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OPTIMAL USE OF AVAILABLE BIOMASS RESOURCES, RECYCLING AND EFFICIENT USE OF BY-PRODUCTS AND RESIDUES

CORRESPONDING MODULE 5

Introduction

Bulgaria has huge potential for biomass production and could benefit from it to satisfy its future energy needs because biomass is available essentially everywhere in the country. Biomass power is considered a 'bridging solution' – allowing waste products to be used to generate power as an alternative to high-emitting fossil fuels. The bio-waste is sustainable and improves the ecological environment.

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Description

Hiteck is a company in rural Bulgaria which manufactures articles from wood. Together with a Norwegian partner, the company has implemented a Norway Grants project introducing green technology to produce biofuel from waste wooden materials.

One of the largest wood-processing plants is situated in Banite, Bulgaria, and 20% of its products are waste wood material. Thanks to this project, the wood waste is now used for eco-innovative business development for the first time.

The project utilizes waste biomass residues that are obtained as a result of the preliminary treatment of wood in this mill. These biomass residues are combusted in a specially designed biomass boiler to generate thermal energy in the form of steam which is then used for the production of the pulp.

This project demonstrates the viability of biomass plants, helping to promote sustainable energy alternatives in Bulgaria. By reducing the reliance of the plant on fossil fuels, it also reduces other pollutants, such as carbon monoxide and sulfur dioxide, from entering the atmosphere.

Bulgaria has huge potential for biomass production and could benefit from it to satisfy its future energy needs, according to Royal Dutch Shell expert, Vim Thomas.

Project Number:
2021-1-FR01-KA220-VET-00034605

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OPTIMAL USE OF AVAILABLE BIOMASS RESOURCES, RECYCLING AND EFFICIENT USE OF BY-PRODUCTS AND RESIDUES

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Advantages and challenges

The project was an eco-initiative related to material efficiency and improved waste management. It developed and installed new technology for the production of biofuel, which led to a green trend of less energy demand as the company uses 16,000 m^3 bio waste, thus less wood is burnt for energy purposes.

The production and use of pellets have a significant climate effect and replace the use of coal or gas in housing/buildings. The installation of the pellet production line produces 4,000 tons of pellets per year that has a climate effect of approx. 8,000 tons of CO2 if replaced with coal.

The project generated 15 new jobs in a rural area of the country with a high percentage of unemployment. The project also led to the collection of wood waste and by-products, and operation of new technology lines. The surrounding forest companies were provided with the possibility to supply waste wood debris, which had been unused so far. With a boiler being able to use such kind of combustible material for heat production, Hiteck can optimize the production costs and use the available raw materials more efficiently.

One of the main challenges facing Bulgaria is to change the attitude in society about the benefits of using biomass, including economic, social and environmental advantages. The latter will stimulate entrepreneurial activity and guarantee sustainable production and efficient use of biomass in the conditions of imbalance between North and South Bulgaria.

Actions to increase the effectiveness in forest biomass exploitation include investment in machinery for environmental friendly collecting of residual wood from felling/cutting sites, improvement of forest infrastructure for quick extraction of damaged wood from pests, diseases, and natural disasters to be used for energy production, and administrative measures related to the adoption of requirements for using biomass for household heating and free delivery of highly effective boilers to poor families for household heating by the municipalities.

Main data

The steam normally comes from the burning of fossil fuels, and therefore this project replaces fossil fuels with renewable waste biomass, leading to emissions reductions of an average 83,000 tonnes CO_2 each year.

The development of energy production from wood biomass, as one of the measures to reduce carbon emissions and deal with climate change, is directly related to the forests' long-term development. It is recognized and accepted by foresters, who are already reacting with actions aimed at maximum utilization of forest resources while observing forest ecosystems sustainable management criteria.

Focus is set on the use of wood in forests for conversion, in conifer crops and in carrying out other forestry activities. There is an additional perspective for the wood biomass production in the creation of plantations of fast-growing tree species on forest, agricultural and urbanized territories.

The preservation, rational and responsible use of natural resources, including wood biomass, is a basic premise not only for the environmental improvement and

References:

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protection, but also for achieving sustainable economic growth and increasing the competitiveness of the Bulgarian economy.

ANNEX - STRUCTURE OF MODULE CONTENT TO PREPARE SLIDES

Module Name: The name of the partner: Country:

The name of the module	
Target group involved	
Current information about the topic	
Principles of the specific module	
Basic terms/measures of the module/topic	
Training materials (tasks, case studies, exercises)	
Short description of the materials	
Link of the online resources (film or video resources)	
Specific images (to support the purpose of the resources)	
Duration	
Materials	
No of Learners/Representatives	
Individual or group work	
Step by step guide	