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Table of Contents

1. Executive Summary	3
2. Motivation for Pilot Innovation Environment.....	4
2.1 Background	4
2.2 Objectives.....	5
3. Short Description of the PIE.....	6
4. PIE Achievements.....	8
4.1 Contribution to the National Strategy (related to FBI/FORESDA).....	8
4.2 Contribution to national/regional development and innovation potential.....	9
4.3 Contribution to the Objectives of FORESDA.....	10
4.4 How does the Pilot contribute to the Programme Priority “INNOVATIVE AND SOCIALLY RESPONSIBLE DANUBE REGION”?	11
4.5 How does the pilot fit into EUSDR?.....	11
5. Continuation of the PIE	12

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1. EXECUTIVE SUMMARY

The following document is an output of FORESDA project (Danube Transnational Programme). It gives an overview of the results and possible impacts achieved by implementing of the pilot project (PIE) designed for the project region Croatia. This document describes the background and motivation to develop the PIE, its objectives, and activities. It also describes contribution to the FORESDA project, national strategies and innovation potential, and the PIE linkages to the Programme Priority Innovative and socially responsible Danube region.

The main idea was to conduct an educational-promotional campaign that will also offer a platform for the development of innovations related to the topics around energy efficiency and work safety in woodworking companies. The main slogan of the campaign, and also the name of the PIE, was "Raise the level of work safety by increasing the energy efficiency". The PIE Croatia is developed upon the mapping activities, which results showed that there are three major challenges among wood processing companies in Croatia:

1. How to improve the level of safety on work;
2. How to increase the energy efficiency of the companies;
3. How to strengthen cross-sectoral collaboration through R&D activities and innovation projects.

The PIE Croatia was designed in order to offer one of the possible contributions in the process of the meeting of the listed challenges.

2. MOTIVATION FOR PILOT INNOVATION ENVIRONMENT

2.1 BACKGROUND

During the market mapping activities (performed as a part of the activities within FORESDA in the first project period), Croatian Wood Cluster (CWC) identified three major challenges among wood processing companies in Croatia:

1. How to improve the level of safety on work;
2. How to increase the energy efficiency of the companies;
3. How to strengthen the cross-sectoral collaboration through R&D activities and innovation projects.

It is essential to find solutions and answers to these questions in order to secure the sustainable development and competitive market position within the national economy. The proposed PIE project should offer some answers on all of the questions, then the installation of the new exhaustion systems can automatically raise the level of energy efficiency (between 10-30 percent according to the latest research results). At the same time, the level of safety on work is being increased because the workers are being less exposed to the wood dust. Namely, prolonged or repeated exposure and inhalation of wood dusts has short and long term effects on workers' health. Depending on the species, wood dust contains a variety of biologically active, low molecular weight compounds (such as alcohols, terpenes). Wood dust is a human carcinogen, with a clear relationship between cancers of the nasal cavities and high levels of wood dust exposure, particularly from hardwood species. Other adverse health effects of wood dust exposure include irritation of the eyes, nose and throat from short-term exposure to dust. Decreased lung function, increased respiratory symptoms and allergic reactions are also associated with wood dust exposure. This may lead, if untreated, to occupational asthma and other lung diseases.

2.2 OBJECTIVES

The main aim of the Pilot was to increase the workers' safety level by contribution to the energy efficiency of the woodworking companies.

The Main Objectives:

- To raise the awareness of employees on the risks of not using the available personal protection equipment
- To raise the awareness of employers on the risks of not ensuring the protection framework related to the risks for the employees of being exposed to wood dust
- To create a platform for testing the new and innovative protective equipment
- To improve the dust collection systems efficiency
- Changed image of work safety and protection in order to change the employers' approach to this topic.

3. SHORT DESCRIPTION OF THE PIE

The implementation of the pilot was planned to be realized through the following subactivities:

A.4.2.1.1 Preparation of the supporting materials / Preparation of the supporting materials, such as info brochures, leaflets, agendas, minutes, reports etc.

A.4.2.1.2 Presentation meeting / Gathering of all stakeholders that could possibly have interest in taking part in the project.

A.4.2.1.3 Initial questionnaire / Conduction of the initial survey related to the topics "safety on work/wood dust/energy efficiency" aiming to identify the current state on the knowledge and implementation level among employers and employees

A.4.2.1.4 Questionnaire analysis / Analysis of the collected information, and comparison with other similar surveys on the international level, integrated with the experts contribution (mainly expert opinions) related to the further Pilot activities.

A.4.2.1.5 Company visits and workshops / Company visits according to the questionnaire results and showed interest of the FBI companies. The main structure of the visits:

(1) Introduction part - Lectures on the highlight topics "safety on work/wood dust/energy efficiency"

(2) Workshop - Individual approach to each company issues on the highlight topics. Target group: employees, representative of the employer, technical director, safety manager/supervisor.

A.4.2.1.6 Establishment of the working section / The working section named as "Sustainable Technologies Working Section" established within Croatian Wood Cluster aiming to ensure easier access to the companies and Pilot implementation in general, but also extension and follow-up of the Pilot upon its results (after the project duration). The targeted members: representatives of the employers, representatives of the employees, technical directors, safety manager/supervisors of FBI companies

A.4.2.1.7 Study visit Bruxelles/Bilbao / Organization of the study tour aiming to establish collaboration with the leading European associations and Agency (OSHA) related to the safety-on-work topics, but also to encourage further connections and projects between all relevant Croatian and European stakeholders: Croatian FBI SMEs, Croatian experts on safety-on-work within FBI and European associations and supporting organizations. The activity is shifted for the 2020 (According to the interest and available budget).

A.4.2.1.8 Final questionnaire / Conduction of the final survey related to the topics "safety on work/wood dust/energy efficiency" aiming to gather the results and impact of the Pilot activities among employers and employees, but also other relevant stakeholders.

A.4.2.1.9 Questionnaire analysis / The analysis of the results gathered through the final questionnaire aiming to include not only the analysis of the collected information, but also, upon the experts' suggestion, development of the ideas and proposals for the follow-up activities of the Pilot.

A.4.2.1.10 Plan of further actions / Upon the results of the final questionnaire analysis, Croatian Wood Cluster created proposal on the plan of further actions within the Working group, which should ensure continuous monitoring and improvement of the safety on work, with the final aim of developing encouraging environment for the further implementation of sustainable technologies within Croatian FBI SMEs.

4. PIE ACHIEVEMENTS

There are several levels of achievements which can be grouped in the following categories of contribution:

- Contribution to the national FBI strategies
- Contribution to the national/regional development and innovation potential
- Contribution to the objectives of FORESDA
- Contribution to the programme priority “Innovative and socially responsible Danube region”.

4.1 CONTRIBUTION TO THE NATIONAL STRATEGY (RELATED TO FBI/FORESDA)

The main national strategy related to the FBIs is the Strategy for the Development of Woodworking Industry and Furniture Production of Republic of Croatia, which covers the period 2017-2020. Given the fact that the European Union does not have a common strategy for the development of processing industry, the Strategy is in line with the strategic guidelines of relevant national planning instruments for the programming period by 2020, such as the Industrial Strategy of the Republic of Croatia 2014 - 2020 (Official Gazette, 126/14), the Strategy for the Development of Entrepreneurship of the Republic of Croatia 2013 - 2020 (Official Gazette 136/13), the Energy Development Strategy of the Republic of Croatia by 2020 (Official Gazette 130/09) and the Strategy for the Promotion of the Republic of Croatia 2014 (Official Gazette No. 153/14), as well as European Union Acts, such as Europe 2020 - A European Strategy for Smart, Sustainable and Inclusive Growth and the Action Plan for Entrepreneurship Development 2020. This Strategy takes particular account of the strategic guidelines of the New EU Forestry Strategy: forests and the forest-based sector, while respecting its guiding principles, namely:

- Sustainable forest management and the multifunctional role of forests, whereby many goods and services are supplied and / or provided in a balanced way and forest protection is ensured;

- Efficient use of natural resources, optimizing the contribution of forests to rural development, growth and job creation as well as the contribution of forest-based activities
- Responsibility for global forests, promoting sustainable production and consumption of forest products.

The respective Strategy does not put accent on the innovation and R&D; Therefore, the PIE results and the platform could be used as an annex to the existing strategy.

4.2 CONTRIBUTION TO NATIONAL/REGIONAL DEVELOPMENT AND INNOVATION POTENTIAL

The PIE Croatia contributes to the national as well as regional development and innovation potential of SMEs. By providing the platform to exchange knowledge and experience, as well as to initiate the cross-sectoral collaboration linked to the forest-based industries, PIE addresses the main need identified as a lack of the communication, human resources, and overall capacities to enhance R&D activities on the market. The durability of the improvement of the RIS is twofold:

1. Other sectors which are also dealing with the problem of dust during the production processes (like agriculture, stone industry, etc.) expressed the interest to start developing similar platforms/and campaigns, based upon results of the PIE Croatia;
2. The PIE Croatia should be continued after the end of FORESDA, and extended to the related topics linked to the issue of the sustainability of the workplaces in forest-based industries.

4.3 CONTRIBUTION TO THE OBJECTIVES OF FORESDA

The PIE Croatia was aligned with the objectives of FORESDA project, and contributed to the following project objectives:

Project Objectives	PIE Croatia Contribution
Specific objective 1: Aims at implementing regional PIEs in order to address the challenge of weak quadruple helix linkages, low collaboration levels along the value chain and the need for providing physical or virtual collaboration spaces bringing together multiple stakeholders and contributing to joint innovation	<ul style="list-style-type: none"> - Initiated collaboration among quadruple helix stakeholders by offering the opportunity to jointly confront with the challenges of reducing the wood dust in the production facilities - Creating a platform which encouraged all related stakeholders to consider development of joint innovations in form of new
Specific Objective 2: Aims at supporting cross-sectoral, transnational innovation through CNs and IPs. It thus addresses the challenge of rather low innovation capacity and competitiveness of SMEs and also contributes to internationalisation, technology transfer and qualification of the workforce. It will enhance existing and foster new products, processes, business concepts showcasing the possibilities of wood and fibre in tomorrow society.	- The PIE Croatia offered also a platform to start the transnational collaboration towards development of cross-sectoral innovations (Projects, products, services related to the improvement of wood dust collection systems). International stakeholders (SMEs, professional associations, policy makers) were involved and further innovations as well as R&D activities are expected in the following period
Specific Objective 3: Transnational capacity building for innovation intermediaries/the main stakeholders – particularly clusters, research institutions and policy makers – by ensuring a transfer, take-up and development of methodological knowledge, tools and an appropriate support portfolio for the development of cross-sectoral value chains	PIE project reached also the transnational stakeholders (Professional associations, clusters, research institutions, and policy makers). Although it was only on the level of a short presentation, most of them expressed support to the PIE and showed interest to start with some similar activities

4.4 HOW DOES THE PILOT CONTRIBUTE TO THE PROGRAMME PRIORITY “INNOVATIVE AND SOCIALLY RESPONSIBLE DANUBE REGION”?

The PIE Croatia contributes also to the Programme Priority “INNOVATIVE AND SOCIALLY RESPONSIBLE DANUBE REGION” IN GENERAL (<https://www.danube-competitiveness.eu/about-priority-area-8>). This is mirrored in the fact that it connects three biggest challenges in Croatia, which are identified in the mapping process: (1) Energy efficiency, (2) Cross-sectoral collaboration and R&D&I activities, (3) Safety on work. By tackling cooperation and exchange of knowledge between SMEs, academia and the public sector related to the respective topics, and raising awareness on the need to collaborate and develop jointly solutions for the challenges, the PIE Croatia directly supported the Programme objective linked to the improvement of the framework conditions for innovation by putting the accent on the following challenges:

- Transfer of knowledge / PIE objective to support employers and employees to learn on the risks related to the wood dust exposure
- Improved collaboration of the stakeholders / PIE objective to offer activities which jointly address the issues of wood dust, and to introduce innovations in the production processes.

4.5 HOW DOES THE PILOT FIT INTO EUSDR?

When started, the development of the strategy was focused on meeting the need to create a targeted policy for the Danube that meets its ecological, transport and socio-economic needs (Commissioner Hübner on the open day in October 2008). The Strategy is based on four pillars, and PIE Croatia could be linked to the Pillar "Building Prosperity". In addition, it directly contributes to the Priority Area 8 "Support the Competitiveness of Enterprises". The main objective is to support the competitiveness of enterprises and strengthen the capacities of SMEs for cooperation and trade, by fostering cooperation and exchange of knowledge between SMEs, academia and the public sector in areas of

competence in the Danube Region. PA 8 is also strongly focused on the improvement of the framework conditions and competitiveness of rural areas, where the FBI companies are mostly located. By encouraging the collaboration among SMEs and R&D sector with an aim to develop innovative products and, at the same time, to contribute to the ensuring of the sustainable working places, the PIE Croatia meets the overall long-term objective of PA 8 and that is to improve the prosperity of the Danube Region.

5. CONTINUATION OF THE PIE

The evaluation meeting showed that the PIE idea and implementation were overall successful, so the relevant stakeholders recommended to continue with its implementation also beyond the project lifetime. However, the lack of support and interest from the regional innovation system shows that the RIS needs to be heavily improved. At the moment, the RIS is not functioning properly and there is a huge mistrust in the capability of the system. Therefore, the support to the PIE Croatia will be organized within the Croatian Wood Cluster, which plans to identify the national funding sources, as well as international project calls in order to secure the funding. In addition, since the PIE Croatia was recognized on the international level as a good practice of the dealing with the big issue of woodworking industries, there is a possibility to transform the PIE into an international project.