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**Green Region Pathway for
Western Macedonia**

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Green Region Pathway

I. Introduction

1. **This note aims to complement proposals already developed in the Green Region Pathway Program for Western Macedonia.** It highlights different types of action which could promote structural transformation of the region's agri-food sector, and in a wider context, absorb the economic shock of the transition of Western Macedonia to a post-lignite era, create new, sustainable and inclusive jobs and facilitate structural economic adjustment in the region. Key aim of this pathway is the viability of the agri-food sector¹ linked to advanced supporting infrastructures and vertical integration which will facilitate restructuring and contribute to the generation of value added and jobs. The latter is very important, especially as the region suffers from comparatively high rates of unemployment and underemployment.

2. **Development action proposed is classified into three categories.** These include private sector investments (including collective bodies, such as producer groups and organizations, cooperatives), public sector investments (mainly infrastructure development) and initiatives/interventions associated with the region's institutional framework (Regional Administration, Development Agencies – LAGs, the University of Western Macedonia, etc.).

II. Private Sector Investments

3. **Private sector productive investments are the key for the smooth transition of Western Macedonia to the post-lignite era.** This is due to the capacity of the private sector to pursue market-driven solutions, as well as to leverage public funds committed for the transition process.

4. **Special incentives could also be provided for facilitating a transition to high value crops and livestock and value-added activities.** Currently, a very considerable part of agriculture in Western Macedonia specializes in low value and low labor requirements crop and livestock activities. The restructuring of agriculture towards high value activities directly linked to food processing would promote a new development model for the region. Indicatively, these would include aromatic and pharmaceutical plants – Kozani; legumes – Florina, Kozani, Kastoria; apples and peaches – Kozani, Kastoria; saffron – Kozani; wine grapes – Florina, Kozani; dairy products – Grevena, Kozani and Florina. Several of the region's agricultural products have been certified as Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) products. In this framework, Greek Rural Development Programme (RDP) farm investment support should refrain from the current (rather) generic approach and target (through region-specific eligibility and selection criteria and higher co-financing rates) productive investments on farms specializing in high value activities. Further, product certification should be pursued, while the introduction of digital technology in all stages (production, standardization, processing, marketing through e-

¹ The region's specialization in the primary sector is more than evident, both in terms of GDP (9 percent, compared to 4.1 percent at the national level for 2016) and employment (21 percent, compared to 11.4 percent in 2018).

commerce) should also be a priority. Support for more localized agro-processing would further add value to production, but also generate more jobs in the region.

5. **High value activities could also include greenhouses and hydroponics, producing fresh vegetables², through the use of district heating.** Special investment incentives could facilitate the creation of a greenhouse incubator, which can be also located in post-mining land, especially in the Kozani and Ptolemaida areas. Energy requirements can be covered through the installation of solar panels and the utilization of mild heat pump technology and district heating. Energy requirements could potentially also be covered by waste heat from former lignite power plants converted to an alternative thermal process (e.g. biomass or renewable electricity with electrical heaters to create steam). This is also true for agro-processing infrastructure.

6. **The region faces a significant deficit in agricultural value chain development.** Western Macedonia specializes in the production of several agricultural products, both traditional (apples, peaches, legumes - especially beans, potatoes, saffron, sheep and goat meat, dairy products, barley) and new (aromatic and pharmaceutical plants). However, despite several successful exemptions (both private and collective, such as the Velventos cooperatives), vertical and horizontal integration of value chains is limited.

7. **Special incentives could be provided for value chain development and integration.** In the context of the Greek Rural Development Program these should include special (higher) co-financing rates of support for investments which promote vertical integration. These special rates could target both food processing firms linked to local production and especially vertically integrated firms in all four regional administration units. Investments should especially target the establishment of new firms, the upgrade of equipment, the utilization of specialized personnel and the introduction of innovation, including digital agriculture. Moreover, special incentives should be designed for the establishment of producer organizations (PO) and farm cooperatives and for supporting their entrepreneurial capacity³; these could include the introduction of a degree of flexibility on the criteria for establishing a PO, as well as higher co-financing rates and focused selection criteria for PO and cooperatives investments on collective facilities. Taking into account the significant negative shock expected and the need to attract investments to the region, the modification of firm taxation rates for firms investing in agri-food⁴ should also be seriously considered. The development of value chains is expected to contribute to job creation in all four regional units. New jobs will be for all types of skills and especially for medium -skilled, skilled and youth labour.

8. **Contract farming in the region has been associated with several success stories in the last few years, especially since the banking sector's involvement.** In this context, the banking sector covers the entire production, supply and processing chain of agricultural production, by supporting carefully planned, mutually beneficial partnerships between farmers

² Which are facing high market demand.

³ Especially in potatoes, cow milk, organic products, energy crops and cereals (Development Agency of Western Macedonia SA, 2012).

⁴ Agri-food is included amongst key economic sectors in the region's Smart Specialization Strategy, 2014-2020.

and businesses that trade in, process and sell agricultural products. Banks guarantee the necessary liquidity for farmers, so that not only can they continue to produce but, thanks to better planning of their inputs, can achieve better prices, improve growing conditions and guarantee a higher quality end-product. Most contract farming initiatives in the region have generated new jobs and products have penetrated export markets. Hence, higher rates of support for farm and agri-food investments by farms/firms which participate in contract farming, as well as income tax reductions could be considered as options which can facilitate such schemes.

9. **Given the current business structure in the agri-food sector, the creation of strong, competitive regional agri-food clusters and productive alliances could be another priority.** There have been proposals for the establishment of two (food, wine) or a single agri-food cluster. The main goal of the cluster should be to utilize economies of scale, promote innovation and entrepreneurship and the coordination and ultimately, the development of an internationally competitive agri-food sector, through the utilization of scientific knowledge and new technologies. Potential clusters can utilize the services of the regional institutions for which there is reference in the next section. Also sub-regional initiatives on productive alliances involving agri-food and tourism can be another option which would boost incomes and employment, especially for skilled and youth labor.

10. **Biomass production is another alternative activity which would generate jobs in the region.** Establishing and managing a biomass trade centre could help organise the biomass supply chain and guarantee both the quantity and quality of the biomass, which is a critical factor for the installation and operation of a biomass unit for the production of electricity and heat. The Energy Communities established or under development in the area could support this endeavour. Forestry residues and residues from cereals, vineyards and tree crops can be utilized. Also, the implementation of small scale biogas units could be feasible in order to exploit livestock and agricultural waste. Further, farmers groups or other associations can build an Electricity and Heat Co-production Unit. The electricity generated could be injected into the network and thermal energy could meet the needs of district heating networks and greenhouses. Last but not least, the cultivation of energy crops (for instance in the depleted mines) can serve the needs of potential biomass CHP units.

III. Public Sector Investments

12. **The development of irrigation infrastructure in Western Macedonia has followed the declining trajectory of agriculture in the region.** As noted, irrigated land in the region accounts for 20 percent of utilized agricultural area, compared to 30 percent at the national level. Strategic documents (e.g. Operational Program for W. Macedonia Agricultural Goods Basket) have specified the need for the completion of several irrigation projects, although they are characterized by very different levels of maturity. Also the mechanical equipment of several irrigation projects is outdated and there is a need for its modernization, while waste of water resources is a common phenomenon. However, efforts to develop and modernize the region's irrigation network have so far lacked coordination and have been far from coherent with the needs of the sector.

13. **Most important, there seems to be a need for the development of an operational plan for the expansion and modernization of the region's irrigation network.** Irrigation projects both currently operating and planned, should be linked, assessed and prioritized on the basis of their current and potential future utilization. Current phenomena such as the use of a significant proportion of irrigation facilities for low value crops, the lack of irrigation serving high value farm activities and the lack of connection between existing dams and irrigation networks should be avoided. Within this context, the development of an irrigation network coherent with the needs of the sector, will amongst others facilitate agriculture restructuring in the region, through inducing improvements on factor productivity and hence, on farm incomes and generate new jobs.

14. **Amongst others, irrigation plants could link with cheap energy production.** Currently, several Municipal Corporations of Water Supply and Sewerage (MCWSS) produce energy through the use of photovoltaic equipment and the Municipal District Heating Company of Amindeo (DHCA) was planning to start the production of energy through biomass. Also, there is rich potential to operate irrigation facilities through the development and use of wind power infrastructure and pumping groundwater using solar pumps. Within this context, relatively recent legislation on the establishment and operation of energy communities and net metering should be utilized. Further, the management of the irrigation network should be improved, as the vast majority of local Municipal Corporations of Water Supply and Sewerage, which are responsible for the management of irrigation infrastructure, are poorly organised. This has contributed to the poor management of existing irrigation infrastructure.

15. **Resources for agriculture should be expanded through a coherent land restoration program, enriched with the necessary resources and planning for new productive uses.** The PPC Environmental Impact Assessment study foresees agriculture as the main option of new land uses. Up to 2018, 4,000 hectares (ha) of the total 16,000 ha of mines in Ptolemaida area have been restored. Around 1,900 ha have been afforested, and 1,500 ha committed agriculture activities. After the completion of the program it was estimated that 5,000 ha of arable land and 5,400 ha of forest would be created, while 1,200 ha would be covered by lakes that would form in the final trenches of the mines. PPC plans to install a large PV park at the mining sites, in line with the National Energy and Climate Plan that aims to phase out coal. The World Bank itself has presented alternatives to the exclusive use of the mining sites for agriculture purposes. Although the initial scenario is under scrutiny the scale of the area is such that there will be potential to include agricultural and forest uses, recreational uses, along with the renewable energy sources and other uses. Urgent action associated with this program includes the clarification of the land ownership status, land use planning, the specification of priority farm sub-sectors (some studies have shown that this land is suitable for tree crops and vineyards) and the assurance of funding and investors. Land quality assessment may be needed to ensure food safety as residues from mining may compromise soil health and additional investments may be needed to enhance soils.

16. **Broadband network for rural areas, agroecological zonification and soil maps are also tools which can facilitate agricultural adjustment in the region.** The development of

broadband is essential for agri-food business competitiveness and their integration to the digital economy. In parallel, agroecological analysis would guide the development of climate-responsive agricultural and rural development strategies and plans in the region, including the identification of location-specific adaptation and mitigation options and measures, productivity potential, etc. It is also a critical input to the formulation of risk management strategies. Finally, soil maps will facilitate agriculture digitization and induce productivity gains in the sector. All the above action will induce the generation of skilled jobs, especially for the younger segment of the region's workforce.

IV. Institutional Interventions

17. **Regional stakeholders should play a crucial role on the way to the development of agri-food in the transition era for the Western Macedonia.** Comprehensive and coherent planning and implementation structures are required to deal with the forthcoming economic shock and pursue the generation of new jobs in the sector, both in the short- and medium-term.

18. **The attainment of a robust management facilitating the combined effort toward the transition's goals for agri-food is of paramount importance.** Within this context, and due to the multi-fund character of transition interventions, an intermediate body could be considered as a structure that facilitates effective management of agri-food interventions, and also provides services such as support and development of start-ups.

19. **An attractive private investment framework should be formulated for agri-food in the region.** The region's economic shock from the transition to a post-lignite era, would be quite significant. Within this context, attracting inward investment is of paramount importance. Hence, fast track investments in agri-food should be promoted in the area, through the cooperation between the European Commission, the line ministries and the relevant national institution (Enterprise Greece) and the Regional Administration of Western Macedonia, with clear business plan formulation and impact on sector development and jobs.

20. **Skills and competencies of human resources in agri-food should be strengthened through upgrading education infrastructures and developing skill-acquisition programs and provision of advice and technical support.** Agri-food beneficiaries' training should focus on entrepreneurship, business extroversion, product standardization, product development, marketing, business management, innovation and adoption of digital tools. Training and skills acquisition could be coordinated by the Faculty of Agriculture of the University of Western Macedonia or other entities.

21. **Entrepreneurship should be supported in Western Macedonia, especially for sectors which are highly productive and characterized by innovation and competitiveness.** The Faculty of Agriculture of the University of Western Macedonia should be strengthened and collaboration with adjacent similar high-level competencies (e.g. Aristotle University of Thessaloniki) should be pursued. A knowledge center in agri-food sector established by the University could be the final target, aiming to link research and entrepreneurship in agri-food. This would support local human resources to identify new

business opportunities and entrepreneurship fields, carry out research - experimental - pilot projects, develop new products and production/marketing processes. Last but not least, digital technology entrepreneurship in agri-food should be supported by the University of Western Macedonia (Department of Electrical & Computer Engineering), and promoted through the financial facilitation of exploiting new ideas and the support of new enterprises, through amongst others, the establishment of a business incubator, which is foreseen in the context of the complementary start-up pathway.

22. The recently established Agri-food Partnership for Western Macedonia can facilitate the promotion of agri-food products produced in the region in both domestic and external markets. A coherent operational plan should be developed for this purpose. Furthermore, the Partnership should promote awareness and information campaigns on the benefits and advantages of undertaking activities in the agri-food sector through participatory processes aimed at the implementation of programs and projects. Also, it should promote regional branding and facilitate the participation of regional agri-food firms in business networks and European networks of innovation in agri-food. Finally, in collaboration with the Regional Administration, it should facilitate the certification of further agricultural products as PDO, PGI, etc.

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