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Report No: PAD3446

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF (EURXX) MILLION
(US$ 50 MILLION EQUIVALENT)

TO THE

REPUBLIC OF SERBIA

FOR A

SERBIA COMPETITIVE AGRICULTURE PROJECT (SCAP)

{RVP/CD CLEARANCE DATE}

Agriculture And Food Global Practice
Europe And Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective September 30, 2019)

Currency Unit =	US Dollar
EUR 0.92 =	US$1
US$1.09 =	EUR 1

FISCAL YEAR
January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

B/C	Benefit Cost Ratio
CAP	Common Agricultural Policy
CFU	Central Fiduciary Unit
CMU	Country Management Unit
CPF	Country Partnership Framework
DA	Designated Account
DAP	Directorate for Agrarian Payments
DCA	Development Credit Authority
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
ECA	Europe and Central Asia Region
EIF	European Investment Fund
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EU	European Union
FADN	Farm Accountancy Data Network
UN FAO	United Nations Food and Agriculture Organization
FM	Financial Management
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GM	Grievance Mechanism
GOM	Grant Operational Manual
GRS	Grievance Redress Service
IACS	Integrated Administration and Control System
IBRD	International Bank for Reconstruction and Development
ICT	Information and Communication Technology
IFC	International Financial Corporation
IFRs	Interim Un-audited Financial Reports
IPA	Instrument for Pre-Accession Assistance
IPARD	Instrument for Pre-Accession and Assistance for Rural Development
IPF	Investment Project Financing
IT	Information Technology
LAC	Latin America and the Caribbean
LMP	Labor Management Procedures
LPIS	Land Parcel Identification System
M&E	Monitoring and Evaluation
MAFWM	Ministry of Agriculture, Forestry and Water Management
MFD	Maximizing Finance for Development
MIDAS	Montenegro Institutional Development and Agriculture Strengthening Project
MoF	Ministry of Finance
MRD	Matching Rural Development grant
NARD	National Agricultural and Rural Development

NDCs	Nationally Determined Contributions
NGO	Non-Governmental Organization
NPV	Net Present Value
PDO	Project Development Objective
PFI	Participating Financial Institution
PHRD	The Japan Policy and Human Resources Development Fund
PLR	Performance and Learning Review
PMT	Project Management Team
POM	Project Operational Manual
PPSD	Project Procurement Strategy for Development
PSC	Project Steering Committee
R&D	Research and Development
RFP	Request for Proposal
SCAP	Serbia Competitive Agriculture Project
SCD	Systematic Country Diagnostics
SEP	Stakeholder Engagement Plan
SMEs	Small and Medium-Sized Enterprises
SOEs	Statement of Expenditures
SPS	Sanitary and Phytosanitary
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TEMP	Tax Administration Modernization Project
TORs	Terms of Reference
UNFCCC	UN Framework Convention on Climate Change
USAID	United States Agency for International Development
WB	World Bank

TABLE OF ONTENTS

DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Serbia	Serbia Competitive Agriculture Project (SCAP)	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P167634	Investment Project Financing	Moderate

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Disbursement-linked Indicators (DLIs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
10-Dec-2019	21-Nov-2024

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To increase access to markets for targeted beneficiaries

Components

Component Name	Cost (US$, millions)

Improving the value-added of agriculture	37,700,000.00
Improving the capacity of the MAFWM to support modern agriculture	10,000,000.00
Project management, monitoring and evaluation	2,300,000.00

Organizations

Borrower:	Ministry of Finance
Implementing Agency:	Ministry of Agriculture, Forestry and Water Management

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	50.00
Total Financing	50.00
of which IBRD/IDA	50.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	50.00

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2020	2021	2022	2023	2024	2025
Annual	0.98	3.69	5.78	10.77	16.47	12.31
Cumulative	0.98	4.66	10.45	21.22	37.69	50.00

INSTITUTIONAL DATA

Practice Area (Lead)	Contributing Practice Areas
Agriculture and Food	Social Protection & Jobs, Urban, Resilience and Land

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

Gender Tag

Does the project plan to undertake any of the following?	
a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	Yes
b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	High
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
10. Overall	Moderate

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Not Currently Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Not Currently Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Conditions

I. STRATEGIC CONTEXT

A. Country Context

1. **Following years of recession and slow growth in the aftermath of the global financial crisis, the Serbian economy expanded on average by 1.8 percent during 2015–2017 and by 4.3 percent in 2018.** Growth was driven by investment, which rose by an estimated 16.4 percent in real terms and contributed 3.4 percentage points to overall growth of Gross Domestic Product (GDP). Consumption also recovered, but at a slower pace of 3.3 percent annually in real terms, adding 2.9 percentage points to growth. The industry and services sectors contributed a combined 2.3 percentage points to overall growth in 2018. The contribution of agriculture to growth also improved in 2018, with real growth of output estimated at 15.6 percent, adding 1.1 percentage points to growth. The realization of the Serbia's medium-term growth aspirations depends crucially on successful and timely structural reforms and on the progress with regulatory and institutional modernization towards European Union (EU) accession requirements.

2. **The prospects for EU accession have provided an impetus for a broad spectrum of reforms.** In November 2007, Serbia initiated a Stabilization and Association Agreement with the EU. In 2012, Serbia was granted EU candidate status. Since the start of the accession negotiations in 2014, reform progress has evolved largely following its predicted trajectory. As of December 2018, Serbia has opened 16 out of 35 chapters of the EU's *Acquis Communautaire,* of which two are provisionally closed.

3. **Regional disparities of living standards are evident.** There is a high degree of variability of living standards within the country, with 25 percent (or close to 1.8 million people) of the population of Serbia being at risk of poverty. Municipalities in the southern and eastern parts of Serbia have a higher poverty incidence as compared to the rest of the country, with risk of poverty rates ranging between 13 and 63 percent within these regions. Designing and targeting policies and programs to effectively support growth, jobs, poverty reduction, and social inclusion will have to take these geographic disparities in living standards into account.

4. **Serbia is highly vulnerable to climate change.** Over the past two decades, droughts, floods, harsh winters and other weather-related extreme events (e.g. hail) have caused physical damage, financial losses and even losses of human lives, with significant impacts on the economy, especially in the agricultural sector. National climate projections indicate that Serbia will face a high probability of continuing temperature increases, along with more frequent and prolonged droughts and wildfires. Projected increases in temperatures and declines in precipitation will affect rainfed crops, which dominate Serbian agriculture. Production is concentrated in the autonomous province of Vojvodina in northern Serbia, where crops are vulnerable to decreasing precipitation and increasing temperatures during the summer growing season. Rainfed maize production, for example, may decline by as much as 58 percent due to reduced rainfall and higher temperatures in summer. Increases in temperature have already brought about increases in fungal diseases and pests that reduce crop production. Cereals and fruits are the most important agricultural products in terms of production area and economic output; fruit production is particularly vulnerable to spring frost, hail, extremely low winter temperatures, low precipitation and/or heavy rainfall events[1].

[1] USAID. 2017. Climate Risk Profile: Serbia: https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID_Climate%20Change%20Risk%20Profile_Serbia.pdf

B. Sectoral and Institutional Context

5. **Agriculture plays an important role in the economy of Serbia.** Agriculture is the third largest sector, accounting for 6 percent of GDP and 19 percent of formal employment, and the most important export sector, representing 23 percent of total exports. The growth of exports of both primary and processed food products provides evidence of the competitiveness of Serbian production in international markets and of significant potential to further leverage the sector's growth to create jobs and income. Agricultural sector growth, however, is influenced by regional disparities in sector performance and composition of crops. The Vojvodina is the key driver of Serbia's agricultural output, contributing 43 percent to national agricultural GDP (2014), mainly because of large scale production of commodities. Between 2003 and 2013, increased crop and livestock output in Vojvodina was the main driver of agricultural growth while the south and southeastern regions of Serbia recorded only a marginal expansion or even a decline in production. However, the reliance on agricultural commodities increases Serbia's exposure to price volatility in global commodity markets. The increasing number of extreme climatic events and the limited use of risk management instruments exacerbates agricultural growth volatility.

6. **As Serbia seeks to modernize its agriculture sector and to align with the EU *acquis*, the effectiveness of public spending and service delivery is becoming a critical policy instrument.** National program resources[2], which accounted for 82 percent of sector expenditure on average during 2011-2017, are mostly allocated to subsidies and direct transfers in form of area-based and headage payments. These are found to negatively affect sector productivity and efficiency because they support farmers in what they currently produce, thereby freezing the current production patterns and the dual farm structure in Serbia.[3] In addition, investments in rural development, including the provision of agricultural infrastructure, Research & Development (R&D), advisory services, are low. Current sector policy therefore does not provide a conducive enabling environment for small and medium-size farms to increase their size; invest, modernize or change their production systems to benefit from expanding markets; or develop a competitive agri-food sector and vibrant rural economy.

7. **Smallholders are found to be the most technically efficient producers in the country**[4]. Middle size farms are found to be the worst performers in terms of technical efficiency, posing a question on the adequacy of the enabling environment for their development and consolidation of production, in general. These producer segments specialize in agricultural products that are not scale intensive yet can hold important value proposition and can drive the generation of jobs and growth in rural areas. Redirecting resources from subsidies towards rural development investments and targeting the small and medium producers of Serbia, especially in the South and Southeast, could improve their productivity and competitiveness, put them on a path of modernization and

[2] In 2019, the total budget for agriculture and rural development is USD 348 million, of which 12% (or USD 43 million) comes from EU resources (IPARD, EU contribution). The remainder of the budget is covered by national program resources, of which USD 44.6 million is allocated to rural development. In addition, there is mandatory national contribution to the IPARD of USD 14.4 million.

[3] Very small and fragmented land holdings, ageing and declining farm labor force, limited associability, low efficiency and productivity, low use of technology, high labor intensity, low financial liquidity and capital availability for investment (especially for smallholders) and outdated production management practices characterize agriculture in Serbia in the South and Southeast. Cereals, vegetable oils and edible fruit have historically driven growth of agricultural production and exports, with Vojvodina's larger producers benefiting the most. Only one percent of the farms in Serbia have 50 hectares of land and most of them are in Vojvodina, while farmers who own less than 5 hectares of land account for 78 percent of all holdings and 25 percent of the total cultivated area in Serbia and are concentrated in the South and East Serbia.

[4] In the context of Serbia, small producers are those with an economic size of up to 8,000 euros; medium producers are those with an economic size between 8,000 and 25,000 euros.

financial inclusion, and enable them to actively participate in the process of structural transformation of agriculture in Serbia, and prepare them for EU accession.

8. **Despite significant amount of EU resources allocated to Serbia's agriculture, available investment funds are underutilized because of the limited uptake of development grants by small and medium-size producers**. The EU Instrument for Pre-Accession and Assistance for Rural Development (IPARD) funds in the amount of EUR230 million (including national co-financing) have been allocated to Serbia for the programming period of 2014-2020. Although the scope of the 2 measures for which Serbia is accredited for[5] is broad, the actual number of beneficiaries is limited. Most small and medium scale producers have not been able to take advantage of this productive support as many either lack the commercial scale required to meet the minimum eligibility requirements or are deterred by the complex application requirements and lengthy approval processes. In addition, the need to mobilize upfront private financing for productive investments in order to benefit from grant support is a key constraint in the uptake of IPARD grant support for most small and medium scale producers.

9. **Different support mechanisms and financial instruments may be required to enable small and medium scale producers to access financial resources and markets.** A policy mix that focuses on the improvement of competitiveness and value addition capacity can also have important sectoral and economy-wide growth effects, including increased employment, poverty reduction and economic prosperity of rural areas. For example, reducing the direct payments envelope and increasing the rural development one, including for infrastructure, advisory and farm extension services and R&D, could contribute to improved sector performance. Financial instruments, such as matching grants and public guarantee funds, can stimulate financial inclusion of small and medium-size producers, reduce financial risk[6], and improve their ability to access private investment financing and benefit from IPARD support for better integration into value chains. Better policies can also support the implementation of agri-environmental and climate smart practices for small and medium-size producers. This would not only have important implications for better climate adaption (improving resilience) at the country level, but it would also help to increase agriculture's climate mitigation potential and reduce individual producers' exposure to climate risk and improve their real and perceived financial risk profile with financial institutions.

C. Relevance to Higher Level Objectives

10. **The proposed project is consistent with the Serbia Country Partnership Framework (CPF) for the period of FY16-20.** While the Systematic Country Diagnostic (SCD) identified agriculture as a priority sector for the twin goals, the CPF did not originally envisage an operation because of counterpart readiness. However, engagement with the Ministry of Agriculture, Forestry and Water Management (MAFWM) demonstrates a new strategic drive and opportunity to make an impact. Therefore, as part of the program update permitted under the PLR, the Bank decided to re-engage in this sector. Through productive investments targeting small and medium scale producers and strengthening the information systems of the agricultural sector, the project aims at increasing sector competitiveness, while providing economic opportunities in rural areas, as the country

[5] Accredited measures in 2018 are *Investments in Physical Assets of Agricultural Holdings* and *Investments in Physical Assets for Processing and Marketing of Agriculture and Fisheries Products*; 2 more are planned for accreditation in 2019 - *Farm diversification and business development* and *Technical assistance*; and 2 additional ones for 2020 – *LEADER program for local development* and *organic production*.

[6] Due to their high perceived risk profile, smaller farmers currently have very limited access to bank financing and mostly rely on off takers and input suppliers to finance their inputs.

moves closer to EU membership. The Performance and Learning Review (PLR) of the CPF identifies agriculture as one of the high priorities for the Government with an important dimension of shared prosperity.

11. **The project is also relevant for the International Financial Corporation (IFC) Serbia Strategy (2020-2024)**. Aligned with the three key priority areas of the Strategy: a) Competitiveness; b) Connectivity and c) Climate, the project contributes directly to the first area, which focuses on value added jobs, entrepreneurship through digitization and access to finance. Advisory services provided under the IFC strategy can further support the agribusiness development that the project entails and complement planned activities in the agriculture sector.

12. **The project is also aligned with the strategic goals of the National Agricultural and Rural Development (NARD) strategy for 2014-2024**. Among them are: a) growth of production and income stability; b) growth of competitiveness with adjustments to domestic and foreign markets requirements and technical-technological promotion of the sector; c) sustainable management of resources and environment protection; d) promotion of quality of life in rural areas and poverty reduction; e) efficient management of public policies and promotion of institutional framework for development of agriculture and rural development.

13. **Through support to sustainable and climate smart investments, the project is expected to contribute towards global climate change development goals of Serbia.** Serbia has been part of the UN Framework Convention on Climate Change (UNFCCC) since 2001 and the Kyoto Protocol since 2008. In 2015, the Government of Serbia has adopted the Nationally Determined Contributions (NDCs) to fulfill its international obligations. NDCs were developed on the basis of GHG emission data of 1990, official data and projections, national strategic and planning documents and current and planned legislative framework which is primarily derived from the process of harmonization with the EU acquis. Total national GHG emission reduction until 2030, in accordance with the "scenario with measures" is to be 9.8 percent compared to 1990 emissions. The proposed project will contribute towards strengthening adaptation of agriculture production to climate shocks and will target agricultural producers that face the highest risks to climate change events.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

To increase access to markets for targeted beneficiaries

PDO Level Indicators

14. The PDO will be achieved through: a) sustainably increasing the productivity[7] of small and medium scale agri-food producers on- and off-farm; b) strengthening the market linkages[8] of small and medium scale agri-food producers; c) promoting technical assistance to small and medium scale agri-food producers for investment; d)

[7] Improved on- and off-farm productivity, efficiency and value addition using better management practices, climate smart agriculture, technology, information, and technical assistance, etc.
[8] Improved linkages between agri-food producers and buyers/markets (volume, quality and uniformity of production, value and volume of sales, market segmentation, entrepreneurial capacity of the production units, etc.).

improving government information delivery systems[9] to strengthen the enabling environment for all agri-food chain actors in Serbia, including capacity building, consolidation of information systems and digital delivery tools to agri-food producers.

15. The PDO will be measured through the following indicators:

- **Beneficiaries with at least one contract with a buyer of their products/services (number)**
- **Increase in the value of beneficiaries' production (%)**

B. Project Components

16. **The project is structured into three Components**. Component 1 focuses on improving the productive and entrepreneurial capacity of small and medium agri-food producers, producer groups and enterprises by supporting productive investments and capacity building (through advisory services, business and financial planning) for market access and added-value of their production. Component 2 focuses on improving the capacity of MAFWM to provide core public goods for improving sector performance. This includes establishing an integrated information system to enable evidence-based decision making by agri-food producers and MAFWM, monitoring of results, enhancing production and market information for stakeholders, and building capacity for regulatory roles and compliance functions aligned with EU CAP. Component 3 focuses on project management, including the tools for a project impact assessment.

17. **The project will support a broader agriculture policy reform process** by addressing sector needs at the level of agri-food producers (Component 1) and the MAFWM (Component 2), through: a) improved targeting of policy instruments to different typologies of small and medium size producers; b) improved leverage of financial resources and greater financial sustainability of investments in agriculture; c) changes in the financial risk profiles of agri-food producers that could lead to improved access of IPARD resources; d) strengthened enabling environment for investment for small and medium agri-food producers, by improving the delivery of services to these productive segments (advisory, financial, information, etc.); e) improved monitoring of public resources and their utilization, as well as sector performance. It is expected that all these actions will bring about a significant shift in the utilization of public resources in agriculture from subsidies (direct payments) to rural development investments. Rural development investments (where both capital and knowledge are considered) are found to lead to improvements in productivity and sector growth in Serbia and other countries in the region.

18. **The project will also contribute towards improving the resilience of small and medium-size agri-food producers.** Some of the investments under Component 1 will finance climate resilient and mitigation technologies in the agricultural sector. Through technical assistance, Component 1 will also improve the capacity of farmers to better adapt to climate change through knowledge transfer by the advisory services[10]. Component 2 will support the creation of an information system to strengthen MAFWM's capacity to manage risk and be

[9] Improved use of information systems for decision making at the level of (MAFWM) and information flow between agri-food chain actors.

[10] An ex-ante GHG analysis (Annex 2) finds that activities under Component 1 can constitute a net carbon sink of 118,987 tCO2-eq., largely due to the avoided emissions from improved and sustainable agricultural (-87,070 tCO2-eq) and livestock management (-45,115 tCO2-eq) practices. The total balance of -118,987 can be translated into -21 tCO2-eq per hectare over 20 years period or -1.1 tCO2-eq per hectare per year.

pro-active, before extreme events struck, hence reducing their potential costs and adverse impacts; integrated into the information system will be key climatic variables and data available to all agricultural stakeholders at the national level. The project could have an important contribution to diminishing the effects of climate risk in the agricultural sector.

19. **The project will work towards strengthening the role of women in productive decisions and market access**. Despite the role women play in agriculture, they are constrained by their lack of involvement in decision-making and access to finance. Women are often the main custodians of knowledge on crop varieties and good management practices. Empowering women farmers can increase their income, develop a stable rural livelihood and contribute towards adoption of new practices for improving productivity. The project will target women both through customized advisory service delivery as well as through grants selection criteria (under Component 1). Women beneficiaries will also be supported with access to information and its use for productive purposes and market access (under Component 2).

Component 1: Improving the value-added of agriculture (US$37.7 million)

20. The objective of this component is to improve the productive and entrepreneurial capacity of small and medium agri-food producers and increase their access to markets. The component will support productive investments on- and off-farm (e.g. capital investments in equipment, machinery, processing units[11], packaging, storage, etc.) and the building of productive and entrepreneurial capacity of agri-food producers through the integration of production decisions with market requirements and technical and financial services.

21. Component 1 is structured into two sub-components: (1.1) Strengthening access to agricultural advisory and business development services – focusing on capacity building activities required to formulate business plans, investment decisions and financial support, from public and private sources; (1.2) Facilitating access to finance for productive investments, comprising investments in equipment and technical assistance to support implementation, using public resources and commercial bank loans. The detailed description of the sub-components is provided below.

Sub-component 1.1: Strengthening access to agricultural advisory and business development services (US$4 million)

22. This sub-component will focus on strengthening the sector capacity for provision of technical assistance to agri-food producers for the formulation and implementation of productive investments. It will comprise both strengthening the capacity and knowledge of advisory services (public and private) to respond to producer demand, as well as the delivery of advisory services to the final beneficiary, enabling them to design and implement productive investments in line with market needs and requirements. The scope of technical assistance provided to beneficiaries will encompass traditional farm advisory services, business plan development, including financial and entrepreneurial capacity, market linkages, compliance requirements related to public standards (e.g. better agri-environmental practices, food safety, traceability, etc.), advice on the use of climate-smart production practices and technologies, as well as support for the effective use of digital tools for decision-making.

23. This sub-component will also support the design and implementation of a communication strategy for

[11] Under IPARD grants, investment grants for processing facilities is only provided for new structures; national rural development program can provide investments for rehabilitation and upgrade of existent facilities.

MAFWM aimed at raising awareness about the project to stimulate broad-based participation by target groups. The communication strategy would also target local governments to ensure their support for project activities. The communication strategy will also reach out to the private sector, including commercial banks, to increase their awareness about the economic opportunities provided by the project to small and medium-size agri-food producers and the role that the private sector can play in their development.

Sub-component 1.2.: Facilitating access to finance for productive investments (US$33.7 million)

24. This sub-component will focus on improving the productivity and competitiveness of agri-food producers by facilitating their access to finance for productive investments and to markets for their products/services. This will be carried out under a matching rural development (MRD) grants[12] program, as a financial instrument for advancing a sub-set of priority areas and operational goals defined in the NARD Strategy for 2014-2024. There is a strong public good argument for using matching grants[13], such as stimulate cross compliance (i.e. improving enviornmental outcomes), stimulate use of innovations, new technologies, development of skills, modernization, horizontal integration, financial inclusion. Through the project, capacity for the use of matching grants will be improved in the sector, which can lead to a better absorption of IPARD grants later on.

25. The productive investments supported through the MRD grants program will be defined in business plans that bundle three key elements: a) capital investment, b) working capital, and c) technical assitance and/or training for improving productive and entrepreneurial capacitites and performance. The total cost of individual business plans would depend on the type of investment, the working capital required to make it operational, as well as the scope of the technical assistance and training needed. The cost would also vary by the productive activity, typology, and capacity of the applicant. Matching grant support provided under the project would represent 50 percent of the total cost of individual business plans, while the remaining cost would be covered by beneficiaries' own funds (10 percent) and commercial loan (40 percent). The minimum and maximum total values of the investments included in the individual business plans would be EUR 25,000 (i.e. minimum grant size of EUR 12,500) and EUR 400,000 (i.e. maximum grant size of EUR 200,000) respectively for cooperatives and companies (SMEs) and EUR 25,000 (i.e. minimum grant size of EUR 12,500) to EUR 50,000 (i.e. maximum grant size of EUR 25,000) for farmers and entrepreneurs.[14] Eligibility and selection criteria will be defined to ensure the participation of small and medium agri-food producers. The development impact of support provided under the MRD program would also be strengthened through the scoring and ranking criteria that would be applied to steer investments towards youth, women, and poorer areas in Serbia. These criteria are also formulated to incentivize organization among producers, increased compliance with food quality standards and adoption of technologies (digital, climate smart[15]). All criteria and the governance and management aspects of the matching

[12] Matching grants are an instrument aimed at promoting private sector development which has been used extensively over the past years, in particular for agriculture development. A matching grant is defined as a one-off, non-reimbursable transfer to project beneficiaries, for a specific purpose, based on the condition that the recipient contributes for the same purpose. These grants can be used for a variety of activities including technical assistance, investment in assets or financing of working capital. Total grant financing dedicated to agriculture reached 650 million USD or almost twice the volume of those outside of agriculture. In addition, the proportion of matching grants projects supporting agriculture has significantly increased in the 2000s.

[13] Recent interest for this instrument to support agriculture might be due to growing concerns about other forms of support which distort financial markets such as interest rate subsidies, as well to the compatibility of such agricultural subsidies with World Trade Organization requirements.

[14] By way of comparison, in Montenegro (under the MIDAS project), the total cost for agricultural producers ranges between 10,000 and 70,000 euros, while for agricultural processors it ranges between 50,000 and 250,000 euros. In Kosovo, the range for producers ranges between 10,000 and 100,000 euros, while for processors it is between 30,000 and 400,000 euros.

[15] These may include climate smart technologies such as soil-crop management, improve livestock feeding, conservation tillage,

grants are detailed in a Grant Operational Manual (GOM).

26. The sub-component will also facilitate access to finance for agri-food producers participating in the MRD grants program by providing start-up capital and financing from commercial banks. Considering the high risk of lending to smaller producers, the project will support the enabling environment for de-risking agri-finance by working with existent public credit guarantee funds in Serbia available for agriculture - the European Investment Fund (EIF) and the Development Credit Authority (DCA)[16]. The project will leverage these schemes as risk mitigating mechanisms to crowd-in private investment through increased agricultural lending by commercial banks. Technical assistance will be provided to commercial banks for assessing credit for the types of investments and beneficiaries targeted by the project. A feasibility study will also be carried out to assess demand for a public guarantee scheme for agricultural loans as a long-term de-risking option[17].

Component 2: Improving the capacity of MAFWM to support modern agriculture (US$10 million)

27. The objective of this component is to improve the capacity of MAFWM and related public agencies to enable improved sector performance through evidence-based policy making and provision of public goods, such as information delivery systems and open data platforms. This will be achieved through the upgrading and modernization of existing information systems and their integration into an open data platform that will benefit all agricultural producers of Serbia. The information system could also strengthen the Government's capacity for risk management by providing all agricultural stakeholders access to relevant agroclimatic and market information to enhance climate response at the farm and agribusiness level. The integration of information could also support the Government's broader pension reform efforts with the provision of data for social benefits assessment.

Sub-component 2.1: Improving MAFWM information systems (US$8.1 million)

28. This sub-component will support MAFWM to modernize its information systems and strengthen its decision-making capacity, through the improvement of hardware, software and human capacity for information support to the sector. Modernizing the information systems, through redesigning and upgrading of existing applications is critical in the process of alignment to EU CAP, including for compliance and monitoring of sanitary and phytosanitary measures (SPS) compliance and monitoring, for provision of farm advisory information, for land parceling identification system (LPIS), for paying agency data management, etc. The project will finance: a) technical assistance to develop a MAFWM ICT strategy and to improve the coordination within and across existing information systems and enhance the delivery of information for decision making at different levels; and

windbreak barriers, mulching/soil cover etc. On-farm inputs and equipment including irrigation, water storage/rain harvest, shading/anti-hail nets, manure treatment, drainage, use of biofertilizers, compost, integrated pest management, solar refrigeration, solar heating systems and energy efficiency equipment in processing facilities, appropriate grain storage to limit pest infestations among others.

[16] Two public donor guarantee schemes with agricultural windows are expected to be available in early 2020 – European Investment Fund (EIF) (backed by EU funding) and the DCA (guarantee facility of USAID), still under negotiations with MAFWM – and can be tapped on by commercial banks in the first couple of years of project implementation. IFC is already engaged with the EIF. Although a public guarantee fund exists in Serbia (the Serbian Development Fund, SDF), it is weak and does not cater to agriculture. Hence, a capacity building (through a TA) activity may be warranted under the project to provide guidance on future needs by the public sector for unlocking private investment in agriculture.

[17] Existent guarantee schemes tend to be time bound and have a limit on resources. A domestic guarantee agency has the advantage of not being time bound and can benefit from counter-guarantees from IFIs such as European Investment Bank (EIB), European Investment Fund (EIF) and donors.

b) the acquisition of hardware and software to improve the scope, functionality and compatibility of information systems[18] and establish digital data collection and processing of current paper-based processes.

Sub-component 2.2: Developing an Agriculture Business Intelligence Information System (US$1.9 million)

29. This sub-component will improve the access to information to all sector stakeholders through an open, public information system – Agriculture Business Intelligence Information System (ABIIS) – which will pull together all relevant data, including the upgraded and reengineered applications developed under Sub-component 2.1. The project will finance the software, hardware and technical assistance required for the set-up and functionality of ABIIS. The information system can play an important role for the spatial tracking, traceability and connectivity of production and market demand, thus contributing to improved positioning of products, sales and overall competitiveness. The ABIIS could also serve as a support system for the advisory services in Serbia and can be linked to digital applications on-farm, ensuring a two-way communication on plant and animal health, and other risks that can constrain agricultural productivity and competitiveness. In addition, by including weather and climate information[19] modeling, the project could contribute to early warning systems, helping producers to better prepare and adapt to changing climatic conditions. The project will use existing digital agriculture tools and will collaborate with private sector IT companies for finetuning electronic delivery mechanisms for monitoring production, access to technical information, traceability of goods and identification of market opportunities. Managing the content and enabling public access to ABIIS is a key role that MAFWM can play in providing the enabling environment for agricultural sector transformation.

Component 3: **Project Management, Monitoring and Evaluation (US$2.3 million)**

30. This component will support the establishment of a project management team (PMT) in the Directorate of Agrarian Payments (DAP) and the capacity needs related to project implementation, including project monitoring, a comprehensive baseline, mid-term review and a final impact evaluation of project investments.

C. Project Beneficiaries

31. Target beneficiaries of the project are small and medium scale agri-food producers (farmers, farmer groups, agri-businesses, agri-processors and other productive units in rural areas) that generate agricultural or food products or services and have or can have commercial focus and are not covered by accredited IPARD measures and have difficulties meeting the pre- and co-financing requirements of the National Rural Development Program measures. Although large producers will not be directly targeted, the project will also benefit them through a better enabling environment based on improvements in information systems and financial services. Small and medium size producers are defined by the economic size of holding expressed in euros of standard output. For the purposes of the project, small producers are those with an economic size (gross value added) of up to 8,000 euros; medium producers are those with an economic size between 8,000 and 25,000 euros.

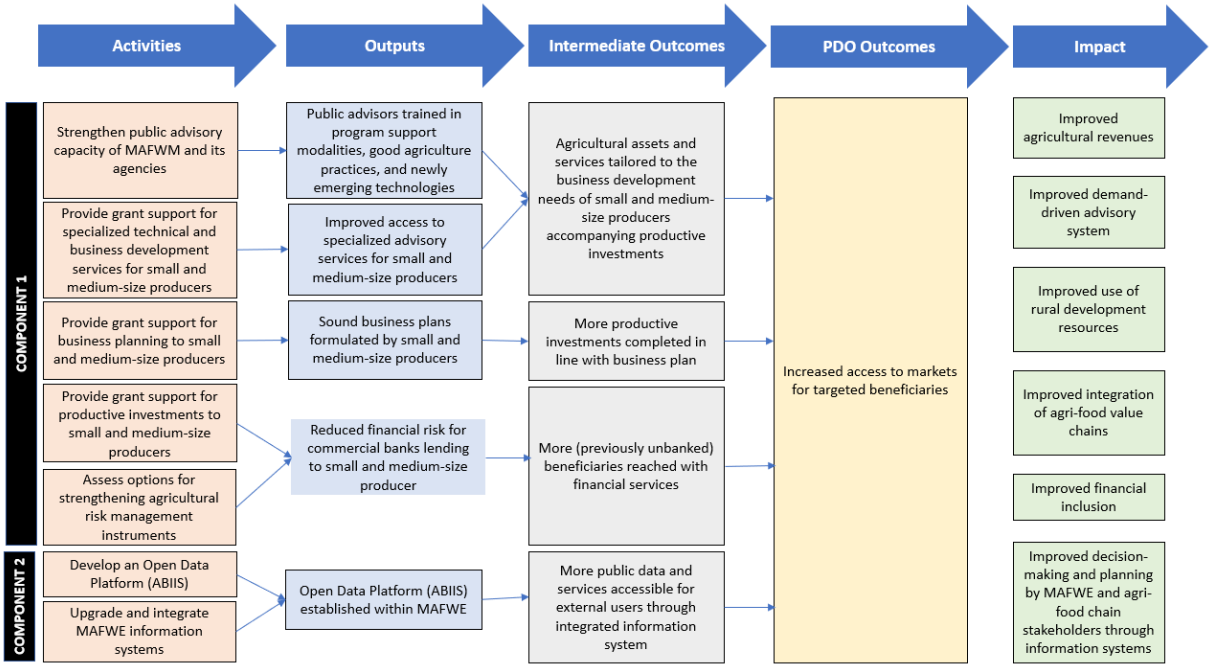
[18] This will also support the interoperability with existing monitoring systems housed outside of the Ministry on weather, pests and hydrometrology to enhance its usability by all agricultural stakeholders in the country.

[19] Currently, climate-related information and services are available to the agricultural community at the website (*http://hidmet.gov.rs*) maintained by the Hydrometeorological Institute of Serbia. However, this website is old and not optimized for mobile devices. The project will upgrade this portal to better disseminate climate information data to agricultural scientists, advisors and farmers.

32. The project will be implemented throughout Serbia, although it is expected that most beneficiaries will be in the South and Southeast of the country, where small and medium scale agricultural production predominates, volumes per producer are small, private investment is limited and targeted investments in agricultural production and commercialization are expected to have the largest impacts.

D. Results Chain

33. The figure below outlines the Theory of Change logic for the Project.



E. Rationale for Bank Involvement and Role of Partners

34. This project marks a re-engagement of the World Bank Group in the agricultural sector. The previous agricultural operation in Serbia – Transitional Agriculture Reform Project (IBRD Loan US$12.5 million / Global Environment Facility (GEF) Grant US$4.5 million) - closed in May 2013. Since then, engagement in the sector has been through technical assistance and a functional review of sector institutions.

35. The World Bank Group brings important global expertise on agricultural development to Serbia. The World Bank has, for many years, supported the sector in the region and is currently implementing projects supporting the modernization of agriculture and its alignment to the EU CAP in Montenegro and Kosovo. Beyond the Western Balkans, the World Bank Group is an important partner to the European Commission and is supporting analytical work in several EU member countries.

36. The proposed project complements and builds on several World Bank Group and donor financed projects in Serbia. Through *Competitiveness and Jobs Project* the World Bank supports better targeting of public

policies for increasing competitiveness (through increased private sector investments, innovation and jobs creation). Use of technology and innovation to increase productivity was supported through the WB financed *Research, Innovation and Technology Transfer Project*. Data sharing, improved government agency interoperability, and development and delivery of digital administrative services has been supported by several WB funded projects in Serbia, such as the *Real Estate Management Project* which is financing development and implementation electronic application for property registration and construction permit, and public and private sector access to real estate cadastre data. *Enabling Digital Governance Project* supports better access, quality and efficiency of selected digital administrative services. Similarly, *Tax Administration Modernization Project* supports document management and digital archiving. IFC *Debt Resolution and Business Exit Program*, several European Bank for Reconstruction and Development (EBRD) and EIB financed projects, and the United States Agency for International Development (USAID) through *Competitive Economy Project* and the *Development Credit Authority Tool* support access to finance which is one of the key constraints to increased agriculture sector competitiveness the proposed project aims to address.

37. ***Collaboration with the European Commission and other donors and stakeholders***: Serbia as the EU candidate country is supported by the EU's through its Instrument for Pre-Accession Assistance (IPA). Agricultural sector sustainability and its alignment with the EU's CAP is supported through IPARD which provides grant funding to producers, processors and local communities for investments, diversification and technical assistance. The proposed project will work closely with the Delegation of EU in Serbia to ensure complementarity of the two grant programs (matching grants under the World Bank Group financed project and IPARD). Collaboration with the EBRD[20], USAID, FAO and other donors will be important for maximizing the impact of investments in small holder agriculture. Project activities will also benefit from the Policy and Human Resources Development (PHRD) Grant from the Japanese Government, when approved, on improving the monitoring and evaluation capacity of MAFWM.

F. Lessons Learned and Reflected in the Project Design

38. **Lessons from investment operations in Serbia**: Agricultural and Rural Development policy in the Balkans is largely determined by the EU who is the largest donor and policy influence on the sector while the Bank plays a complementary role only. This means that Bank interventions have to substantially agree with EU objectives and take an opportunistic approach to close gaps that EU support does not finance but are necessary for the institutional systems to function. The project's matching grants are designed to address the gaps in targeting under the current IPARD and National Agriculture and Rural Development Programs. Additionally, the project invests in infrastructure and capacity building for meeting the EU Acquis approximation requirements.

39. **Lessons from agriculture investment in Montenegro.** The implementation of the first Montenegro Institutional Development and Agriculture Strengthening (MIDAS) project supported by the World Bank in Montenegro, which sought to improve the delivery of government assistance for sustainable agriculture and rural development in a manner consistent with EU pre-accession requirements, demonstrated that the "learning by doing" generated by piloting and gradually scaling up new delivery mechanisms for rural development grants

[20] Within its agribusiness portfolio EBRD is working with the private sector, focusing mainly on larger companies involved in food processing and retail. With this respect, the project, with focus on support to small and medium scale farmers and aggregators on one side and supporting development of MAFWM capacity for evidence-based policy making on the other side, will perfectly complement the ongoing EBRD activities in the country. Enabling access to finances in agriculture will be a common goal for both developing institutions in Serbia. Moreover, it is likely to expect that some of the project beneficiaries become EBRD clients over the medium time horizon.

can be an effective tool to build capacity at the level of both government institutions and agricultural producers in line with EU CAP requirements. In this context, a clear "division of labor" should be established between the World Bank and the EU to ensure full complementarity between available World Bank and EU support instruments. Moreover, adequate local stakeholder engagement and transparency mechanism should be integrated in rural development grants program in order to ensure broad-based participation. Importantly, local stakeholder engagement should go beyond agricultural sector stakeholders and include local governments as (non-existent or outdated) spatial plans and/or permitting procedures could prove a significant obstacle to implementing rural development investments. In addition, both technical and financial services must be tailored further to the needs of smaller agricultural producers and agribusiness SMEs to help them better plan and manage productive investments and meet changing market needs and requirement - thus maximizing the efficiency, equity, and effectiveness of rural development investments. Finally, data-driven and results-oriented monitoring and evaluation systems should be developed to evaluate the development impacts of ongoing public agricultural expenditures and enable evidence-based policymaking in the future, in particular through the development of key data management platforms that underpin monitoring and evaluation (M&E) systems such as the Integrated Administration and Control System (IACS) and the Farm Accountancy Data Network (FADN).

40. **Lessons from use of the productive alliances model in agriculture**: The Productive Alliance (PA) approach was introduced during the early 2000s in Latin America and the Caribbean (LAC)[21]. Since then, the World Bank has provided more than US$1 billion in financing to support over 20 projects across the LAC region. Productive Alliance projects have performed well in including women and other disadvantaged groups, such as indigenous peoples or smallholder producers in post-conflict zones. Key lessons emerging from the Productive Alliance experience in Latin America include the following: 1) Setting up a competitive subproject selection process based on clearly defined technical evaluation criteria is crucial for establishing credibility among stakeholders, avoiding political interference, and safeguarding the technical quality of selected subprojects; 2) Identifying and analyzing promising value chains based on technical criteria, aligned with project objectives and market potential, are important to ensure effectiveness and sustainability; 3) Establishing assessment criteria for the selection of potential buyers and regular monitoring of the producer-buyer relationship can reduce the risk of choosing an uncompetitive buyer or promoting elite capture in imperfect markets; 4) Requiring cash contributions or bank loans as co-financing from producers can ensure a stronger buy-in; 5) Building capacity of beneficiary producers over an extended period while they grow and mature is crucial for ensuring long-term success.

41. **Main findings from Agriculture Public Expenditure Review for Serbia**: Support to agriculture in Serbia should be re-balanced - direct payments are found to not promote technical efficiency and productivity growth and they also slow down the structural transformation in Serbian agriculture. Hence, the current trend of reducing the direct payments envelope and significantly increasing the rural development one should be further pursued. Rural development support should constitute the main means of farm modernization and structural adjustment for both agriculture and rural development in Serbia. A new mix of rural development policy which commands a significant share of agricultural public support is necessary. The rural development budget should significantly increase its focus on the sustainable management of natural resources and rural diversification. Such a policy shift will promote sustainable farming practices, induce the commodification of the country's rich natural resources by the agri-food chain and enable the transfer of underemployed resources currently locked in agriculture, to other economic activities. Together with market-oriented decoupled farm payments, such a shift

[21] For more information see the document World Bank Group. 2016. "Linking Farmers to Markets through Productive Alliances: An Assessment of the World Bank Experience in Latin America": *file:///C:/Users/wb307230/Downloads/110615-WP-LinkingFarmerstoMarketsthroughProductiveAlliances-PUBLIC-ABSTRACT-SENT.pdf*

in rural development support will facilitate an increase farm productivity and efficiency and promote structural transformation in Serbian agriculture. The much-needed shift should be accompanied by an increase in the focus of rural development support towards the provision of public goods such as rural roads, irrigation, and other local agricultural/rural infrastructures, as well as on agricultural R&D, vocational training, advisory and extension services. Further, rural development measures should target the provision of incentives which induce technical change and innovation. More importantly, they should provide distinct, special incentives for medium-sized farms and attempt to pursue their enlargement and technological/managerial modernization.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

42. The implementing agency for the project will be the Ministry of Agriculture, Forestry and Water Management (MAFWM) through its relevant departments and units, namely Sector for Rural Development, Sector for Agrarian Policy, Directorate for Agrarian Payments (DAP) and Information Technology Group. A Project Management team (PMT) will be established to support project implementation and will be placed with the DAP which is responsible for execution of the rural development investment support programs financed through the national budget and IPARD. DAP's capacity has been built over the past 10 years to meet the requirements of IPARD accreditation and within the MAFWM they are best positioned to support the implementation of the project's matching rural development grants program. Additional capacity needed to support the implementation of the investment loan financed by the Bank will be provided through the recruitment of consultants to form the PMT. The PMT's integration into the current structures of the MAFWM and DAP will ensure longer term sustainability of built management capacity, as DAP will need to recruit additional staff in the medium to longer term to obtain accreditation for available IPARD measures (so far it has been accredited for only 2.)

43. **The Directorate for Agrarian Payments**, as a part of MAFWM, is established by the Law on Agriculture and Rural Development (Official Gazette of the Republic of Serbia 41/09). The Directorate performs the activities related to the implementation of the subsidies program in agriculture, making calls for applications, decides upon the right to assistance, making payments to the final beneficiary, performs administrative and on the spot checks, establishes and keeps accounting records of contractual obligations and payments, implements international assistance to agricultural policy in the Republic of Serbia, and manages the Farm Register.

44. One of the goals of the Directorate is fulfillment of the requirements for use of EU funds in the area of agriculture and rural development. After gaining the EU candidacy status for full EU membership, Serbian agriculture will become eligible for the fifth component of Instrument of Pre-accession Assistance (IPA) related to rural development. The establishment of the Directorate was necessary to enable not only the use of the IPA pre-accession funds, but also further integration of the Serbian agriculture into the EU CAP (after the full membership into EU), whose implementation is funded through the European Agricultural Guarantee Fund (EAGF) and European Agricultural Fund for Rural Development (EAFRD). The establishment of the Directorate increased transparency and efficiency of the implementation of national subsidies and made the Directorate open to the final beneficiaries, in terms of any assistance needed.

45. The Directorate has 220 staff with 69 of them on term-contracts and 4 temporary contracts. One hundred eighteen (118) of these staff are involved in implementing grants under IPA (Instrument for Pre-Accession Assistance) following EU Regulations and 26 in implementing national measures. The Directorate has

extensive experience in implementing grants using both the IPA and national procedures. They have rulebooks for national procedures and separate rulebooks for IPA, which are available in their website. Availability of grants are published/announced on their website, facebook page, MAFWM website and during agricultural fairs. Processing of grant proposals usually take an average of 50-60 days. Documents are required to be kept from 7 to 10 years.

46. DAP follows the Code of Ethics for Civil Servants and complaints are addressed/resolved using the Law on Administrative Procedures. DAP will not have enough staff to implement the Grant component of the proposed project. As a preliminary assessment, in addition to a Grant Coordinator and a Grant Finance Specialist, the DAP would require the active participation of commercial banks in the appraisal of sub-project proposals and possibly the help to review the proposals. The different steps in the application and selection process proposed by the DAP are summarized in Annex 1).

47. The Central Fiduciary Unit (CFU) located in the Ministry of Finance (MoF) will perform the fiduciary function for the project. The CFU was established within the Ministry of Finance in October 2017 to provide fiduciary support (procurement and financial management activities) to all World Bank supported projects in Serbia. The CFU is currently comprised of the following staff: Director, Head of Operations, Procurement Specialist and Financial Management Specialist. The MoF provides office and equipment for the staff and their salary is paid against investment projects it supports on a rotation basis. The CFU has an Operation Manual which was prepared in consultation with the Bank and finalized on November 8, 2018. The CFU is currently responsible for procurement and financial management of two WB financed projects which share the CFU costs on a rotation basis. The selection of additional Procurement Specialist and Financial Management Specialist have been discussed with the CFU Director and this is included as a dated covenant in the Bank-funded Tax Administration Modernization Project. The CFU also supports project preparation process and will be guiding the MAFWM and DAP through the preparation of Project Procurement Strategy for Development (PPSD), Procurement Plan and Project Operational Manual (POM).

48. The POM details implementation arrangements, including the division of responsibilities between the PMT, DAP and the CFU. This arrangement would effectively mean that the PMT and DAP agree on activities with the Bank, evaluate and select contractors, monitor and evaluate implementation, act as signatory to the contracts, letters of acceptance of goods and services, payments orders and withdrawal applications, and have main roles in budgeting for the project as the project funds are part of the implementing entities' budget. The CFU will provide procurement support in all phases of the procurement process, processes payments, accounts for transactions, prepares interim and annual financial reports, perform all controls with regards to use of funds and ensure all transactions being properly documented, communicate and report regularly to the PMT on liquidity and other key financial parameters.

B. Results Monitoring and Evaluation Arrangements

49. An M&E Unit will be established in MAFWM at the central level to oversee the M&E activities of the whole agricultural and rural development sector, including the project. It is envisaged that the Unit will comprise of two staff members from Ministry's existing staff structure, and the Head of the Unit or Project Manager recruited (local consultancy) by the PHRD Grant. The M&E Unit at MAFWM will be supported by the CFU of MoF that will be in charge of fiduciary functions of the grant implementation (financial management and procurement). An M&E specialist will be hired under the project (and be part of the PMT) to oversee project-

specific M&E and will liaise with the M&E Unite of MAFWM. The project M&E arrangements will be aligned with those set up for the implementation of the PHRD Grant for strengthening M&E capacities of the MAFWM.

C. Sustainability

50. **Citizen Engagement***:* The proposed project interventions have been formulated through preparation of relevant background studies (e.g. economic analysis of MAFWM's national support scheme for rural development) and an interactive process of stakeholder engagement, including with Farmer Associations, Extension Services, small and medium size producers and processors. The Borrower has identified project stakeholders and prepared a Stakeholder Engagement Plan (SEP) that outlines the timing and methods of engagements with different stakeholders, including underrepresented groups (e.g., women, young farmers, producers in marginalized rural areas) and other interested parties, such as non-governmental organizations (NGOs) and women business networks. The project will launch a public awareness campaign to present the features of the support program prior to each call for proposals and stimulate participation of agricultural SMEs, including targeted messaging for women and youth (under Sub-component 1.2). The project will conduct sample-based surveys of grant applicants at critical phases of project implementation to ensure adaptive design of the grant program. Furthermore, the project will organize regional workshops with direct beneficiaries and stakeholders to collect in-person feedback on the project progress. The project will also integrate feedback/comments space into the information platform developed under Sub-component 2.1 and will introduce service satisfaction e-surveys as an integral part of the platform. Quick questionnaires will be automated and launched immediately after the use of the service to assess the relevance and quality of the information provided (result indicator). The results will be reviewed on a regular basis to ensure ongoing service improvements. A Grievance Mechanism (GM) will be added to DAP's existing information center for the national support program. The GM will provide the opportunity for continued feedback on the grant scheme and resolution of individual grievances during implementation. Procedures related to complaints handling will be included in the Grants Operational Manual (GOM) and posted on the MAFWM's website to ensure full transparency.

51. **Maximizing Finance for Development (MFD)**: The project will create the enabling environment to encourage private (farmer) sector investment by addressing structural problems for inclusion of small and medium scale agricultural producers in Serbia. Specifically, the project will: (a) identify small and medium scale producers with the potential to sell their products; (b) identify suitable aggregators and strengthen their capacity to expand, invest and provide services to farmers; (c) work with participating financial institutions (PFIs) to build their capacity to finance working capital and investment for producers and aggregators alike as participants in the value chain; and (d) identify missing/weak links between aggregators, farmers and PFIs and design solutions/tools to enable financial inclusion and access to markets for various value chain participants. During project preparation, the team will explore opportunities to work closely with IFC and identify possible complementary or joint sector investments.

52. **Gender Considerations***:* The most recent research conducted on the role of women in the agricultural sector in Serbia[22] finds that only a small share of women formally participates in agricultural production (20 percent) and female managers are older than men (64 vs. 59 due to inheritance structure). There is a number of barriers that further limit their active engagement in the sector. These include: (i) access to land (84 percent of women do not own agricultural land); (ii) management of agricultural holdings (16 percent by women); (iii)

[22] Situation of Rural Women in Serbia; publication was produced with support of the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)

access to finance; (iv) agricultural education (73 percent of women managers rely on practical experiences only compare to 58 percent of men); and (v) access to information about available support programs.

53. The support provided to agricultural producers will accrue to women farmers as well as to male farmers. With migration dynamics pulling people out of rural areas and the overall ageing of rural population, characteristic of the Balkans, the role of women is becoming critical for developing the productive sector through participation in agricultural activities both on and off-farm. More women are becoming grant recipients (women received 11.5 percent of national program grants in 2017) and have an active role in the decision making for production and post-harvest. The project will encourage greater participation of women in the grant program through favorable grants selection criteria and targeted training and business advisory support services. Women often maintain the dual responsibility of farming and household production. Women also participate in direct sale of agricultural products in the fresh produce (also called green) markets. Hence their knowledge on both production needs and market dynamics is fundamental for modernization of the sector. Women, in general, also have limited access to credit and the project will strengthen their financial inclusion, including by facilitating women to access commercial credit by using production assets as collateral rather than land. Gender-sensitive approaches to strengthening capacity of women for the use of digital tools will be promoted by the project to ensure the balanced uptake of technology on and off-farm (under Sub-component 2.2). Targeted training for female producers and processors focused on technical issues, such as farming techniques, processing and marketing, will also be considered (under Sub-component 1.1).

54. Finally, the project will provide grant support for farm diversification activities including traditional handicrafts where women are predominantly engaged. Ultimately, all these project activities are expected to contribute to the increased rate of formal participation of women in agriculture and rural development (grant beneficiaries are to be formally registered) and increased income generated by women through alternative sources (eg. handicrafts).

55. **Climate co-benefits**: The project has the potential for generating important climate co-benefits (see Annex 5). Agricultural producers in Serbia, particularly small and medium ones, are very vulnerable to climate change due to: 1) small farm-size holdings (78 percent of farms have less than 5 ha and only 5 percent livestock holdings owning more than 10 dairy cows); 2) Lower and variable productivity (e.g., average wheat yields in the southern part of the country with large segments of smaller farmer is less than half those of commercial farmers located in the north); 3) Reliance on rain-fed production systems (only 1.4 percent of the utilized agricultural land is irrigated); and 4) lack or limited access to key resources including risk insurance and climate knowledge and information to help cope and adapt to climate impacts. The exposure of climate extremes in the country, particularly to droughts and floods, is high. The high probability of continuing increase temperature and more frequent and prolonged droughts, changes in precipitation patterns and intensity as well as other extreme events will gravely disrupt traditional cultivation methods[23]. Component 1 specifically aims to support investments in climate smart technologies and technical assistance. Component 2 will strengthen climate knowledge and information systems. As such, the overall context of the project will contribute to diminish the climate risk in the agricultural sector.

[23] Drought has a negative impact on quality particularly of fresh fruits and vegetables. Lack of precipitation in the period from October to February may also adversely affect the yield of winter crops, such as sugar beet, rapeseed and others. Lack of water will also impact livestock production. Reduction of cereal yield will also impose constraints to animal feed. Flooding during sowing in spring can have detrimental impacts on fruit quality, cause delays on harvesting leading to rotting and loss of yield (especially in berries). The combination of warming, droughts, shifts in precipitation will impact the sowing period and possibly restricting sowing to one per year.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

56. Despite their context-specific nature, and the demand-driven approach, economic and financial analyses of productive partnership (through grants) operations globally are found to be viable types of investments in rural contexts. Economic rates of return vary across countries and range between 11 percent and 40 percent, with an average of 26 percent. The target number of partnerships is generally exceeded, as demand for rural economic coordination between producers develops. Women participation has also been found to be higher than expected at start of projects. There is also increasing evidence of positive socio-economic impacts and (largely unaccounted) positive spillover effects. Increases in sales have been found to be 20 percent to 60 percent higher than baseline, incomes have increase by 30 percent compared to control groups and improvements of quality of employment and creation of new jobs are evident[24].

57. The methodology used to measure the economic viability of the project entails the undertaking of a standard cost-benefit analysis with the estimation of indicators such as the Economic Rate of Return (ERR), the Net Present Value (NPV), and the Benefit-Cost Ratio (B/C), as well as a sensitivity analysis of these indicators based on changes to key variables. The stream of costs to be considered in the analysis would be based on the projected yearly financial execution of the Project during its implementation, while the stream of benefits would be based on the projected improvements in productivity and the reduction of other transactions costs of commercialization. Shadow prices would be used instead of market prices to account for market distortions, and recent World Bank guidelines with respect to economic (or social) discount rates would be followed (see Annex 3)

58. As the precise location, mix and scope of individual investments will not be known before project implementation, an ex-ante financial cost-benefit analysis of individual investments is not possible. Most of the Project activities and interventions will be demand driven. However, in order to quantify the benefits derived from the improved access to finance and entrepreneurship environment supported by the Project in Serbia, several indicative business activities were selected for the financial and economic analysis. The results of the analysis were then extrapolated to the whole project in order to identify the overall Project's economic impact.

59. Given the benefit and cost streams, the project's economic rate of return (ERR) is estimated at 23.1 percent. This proves that the project is economically viable and justified and recommended for financing from the economic point of view. Sensitivity analysis suggests that the ERR can vary from as low as 14.8 percent to as high as 27.6 percent.

B. Fiduciary

(i) Financial Management

60. The CFU, established in MoF, will be in charge of the fiduciary function (financial management and procurement) under the project. The CFU will be responsible for implementation of the financial management

[24] World Bank. 2016. Linking Farmers to Markets through Productive Alliances: An Assessment of the World Bank Experience in Latin America"

(FM) arrangements of the project including, planning and budgeting, accounting, financial reporting, flow of funds (including disbursement), internal controls and external auditing.

61. The PMT will be established within the MAFWM and will remain responsible for technical and operational aspects of implementation. The DAP will implement the project's matching rural development grants program. The POM will detail implementation arrangements, including the division of responsibilities between the MAFWM/PMT, DAP and the CFU. The GOM will be an integral part of the POM detailing internal controls and procedures for project implementation, including for eligibility, evaluation, selection and implementation of grants (flow of funds, reporting back). Application of the controls and procedures in practice will be verified by the Bank's supervision.

62. The CFU has acceptable capacity and track record for the project implementation, particularly: (i) adequate accounting software; (ii) the audits of the active Bank-financed projects implemented by the CFU revealed no major issues, and (iii) the Interim Un-audited Financial Reports (IFRs) of the active projects were always received on time and found to be acceptable to the Bank. In addition, the CFU's FM staff has significant experience in implementing Bank-financed projects.

63. Project management-oriented Interim Un-audited Financial Reports (IFRs) will be used for the project monitoring and supervision. The CFU will be producing a full set of IFRs every calendar semester throughout the life of the project. These financial reports will be submitted to the Bank within 45 days of the end of each calendar semester covering the semester.

64. The CFU will establish and manage a Designated Account (DA), in EUR, specifically for this project in the Treasury Single Account of MoF at the National Bank of Serbia. The control environment in the NBS is acceptable. Allowed methods of disbursement will be advances to the designated account, direct payments, reimbursement and special commitments. Statement of Expenditures (SOEs) based disbursement will be applied, with advances being the primary disbursement method, but direct payments and reimbursement also allowed.

65. The matching grant funds will flow to escrow accounts that the grant beneficiaries will open at the designated commercial banks. Grant beneficiaries will contribute 10 percent of the approved investment amounts, the commercial banks 40 percent, in the form of credits and the Bank will contribute the remaining 50 percent. The 50 percent financed from the loan will be deposited to the escrow account by the MAFWM/PMT through a transfer from the project Designated Account The beneficiaries will draw funds from escrow accounts in approved tranches.

66. The annual audited project financial statements will be provided to the Bank within six months of the end of each fiscal year and at the closing of the project. The audit will be conducted by a private audit firm acceptable to the Bank and in line with agreed Terms of Reference (ToR). The audit ToR will extend the scope in order to assess applied procedures regarding grants and level of their alignment with POM and GOM.

67. The annual audits of the project financial statements will be provided to the Bank within six months at the end of each fiscal year and at the project closing. The Recipient will disclose the audit reports for the project within two weeks of their receipt from the auditors and acceptance by the Bank, by posting the reports on its web site. Following the Bank's formal acceptance of these reports, the Bank will make them publicly available according to the World Bank Policy on Access to Information.

(ii) Procurement

68. The overall implementation and oversight of procurement will be carried out by the CFU. The initial procurement risk rating is substantial primarily due to imminent staff capacity and coordination issues between stakeholders as well as information technology (IT) hardware and software procurement. Procurement will be conducted in accordance with the World Bank's Procurement Regulations for IPF Borrowers: Procurement in Investment Project Financing – Goods, Works, Non-Consulting and Consulting Services (July 2016, revised November 2017 and August 2018). The project will also be subject to the World Bank's Anti-Corruption Guidelines, dated July 1, 2016. More details on procurement arrangements will be provided in the PPSD that will be prepared separately by the CFU. The Systematic Tracking of Exchanges in Procurement (STEP) tool will be used for implementation of procurement procedures.

69. The prior review thresholds for substantial risk projects as provided in the Europe and Central Asia (ECA) Regional Procurement Maximum Thresholds, effective January 2, 2014 (revised November 15, 2017) will apply: Goods and Non-Consulting Services – $2,000,000; Consulting Firms – $1,000,000; and Individual Consultants – $300,000. Direct Selection will be in accordance with paras. 6.8 to 6.10 for Goods, Works and Non-Consulting Services and paras. 7.13-7.15 for Consulting Services of the Procurement Regulations. There is no package subject to Operations Procurement Review Committee (OPRC) review. More details on procurement arrangements will be provided in the PPSD that will be prepared separately by the CFU.

70. Risks and Mitigation Measures.

Risks	***Mitigation Measures***
CFU capacity to handle additional projects.	Hire additional procurement specialist and financial management specialist.
Selection of PMT staff, in particular the Project Manager, can potentially be contentious.	(a) TOR for each position will be reviewed by the Bank; (b) Selection of Project Manager is subject to the Bank's prior review; and (c) Although other PMT staff positions are subject to post review, evaluation reports and CVs of candidates will be shared with the Bank before inviting the selected consultant for negotiations.
PMT capacity in preparing TORs and technical specifications.	Hire consultants to supplement or increase the PIU capacity.
PMT capacity in evaluating bids and consultant's proposals.	(a) Provide training to members of the Evaluation Committee and PIU staff; (b) CFU Procurement Specialist to provide guidance to Evaluation Committee members; and (c) PMT staff should attend procurement training organized by the World Bank procurement team in Belgrade.
Coordination challenges between the PMT and the CFU staff which could delay submission of documents in STEP.	(a) Clarify roles and responsibilities of PMT and CFU staff; (b) POM has been prepared to guide PMT and CFU staff; and (c) Regular meetings between the PMT and the CFU and submission of progress reports to the Bank.

71. A Procurement Plan (PP) is prepared by the PMT/MAFWM and CFU and agreed with the World Bank. The selection and procurement methods and approach for each activity, the time schedule of procurement procedures, as well as the Bank's review method are specified in the PP. Considering the small value of

envisaged contracts and moderate procurement risk level, all the contracts will be subject to the Bank's post review, except the recruitment of the local Project Manager and that of the international experts to be hired for providing of the technical assistance to MAFWM's staff in their daily work. Both will be subject to the World Bank's prior approval.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

72. The project is classified as Moderate Risk taking in account the low risk nature of the interventions, the limitations on implementation capacity, the application of environmentally friendly practices and new technologies, and the difficulty of enforcing workers' rights in multiple SME agribusinesses. No adverse impacts such as involuntary land acquisition, impacts on community health and safety, on cultural heritage, are expected. Some of the project funded activities may include support to small scale community agriculture that is undertaken within areas under some level of environmental protection. The project will introduce new technologies and support improvement of technical knowledge and skills of beneficiaries on, amongst other, water and energy efficiency, pollution prevention and best practice use of herbicides and pesticides. The project's anticipated social impacts are predominantly positive, such as increased income and employment in the agricultural sector as well as protection from climate related economic losses for farmers through the introduction of an early warning system. As labor informality is prevalent in the agricultural sector, the Borrower will prepare Labor Management Procedures to manage risks related to workers' rights in project supported agribusinesses. The environmental and social screening criteria developed for the agricultural grant schemes and the credit guarantee fund will screen for relevant risks and apply mitigation hierarchy.

V. GRIEVANCE REDRESS SERVICES

73. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

74. *Technical* – The context within which this project is being developed is complex and characterized by heterogeneity of productive units and their access to productive inputs, financial and other technical assistance, asymmetric information, diversity of crops and regional market dynamics all make attribution and correct measurement of results challenging; *Mitigation*: The project structure will be kept simple and focused on specific results, which will be closely monitored through the information systems put in place under the project.

75. *Institutional* – The weak capacity of MAFWM and its related public entities is an important limitation. Capacity is higher in the DAP, although the demand for their services (grant processing) exceeds their ability to adequately respond in a timely matter. Although this provides an opportunity to develop capacity and strengthen the World Bank and MAFWM collaboration, it also imposes a risk to project implementation; *Mitigation*: The World Bank team will work closely with the MAFWM team to provide all the necessary training and technical support during preparation and implementation of the project. A PMT that integrates consultants will be established in the DAP. Collaboration with other programs and important players in the agricultural sector in Serbia, such as EU, FAO, EBRD, USAID will also be sought to strengthen the knowledge base and support implementation.

76. *Fiduciary* – Procurement capacity assessment of MAFWM and DAP was conducted in January 2019. Although the fiduciary assessment of the Directorate for Agrarian Payments (DAP) deemed it acceptable, its overall capacity for adequate processing and monitoring of grant applications is a potential risk. Furthermore, due to a recent allegation of corruption in the DAP, the fiduciary risk of the project is elevated to **High**; *Mitigation*: To mitigate this risk, the Bank will establish a rigorous system for oversight of the project's grant program. The POM will detail implementation arrangements, including the division of responsibilities between the PMT, DAP and the CFU. This arrangement would effectively mean that the PMT and DAP design activities, provide technical input, evaluate and select contractors, monitor and evaluate implementation, act as signatory to the contracts, letters of acceptance of goods and services, and have main roles in budgeting for the project as the project funds are part of the implementing entities' budget. The DAP will hire additional staff under the project to help implement the Grant, e.g. Grant Coordinator, Grant Finance Specialist. Finally, CFU will hire additional staff (procurement and FM specialists) in November 2019 as agreed under the Tax Administration Modernization Project (TAMP).

77. *Environmental and Social* - The project is classified as Moderate Risk taking in account the low risk nature of the interventions, the limitations on implementation capacity, the application of environmentally friendly practices and new technologies, and the difficulty of enforcing workers' rights in multiple SME agribusinesses. No adverse impacts such as involuntary land acquisition, impacts on community health and safety, on cultural heritage, are expected. Some of the project funded activities may include support to small scale community agriculture that is undertaken within areas under some level of environmental protection. The project will introduce new technologies and support improvement of technical knowledge and skills of beneficiaries on, amongst other, water and energy efficiency, pollution prevention and best practice use of herbicides and pesticides. The project's anticipated social impacts are predominantly positive, such as increased income and employment in the agricultural sector as well as protection from climate and animal health related economic losses for farmers through the introduction of early warning and communication systems. Given the prevalence of labor informality in the agricultural sector in Serbia, the Borrower will require grantees to contractually enforce the national labor law. The environmental and social screening criteria developed for the agricultural grant schemes will screen for relevant environmental and social risks and apply mitigation hierarchy.

78. *Political* – Early elections in Serbia may disrupt the continuity of the dialogue in the agricultural sector with the current authorities in the Ministries of Agriculture and Finance. Moreover, reforms in the next CAP programming period may shift priorities within the EU structures with this project activities will align; *Mitigation*: Close coordination between World Bank Country Management Unit (CMU) and technical teams with Government and EU will be emphasized during project preparation and implementation.

79. *Climate* – Serbian agriculture is very susceptible to climate variability[25] with limited use of risk management tools by agricultural producers, most of whom rely on rainfed agriculture. Extreme events may cause significant damage to project beneficiaries; *Mitigation*: Climate smart agriculture approaches will be considered under Component 1 of the project related to production decisions as well options through access to finance. Under Component 2, climate variables will be made available to all stakeholders for their decision making.

[25] Over the past two decades, droughts, floods, exceptionally harsh winters and other weather-related extreme events have caused major physical damage, financial losses and even deaths, with significant impacts on the economy, especially in the agricultural sector. In 2012, for more than 50 days, temperatures exceeded 35ºC resulting in more than one million ha of lost agricultural production and over $141 million in damages. In 2014, one of the heaviest rainfalls and worst floods on record affected more than 1.5 million people (20 percent of the population) and caused $2 billion in damages. Climate change projections indicate that Serbia and the Western Balkans face a high probability of continuing temperature increases, along with more frequent and prolonged droughts and wildfires.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY: Serbia
Serbia Competitive Agriculture Project (SCAP)

Project Development Objectives(s)

To increase access to markets for targeted beneficiaries

Project Development Objective Indicators

Indicator Name	DLI	Baseline	End Target
Access to markets			
Beneficiaries with at least one contract with a buyer of their products/services (Number)		0.00	1,223.00
Increase in the value of beneficiaries' production (Percentage)		0.00	40.00

Intermediate Results Indicators by Components

Indicator Name	DLI	Baseline	End Target
Component 1. Improving the value-added of agriculture			
Beneficiaries successfully completing their business plans (Number)		0.00	1,162.00

Indicator Name	DLI	Baseline	End Target
Surveyed beneficiary women that report training/advisory services offered were responsive to their needs (Percentage)		0.00	95.00
Number of previously unbanked adults reached with transaction accounts (Number)		0.00	800.00
Farmers reached with agricultural assets or services (CRI, Number)		0.00	1,223.00
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	740.00
Beneficiaries reached with financial services (CRI, Number)		0.00	800.00
Number of previously unbanked adults reached with transaction accounts (CRI, Number)		0.00	800.00
Component 2. Improving the capacity of MAFWM to support modern agriculture			
Applications accessible from the integrated data platform of MAFWM (Number)		0.00	10.00
Users of the integrated information platform reporting satisfaction (satisfied or very satisfied) with the information received via the platform (Percentage)		0.00	90.00
Unique users of the integrated information platform (Number)		0.00	10,000.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Beneficiaries with at least one contract with a buyer of their products/services					

Increase in the value of beneficiaries' production					

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Beneficiaries successfully completing their business plans					
Surveyed beneficiary women that report training/advisory services offered were responsive to their needs					
Number of previously unbanked adults reached with transaction accounts					
Farmers reached with agricultural assets or services	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture				

	breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.				
Farmers reached with agricultural assets or services - Female					
Beneficiaries reached with financial services					

Number of previously unbanked adults reached with transaction accounts					
Applications accessible from the integrated data platform of MAFWM	These constitute the different data inputs to be brought together into one integrated platform, such as 1) prices per product; 2) rainfall per region; 3) temperature per region; 4) support services; 5) pension-related information, etc.				
Users of the integrated information platform reporting satisfaction (satisfied or very satisfied) with the information received via the platform					
Unique users of the integrated information platform					

ANNEX 1: Implementation Arrangements and Support Plan

Project Management

Coordination and oversight

1. The implementing agency for the project will be MAFWM through its relevant departments and units, namely Sector for Rural Development, Sector for Agrarian Policy, DAP and Information Technology Group. A Project Steering Committee (PSC) will be established and maintained throughout the life of the project to ensure overall coordination and strategic guidance functions. The PSC will be chaired by the DAP Director and will include the PMT Project Coordinator as well as the Assistant Ministers/Managers in charge of the Sector for Rural Development, Sector for Agrarian Policy, Information Technology Group, Advisory Services, Ministry of Finance; and representatives of beneficiaries (civil society, local institutions, private sector).

Day- to-day Implementation

2. A PMT will be established to support project implementation and it will be placed with the Directorate for Agrarian Payments, which is responsible for execution of the rural development investment support programs financed through the national budget and IPARD. The PMT will consists of a Project Coordinator, M&E Specialist, ICT Specialist, Social and Environmental Safeguards Specialist, Office Assistant/PR Specialist, Grant Management Specialist, and a Grant Procurement Specialist. Temporary Grant Processors would be recruited to help process applications submitted under each call for proposals. The PMT will be responsible for the technical and operational aspects of implementation, including the development of annual work plans and progress reports and monitoring the implementation of these plans. The PMT will ensure that all project deliverables that are submitted to the Government of Serbia are of high quality and on time. It will participate in regular field visits to the project areas to assure project progress towards activity objectives and goals

Monitoring and Evaluation

3. An M&E Unit will be established in MAFWM at the central level to oversee the M&E activities of the whole agricultural and rural development sector, including the Project. It is envisaged that the Unit will comprise of two staff members from Ministry's existing staff structure, and the Head of the Unit or Project Manager recruited (local consultancy) by the PHRD Grant. The M&E Unit at MAFWM will be supported by the CFU. An M&E specialist will be hired under the project (and be part of the PMT) to oversee project-specific M&E and will liaise with the M&E Unit of MAFWM.

Fiduciary

4. The CFU, housed in MoF, will perform the fiduciary function for the project. The CFU was established within the Ministry of Finance in October 2017 to provide fiduciary support (procurement and financial management activities) to all World Bank supported projects in Serbia. Currently, the CFU team consists of Director, Head of Operations, two Procurement Specialists and Financial Management Specialist (FMS), and the hiring process for another procurement specialist and FMS is under way. The CFU has an Operation Manual and is currently responsible for procurement and financial management of five WB financed projects (ECEC, SOFI, TAMP, WBTTF, and DGE) and a Trust Fund for Reform on Financial Reporting. The CFU also supports project preparation process and will be guiding the MAFWM and DAP through the preparation of the PPSD, the PP and the POM. The cost of CFU staff will be shared across all the portfolio of investment projects supported by them on a rotation basis.

Procurement

5. Procurement will be conducted in accordance with the World Bank's Procurement Regulations for Investment Project Financing (IPF) Borrowers: Procurement in Investment Project Financing – Goods, Works, Non-Consulting and Consulting Services July 2016 (revised November 2017 and August 2018) (Procurement Regulations). The project will also be subject to the World Bank's Anti-Corruption Guidelines, dated July 1, 2016.

6. The Borrower prepared the PPSD and the procurement plan which provide the basis for procurement methods. The procurement plan includes the Bank review requirements and thresholds. A detailed procurement plan with implementation dates will be prepared and submitted to the Bank for review and no objection. Each activity will be entered and submitted to the Bank using the STEP. The General Procurement Notice will be published after loan approval. The same will be submitted through STEP.

Procurement Thresholds

7. The prior review thresholds for substantial risk projects as provided in the ECA Regional Procurement Maximum Thresholds, effective January 2, 2014 (revised November 15, 2017) will apply: Works - $10,000,000; Goods, IT System and Non-Consulting Services – $2,000,000; Consulting Firms – $1,000,000; and Individual Consultants – $300,000. Direct Selection will be in accordance with paras. 6.8 to 6.10 for Goods, Works and Non-Consulting Services and paras. 7.13-7.15 for Consulting Services of the Procurement Regulations. There is no package/activity subject to OPRC review.

8. The above thresholds, based on the procurement risk rating, may be modified during project implementation depending on the performance of the CFU and PMT in implementing procurement activities. All TORs for consulting services are subject to prior review irrespective of procurement prior/post review status. Procurement Methods and Procedures are described in detail in the POM.

9. The CFU Procurement Specialist is in charge of preparing the evaluation reports based on the work of the EC. The EC applies the evaluation criteria set out in the Request for Proposal (RFP). It is not authorized to change, amend, or modify the technical specifications and TORs.

Post-review Percentages and Frequency

10. Contracts not subject to Bank's prior review would be subject to post review by the Bank's procurement specialist. Post review of contracts will be carried out at least once a year. At a minimum, one out of five contracts will be randomly selected for post review. For all procurement, the Bank's Standard Procurement Documents will be used.

Financial Management

Planning and Budgeting

11. The project's budget will be prepared by MAFWM/PMT with the overall support from the CFU. There is sufficient capacity for planning and budgeting within CFU in order to manage project funds in terms of optimal allocation, liquidity and overall performance. Variances of actual versus budgeted figures should be monitored on a regular basis, appropriately analyzed, and corrective actions taken. The CFU will prepare in-year financial plans and cash forecasts based on the project's budget, thus ensuring adequate liquidity management and withdrawal of funds.

Supervision

12. During project implementation, the Bank will supervise the project's financial management arrangements in two main ways: (i) review the project's interim un-audited financial reports for each calendar quarter, as well as the project's annual audited financial statements and auditor's management letter; and (ii) perform on-site supervisions, review the project's financial management and disbursement arrangements to ensure compliance with the Bank's minimum requirements. The on-site supervision will include monitoring of agreed actions, review of randomly selected transactions, review of internal controls, and other specific supervision activities. Supervision will be performed by the Bank accredited Financial Management Specialist.

Accounting System

13. Acceptable accounting software is in place and administered by the CFU, and it will be used for project accounting and reporting. Accounting records should include appropriate analytics of expenditures per contracts and each specific payment. The project will follow cash basis of accounting (cash based IPSAS), recording transactions when actual payment is done, rather than when they are incurred. Transactions should be accounted for within 8 days after incurring. There should be appropriate back up of accounting records on external drives, as well as appropriate security regulation with regard to access and editing rights of the financial information.

Internal controls

14. Procedures and controls to be applied on the project will be detailed in the POM and, given the substantial amount of project allocated for grants, GOM. The POM should detail procedures and processes regarding planning and budgeting, accounting, financial reporting, internal controls, flow of funds and external audit for the project. It should also describe roles and responsibilities and communication channels and modes between the MAFWM/PMT, DAP and the CFU. This will minimize risk of an error, safeguard project's assets and ensure use of funds for intended purposes. Application of the controls and procedures will be verified by the Bank's supervision. Some of the key internal controls to be applied for the project should include:

(i) appropriate authorizations and approvals of all purchases, relevant documentation, transactions of payments etc.;
(ii) segregation of duties as different persons are responsible for different phases of a transaction;
(iii) reconciliations between project accounting records and other relevant sources of information (Client Connection, bank account statements etc.) performed at least monthly by senior finance staff; and
(iv) original documentation supporting all project transactions properly filed.

15. Sub-component 1.2. *Facilitating access to finance for productive investments* will finance rural development matching grants to two groups of beneficiaries (agricultural holdings and agri-food processing units) so there is a requirement of the adoption of detailed GOMs by the implementing entity, detailing procedures for eligibility, evaluation, selection and implementation of grants (flow of funds, reporting back, role of commercial banks and the administration of the escrow account etc.).

Contract management

16. Contract implementation will be monitored by the implementing entity. Checks and controls of the total contract amount and payments which are due will be checked before each payment under contracts by CFU as

well. Respective technical staff and CFU will review and approve invoices and accompanying documentation against contracts provisions for ceilings, dynamics of payments and quality of deliverables.

Financial Reporting

17. The CFU will submit a full set of interim un-audited financial reports (IFRs) consolidated for all implementing agencies and project components and sub-components for each calendar quarter throughout the life of the project. The IFRs will be due 45 days after the end of each quarter. The format of the IFRs will be agreed between the Government of Serbia and the World Bank and attached to the minutes of negotiation and the POM. The following financial reports will be submitted to the World Bank:

- The Statement of Cash Receipts and Payments,
- The Statement of Expenditure by Activity
- Designated Accounts Statements
- Statement of Grants Breakdown by Beneficiaries
- Notes to the Statements.

18. CFU has acceptable accounting software and it will be used for project accounting and reporting, including quarterly IFRs and annual project financial statements.

External audit

19. The annual audit of the project financial statements will be conducted by a private audit firm acceptable to the Bank in line with agreed Terms of Reference. The ToR will be agreed between the GoS and the Bank and attached to the minutes of negotiation and the POM. In addition, the audit will include extension of scope to grants and level of their alignment with the GOM. It should include verification of the adequacy of financial reports delivered by the grant beneficiaries in relation to the accompanying documentation (contracts, invoices) and performance review at least on a sample basis to ensure that agreed outputs are delivered in an efficient manner with respect to grant facility. The audit of project financial statements will be funded by the project. The audit report will be submitted to the Bank no later than six months after the end of the audited period The audited project financial statements will be posted by the MAFWM/PMT website within 2 weeks upon the audit report being accepted by the World Bank.

Financial management covenants

20. The financial management covenants for the project will be as follows:

(i) CFU to maintain an adequate financial management system.
(ii) CFU to prepare interim un-audited financial reports (IFRs) for each calendar quarter and deliver to the Bank no later than 45 days after the end of the reporting quarter.
(iii) Annual project financial statements audited by a private audit firm acceptable to the Bank and such audit to be delivered to the Bank not later than six months after the end of the audited period.

Action plan

21. The implementation of the following actions will be agreed with the GoS for financial management arrangements to be acceptable.

Table 1. Financial Management Mitigation Actions

Action	Deadline	Responsible
POM and GOM prepared describing controls and procedures for the project.	Draft POM and GOM ready by negotiations. Final POM and GOM ready by effectiveness date.	MAFWM/PMT and DAP
Additional FMS at CFU to be hired.	By effectiveness date.	MoF
MoU signed with selected commercial banks.	By negotiation.	MAFWM/PMT and DAP

Funds Flow and Disbursement Arrangements

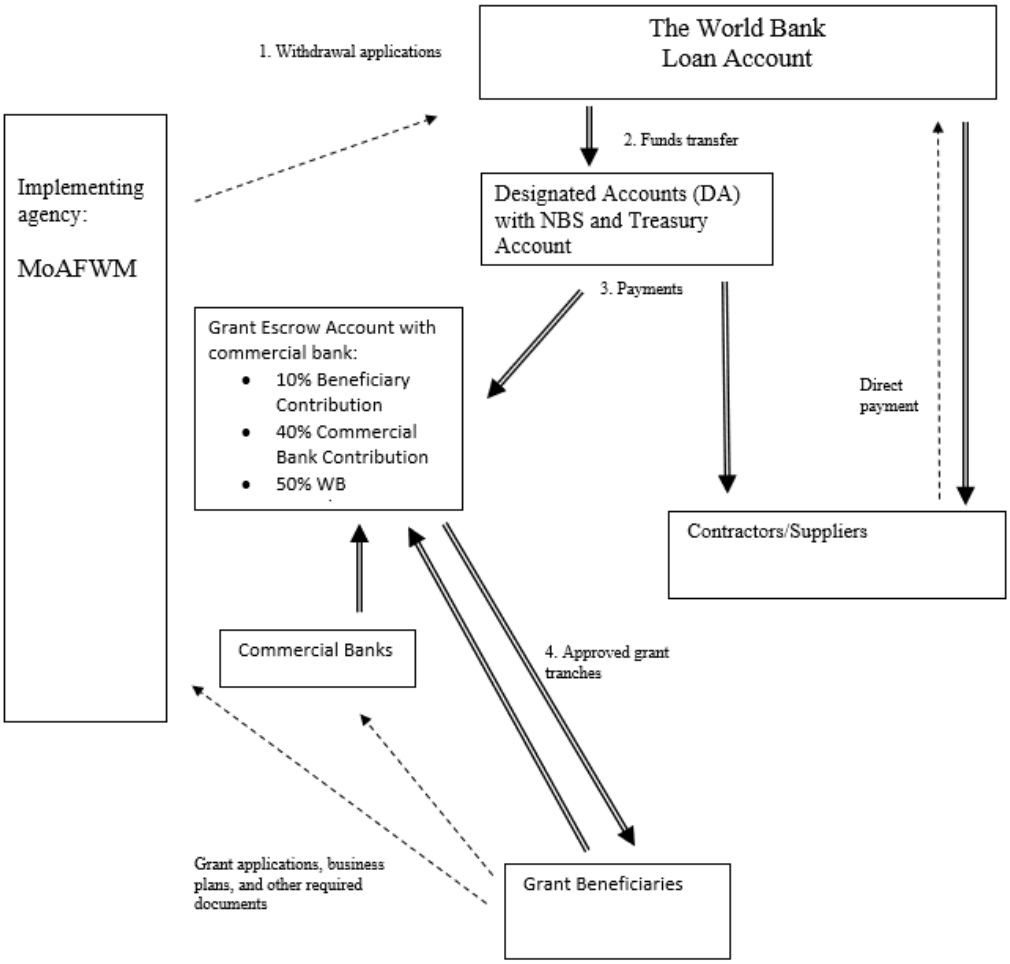
22. Project funds will flow from the World Bank Loan Account to the Designated Account (DA) opened by MAFWM/PMT at the National Bank of Serbia (NBS). This will be foreign currency (USD or EUR) account from which the funds will be withdrawn and will be used only for the purpose of inflows and outflows under respective project's components. Payments in foreign currency to contractors based abroad will be executed directly from DA. Funds needed for payments in local currency will be transferred to a corresponding RSD account opened with Treasury for the same purpose.

23. MAFWM/PMT will prepare withdrawal applications for the replenishment of the DA. Allowed methods of disbursement will be advances to the designated account, direct payments, reimbursement and special commitments.

24. The grants funds will follow a special financial mechanism through escrow accounts. Once the pre-approval process is completed by the commercial banks for their respective credit portion of the investment sub-project, the MAFWM/PMT will provide the final authorization for utilization of the grants. Subsequently, the grant beneficiaries will open escrow accounts with selected commercial banks to which they will deposit 10 percent of the grant amount. The commercial banks will deposit 40 percent of the grant amount in the form of credit approved to the beneficiaries. The remaining 50 percent will be deposited by the MAFWM/PMT through a transfer from the project DA. During the implementation of the sub-project, the funds will flow in tranches from the escrow account to the beneficiaries' giro account based on approved payment requests.

25. The Ceiling for DA will be defined in the Disbursement Letter that accompanies Loan Agreement. Applications for replenishment of the DA will be submitted monthly or when one-third of the amount has been withdrawn, whichever occurs earlier. Documentation requirements for replenishment would follow standard Bank procedures as described in Disbursement Handbook. Before funds from the Loan Account may be withdrawn or committed, the authorized representative of the implementing entities, as designated in the Loan Agreement, must furnish to the World Bank, electronically through the Client Connection website (http://clientconnection.workdbank.org), or through an authorized signatory designation letter, the names of the officials authorized (a) to sign and submit applications for withdrawal and (b) to receive Secure Identification Credentials (SIDC) from the World Bank.

Project Flow of funds Chart



Key:

Flow of documents: - - - - - - →

Flow of funds: ⟹

7

Environmental and Social Safeguards

ESMF

26. The environmental and social safeguards aspects of the SCAP project are governed by the World Bank's new Environment and Social Framework (ESF). An Environment and Social Management Framework (ESMF) has been prepared for the SCAP project to avoid, minimize or mitigate, potential negative environmental and related social impacts caused by implementation of the project. Labor Management Procedures (LMP) are fully integrated into the ESMF (under Chapter Eight - Environmental and Social risk management). A competitive grant approach is chosen for part of the Project possibly soliciting a wide range of beneficiaries and activities which why the Framework approach is deemed to be adequate. The Framework ensures that the identified subprojects are correctly assessed from environmental and social point of view to meet the WB's Environmental and Social Framework (ESF) and its applicable Standards, as well as the Environmental and Social Laws and Regulations of the Republic of Serbia for adequate mitigation of any residual and/or unavoidable impacts. In particular, the Framework serves as a guidance tool for the PMT and CFU, the implementing agencies, and any other stakeholder with implementation roles, in identifying and assessing the potential environmental and social impacts of subprojects and ensuring necessary mitigation measures are taken on board by any third party as relevant to minimize or prevent any adverse environment and social adverse. The Framework will also serve as guidance on environmental and social monitoring and reporting. Under the ESA procedures and guidelines, there are details on responsibilities for subproject preparation, screening/appraisal, implementation and monitoring. ESMF guidelines will assist in outlining what is required for the subproject Environmental and Social Management Plans (ESMPs). They also include guidelines for proposed small to micro-scale construction subprojects in the form of an ESMP checklist.

ESMF Implementation

27. The ESMF outlines detailed implementation arrangements at the level of the project and the matching grants component of the project. In addition to a Environmental and Social Safeguards Manager, the MAFWM PMT will recruit grant managers, including engineers and/or specialists with experience in environmental and social impacts identification, mitigating measures. They will verify ESMF implementation reports and build public extension service capacity on environmental and social management issues and possible mitigating measures. As this is the first project with MAFWM PMT prepared under the Bank's new Environment and Social Framework (ESF), the client's capacity to deliver an ESF based project is limited. Therefore, capacity building for the client including PMT Environmental and Social Safeguards and grant managers, extension services providers, and local structures will be included in the ESMF as well in other environmental and social instruments to be prepared during preparation and implementation. To improve institutional capacities with regard to ESMF implementation the WB Environmental and Social Specialists will provide special training for the MAFWM PMT, Extension Services and TA service providers staff focused on: (i) Procedural aspects of ESA (stages, key actors, main responsibilities etc.); (ii) Assessment of environmental and social impacts potentially related to the subproject supported within the project; (iii) Consulting and approval of the ESA and monitoring plans; and (iii) preparing ESMP Checklist; (iv) Conducting field supervision and preparing progress reports. The project will also support training and capacity building of sub-project beneficiaries.

Grievance Redress

28. Communities and individuals who believe that they are adversely affected by the SCAP project may submit complaints to the project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS) both of which are outlined in the SEP and ESMF. A Project level grievance mechanism (GM) will be established with two main entry points for grievances: i) DAP's existing Information Centre for the national

support program and ii) feedback space made available through the Open Data Platform developed by the project. To ensure GM access, potential beneficiaries, communities and other stakeholders may submit grievances through Local Governments and numerous Ministry channels as outlined in the SEP and ESMF. The GM will also provide the opportunity for continued feedback on the grant scheme and resolution of individual grievances during implementation. Procedures related to complaints handling are included in the Grants Operational Manual and posted on the MAFWM's website to ensure full transparency. The GM shall serve as both Project level information center and grievance mechanism, available to those affected by implementation of all Project sub-components and be applicable to all Project activities and relevant to all local communities affected by project activities.

29. The GM shall be responsible for receiving and responding to grievances and comments of the following three (3) groups:

i. A person/legal entity directly affected by the project, potential beneficiaries of the Project,
ii. Stakeholders - people with interest in the project, and
iii. Residents/communities interested in and/or affected by project activities.

30. The GM shall be effective prior to commencement of the Grant Program, in order to manage and appropriately answer complaints during its different phases. It will be authorized to receive questions/complaints in respect to the marching grant scheme, including the eligibility criteria, adequacy of support to women, adequacy of TA services, adequacy of stakeholder engagement and the Environmental and Social performance of sub-grants. In addition to the GM, legal remedies available under the national legislation are also available (courts, inspections, administrative authorities etc.).

31. MAFWM will be responsible for establishing a functioning GM and informing stakeholders about the GM role and function, the contact persons and the procedures to submit a complaint in the affected areas. Information on the GM will be available:

- on the website of the MAFWM (*http://www.minpolj.gov.rs/*.)
- on the notice boards and websites of Local Governments
- through the Ministry's social media account *https://twitter.com/poljoprivredars* and *https://es-la.facebook.com*

ANNEX 2: Greenhouse Gas (GHG) Analysis

Methodology and tools used

1. The Ex-Ante Carbon-balance Tool (EX-ACT) is an appraisal system developed by FAO providing estimates of the impact of agriculture and forestry development projects, programs and policies on the carbon-balance. The carbon-balance is defined as the net balance from all greenhouse gases (GHGs) expressed in CO2 equivalent that were emitted or sequestered due to project implementation as compared to a business-as-usual scenario. Ex-ante analysis assesses future GHG emissions before project implementation. The minimum duration to assess future GHG emissions in EX-ACT is 20 years.

2. EX-ACT is a land-based accounting system, estimating C stock changes (i.e. emissions or sinks of CO2) as well as GHG emissions per unit of land, expressed in equivalent tones of CO2 per hectare and year. The tool helps project designers to estimate and prioritize project activities with high benefits in economic and climate change mitigation terms. The amount of GHG mitigation may also be used as part of economic analyses as well as for the application for additional project funds.

3. EX-ACT has been developed using primarily the Intergovernmental Panel on Climate Change 2006 Guidelines for National Greenhouse Gas Inventories (IPCC, 2006) that furnishes EX-ACT with recognized default values for emission factors and carbon values (the so-called Tier 1 level of precision). EX-ACT is also based upon Chapter 8 of the Fourth Assessment Report from Working Group III of the IPCC (Smith et al., 2007) for specific mitigation options not covered in NGGI-IPCC-2006. Other required coefficients are from published reviews or international databases.

4. Since most of the Project activities and interventions will be demand driven and at this stage it is quite difficult to identify the exact number and types of business sub-projects that should be considered in the GHG analysis. Therefore, some preliminary estimations of the number and types of sub-projects that the Project will support in order to develop rural entrepreneurship were made, mainly based on the financial and economic analysis data. Based on these estimations, the agricultural area, number of livestock, energy consumption, workshops, etc. that would have an impact on GHG analysis were also estimated.

Description of settings for SCAP in EX-ACT

5. Specific settings were selected for SCAP considering the climate, moisture conditions and dominant soil type in the region. Normally, the minimum project duration time in EX-ACT to make a carbon balance estimation is 20 years. Implementation of the project will be 5 years and the rest 15 years goes to the capitalization phase.

Project Name	***Serbia Competitive Agriculture Project (SCAP)***	
Continent	Eastern Europe	
Climate	Cool Temperate	
Moisture regime	Moist	
Dominant Regional Soil Type	HAC Soils	
Duration of the Project (Years)	Implementation phase	5
	Capitalisation phase	15
	Duration of accounting	20

Project interventions supported by the SCAP

6. Since the Project is demand-driven, the total areas under annual and perennial crops that will be established within the Project were estimated and the following assumptions were applied:

- As it is mentioned in the Annex 6: Economic and Financial Analysis, there will be USD 67.28 million allocated for grants for farmers and SMEs, which will be directed to 1,223 beneficiaries. It is also expected that 1,107 out of this amount will be farmers, producers of agricultural products and USD 44.28 million will be spent for grant sub-projects to support their activities. The remaining 115 beneficiaries will be SMEs with USD 23.00 million budgeted for the grant sub-project for them.
- According to the Statistical Office of the Republic of Serbia, in 2016 crops constituted 70% and animal output constituted 27% of the total agricultural output in Serbia (Annex 6: Economic and Financial Analysis, line 24).
- It is estimated that the total amount budgeted for grant sub-projects for farmers (USD 44.28 million) will be spent in 70/30 ratio on supporting crops and livestock sectors, which is USD 31.00 million and 13.28 million, respectively.
- According to Statistical Pocketbook of the Republic of Serbia (2019), in 2017 share of annual and perennial crops out of total agricultural land were 94% and 6%, respectively.
- Considering the average investments on establishment of 1ha crop farms derived from financial analysis, the total area of annual and perennial crop farms was estimated: 5,466 ha for annual crops and 98 ha for perennial crops.
- Considering the average investments on establishment of livestock farms derived from financial analysis, the total number of cattle – 22,794 heads was estimated.

Annual systems crop production module

7. According to the estimation, the Grants for farmers will support introduction on improved agriculture practices on the area of about 5,466 ha of annual crops in With Project scenario. The table below explains the total amount of CO2-eq that will be mitigated due the improved management in annual crops production such as improved agronomic practices, improved nutrient management, no till and residue retention, improved water management and manure application.

3.1.2. Annual systems remaining annual systems (total area must remain constant)																		
		Management options					Definitions?		Yield?									
Fill with your description	Main season crop	Improved agronomic practices	Nutrient management	No till & residue retention	Water management	Manure application	Residue management	Yield (t/ha/yr)	Area (ha) Start	Without	*	With	*	Total Emissions (tCO2-eq) Without	With	Balance
Annual crops conventional	Default	No	No	No	No	No	Burned		5466	5466	D	0	D	28,471	3,559	-24,912
Annual crops improved	Default	Yes	Yes	Yes	Yes	Yes			0	0	D	5466	D	0	-261,318	-261,318

Perennial systems crop production module

8. It is estimated that Grants for farmers will also support the establishment of the intensive production of perennial crops on the area of 98 ha. The CO2-eg will be mitigated due to the higher rates of soil C sequestration of intensive perennial crops production (1.0 t CO2/ha/year) compared to conventional one (0.51 t CO2/ha/year).

3.2.2. Perennial systems remaining perrenial systems (total area must remain constant)												
		Yield?										
Fill with your description	Residue/ biomass burning	Yield (t/ha/yr)	Area (ha) Start	Without	*	With	*	Total Emissions (tCO2-eq) Without	With	Balance
Perennial crops conventional	NO		98	98	D	0	D	-1,000	-125	875
Perennial crops intensive	NO		0	0	D	98	D	0	-1,715	-1,715

Livestock production module

9. In the livestock production module estimates the GHG balance of the livestock farmers which will potentially benefit from the project. The total number of livestock units which will be impacted by the project is estimated to be 22,794. It is expected that the project grants for farmers combined with trainings will support the farmers to introduce efficient feeding practices, including using specific agents and nutrients for CH4 reduction, breeding practices to improve productivity and management practices, however the total number of livestock impacted by the project will remain unchanged. In the situation with the project it is assumed that 80% of farmers will successfully introduce the improved practices compared to the situation without the project. The table below demonstrates the balance between With and Without Project scenarios of livestock production.

Livestock categories	Head number (mean per year)					Technical mitigation option (%)								
	Start	Without project	*	With project	*	Feeding practices*			Specific Agents*			Breeding*		
						Start	Without	With	Start	Without	With	Start	Without	With
Dairy cattle	0	0	D	0	D	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other cattle	22,794	22,794	D	22,794	D	0%	20%	80%	0%	20%	80%	0%	20%	80%

Inputs and Energy consumption module

10. Total amount of fertilizers that will be applied to the total project area of 5,564 ha (both annual and perennial) was estimated. According to financial and economic models, the average amount of nitrogen, phosphorus and potassium used per 1ha of crop area per year is 152kg, 75kg and 145kg, respectively.

Description and unit to report	Amount applied per year					Total emissions at field level (tCO2-eq)				Emissions from production, transportation, storage and transfer (tCO2-eq)		Total Emissions (tCO2-eq)		Balance
						CO2 emissions		N2O emissions						
Lime application	Start	Without	*	With	*	Without	With	Without	With	Without	With	Without	With	
Limestone (tonnes per year)	0	0	D	0	D	0	0	-	-	0	0	0	0	0
Dolomite tonnes per year)	0	0	D	0	D	0	0	-	-	0	0	0	0	0
not-specified (tonnes per year)	0	0	D	0	D	0	0	-	-	0	0	0	0	0
Fertilizers												0	0	0
Urea (tonnes of N per year - Urea has 46.7% of N)	0	0	D	0	D	0	0	0	0	0	0	0	0	0
Other N-fertilizers (tonnes of N per year)	0	0	D	844	D	-	-	0	69,166	0	70,404	0	139,569	139,569
N-fertilizer in irrigated rice (tonnes of N per year)	0	0	D	0	D	-	-	0	0	0	0	0	0	0
Sewage (tonnes of N per year)	0	0	D	0	D	-	-	0	0	-	-	0	0	0
Compost (tonnes of N per year)	0	0	D	0	D	-	-	0	0	-	-	0	0	0
Phosphorus (tonnes of P2O5 per year)	0	0	D	416	D	-	-	-	-	0	5,339	0	5,339	5,339
Potassium (tonnes of K2O per year)	0	0	D	807	D	-	-	-	-	0	7,767	0	7,767	7,767
Pesticides														
Herbicides (tonnes of active ingredient per year)	0	0	D	0	D	-	-	-	-	0	0	0	0	0
Insecticides (tonnes of active ingredient per year)	0	0	D	0	D	-	-	-	-	0	0	0	0	0
Fungicides (tonnes of active ingredient per year)	0	0	D	0	D	-	-	-	-	0	0	0	0	0

11. This module also estimates the GHG balance of energy consumption (see table below). Under the Sub-Component 1.2 Improving productivity and competitiveness of the SCAP the Grant sub-projects for SMEs which

include investment into agricultural processing. Based on the similar projects, it was estimated that in total around 18 newly established processing facilities will consume 4,000 MWh of electricity per year. So, 115 beneficiaries of grant sub-projects for SMEs could gather in groups of 5-6 people to submit a joint proposal to build this kind of facilities.

6.2. Energy consumption (electricity, fuel,...)

Description and unit to report	Quantity consumed per year					Total Emissions (tCO2-eq)		Balance
	Start	Without	*	With	*	Without	With	
Electricity (MWh per year)								
Serbia and Montenegro	0	0	D	4000	D	0	60,523	60,523
User defined (Tier 2)	0	0	D	0	D	0	0	0

EX-ACT Results module

12. The net carbon balance is the difference between the gross results of With and Without Project scenarios achieved during 20 years, including 5 years of project implementation and 15 years of capitalization periods. This amount is estimated at 118,987 tCO2-eq of mitigated emissions (see the results table below).

13. This improvement has been reached due to improved agricultural practices in crop production (-287,070 tCO2-eq) and improved livestock management (-45,115 tCO2-eq). As for the emissions part, 213,198 tCO2-eq will be made under inputs and investment section. The total balance of -118,987 can be translated into -21 tCO2-eq per hectare over 20 years period or -1.1 tCO2-eq per hectare per year.

Project Name	Serbia Competitive Agricultu	Climate	Cool Temperate (Moist)			Duration of the Project (Years)		20
Continent	Eastern Europ	Dominant Regional Soil Type	HAC Soils			Total area (ha)		5564

Components of the project	Gross fluxes Without	With	Balance	Share per GHG of the Balance All GHG in tCO2eq CO_2 Biomass	Soil	Other	N_2O	CH_4	Result per year Without	With	Balance
	All GHG in tCO2eq Positive = source / negative = sink										
Land use changes											
Deforestation	0	0	0	0	0		0	0	0	0	0
Afforestation	0	0	0	0	0		0	0	0	0	0
Other LUC	0	0	0	0	0		0	0	0	0	0
Agriculture											
Annual	28,471	-257,759	-286,230	0	-266,877		-322	-19,031	1,424	-12,888	-14,312
Perennial	-1,000	-1,840	-840	0	-840		0	0	-50	-92	-42
Rice	0	0	0	0	0		0	0	0	0	0
Grassland & Livestocks											
Grassland	0	0	0	0	0		0	0	0	0	0
Livestocks	842,331	797,216	-45,115				0	-45,115	42,117	39,861	-2,256
Degradation & Management	0	0	0	0	0		0	0	0	0	0
Coastal wetlands	0	0	0	0	0		0	0	0	0	0
Inputs & Investments	0	213,198	213,198			144,032	69,166	0	0	10,660	10,660
Fishery & Aquaculture	0	0	0			0	0	0	0	0	0
Total	869,803	750,816	-118,987	0	-267,718	144,032	68,844	-64,146	43,490	37,541	-5,949
Per hectare	156	135	-21	25.9	-48.1	25.9	12.4	-11.5			
Per hectare per year	7.8	6.7	-1.1	1.3	-2.4	1.3	0.6	-0.6	7.8	6.7	-1.1

14. Considering the estimated shadow price of carbon, that will evolve from year to year according to the World Bank Shadow Price of Carbon Guidance Note, the ERR and the ENPV were calculated. The results of scenarios with low carbon price, high carbon price and without carbon are presented in the table below. A low shadow price of carbo scenario has a potential to improve the ERR from 23.1% to 24.3%, while the high shadow price of carbon scenario would improve the ERR up to 25.4%.

	Without carbon benefits scenario	Low carbon price scenario	High carbon price scenario
ENPV (USD million)	52.7	56.2	59.7
ERR	23.1%	24.3%	25.4%

ANNEX 3: Economic and Financial Analysis

1. **Approach for the analysis**. The parameters for the analysis are based on the information gathered during the design mission interviews with farmers and entrepreneurs, information from Government agencies operating in Serbia and other donor agencies. In particular, information on labor and input requirements for various operations, capital costs, prevailing wages, yields, farm gate and market prices of commodities, input and farm-to-market transport costs were collected. Conservative assumptions were made both for inputs and outputs, and the possible risks were taken into account.

2. Prices for commodities/inputs reflect annual average and those actually paid/received by the farmer/entrepreneur and imply potential risks.

3. The models show only incremental revenues and costs generated by the new investment. In each case, the result of the investment translates into additional demand for produce from primary producers and new permanent jobs.

4. The economic and financial analysis undertook ex-ante analysis of the proposed project in line with the Bank's guidelines on economic analysis and guidance on assessing the shadow price of carbon. This includes assessing carbon externalities associated with projects and will build on the Greenhouse Gas Accounting exercise and incorporate shadow carbon pricing in the economic analysis described.

I. Project Benefits

5. The project's objective is to improve market access for small and medium agricultural producers in Serbia. This will contribute to the larger goal of building greater economic and job opportunities within Serbia and facilitating private sector-led economic growth.

6. Investments under the project are expected to contribute to the expansion of small and medium enterprises as well as to enable private investment in rural and remote areas with small producers where the volume of production is insufficient to attract private investment.

7. As it is mentioned in the PAD, the Project financing would be directed at small and medium scale agricultural production units (including producers, producer groups, agribusinesses/agro-processors that can provide a direct link to smallholder farmers) that have or can have commercial focus and are not covered by accredited IPARD measures.

8. It is expected that the quantifiable benefits of the project would be generated by the following: (a) improved productivity of small and medium scale farmers due to strengthened advisory and technical support; (b) improved market access for small and medium scale farmers (including finance and business planning capacity); (c) improved government systems to strengthen the enabling environment for all agricultural producers (including capacity building for the Ministry, information systems, data platform); (d) improved access to finance (matching grants); (e) increased success rate of subprojects (due to business incubation). More specifically, the project benefits would derive from increased productivity and production of the supported sub-projects due to the introduction of improved management and technologies, including intensive technologies, usage of improved seeds and varieties in agriculture, better business planning and skills and improved access to

markets due to but not limited to the business incubation.

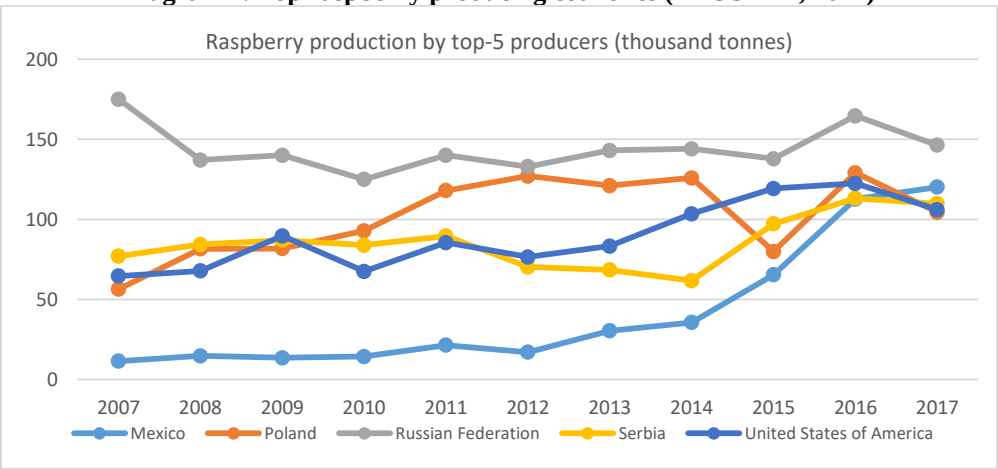
9. There are also some unquantifiable benefits that can be attributed to the Project that were also considered in the analysis: (a) improved infrastructure such as better access to water, roads and markets which has a value added to increasing the competitiveness of different value chain actors including production units; (b) knowledge and skills gained within the Project will be useful for farmers and rural entrepreneurs in other activities beyond the scope of the Project; (c) facilitation of expansion and/or pilot provision of financial services to the smallholders and rural entrepreneurs in a lower credit risk environment by other financial institutions because of established deeper value chain networks and wider support to the business development by the Project; and (d) better understanding of specific SME business models by partner financial institutions.

10. An ex-ante financial cost-benefit analysis of individual investments is not possible and will not be known before the Project implementation. Most of the Project activities and interventions will be demand driven. However, in order to quantify the benefits derived from the improved access to finance and entrepreneurship environment supported by the Project in Serbia, several indicative business activities were selected for the financial and economic analysis. The results of the analysis were then extrapolated to the whole project in order to identify the overall Project's economic impact.

11. A number of indicative economic activities, which may be supported by the Project, were identified during the appraisal process. Six illustrative models were prepared to demonstrate the financial viability of potential investments. Although the average farm size in Serbia 5.4 ha, the land plot taken for analysis of crop production models was 1 ha. This would ensure inclusion of both small and medium farms and the results of the analysis on 1 ha land could be extrapolated accordingly. All models show the prospective benefits and rate of return derived from the access to required financing, training, demonstration and advisory services.

12. *Raspberry production*. Serbia used to be one of the world's leading producers of raspberry. In 2007, the only country with higher production volume was the Russian Federation. However, in 2009 other competitors such as Poland and USA also caught up with Serbia's raspberry production. As for Mexico, it demonstrated a sharp increase and managed to surpass Serbia in raspberry production in 2017. According to FAOSTAT, Serbia was on the third place by raspberry production with 109.7 thousand tons in 2017 (see Diagram 1).

Diagram 1. Top raspberry producing countries (FAOSTAT, 2017)



13. The decreasing trend for Serbia could be explained by such factors as numerous floods in the country, lack of irrigation schemes, unstable prices of raspberries on export markets and low prices dictated by private cold storage owners. On the other hand, Serbian raspberry production has a potential to return to its position on the world market due to a number of comparative advantages over its competitors: favorable agro-climatic conditions of Central (Šumadija) and Western Serbia regions, well-developed tradition in raspberry growing, physical and economical accessibility to EU market, well-recognized production in other countries by its specific taste and color, existing operating associations of raspberry producers and cold storage owners that could be strengthened.

14. The Project interventions could strengthen the capacities of SMEs and associations related to raspberry production by provision of technical assistance on preparation of subprojects to access matching grants for capital investments in equipment, machinery, processing units, packaging, storage, etc. Increased number of cold storages, especially ran by associations, would increase the farm gate prices for raspberry, which are now dictated by large cold storage owners. Moreover, it is expected that supporting compliance of Serbian production with food safety standards, traceability, geographic denomination of origin and other market-related activities within the Project would boost the exports to EU market.

15. *Raspberry model*. This financial model illustrates the incremental benefits for a farmer who decided to start raspberry berries production business. The model shows a positive NPV of 77,681 USD over a fifteen-year period and a financial IRR of 43.5% before applying financing scenario, which is financially viable. In case the farmer needs to take a loan (50% of total investment) to meet the requirements of a matching grant, the model remains financially viable with NPV of 67,097 USD showing the IRR of 47.2%.

16. *Apple production.* Serbian apple production has increased 1.5 times between 2007 and 2016. As for the volumes of export, it has tripled in the same period of time reaching 232.2 thousand tons in 2016 (see Diagram 2). Meanwhile, one of the EU's and world's top apple exporting countries – France - demonstrated a sharp decrease in 2012, a steady growth between 2013-2015 and in 2016 ended up with production and export volumes relatively similar to those in 2007 (see Diagram 3).

17. Increasing production and export of apples in Serbia over the last decade shows that this kind of business seems promising for farmers, especially taking into account the expanding demand for apples in countries which are not self-sufficient in the production of fruits in comparison to their demand. According to International Trade Center (ITC, 2019), in 2018 European countries spent the most on imported apples with purchases costing $3.6 billion or 44.5% of the global total, which shows a high demand in this market for apples. In addition, such fast-growing markets for apples since 2014 as Vietnam, Indonesia, Hong Kong and India could also be a good opportunity for Serbian apples considering embargo challenges in Russia, which is one of the largest apple importers.

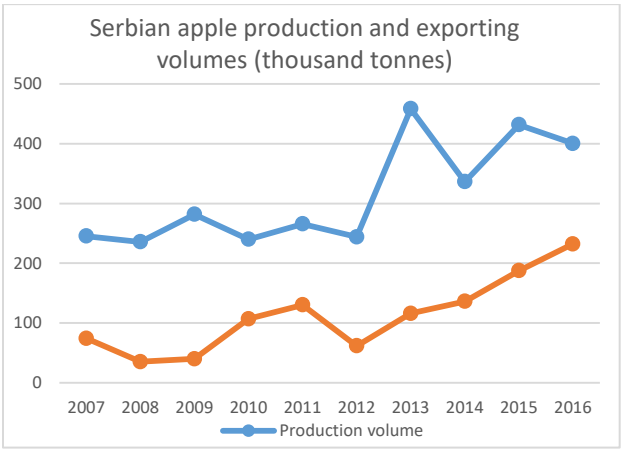


Diagram 2. Serbia: Apple production and exports (FAOSTAT, 2017)

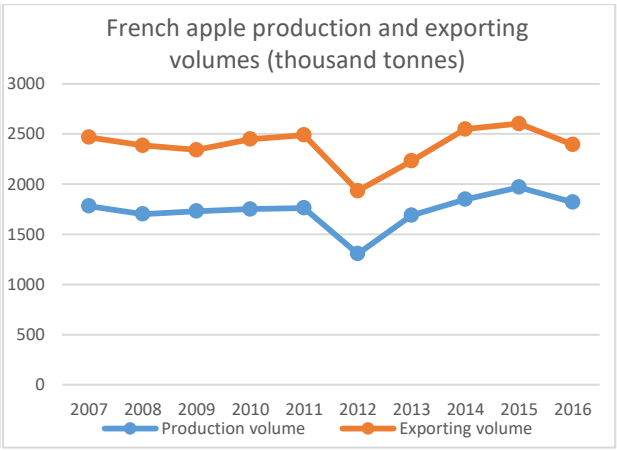


Diagram 3. France: Apple production and exports (FAOSTAT, 2017)

18. *Apple model*. This financial model illustrates the incremental benefits for a farmer who decided to intensify his/her fruit production business. It shows what benefit the farmer would gain from the establishment of an intensive apple orchard on 1 ha, replacing the low-yield old orchard already owned by this farmer. The model shows a positive NPV of 50,928 USD over a fifteen-year period and a financial IRR of 23.4% before applying financing scenario, which is financially viable. In case the farmer needs to take a loan (50% of total investment) to meet the requirements of a matching grant, the model remains financially viable with NPV of 15,110 USD showing the IRR of 38.2%.

19. *Plum production.* Cultivation of plums has always been one of the most important parts of Serbian agriculture. In modern Serbian history cultivation of plums is among the main parts of its economy, being one of the first export products of modern Serbia. More than 50% of all fruit trees in Serbia are plum trees. According to FAOSTAT, Serbia was on the third place after China and Romania in plum production with production volumes of 471 thousand tons in 2016 (see Table 1). In addition, plums are culturally produced in Serbia, weather conditions are suitable for plum growing and the Western Europe is the biggest market for plum consumption in the world. Despite that, only minuscule amount of plums produced is being exported, but through an increase of production and, hence, meeting the local needs, Serbia can increase its export of plums. However, problems such as sorting, mechanization, methods of cultivation, alteration, storage need to be dealt with if plum is going to become a considerable export product of Serbia.

20. *Plum model*. This financial model illustrates the incremental benefits for a farmer who decided to intensify his/her fruit production business. It shows what benefit the farmer would gain from the establishment of an intensive plum orchard on 1 ha, replacing the low-yield old orchard already owned by this farmer. The model shows a positive NPV of 52,004 USD over a fifteen-year period and a financial IRR of 41.9% before applying financing scenario, which is financially viable. In case the farmer needs to take a loan (50% of total investment) to meet the requirements of a matching grant, the model remains financially viable with NPV of 42,855 USD showing the IRR of 46.3%.

Table 1. Top – 5 Plums producing and exporting countries 2006-2016

	Plum·Production·Leaders·in·'000·tonnes¤					Plum·Export·Leaders·in·'000·tonnes¤				
Year¤	China¤	Romania¤	Serbia¤	Turkey¤	USA¤	China¤	Romania¤	Serbia¤	Turkey¤	USA¤
2006¤	5326¤	599¤	556¤	214¤	712¤	9¤	5¤	16¤	2¤	49¤
2007¤	4826¤	373¤	681¤	241¤	362¤	18¤	1¤	31¤	3¤	48¤
2008¤	5223¤	475¤	607¤	249¤	493¤	18¤	3¤	23¤	3¤	62¤
2009¤	5373¤	534¤	663¤	246¤	568¤	29¤	1¤	28¤	6¤	45¤
2010¤	5522¤	625¤	427¤	241¤	494¤	28¤	2¤	22¤	8¤	60¤
2011¤	5867¤	574¤	582¤	269¤	560¤	37¤	1¤	23¤	11¤	66¤
2012¤	6018¤	424¤	297¤	300¤	512¤	33¤	1¤	24¤	25¤	54¤
2013¤	6176¤	512¤	569¤	305¤	330¤	37¤	1¤	33¤	24¤	59¤
2014¤	6329¤	495¤	401¤	265¤	410¤	33¤	0¤	21¤	16¤	48¤
2015¤	6487¤	496¤	355¤	280¤	435¤	48¤	1¤	18¤	34¤	42¤
2016¤	6646¤	513¤	471¤	298¤	265¤	56¤	1¤	24¤	45¤	32¤

21. *Maize production.* Maize is one of the most produced crops in Serbia with over 1 million hectares of harvested area in 2016. In 2016 Serbia produced more than 7 million tons of maize and 28% of the production was exported which is an equivalent to 2 million tons or 370 million USD. In addition, among other large maize producers in the Balkan region Serbia is the largest producer after Romania. Although the trend for production fluctuated significantly over the years (see Diagram 4), the exporting volume was more stable than production, which shows well-established exporting markets for Serbian maize. It is expected than in the future export of maize will remain high and will contribute significantly to the economy of Serbia. Thus, production and development of maize sector could be one of the priorities in the agriculture development in Serbia.

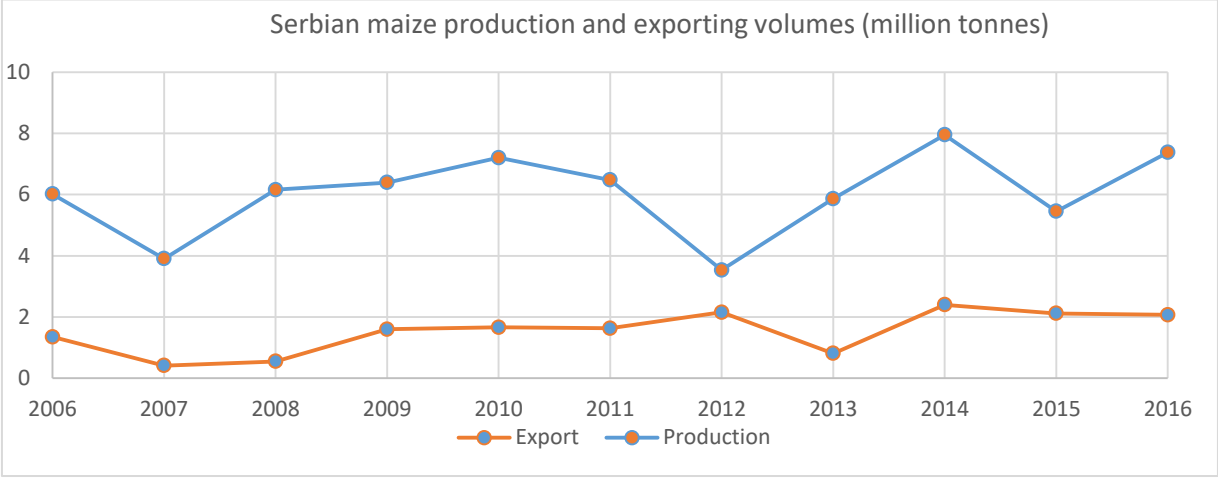
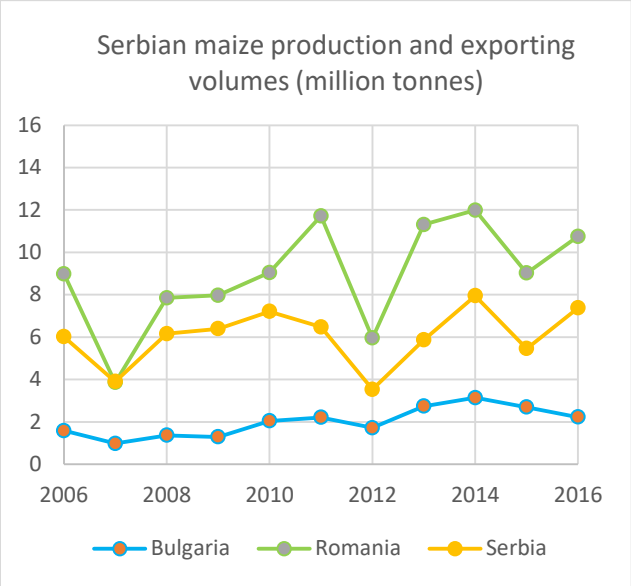
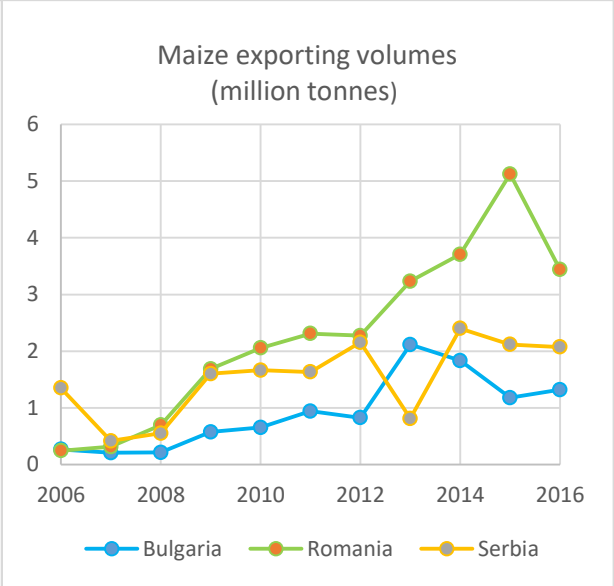


Diagram 4. Serbia: Maize production and exports (FAOSTAT, 2017)



Graph 5. Maize production (FAOSTAT, 2017)



Graph 6. Serbia. Maize exports (FAOSTAT, 2017)

22. *Maize model*. This financial model illustrates the incremental benefits for a farmer who decided to start maize production business. The model shows a positive NPV of 3,419 USD over a fifteen-year period and a financial IRR of 15.8% before applying financing scenario, which is financially viable. In case the farmer needs to take a loan (50% of total investment) to meet the requirements of a matching grant, the model remains financially viable with NPV of 2,957 USD showing the IRR of 18.5%.

23. *Livestock production.*

Figure 1. Structure of the agricultural output in 2016.

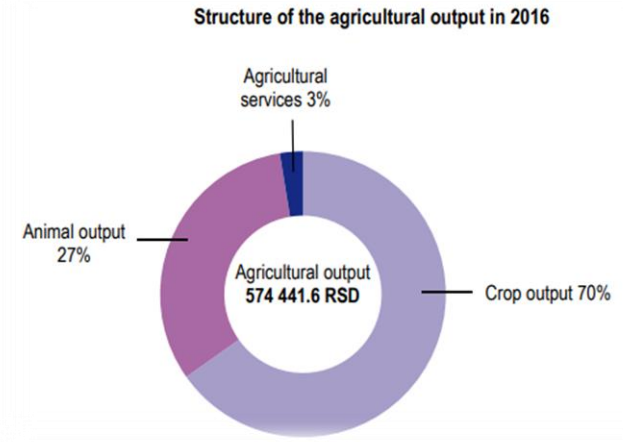
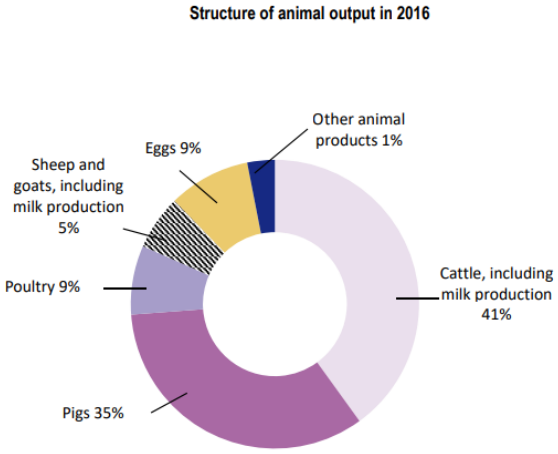


Figure 2. Structure of animal output in 2016



24. According to the Statistical Office of the Republic of Serbia, in 2016 animal output constituted 27% of the total agricultural output in Serbia. The bulk of the animal output (41%) comprised of cattle, including milk production, showing the importance of this sector.

25. During the period of 2013-2017 there was a decrease in the number of livestock over the whole country:

Table 2.1. Livestock number. Number of heads (thousands)

Livestock	2013	2014	2015	2016	2017
Cattle	913	920	916	893	899
Pigs	3144	3236	3284	3021	2911
Sheep	1616	1748	1789	1665	1704
Poultry	17860	17167	17450	16242	16338

26. Although the number of livestock has decreased, the overall production of meat and milk on the contrary has increased. For instance, the decrease in number of cattle heads from 913,000 in 2013 to 899,000 in 2017 resulted in an increase of beef production by 1,000 tons during the same period (see table 5.1 and 5.2). As for milk, there also was an increase in production from 1,433 million liters to 1,481 million liters from 2013 to 2017 (see table 5.3).

Table 2.2. Meat production (thousand tons).

Meat	2013	2014	2015	2016	2017
Beef	70	73	77	77	71
Pork	249	258	278	301	307
Mutton	30	27	30	34	30
Poultry	92	94	86	88	95

Table 2.3. Milk production (million liters).

Milk	2013	2014	2015	2016	2017
Total	1433	1476	1489	1483	1481

27. Both of these facts show the increasing productivity of livestock production all over the country and readiness of farmers to transition from quantity to quality. The Project interventions could strengthen the capacities of farmers by supporting purchase of improved breeds, improved knowledge on feeding practices and improved access to feeding base, strengthening of veterinary services.

28. *4 cattle model*. This financial model illustrates the incremental benefits for a farmer who decided to improve his/her livestock production business. The main anticipated benefit would occur from the increased production of beef due to the improved breeds, feeding practices and veterinary services, which will be sold on the local markets and/or supplied to a local meat processing plant. The model shows a positive NPV of 1,067 USD over a fifteen-year period and a financial IRR of 15.7% before applying financing scenario, which is financially viable. In case the farmer needs to take a loan (50% of total investment) to meet the requirements of a matching grant, the model remains financially viable with 1,976 USD showing the IRR of 17.9%.

29. *5 cows model*. This financial model illustrates the incremental benefits for a farmer who decided to improve his/her milk production business. The main anticipated benefit would occur from the increased production of milk due to the improved breeds, feeding practices and veterinary services, which will be sold on the local markets and/or supplied to a local milk processing plant or a milk collection point. The model shows a

positive NPV of 2,650 USD over a fifteen-year period and a financial IRR of 19.2% before applying financing scenario, which is financially viable. In case the farmer needs to take a loan (50% of total investment) to meet the requirements of a matching grant, the model remains financially viable with 2,721 USD showing the IRR of 32.7%.

II. Overall Economic Analysis

ERR = 23.1 percent (base-case scenario), ENPV = USD52.7 million.

30. **Beneficiaries.** In total there will be USD 67.28 million allocated for grants for farmers and SMEs, which will be directed to 1,223 beneficiaries. It is also expected that 1,107 out of this amount will be farmers, producers of agricultural products (USD 44.28 million will be spent for grant sub-projects to support their activities). The remaining 115 beneficiaries will be SMEs with USD 23.00 million budgeted for the grant sub-project for them.

31. The period of economic analysis is 20 years to account for the phasing and gestation period of the proposed interventions. The conservative scenario is presented in the analysis and it is indicative and demonstrates the scope of profitability originated from the conditions prevailing at the time of the preparation (mid of 2019).

32. The analysis identifies the quantifiable benefits that relate directly to the activities undertaken following implementation of the project components, or that can be attributed to the project's implementation.

33. The illustrative models described above have been used for the calculation of the overall benefit stream, on the basis of economic prices.

34. Considering the illustrative examples as a reasonable assumption of the investments likely to be implemented, an estimated average incremental annual net benefit per US$1 of investments is used. The incremental net benefits were derived by multiplying this indicator by the amount of estimated investments, but, considering the gradual increase of such benefits over the period of five years.

35. It was assumed that at least 80 percent of the investments would achieve the estimated returns, i.e. an 80 percent success rate was applied to the models. Financing flows have not been undertaken in the calculations as they are already reflected in the project costs or represent transfer payments (duties and taxes).

36. Given the benefit and cost streams, the base-case ERR of the Project is estimated at 23.1 percent. This proves that the project is economically viable and justified and recommended for financing from the economic point of view.

37. **Shadow price of carbon.** The estimation of the net balance from all greenhouse gases (GHGs) expressed in CO_2 equivalent that would be emitted or sequestrated within the potential sub-projects was made and the shadow price of carbon was included to the economic analysis. According to the calculations in EX-ACT, the Project showed a negative total balance of -118,987 tCO2-eq, which can be translated into -21 tCO2-eq per hectare over 20 years period or -1.1 tCO2-eq per hectare per year. This means that the Project will have more sequestration of carbon rather than emission. Taking into account the estimated shadow price of carbon, that will evolve from year to year according to the World Bank Shadow Price of Carbon Guidance Note, the ERR and

the ENPV were calculated. The results of scenarios with low carbon price, high carbon price and without carbon are presented in the table below.

	Without carbon benefits scenario	Low carbon price scenario	High carbon price scenario
ENPV (USD mln)	52.7	56.2	59.7
ERR	23.1%	24.3%	25.4%

It can be seen from the table above that low shadow price of carbon scenario has a potential to improve the ERR from 23.1% to 24.3%, while the high shadow price of carbon scenario would improve the ERR up to 25.4%.

38. **Sensitivity Analysis.** Economic returns were tested against changes in benefits and costs and for various lags in the realization of benefits. In relative terms, the ERR is equally sensitive to changes in costs and in benefits. In absolute terms, these changes do not have a significant impact on the ERR, and the economic viability is not threatened by both a 20% decline in benefits nor by a 20% increase in costs, since the ERR in both cases remains well above the discount rate. A one-year delay in project benefits reduces the ERR to 19.3%.

Sensitivity Analysis (20-year period)	Base case	Costs Increase			Increase of Benefits		Decrease of Benefits			Delay of Benefits	
		+10%	+20%	+50%	+10%	+20%	-10%	-20%	- 30%	1 year	2 years
ERR	**23.1%**	21.0%	19.1%	14.8%	25.4%	27.6%	20.8%	18.3%	15.6%	19.3%	16.6%
ENPV (USD mln)	**52.7**	49.7	46.6	37.6	61.0	69.3	44.4	36.1	27.7	48.7	44.9

III. Public Expenditure Review Findings

Agriculture in Serbia accounts for around 6 per cent of GDP, 19 per cent of formal employment and 23 per cent of total exports. However, despite a significant growth in the already positive agri-food trade surplus observed in recent years, agricultural sector growth has been stagnant and its contribution to the Serbian economy has been declining.

Despite its rich potential, agriculture in Serbia faces significant structural weaknesses, such as unfavorable farming structures, aged farm labor force, low efficiency and productivity, low use of technology, high labor intensity, low financial liquidity and capital availability for investment (especially for smallholders) and outdated production management practices. These constraints have a defined polarization in terms of economic and area size, export performance and regional location within Serbian agriculture.

To facilitate an increase in productivity and efficiency, improve agri-food competitiveness and generate conditions for sustainable rural development, Serbian authorities have attempted to adjust agricultural and rural development support policy towards CAP. Budget transfers to farmers as a share of GDP have been amongst the highest in the Western Balkans. However, there have been reservations on the capacity of current support structures, dominated by area/headage payments and the milk premium to contribute to an improvement of farm productivity and efficiency. In contrast, it has been argued that the current policy mix risks freezing the current dual farm structure, as well as other types of polarization evident at the regional and value-chain levels. If this is the case, then a significant part of Serbia's agri-food chain (represented by small and medium farms and food processing SMEs) would continue to marginalize.

Farm support in Serbia seems to be distorting the allocation of productive resources. Agricultural land use does not appear to be driven by value of agricultural output, as low-value crop production is dominant. Agricultural production is carried out by farm households with mixed and extensive production methods (especially in cereals), low cash-flows and low productivity. Most of these households are engaged in part-time farming. Further, lack of irrigation, poor public infrastructure, weak advisory services, low access to credit and poorly functioning land market, currently constrain competitiveness of Serbian agriculture.

Subsidies and transfers dominate agricultural spending in the current decade and on average, account for 82 per cent of agriculture expenditure. Market Support and Direct Payments (MSDP) represent, on average, 62.2 per cent of total spending in 2013-2017 and their share has been significantly decreasing since 2014 (75 per cent in 2014; 46 per cent in 2017). Rural development accounts on average for 13.4 per cent of expenditure, with a very significant increase in 2015 (16 per cent) and 2016 (27 per cent), compared to 2014 (4.8 per cent). Food safety and veterinary services account for 9.1 per cent of total spending, with notable increase recorded since 2015. Expenditure on water resources commands 7.4 per cent of total while that on Forestry, Land Management and Natural Resources accounts for 4 per cent and is rather stable. Credit support accounts on average for 2.3 per cent and fluctuates considerably.

The composition of MSDP has changed significantly during the 2013-2017 period. Since 2015, there has been a very significant decline of spending on direct payments for crops and since 2016 on input subsidies (-75 per cent for both), accompanied by a significant increase for livestock direct payments.

Rural development measures currently account for 27 per cent of total support and are consistent with the CAP thematic axes. Absorption rates have significantly improved in recent years, but rural development policy has a strong sectoral focus. Around 91 per cent of expenditure is dedicated to the improvement of farm competitiveness, while environmental and rural diversification measures account for only 5 and 4 per cent, respectively.

Monitoring and evaluation procedures are weak and impede the rigorous evaluation and assessment of agricultural and rural policy. A monitoring and evaluation procedure was defined and institutionalized for IPARD 2014-2020. According to the national authorities, the target is to extend the IPARD monitoring and evaluation procedures in the national programs and comply with the requirements of the CAP Common Monitoring and Evaluation System.

Technical efficiency (TE) and Scale efficiency (SE) analysis has shown that overall, Serbian farms are characterized by significant technical inefficiency but operate satisfactorily with respect to the returns of scale side of technology. The mean TE score is 0.378, while the mean (SE) is rather high, equal to 0.743. Efficiency analysis results indicate the polarization phenomenon which characterizes Serbian agriculture, as around 6 per cent of sampled farms perform quite well and attain a TE score which exceeds 0.7.

Subsidized farms are associated with lower technical efficiency. Farms receiving subsidies appear to underperform those which do not. In fact, for all types of subsidies, except input subsidies, subsidized farms exhibit lower bias corrected technical efficiency compared to the non-subsidized farms. Especially farms receiving output subsidies (milk premium) suffer very significant losses.

The picture in the case of scale efficiency is mixed. Subsidized farms with input subsidies are associated with higher scale efficiency compared to non-subsidized farms, while farms granted output subsidies perform worse than the corresponding non-subsidized farms. For all other subsidy types, subsidized and non-subsidized farms present equal sample means.

With respect to specialization, farms of the "other specific crops" group (horticulture, vineyards, fruit) are the

champions of technical efficiency (bcTE: 0.471). They are followed by the farms of the "specialist field crops" cluster (bcTE: 0.455). The operation of farms of the "specialist dairying" group, which receive coupled subsidies, are the farms with the poorest, by far, technical efficiency (bcTE: 0.282). Specialist field crops (SE: 0.821) and Other specific crops (SE: 0.777) dominate SE findings.

With respect to farm size, medium size farms (bcTE: 0.323) are the less technically efficient. Small farms exhibit superior productive performance in terms of technical efficiency (bcTE: 0.457). Large farms perform better than their medium size counterparts but worse compared to the small size farms (bcTe: 0.405). In the case of SE, larger farms dominate, while smaller ones suffer from significant losses due to scale inefficiencies.

With respect to location, there seem to be significant differences between Vojvodina and the rest of Serbia. Farms located in Vojvodina possess and exert significant comparative advantage in terms of technical efficiency (bcTE: 0.459). The exact opposite holds for farms located in Sumadijet and Western Serbia (bcTE: 0.318). As in the case of TE, Vojvodina farms exhibit superior performance in terms of SE.

Regarding the relationship between subsidies and efficiency, estimates show that medium and large farms are more technically efficient if not subsidized. Most important, TE of small farms is not affected by their subsidization status. In terms of specialization, almost all types of farm exhibit higher TE and SE scores if they are not subsidized. Further, the high TE and SE scores of Vojvodina farms do not seem to be influenced by their subsidization status.

Output subsidies have a negative effect on TE and a positive effect on SE. Area/headage payments seem to expert negative effects on TE but do not affect SE. Results show that the negative influence of subsidies on TE becomes even more negative as size increases. This indicates that as farms grow larger, subsidies induce a misallocation of productive resources.

Productivity analysis has shown a significant increase in total factor productivity (TFP) of Serbian farms between 2015 and 2016 (+10.5 per cent). This growth is mainly due to an increase in scale efficiency (11.5 per cent) and secondarily, to an increase in technical efficiency (6.7 per cent), while technical change seems to have regressed (-8 per cent). Further, it seems that polarization characterizes even this positive development, as TFP has skyrocketed for 10 per cent of farms, while 1/3 of farms have recorded a decline of TFP.

Total subsidies and especially input subsidies seem to have a positive impact on TFP. Small farms exhibit lower TFP growth compared to their medium- and large-sized counterparts, while the same holds for Specialist crops farms and farms located in Vojvodina.

More important, a regression analysis of drivers of TFP growth shows that farm structural characteristics do not explain TFP growth well. Hence, it seems that unrecorded factors such as human and social capital, institutions, public goods are those mostly affecting TFP growth. Subsidies seem to affect the embodiment of technological advancements in farms' production and distribution processes in a mixed pattern. Input subsidies seem to be the most beneficiary type of grants with respect to farms' innovativeness, while the estimated negative impact of rural development support raises reservations on the suitability of the types of support adopted by (at least) farms included in the sample.

Large size farms exploit at the most the new technologies advances and feed the corresponding TFP growth. Medium- and especially small-sized firms lag behind in terms of innovativeness. Subsequently, the low technological progress of the overall system should be attributed almost entirely to small- and medium- sized farms. Specialist crops and Vojvodina farms seem to be the most innovative type of farm.

In contrast to findings on the relationship between technical change and TFP growth, there seems to be a high

correlation between TFP growth and technical efficiency change. Also, polarization is evident when TFP and TEC are coinvestigated, with 4.5 per cent of farms defined as best practice and 28 per cent as laggards.

Also, there is a high correlation between the farm performance in terms of TFP and SEC. Subsidies do not seem to affect scale efficiency change in Serbian agriculture, but size does so. In terms of size, small- and medium-sized farms exhibit superior performance in terms of scale efficiency change.

In all cases of drivers' exploration (TFP, TC, TEC, SEC) one should take into account factors beyond traditional economic characteristics which in the present study constitute the so-called unobserved heterogeneity. More specifically, personal characteristics of the farmers (education, experience, family status, age, etc.), participation in networks, local and regional defined social capital, extroversion of the farms, local and regional infrastructure and public goods, entrepreneurial spirit and attitude, and especially innovation and knowledge conditions should be taken into account when approaching determinants of change. Also, for the exploration of dynamic phenomena (TFP, TC, TEC, SEC) special attention should be given to issues related to path dependence, initial conditions and growth factors.

Equity analysis has shown that between 2014 and 2016, the distribution of farm direct payments by farm type has shifted from favoring specialist field crops to favoring specialist dairy farms. In 2016 the share of specialist dairy farms in the sample (19.6 percent) is less than half of their share in total subsidies granted (41.4 percent). Compared to 2014, the "share of farm type" to "share of subsidies" ratio in 2016 has deteriorated for specialist crops and other specific crops. The above shifts reflect support-policy developments. In this context, it is worth noting that support has in fact shifted from favoring farm types with comparatively high TE and TFP scores, to the favor of farm types characterized by significant efficiency losses and poor TFP growth.

The distribution of subsidies is positively correlated with economic farm size but is much more equitable compared to the EU-28. However, changes between 2014 and 2016 in subsidy eligibility rules, support rates and support production-orientation have solely favored medium-sized farms.

Policy recommendations supported by the analysis carried out concentrate in three domains.

I. Support to agriculture in Serbia should be re-balanced.

This analysis has shown that direct payments do not promote technical efficiency and productivity growth and also retard structural transformation in Serbian agriculture. Hence, the current trend of reducing the direct payments envelope and significantly increasing the rural development one should be further pursued.

II. Align the current types of farm subsidies

This analysis has shown that the main types of farm support (coupled milk premium, area/headage payments) negatively affect farm efficiency and technical change. Hence, in view of the country's EU accession ambitions, a shift to decoupled farm support, even on the basis of a flat-rate of support per ha should be considered. Decoupled support would allow farmers to make production decisions on the basis of competitive advantage, increase farm investment and production specialization and shift land-use towards high-value production. Combined with cross-compliance, which should be introduced as planned in 2020, it will promote the adoption of sustainable farming practices, make Serbian products even more competitive and facilitate the transfer of farmland to more efficient and innovative farmers.

The current low thresholds on farm support eligibility do not promote growth and competitiveness in Serbian agriculture and as shown in this report, they also do not effectively serve an equity policy objective. Maximum thresholds should be significantly increased and provide incentives to small and especially medium farms to modernize and increase farm size.

III. Rural development support should constitute the main means of farm modernization and structural adjustment for both agriculture and rural development in Serbia

A new mix of rural development policy which commands a significant share of agricultural public support is necessary. The rural development budget should significantly increase its focus on the sustainable management of natural resources and rural diversification. Such a policy shift will promote sustainable farming practices, induce the commodification of the country's rich natural resources by the agri-food chain and enable the transfer of underemployed resources currently locked in agriculture, to other economic activities. Together with market-oriented decoupled farm payments, such a shift in rural development support will facilitate an increase farm productivity and efficiency and promote structural transformation in Serbian agriculture. The much-needed shift should be accompanied by an increase in the focus of rural development support towards the provision of public goods such as rural roads, irrigation, and other local agricultural/rural infrastructures, as well as on agricultural R&D, vocational training, advisory and extension services.

Further, rural development measures should be characterized by an aggressive targeting of current development needs and target the provision of incentives which induce technical change and innovation. Also, they should differentiate eligibility and selection criteria and support rates to account for regional and size disparities and younger farmers.

More important, they should provide distinct, special incentives for medium-sized farms and attempt to pursue their enlargement and technological/managerial modernization. These special incentives could be even more aggressively pursued through a distinct rural development envelope dedicated to medium-sized farms. This novel policy framework should be complemented by measures which would improve access to credit and enrich managerial skills, facilitate farm enlargement and aggressively promote modern forms of cooperation amongst farmers and between farmers and other components of the agri-food chain. In parallel, support to smaller farms should be granted through simpler measures and coordinated with broader economic and social policies.