantages. The current trends of industrial expansion in Eastern Europe and emerging economies like China will continue. While wood industries may decline or at best see only sluggish growth in most countries, significant growth could be expected in some countries, like Turkey which has a rapidly growing market, relatively lower production costs and access to wood supplies from CIS countries (including Russia, Georgia, etc.).

As the markets for many of the traditional producers shrink in view of the growing competition from low cost producers, there will be increasing pressure to focus on high quality niche markets. Higher investments in improving design and R&D leading to new products would seem the options for some of the traditional producers.

Illegal logging

As industries compete in an environment of declining prices for wood and wood products, the problem of illegal logging is expected to worsen. This will require efforts to strengthen the policy, legal and institutional framework to curtail illegal logging. New technologies for tracking the source of wood could be of considerable help, but effectiveness of such technologies will depend on improvement in legal and institutional capacities.

Forestry and rural development

Although the direct role of forestry as a source of employment and income will continue to decline, forests and woodlands will remain important to rural communities for their multiple benefits, many of which may not be translated into income. Through out the Mediterranean region rural communities have been using forests for centuries and many of the traditional uses are likely to continue notwithstanding the economic and social changes. Probably there will be a re-emphasis on these, as higher income encourages a rediscovery of the quality of rural landscape and livelihood.

CONCLUSION

Forests have played an important role in the political, social, cultural and economic history of the Mediterranean region. Countries in the region have interacted for centuries with wood and forests playing an important role in such interaction. As the horizon of globalisation expands, the nature and quality of interaction will change and competitive advantage will become a key consideration. Demographic, economic, political and technological changes will reshape the forestry situation in the region. All the indications are that forest cover will increase, although at varying paces in the different sub-regions. However, the declining economic viability of production forestry casts some concern on the quality of forest management.
As globalisation advances the current trend of relocation of forest industries based on competitive advantage will gain momentum. While there will be significant growth of wood industries outside the Mediterranean region (especially in Eastern Europe, South America and Asia), some of the countries in the Mediterranean (especially in West Asia and North Africa) could also gain from the process, especially in view of the growing internal demand for wood products, low production costs and access to wood resources. Development of industries will however depend more on providing a favourable investment climate. Traditional producers, especially in South Western Europe will face increasing competition from imports and will have to focus on high quality products with increased attention paid to design and the development of new products and services through higher investments in research and development.

Increases in income in the region will have the inevitable consequence of increased demand for environmental services from the forests. Conservation of biological diversity, arresting desertification, protection of watersheds and amenity values will receive increasing attention. Policies that favour the increased use of renewable resources would also have significant impact on the forestry situation, especially if this results in increased use of woodfuel as a source of energy. In the long run, a rediscovery of the quality of rural landscape would encourage a better appreciation of the hitherto neglected values of forests and woodlands.
REFERENCES


