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Business model for forest management

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Abstract

The forestry sector presents itself as an undervalued sector but full of challenges. In most developed countries, it is a highly-internationalized sector, concerned with its sustainability, diversity and increasing complexity, requiring accredited people to respond to the growing competition.

In Portugal, the forestry sector is a strongly exporting sector, giving sustenance to many people, especially in rural and poor areas. It is a sector rich in potentialities that have not yet been properly exploited, mainly due to the abandonment of rural areas and the lack of investment in maintenance and conservation.

A business model based on the sustainability of resources and efficiency in all activities and processes was studied, with low costs and based on sub-contracting, and it is expected that it is possible to invest in the forestry sector in a profitable and sustainable way.

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1. Introduction

Awareness of forest sector potential is increasing, for its economic, social and environmental benefits. They provide energy and raw materials in form of wood and forest products, provide shelter and protection, harbor biodiversity and they are a way of generating income and employment to the society. They are very important for

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climate-change adaptation and mitigation, supporting sustainable agriculture and human well-being by stabilizing soils and climate, and regulating water flows [1].

Forests hold more than 75% of the world's biodiversity providing sustenance for hundreds of millions of people in rural areas, including many of the world's poorest people [2]. In 2015, forest covers 3999 Mha globally, which is equivalent to 31% of global land area. However, from 1990 to 2015, the global forest area fell by 3% [3]. Mainly in the poorest areas of the planet, pressure has been exerted to remove area for the forest and transform it into agricultural spaces [3; 4]. The rate of forest loss between 2010 and 2015 was half of that in the 1990s and was mainly reduced in the tropical countries. On the temperate forest countries, the forest area has mainly increased. In Europe, the forests have been increasing, following a different tendency from the rest of the Planet. Forests and other wooded areas occupied 41.2 % of the total area of the EU-27 in 2012 [5]. In Portugal, according to the 6th Portugal National Forest Inventory, the dominant use of the Portuguese soil is forest, covering 35.4% of the territory [6].

Portuguese forests have much to offer, including economic, social and environmental benefits. However, they have not been used according to their potential, although, the awareness of their potential has been growing, both in political and civil society. Abandonment and degradation of forests, in addition to the economic and social loss, are a major factor in the forest fires prevention and control. These factors also influence the environmental benefits resulting from good management, contributing to the reduction of atmospheric pollution [7].

In this article, and considering the scenario previously described, in section 2, it is intended to provide some insights about the forest sector and its importance as a business sector, mainly, in the Portuguese forest sector. Section 3 presents an overview of the Business models for forest management, presenting a model based on sustainable forest management with better resources utilization and efficiency on all activities and processes, with low costs and subcontracting-based. Section 4 draws the main conclusions of the paper.

2. The importance of the forest sector as a business sector

Forest sector has strong importance for the economic, social and environmental issues. Portuguese forestry sector is of great importance for the added value creation, for the jobs creation, for its export capacity and for the large number of people who live or value it [7]. This sector is often responsible for promoting less-favored areas, not forgetting the environmental benefits [8]. This sector plays an important role in the creation and development of natural capital, sustainable and social development [7].

Portuguese industries belonging to the forestry sector have a strong export orientation, translating, in the year of 2015, a huge relevance in the trade balance (10% of exports and 4% of imports). The trade balance of forest-based products has been increasing since 2009, with a surplus of 2.5 billion euros [9]. Paper and cardboard industries segment underwent a substantial increase, turning Portugal into a reference producer in this industry. Exports are mainly to the European Union [10].

In the Portuguese territory, Eucalyptus (*Eucalyptus Globulus*) is the forest specie with the largest occupation area of 26%, followed by the Pine tree (*Pinus Pinaster*) and Cork oak (*quercus suber*) with 23%, Holm oak (*Quercus rotundifolia*) with 11% and Stone pine (*Pinus pinea*) with 6% [4; 6]. It is observed a decrease of the pine occupied area and an increase of the eucalyptus area [11].

Portugal, unlike most other countries worldwide, is among the countries with the least forestry public properties (2.4%), being only ahead of Uruguay and the Solomon Islands. The forest holdings owned by the Portuguese State are scarce. However, they constitute a strategic reserve of great importance in the development of both research and scientific experimentation, where they study themes such as the development and adaption of ecosystems and genetic improvement. Portuguese State's forest properties were derived mainly from the forests associated with palaces and convents, the ancient coastal pine forests and dunes, and forests associated with navigable rivers and the forests of Gerês and Estrela. Globally, in the world, 82% of the forests are in the hands of public entities [12].

Portuguese forestry companies, account for 2.4% of the total number of companies nationwide and 2.4% of the employment in Portugal. The educational qualifications of most of its workers are low, with 78.57% of its employees with basic education, followed by secondary education with 13.31% and undergraduate education with 5.02% [7]. This might explain the lack of qualified management, which will lead to weak competition and weak utilization of activities and processes [11]. This demonstrates the need to invest in education. Without skilled people, it becomes more difficult to be competitive.

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