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Administrative, institutional and legislative issues on agricultural waste exploitation in Turkey

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Abstract

In this study, the influence of non-technical issues on the exploitation of agricultural waste in Turkey was investigated in accordance with the work program requirements for the project entitled "Exploitation of Agricultural Waste in Turkey" under the EU Life Third Countries Program. The study has been organized and presented according to the following four phases: (i) study of existing Turkish legislation and the administrative and institutional framework, (ii) review and analysis of the EU policy and legislation relevant to agricultural waste, including identification of potential market instruments, (iii) identification of barriers to the promotion of agricultural waste exploitation in Turkey, and (iv) Identification of gaps and formulation of recommendations. An ultimate objective of this study is to transfer the European experience and practices relative to the overall framework of managing agricultural waste.

Keywords: Renewable energy sources; Biomass; Agricultural waste; Legislative issues; Energy policies; Environmental policies

Contents

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1. Introduction

Historically, the agricultural sector has been Turkey's largest employer and a major contributor to the country's gross domestic product (GDP), exports and industrial growth. As the country develops, agriculture declines in importance, however it still accounts for a relatively large share of total output and employment compared to many other countries. Indicatively, the export of agricultural commodities (excluding agroindustry) for 2005 was about 2 billion USD, or 10% of total Turkish exports. Agriculture accounted for 16% of the country's GDP for the same year [1].

Crops and livestock represent almost 90% of the agricultural sector in Turkey, with forestry and aquaculture contributing the rest. The type and quantity of crops that form the basis of the agricultural sector in Turkey (wheat, barley, tobacco, cotton, rice, etc.) give rise to huge amounts of agricultural residues [2]. These residues are treated in an uncontrolled manner—either burned in open-air fires or disposed of and left to decay. In both cases, these management methods give rise to significant environmental impacts and, at the same time, waste useful energy resources that could reduce dependence on imported fuels [3].

Total energy consumption in Turkey in 2004 was 87,818 Mtoe [4]. Of this amount, 67% was provided through imported resources such as petroleum, coal, and natural gas. Domestic and renewable energy resources accounted for 27% of the supplied demand, while wind, solar, hydro, and biomass energy accounted for 16.5%. Agricultural waste (also referred to as agro waste), which is included under the biomass energy classification, has been used on a very small scale. However, Turkey has a great potential for supplying and applying agro waste and other renewable energy resources [5–6]. By using these