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ANALYSIS

Valuing the non-timber forest products in the Mediterranean region

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ABSTRACT

The potential of non-timber forest products (NTFPs) in the Mediterranean region as a source of livelihood and sustainable development has been widely recognized. Yet, surprisingly few efforts have been made to value them comprehensively. Valuation efforts usually focused on selected NTFPs traded on formal markets, at local level. This paper aims to provide comprehensive estimates of NTFPs benefits at national and regional level in the Mediterranean region. Six major groups of NTFPs are identified: firewood, cork, fodder, mushrooms, honey and other NTFPs. Valuation is based on a wide variety of techniques, drawing on official statistics, and supplemented by results of local surveys. It shows that at Mediterranean level, NTFPs provide annual benefits of about €39/ha of forests, accounting for about a fourth of the total economic value of forests estimated by this study. The average estimate for southern countries (€54/ha) is considerably higher than for northern (€41/ha) and eastern countries (€20/ha). The paper reveals the degree of importance of the main NTFPs benefits for the country groups and the region as a whole. It also discusses some reasons of concern when drawing policy tools for improving rural income and forest conservation in the Mediterranean.

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1. Introduction

Mediterranean forests supply a diversity of non-timber forest products (NTFPs). Some, such as honey in Lebanon and fodder in Algeria contribute substantially to the welfare of many rural people. Others play a key role in national economies: for example cork contributes about 3% of Portugal's gross domestic product (based on Mendes, 2005). Some other NTFPs are believed to have a strong potential to improve welfare and rural development in many Mediterranean countries. They however fail to do so, partly because their value is not fully recognized by decision-makers.

The limited recognition of NTFPs is often due to insufficient knowledge regarding their importance and value. Statistical data at the national level are usually incomplete, scattered or not comparable among countries (Vantomme, 2003). In particular, there is little reliable information on NTFPs traded on thin local markets and those consumed for subsistence (Gram, 2001; Bishop, 1999). In the Mediterranean region, the lack of data is particularly high in the southern and eastern countries, where a large portion of NTFPs escapes formal markets. The situation often poses economic and environmental challenges. It may make deforestation for alternative land uses appear more attractive; or may lead to specific NTFPs being harvested at

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unsustainable rates, resulting in resource depletion or environmental damage (e.g. soil erosion). These situations often result in losses of welfare and NTFPs benefits in the long run.

So far, most efforts to estimate these benefits have focused only on products traded in formal markets (Grimes et al., 1994; Kumari, 1995). More recent attempts have also sought to capture the value of some NTFPs that are consumed for subsistence or informally traded (Shone and Caviglia-Harris, 2006; Murthy et al., 2005; Belcher et al., 2005; Godoy et al., 2000). The bulk of the literature to date has mostly concentrated on tropical forests in Latin America, but the last decade has witnessed a growing interest in NTFPs valuation also in Africa (see Ambrose-Oji, 2003) and Asia (see Mahapatra and Tewari, 2005; Delang, 2006).

Most attempts to value NTFPs have been undertaken at the local level. To estimate the contribution of NTFPs to social and economic well-being, estimates at broader scales are needed (Neumann and Hirsch, 2000). Yet only a few studies have sought to value the NTFPs benefits at national level, such as in Mexico (Adger et al., 1995). This paper aims to partly fill this gap, by providing comprehensive estimates of NTFPs in the Mediterranean region. It is a result of a study (MEDFOREX) aiming to estimate the total economic value of forests in each Mediterranean country.

The novelty of this study arises not from its use of valuation, but from undertaking it on a large scale (national and regional) within a structured framework that allows for estimates to be aggregated within countries and compared across countries. The paper first describes the scope and specific objectives of the study. It then summarizes the methods and approaches used for valuation. The estimates are discussed at country, cross-country and Mediterranean levels. Finally, the paper presents some key issues for an improved forest policy in the Mediterranean region.

2. Scope and objectives

There is no single definition of the concept of NTFPs. Some authors refer to NTFPs very restrictively, limiting the concept to the extractive uses of plants (other than timber) growing in the forest. Within this definition, some only refer to products collected from the wild, others include also managed or cultivated products; while others include also wildlife benefits (Belcher, 2003; Belcher et al., 2005). Other authors use a much broader concept of Non-Timber Forest Benefits (Lampietti and Dixon, 1995; Bishop, 1999) or Non-Timber Values (Raunikaar and Buongiorno, 2006) that includes also the value of forest services.

In this paper, the term NTFPs refers to plants growing in the forest, including managed products. Six major categories of NTFPs are found in the Mediterranean forests: firewood, cork, fodder for grazing, mushrooms, honey and other NTFPs. The last category covers a variety of fruits and plants, which are usually found in smaller amounts than the five main NTFPs.

The value of NTFPs is estimated as part of a broader study that aimed to value all forest benefits in the Mediterranean region. The study covers eighteen countries bordering the Mediterranean Sea, divided into three country groups:

- southern Mediterranean: Morocco, Algeria, Tunisia and Egypt;

- eastern Mediterranean: Palestine, Israel, Lebanon, Syria, Turkey and Cyprus; and
- northern Mediterranean: Greece, Albania, Croatia, Slovenia, Italy, France, Spain and Portugal.

Initially, the study aimed to focus specifically on Mediterranean forest types. However, as data distinguished Mediterranean forests from other forest types only in Croatia and France, the scope of the study was extended to cover all forests in the countries surveyed. The study estimates the *annual flows* of NTFPs benefits and refer them to 2005 current prices, based on the most updated information available in each country. For a better comparability of the results, this paper uses average values of benefits expressed in Euro *per hectare* of forests. These averages are calculated by dividing the national level estimates to the total forest area in each country.

3. Valuation methodology

Valuation of NTFPs is based on available secondary data in each country. It uses of a wide array of valuation techniques as developed by the environmental economics literature (Dixon et al., 1994; Braden and Kolstad, 1991; Organization for Economic Cooperation and Development, 1995; Winpenny, 1991). Estimating the value of NTFPs is usually harder than that of timber benefits. While several NTFPs are commercialized in established markets, for which quantities and prices are usually known, for most other NTFPs however, these data are not so readily available. Some NTFPs such as firewood, are traded in small informal markets with considerable intra-country variation in quantities and prices. Others, such as mushrooms, although marketable, are often harvested and consumed for free. This section summarizes briefly the application of the valuation methods in relation to the forests in the Mediterranean region (Fig. 1).

3.1. Firewood

Valuation considers the quantity traded in the market and, when available, that collected for free. Ideally, the stumpage price¹ should be used to value firewood. However, as data on the average stumpage price at national level are not available in many countries, the roadside price is used. To a certain degree, this results in overestimation, as it includes the costs of extraction and transport to the roadside. The value of firewood collected for free is estimated using data on quantities collected by forest users, either legally (as in Tunisia) or illegally (as in Morocco and Turkey). In both cases, valuation is based on shadow prices: using the market price of similar goods (firewood sold in other areas in Morocco and Tunisia) or the real market prices after eliminating distortions (in Turkey).

3.2. Cork

Valuation focuses on three types of cork: virgin, reproductive and miscellaneous. The estimation uses the quantities

¹ The roadside price net of the transport and extraction costs.

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