FAO/GLOBAL ENVIRONMENT FACILITY

PROJECT DOCUMENT

PROJECT TITLE: Contribution of Sustainable Forest Management to a Low Emission and Resilient Development **PROJECT CODE: GCP/SRB/002/GFF**	
COUNTRY: Serbia	
FINANCING PARTNER: GEF	
FAO Project ID: 635621	**GEF/LDCF/SCCF Project ID: 9089**
EXECUTING PARTNERS: Ministry of Agriculture, Forestry and Water Management (MAFW) - Directorate of Forests	
Expected EOD (Starting Date): January 2018	
Expected NTE (End Date): December 2021	
CONTRIBUTION TO FAO's STRATEGIC FRAMEWORK:	**a. Strategic Objective/Organizational Result:** **Strategic Objective 2 (SO2) Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner** **Outcome 1 (2O1) Producers and natural resource managers adopt practices that increase and improve agricultural sector production in a sustainable manner** **Output 2 (20102) Integrated and multi-sectoral approaches for ecosystem management, restoration climate change adaptation and mitigation are identified, assessed, disseminated and their adoption by stakeholders is facilitated.** **b. Regional Result/Priority Areas:** **Regional Initiative 3: Sustainable Agriculture and Natural Resources Management in a Changing Climate: "Support member countries of the region to address the interlinked challenges of a climate change and degraded natural resource through transitioning to more climate resilient and sustainable national agriculture and food system to contribute effectively to national sustainability and climate change goals".** **c. Country Programming Framework Outcome: The project will be in included in the FAO Country**

	Programming Framework for Serbia which is currently under preparation.		
GEF/LDCF/SCCF Focal Area: CCM, BD, SFM			
GEF/LDCF/SCCF strategic objectives: BD-4: Mainstream biodiversity conservation and sustainable use into production landscapes and seascapes and sectors CCM-2: Demonstrate systemic impacts of mitigation options SFM-2: Enhanced Forest Management: Maintain flows of forest ecosystem services and improve resilience to climate change through SFM.			
Environmental and social risk classification (insert √): Low risk Moderate risk √ High risk			
Financing Plan:			
GEF allocation:		**3.274.658**	
Co-financing:			
Ministry for Agriculture, Forestry and Water Management	Cash	15.486.141	
Ministry for Agriculture, Forestry and Water Management	In-Kind	5.545.000	
Institute of Forestry	In-Kind	445.000	
Novi Sad University	In-Kind	445.000	
National Park Fruska Gora	In-Kind	285.200	
National Park Djerdap	In-Kind	142.600	
National Park Tara	In-Kind	855.600	
Public Enterprise Srbijasume	In-Kind	980.000	
Public Enterprise Vojvodinasume	In-Kind	420.000	
Forest technical high school Kraljevo	In-Kind	713.000	
Forest Chamber	In-Kind	220.000	
National Park Kopaonik	In-Kind	142,600	
FAO	Cash	300.000	
FAO	In-Kind	200.000	
Sub-total Co-financing:		**26.180.141**	
Total Budget:		**29.454.799**	

Executive Summary:

Forest cover in Serbia amounts to 2,252,400 ha; about 29% of the total land area. The forest sector in Serbia produces 2.3 % of the national GDP. Forests with productive functions amount to 1,498,000 ha. Forest ownership in Serbia is generally either state (53%) or private (47%). A large share of the forests in Serbia is located in hilly or mountainous regions, which causes impediments to optimal forest management. Serbia's forests are characterized by high genetic, species and ecosystem diversity. The forest and shrub communities with endemic woody plants are of particular importance.

Forest degradation, along with resulting habitat loss and fragmentation, is one of the key environmental problems faced by Serbia at present. Forest degradation on a large scale has resulted in loss of forest carbon, biodiversity and other key ecosystem goods and services, and has substantially reduced the potential of Serbian forests to act as carbon sinks. Serbian forests are characterized by low standing volume of only about 161 m³/ha and a low annual increment of about 4.0 m3/ha. In particular, this applies to short-rotation coppice forests with barely half of productive potential and increment which make up 64.7% of the productive forests.

Root causes of forest degradation include illegal extraction of timber, frequent forest fires, as well as pressures from the agriculture, energy, and construction sectors. 12 million of Serbian households, particularly in poor rural areas, rely on fuelwood to cover their energy needs. Currently the demand exceeds the potential supply from available forest resources.

The Forest Law and Law on Nature protection provide the main legal framework for forest conservation and management in Serbia. The Forestry Development Strategy sets the operational framework for forest development and planning. It defines conservation and improvement of biodiversity in forest areas as a part of the concept of sustainable forest management. The Ministry for Agriculture, Forestry and Water Management (MAFW) implements forest management and protection related activities through a Forest Fund providing services and supporting the implementation of sustainable forest management in public and private forests. Other key players include Ministry of Environmental Protection (MEP), the Public Enterprises for Forest Managment and the National Parks which administer all public forests, the Forestry Institutes and Forest Faculty (which are the main research and development institutions). International cooperation in the sector includes the European Union and the Government of Germany.

Four important barriers remain for the mainstreaming of a sustainable forest management in Serbia: 1.) An inadequate policy and strategic framework and sectoral coordination to define and systematically implement specifc pathways for sustainable forest management that incorporates climate change mitigation and biodiversity conservation objectives. 2.) A weak information systems and availability is a significant barrier for developing and implementing multi-functional forest management plans at local leve, and hinders international reporting obligations related to biodiversity protection and climate change mitigation at European and global levels. 3.) The lack of involvement of the private sector in forest management programmes, as well as the lack of capacities and incentives for the private forest owners is a barrier for sustainable forest management in Serbia. This is a challenge as the number of private forest owners is very high (about 800,000), and the size of individual holdings is very small – 70 % of the holdings are less than 1 ha. 4.) A lack of understanding and technical capacity among forestry professionals and private forest owners on Sustainable Forest Management.

The project will address these barriers to contribute to the conservation of biodiversity and climate change mitigation through the promotion of multifunctional sustainable forest management in productive forest landscapes (Global environmental objective). The objective will be achieved through (i) improving information availability to enable informed decision making in forest development and management, and reporting according to international standards and practices, through the set up of an integrated Forest Information System, and the implementation of the second National Forest Inventory (ii) strengthening coordination and dialogue between key public and private stakeholders, (iii) strengthening capacities of forest managers to implement SFM practices through guidance materials and trainings and (iv) generating strategies to provide incentives to private forest owners to engage in SFM, and (v) implementation of updated forest development plans and forest management plans according to SFM guidelines in two pilot regions. The project strategy builds on the close engagement of key stakeholders to ensure sustainability of the results.

Total project financing amounts to USD. 29.454.799 over the four-year implementation period. Co-financing amounts to USD 26.180.141, out of which 61 % in cash, provided by the Ministry for Agriculture, Forestry and Water Management, Institutes of Forestry, National Park Administrations, Public Forest Enterprises, the Forest Chamber as well as FAO. GEF incremental resources amount to USD 3.274.658 (11 % of the total financing).

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Acronyms

AWP/B	Annual Work Plan and Budget
BD	Biodiversity
BH	Budget Holder
BMEL	German Ministry for Food, Agriculture and Consumer Protection
CBD	Convention on Biological Diversity
CCM	Climate Change Mitigation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CO2-eq	Carbon dioxide equivalent
CPF	County Programming Framework
CSO	Civil Society Organization
DF	Directorate of Forests
ESD	Economic and Social Department
ESMG	Enrivonmental and Social Guidelines
EU	European Union
EUNIS	European Nature Information System
FAO	Food and Agriculture Organization of the United Nations
FDP	Forest Development Plan
FDS	Forest Development Strategy
FE	Final Evaluation
FMP	Forest Management Plan
FMU	Forest Management Unit
FPMIS	Field Programme Management Information System
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse gas(es)
HD	EU Habitat Directive
HQ	Headquarters
IBA	Important Bird Area
IFIS	Integrated Forest Information System
IPA	Important Plant Area
LD	Land Degradation
LDCF	Least Developed Countries Facility
LULUCF	Land Use, Land Use Change and Forestry
LTO	Lead Technical Officer
LTU	Lead Technical Unit
M&E	Monitoring and Evaluation
MAB	Man and the Biosphere Programme
MAFW	Ministry for Agriculture, Forestry and Water Management
MCPFE	Ministerial Conference for the Protection of Forests in Europe
MEP	Ministry of Environmental Protection
MMR	Monitoring and Reporting Regulation
MRV	Monitoring, Reporting and Verification

MTE	Mid-Term Evaluation
MTR	Mid-Term Review
NFI	National Forest Inventory
NGO	Non-governmental Organization
NFI	National Forest Inventory
NP	National Park
NPC	National Project Coordinator
NPD	National Project Director
OED	Office for Evaluation
OPIM	Operational Partners Implementation Modality
OSH	Occupational Safety and Health
PBA	Selected Butterfly Area
PT	Project Team
PE	Public Enterprise
PEFC	Programme for the Endorsement of Forest Certifications Schemes
PFO	Private Forest Owner
PFOA	Private Forest Owners Association
PIR	Project Inception Report
PMC	Project Management Committee
POP	Persistent Organic Pollutants
PPR	Project Progress Report
PSC	Project Steering Committee
PT	Project Team
PY	Project Year
RBM	Results-Based Management
REU	Regional Office for Europe and Central Asia
SCCF	Special Climate Change Fund
SEPA	State Environmental Protection Agency
SFM	Sustainable Forest Management
SO	Strategic Objective
TBD	To be determined
TOR	Terms of Reference
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change

SECTION 1 – PROJECT RATIONALE

1.1 PROJECT CONTEXT

Forests in Serbia

1. According to the National Forest Inventory conducted in 2009, forest cover in Serbia amounts to 2,252,400 ha; this is about 29% of the total land area. Nearly 90.7% of the growing stock are broadleaves. Some of the common species are *Fagus Moesiaca*, *Ouercus Cerris*, *Quercus Petraea*, and *Quercus Robur*.
2. The forest sector in Serbia has a long tradition, and amounts to 1.4 % of the national GDP in 2014. Forests with productive functions amount to 1,498,000 ha. Forest ownership in Serbia is generally either state (53%) or private (47%). Non-state forests in Serbia are owned by individuals or institutions, notably churches and monasteries, agricultural companies, and water management companies. A large share of the forests in Serbia is located in hilly or mountainous regions, which causes impediments to optimal forest management. In addition, considerable forest areas in Serbia are occupied by young natural and planted forest stands, where it is necessary to carry out tending and thinning operations.

Forest Biodiversity

3. Serbia is characterized by high genetic, species and ecosystem diversity. Although Serbia's 88,361 km2 represent only 2.1% of the European territory, biodiversity of different groups of organisms is very high.
4. According to data of Institute for Nature Conservation of Serbia, the country hosts 39 % of European vascular flora, 51 % of European fish fauna, 49 % of European reptile and amphibian fauna, 74 % of European bird fauna, and 67 % of European mammal fauna.
5. Species diversity in Serbia is not fully researched nor documented. Plants are probably the best researched kingdom in Serbia. There are 400 species of mosses (Bryophyta) and a total of 3,662 taxa of vascular flora (Pterydophyta, Pinophyta and Magnoliophyta).
6. For fungi, reports indicate that between 3,000-6,000 species of macromycetes exist in Serbia, but only 625 species have been described. Recent research on lichen diversity indicates that there are 586 species of lichens found in Serbia.1
7. Data on animal species in Serbia is available for Nematodes: 139 species, Anostraca, Notostraca and Conchostraca: 18 species, Amphipoda: 33 species, fish: approx. 100 species, amphibians: 21 species, reptiles: 25 species, birds: approximately 360 species and mammals: 94 species.
8. The following forest types are found in Serbia:
    1) Deciduous forests in the temperate zone. In Serbia, this primarily occurs as oak and beech forests;
    2) Boreal conifer forests. In the mountains of Western, Southwestern and Southeastern Serbia;
    3) Steppe with muck land as zonal soil and steppe. In Serbia mostly with forest steppe vegetation;
    4) Highland "tundra". In the Alpine region of Serbia's highlands.

[1] 4th National Report to the UN-CBD on biodiversity (2010)

9. A range of overlap occurs between these biomes, due to the geographic, petrographic and orographic characteristics of the Serbian territory.

10. The forest and shrub communities with endemic woody plants are of particular importance. Among others, these include:

11. Omorika Spruce forests (Piceion omorikae), Fritillaria gracilis (Pinion heldreichii), Pinus peuce (Pinion peucis), Greek Maple (Aceretum heldreichii, Aceri-Fagetum type), poli-dominating forests with Pancic Acer (e.g. Fago-Aceri intermedii-Coryletum colurnae, Querco- Aceri intermedii-Coryletum colurnae and Fraxino-Aceri intermedii-Coryletum colurnae), Hazelnut community (Fago-Corylenion colurnae) and lilac shrub community (Syringion)[2].

12. From the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), ratified by Serbia, there are 6 listed species of mammals, 59 species of birds, 4 species of reptiles and 62 species of flora found in Serbia.

13. Based on the EU Habitats Directives, Serbia has identified 78 habitat types and 180 species from the Annexes of the Habitats Directive. Of those species, 157 are protected on national level under Serbian legislation, while 137 of the species and rely on the 27 forest habitat types occurring in Serbia.

14. Based on the EU Birds Directive, Serbia has identified 115 bird species occurring in the national territory, of which all 115 species are protected at national level under Serbian legislation. At least 24 of these bird species are connected to forests.

Table 1.1: Current knowledge on Natura 2000 habitat types and species occurring in Serbia

Natura 2000 habitat types and species		*Total on EU Annexes*	**Known in Serbia**	**Protected in Serbia**	**Related to forests**
HD Annex Habitat types	Costal and Halophytic Habitats	*28*	2		
	Costal sand dunes and continental dunes	*21*	1		
	Freshwater habitats	*19*	10		
	Temperate Health and Scrubs	*11*	6		
	Sclerophyllous Scrub	*13*	3		
	Natural and Semi-natural Grasland Formations	*32*	15		
	Raised bogs, mires and fens	*13*	5		
	Rocky habitats and caves	*14*	7		
	Forests	*81*	27		
	TOTAL:	***204***	**78**		
HD Annex Species	Plant species	*695*	67	61	45
	Animal species	*447*	113	96	92
	TOTAL:	***1142***	**180**	**157**	**137**
	Bird species	*194*	115	115	24

[2] Based on EUNIS and Serbian Classification System from the National Code Manual.

Natura 2000 habitat types and species		*Total on EU Annexes*	**Known in Serbia**	**Protected in Serbia**	**Related to forests**
BD Annex Species	***TOTAL:***	***194***	**115**	**115**	**24**

Source: Kitnaes et al.

Protected Areas in Serbia

15. To date, about 578,706 ha (6.55%) of the territory of the Republic of Serbia has been designated by different protection levels.

Table 1.2: Internationally and nationally protected area in Serbia

Category	**Sites (No.)**	**Territory (ha)**	**Area as % of total Serbian territory**
Serbian Protected Areas	464	578 706	6.55%
UNESCO MAB	1	53 804	0.61%
Ramsar sites	10	63 919	0.72%
Important Bird Areas (IBAs)[3]	42	1 259 624	14.25%
Important Plant Areas (IPAs)[4]	62	747 300	8.50%
Selected Butterfly Areas (PBAs)[5]	40	903 643	10.22%

Source: Kitnaes et al.

16. The nationally Protected Areas in Serbia cover the following categories: Five (5) National Parks (Fruška Gora, Kopaonik, Tara, Šar Planina, and Đerdap), 15 parks of nature, 50 strict nature reserves, 21 special nature reserves, 284 monuments of nature, 16 localities of remarkable characteristics and 37 of historical significance, while 36 Protected Areas are currently in the process of being designated under the the new Law on Nature Protection.

[3] ***Internationally Important Bird Areas (IBA)****: Gornje Podunavlje, Subotička jezera and pustare, Bečejski ribnjak, Jegrička, Karađorđevo, Titelski breg, Koviljski rit, Pašnjaci velike droplje, Slano kopovo, Okanj and Rusanda, Carska bara, Gornje Potamišje, Srednje Potamišje, Vršačke planine, Deliblatska peščara, Labudovo okno, Ušde Save u Dunav, Dunavski lesni odsek, Fruška gora, Obedska bara, Bosutske šume, Zasavica, Donje Podrinje, Cer, Valjevske planine, Tara, Uvac and Mileševka, Pešter, Golija, Gornje Pomoravlje, Ovčarsko - kablarska klisura, Kopaonik, Sitnica, Prokletije, Šar - planina, Pčinja, Vlasina, Suva planina, Sidevačka klisura, Stara planina, Đerdap and Mala Vrbica.*

[4] ***Internationally Important Plant Areas (IPA)****: Subotička peščara, Selevenjske pustare, Palidko jesero, Ludaško jezero, Gornje Podunavlje, Severni Banat II, Severna Bačka I, Telečka, Rimski Šanac, Koviljsko-petrovaradinski rit, Žabalj, Titelski breg, Severni Banat I, Stepe severnog Banata, Pašnjaci velike droplje, Slano kopovo, Srednji Banat I, Srednji Banat II, Carska bara, Vršačke planine, Deliblatska peščara, Ponjavica, Fruška Gora, Obedska bara, Zasavica, Tara, Mokra gora and Šargan, Zlatibor, Mučanj, Golija, Pešter, Štavalj, Kanjon Mileševke, Klisura Ibra, Đerdap, Kladovo-Radujevac, Veliki krš and stol, Klisura Lazareve reke, Brđanska klisura, Rtanj, Lalinačka slatina, Jelašnička klisura, Sidevačka klisura, Šljivovički vis, Ozren, Suva planina, Stara planina, Klisura Jerme, Rogozna, Kopaonik, Vlasinska visoravan, Grmija, Klisura Miruše sa Koznikom, Rudine, Aleksandrovačka slatina, Rujan, Dolina Pčinje, Prokletije, Paštrik, Koritnik and Šar planina*

[5] ***Selected areas for butterflies (PBA):*** *Avala, Deli Jovan, Deliblatska peščara, Dimitrovgrad, Đerdap, Golemi Vrh, Fruška Gora, Goč-Studena-Stolovi, Golija, Gornje Podunavlje, Grmija, Ibarska klisura, Klisura Jerme, Klisura Đetinje, Povlen, Kopaonik, Kosmaj, Kukavica, Lazarev kanjon, Mali Krš, Metohijske Prokletije, Zlatar, Ošljak, Paštrik, Tara, Radan, Resava, Rtanj, Rudina planina, Zlatibor, Šar planina, Sidevačka klisura, Devica, Stara Planina, Stol-Veliki Krš, Suva planina, Pešter, Besna Kobila, Maljen-Suvobor and Zasavica.*

17. Areas whose protection is significant at an international level have also been identified in Serbia. The ten (10) Ramsar Sites are all protected at national level according to Law on Nature protection and form part of the Serbian ecological network. However, not all internationally important areas are fully protected under national legislation in Serbia, which makes their protection status rather weak. This counts for the International Bird Areas (IBAs), the International Plant Areas (IPAs) and the areas important for butterflies (PBAs) of which only a limited number are protected under national legislation.

18. The government can prescribe the protection level of an area, as well as the procedures and implementation methods. The Law on Nature Protection envisages public participation in protected areas designation and adoption of the management plans in order to help avoiding previous uncertainties and situations in which some institutions and organizations carry out activities prohibited or not allowed within a protected area. According to the Law on Nature Protection there is the following three-level protection regime for protected areas (based on a National Zoning System):

19. **Level I: Strict protection** for a protected area or part thereof with original or slightly changed ecosystems of exceptional scientific and practical importance, which enables processes of natural succession and conservation of habitats and life communities in wilderness conditions. This level prohibits use of natural resources, construction of buildings, any works or activities except scientific research and monitoring of natural processes, controlled visits for educational, recreational and cultural purposes, delimitation of the territory, implementation of remediation, protective or other necessary measures in case of fire, floods or other natural disasters, animal diseases or accidents and maintenance of exceptionally significant objects.

20. **Level II: Active protection** for a protected area or part thereof with partially changed ecosystems of high scientific and practical importance and particularly valuable landscapes and geo heritage objects. This protection level can include management interventions in order to restore, revitalize and generally improve the values of the natural habitats, species populations, ecosystems, landscape characteristics and geo heritage objects, and can include traditional activities and restricted use of natural resources in sustainable and strictly controlled manner. This level prohibits construction of buildings on the protected area, as well as following works and activities: building of industrial and mining installations, installations for production of asphalt and fuels, installations for storage petrol and LPG, thermo power plants, wind farms, ports and trading centres, airports, storages, weekend homes and other private leisure objects, exploitation of minerals, plowing of natural meadows, commercial fishing, introduction of invasive alien species, building of recycling installations, waste incinerators or landfills.

21. **Level III: Proactive protection** for a protected area or part thereof with partially changed and/or changed ecosystems, landscape and geo heritage objects of scientific and practical importance. This protection level can include management interventions in order to restore, revitalize and generally improve protected area, rural development and improvement of rural households, regulation of cultural-historic objects and objects of traditional civil engineering, conservation of traditional activities among local residents, selective and restricted use of natural resources and areas with necessary infrastructural and other construction. This level assumes prohibition of oil refineries, chemical industry, metal industry and thermo power plants, storage of petrol and natural gas, introduction of invasive alien species and establishment of landfills.

Map 1. Protected Areas in Serbia (Source: Institute for Nature Conservation).

Institutional framework

22. The main institutions involved in the forest sector in Serbia including the public sector, academia, NGOs and private sector include:

23. The **Ministry for Agriculture, Forestry and Water Management- Directorate of Forests** is responsible for forest governance, and development and supervision of forest law development and enforcement. The Directorate of Forest represents the forest sector of Serbia in the international organisations and processes and it co-ordinates the international co-operation within the sector.

24. The **Ministry of Environmental Protection** is responsible for: planning and programing of environment protection; system of protection and improvement of environment; national parks; supervision in the field of environment protection (inspection); nature protection; air quality protection; protection of ozone layer; climatic changes; crossborder air and water pollution; defining the conditions of environment protection in spatial planning and construction; protection of chemical accidents; protection from noice and vibrations;

protection of ionic and non-ionic radiation; and implementation of different international agreements in the field of environment protection.

25. The **Public Forest Service** under the Directorate of Forests is organized into Public Enterprises (PEs) for forest management and management of National Parks (NPs). The two public enterprises (Vovjvodinasume and Srbjasume) manage over 90 % of the State Forest in Serbia. PEs are in charge to sustainably manage state forests, make them economically profitable and mainatain their environmental functions, and to provide technical assistance to Private Forest Owners (PFOs) and PFO Associations (PFOAs). Private owners (except private owners with large areas of forests >100 ha - e.g. monasteries, who make their own forest management plans) are obliged to follow the forest management plans developed by PEs.

26. The **Institutes for Nature Conservation** in Serbia in Novi Sad (Vojvodina Region) and in Belgrade (for the rest of Serbia) are the legal entities charged with approving the forest management plans based on the Law of Nature Protection.

27. The **Faculty of Forestry** in Belgrade is the main academic institution conducting research dedicated to forests and forming forestry professionals in the country. The **Institute of Forestry in Belgrade** and the **Institute for Lowland Forestry and Environment** in Novi Sad are associated research institutes which, among other functios, are performing forest condition monitoring in the framework of the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests).

28. The **State Environmental Protection Agency (SEPA)**, as part of MEP, is collecting data from various sources to publish periodic reports on the environment in Serbia for the Serbian Government and Parliament as well as to the international community such as the European Environment Agency (EEA) and the Council of Europe.

29. The **Chamber of Forest Engineers** is a professional body recognized by the Forest Law with a main goal of improvement of capacities of forestry professionals in implementation of SFM through continuous on the job trainings and education, providing services in private forests, as well as protection of public interest in the forests and protection of their personal professional interests. It provides licensing services for forest professionals. The Chamber has recently been founded and is in its early stages of institutional development.

30. **Private forest owners associations (PFOA)**: The level of organization of the PFOs is generally low. No numbers are available, however, experts state that a small minority of the PFOs pertain to a PFOA. Of the 15 registered associations, only 7 are active. The PFOAs articulate the interests of the members vis-à-vis public sector institutions, for example subsidies for forest roads.

Private forest owners

31. Currently, here are around 800,000 private forest owners in Serbia including individual forest owners, as well as institutions, notably churches and monasteries, agricultural companies, and water management companies. There are different estimates, and due to the incomplete Forest Information System, the exact number is not known. The State Enterprise Sribjasume, determined the number at 932,524 in 2014. Individual private forest holdings are generally very small: 70 % of private forest owners own less than 1 ha of forest, and 98 % own parcels less than 10 ha.

32. PFOs harvest wood mainly for firewood. Revenues from the sale of wood typically make up less than 25 % of the household income.

Table 1.3: Structure of private forest owners in Serbia

Area (ha)	PFOs (Number)	Percent of total
0,01-1	665,968	71.4
1-10	253,419	27.2
10-20	10,507	1.1
20-30	1,887	0.2
>30	743	0.1
Total	**932,524**	**100**

Source: Srbjasume (unpublished)

Legal and political framework

33. The **Forest Law** (2010) provides the main legal framework for forest conservation and management in Serbia. The Law "shall ensure the conditions for sustainable management of forests and forest lands as goods of public interest, in a manner and to an extent which conserves and enhances their productivity, biological diversity, ability to regenerate and vitality, and increases their potential for the mitigation of climate change and their economic, ecologic and social functions, without inflicting damage to the surrounding ecosystems" (Art. 3).

34. Article 4 of the Law specifies that: "The activities of public interest shall include forest conservation, protection and enhancement, utilisation of all forest potentials and functions, and the establishment of new forests in the aim of achieving the optimal forest cover percentage, spatial distribution, and the growing stock structure in the Republic of Serbia."

35. The Forest Law was updated in 2015. Tha main change is the introduction of a new level of planning – the Forest area, defined as "planning, geographic and natural units which comprises forests and forest land of forest areas and national parks", in substitution of the previous Forest districts. Forests and forest land in Serbia are now divided into seven Forest areas, each of them includes 3 to 4 of the previous Forest districts.

36. The **Law on Nature protection** (2009) regulates the protection and conservation of nature and biological, geological and landscape diversity. It sets the following goals: i) Protection, conservation and development of biological (genetic, species and ecosystem), geological and landscape diversity; ii) Harmonization of human activities, economic and social development plans, programmes, bases and projects with sustainable use of renewable and non-renewable natural resources and long-term conservation of natural ecosystems and a natural balance; iii) Sustainable use and/or management of natural resources and goods, maintenance of their function, along with conservation of natural values and the balance of natural ecosystems; iv) Timely prevention of human activities and actions which may lead to permanent depletion of biological, geological and landscape diversity, as well as disturbances with negative consequences for nature; v) Determination and monitoring of nature status; vi) Improvement of the state of disturbed parts of nature and landscapes. Article 9 of the Law has a crucial influence on forest planning and management. For all forest related plans and activities plans, bases, programmes, projects, works and activities, the responsible legal entity that prepares the plan needs to obtain the list of management restrictions for nature protection that are issued by the responsible institutes; the Institute for Nature Conservation in Serbia in Belgrade for the Central part, and the one in Novi Sad for the Vojvodina. The Forest Management Plan cannot be adopted without these conditions. This provision applies to all forests, regardless of whether they are located within a protected area or no.

37. **The Forestry Development Strategy**[6] (FDS, 2006) sets the operational framework for forest development and planning in Serbia. It defines conservation and improvement of biodiversity in forest areas as one of its goals as a part of the concept of sustainable forest management. The basic goal of the Strategy is to preserve and improve the state of forests and to develop forestry as an economy branch. The Strategy recognises the importance of the forest sector and forests in conservation and improvement of the environment and in nature protection; conservation, sustainable use, and valorisation of forest biodiversity are among major objectives, as well as improvement of sustainable forest management in protected areas. The strategy also foresees the elaboration of the National Forest Programme, which will be developed under this project.

38. Concretely, the FDS defines two levels of forest planning:

    1. The level of general forest-development planning at regional level, i.e. planning of forest functions within larger regions (forest areas), irrespective of forest ownership is the responsibility of the Government;
    2. The level of forest management planning is at the level of forest management units and is the responsibility of forest owners.

Regional forest development planning

39. Forests and forest land in Serbia are divided into seven Forest Regions as per amendment of the Forestry Law in 2015. Forest Regions are defined as "planning, geographic and natural units which comprises forests and forest land of forest areas and national parks".

40. For each of these areas a **Regional Forest Development Plan** must be prepared (Article 18). This planning document, defines the directions of development of forests and forestry for a specific region. The Development Plan includes particularly the legal, strategic and planning framework; the survey and analysis of the state of the forest and previous management; designated forest functions and forest management objectives; program of measures and activities and guidelines for implementation of planned operations; the projection of the expected effects and indicators for monitoring the implementation of the development plan. The Development Plan shall be harmonised with other planning documents the Spatial Plan of Serbia. The Forest Development Plan is approved by the Government for a 10-year period.

41. For the moment, no Forest Development Plans have been prepared.

Forest management planning

42. Based on the regional Forest Development Plan, more detailed planning documents are elaborated depending on the planning unit category:

- **The 10 year Forest Management Plan:** for all state forests independent of size of the forest and for private forests with a forest area bigger than 100 ha.
- **The 10 year Forest Management Programme:** for all private forests smaller than 100 ha at municipality level.

43. Forest Management Plans for forests owned by the State as well as Forest Management Programme at municipality level which encompasses over 99 % of the private forest owners are mostly elaborated by either the Forest Faculty or by Srbijasume and Vojvodinasume. In the case of private owners with an area bigger than 100 ha, FMPs usually are prepared by

[6] doc. nr. SG RS 59/2006 od 11.07.2006

service providers, including private forest management organisations or PEs Srbijasume and Vojvodinasume.

44. According to the Law on Forests, the Forest Management Plans and Forest Management Programmes, that include protected areas at national level, must get approval of the ministry responsible for nature protection. Each draft 10-year Forest Management plan andForest Management Programme is reviewd by the relevant Institute for Nature Conservation, which prepares a set of conditions for nature protection that have to be incorporated into the document.

45. For the elaboration of the 10-year Forest Management Plan, a detailed **forest stand inventory** is carried out aimed to map the forest resource at the spatial level in forest management (stand level). These forest stand inventories are carried out for state forest areas and areas of private owners bigger than 100 ha. Stand inventories are done using a unique methodology and codebook. For each of the 560 management units there is a separate database in MS access format.

46. All Forest Management Plans and Programmes must include guidelines on the implementation of management plans such as measures for forest protection, forest regeneration, stand thinning, stand harvest, as well as measure for protecting biodiversity.

47. Based on the 10-year Forest Management Plan and Programmes, annual operational plans called **Annual Forest Management Plans** have to be prepared at Municipality level and at Forest Unit Level.

48. Elaboration of the annual operational plan is the responsibility of the owner and has to be completed no later than 30 November each year for the following year. The annual operational plan defines in particular: the scope, place and dynamics of the works on forest protection, silviculture measures, production of seedlings, and construction of technical infrastructure.

49. The interrelation between the planning documents is illustrated beneath in the two figures, one for the context of the Forest Management Plan for the Forest Management Unit (FMU) and one for context of the Forest Management Programme on municipality level. The planning unit can be either located inside or outside a protected area.

Incentive mechanisms and certification schemes

50. Incentives schemes to promote sustainable forest management are weak and need to be strengthened. Incentive mechanisms for private forest owners are currently limited to grants for forest road building and free plant material. There are no fiscal incentives, or access to forest extension services, to promote sustainable forest management.

51. In terms of certification schemes, only public forests are certified through the Forest Stewardship Council (FSC®) certificate. PE Srbjasume has certified 206.478 ha and PE Voivodinasume has certified 129.516 ha, which, in the case of PE Voivodinasume, corresponds to 100 % of the managed forests. Forests administered by the National Parks and non-state forests are currently not covered by any certification schemes.

1.2 THE CURRENT SITUATION

1.2.1 Threats to Global Environmental Benefits

52. Forest degradation, along with resulting habitat loss and fragmentation, is one of the key environmental problems faced by Serbia at present. Forest degradation on a large scale has resulted in loss of forest carbon, biodiversity and other key ecosystem goods and services, but also substantially reduced potential of Serbian forests to act as carbon sinks.

53. Based on the data of the National Forest Inventory (NFI) conducted in 2009, the general condition of Serbian forests can be described as bad. The forest cover reaches 29.1% of the territory, is far below the target of 41.4% set out in national strategy and policy documents. Serbian forests are characterized by low standing volume of only about 161 m³/ha and a low annual increment of about 4.0 m³/ha. The unsatisfactory condition of Serbian forests is also characterized by:

    (1) unfavourable structure by origin and sylvicultural system: 64.7% of forests are coppice forests with barely half of the potential increment;

    (2) unfavourable preservation of the forest condition: 29% of all forests are degraded with wood production of barely 3.1 m³/ha;

    (3) very unfavourable age structure of natural high forests as well as coppice forests;

    (4) Absence of natural regeneration on 268,000 ha;

    (5) unfavourable health condition: nearly 50,000 ha of forests are in different stages of decay;

    (6) low technical and managerial capacities of forest users and private forest owners, often using obsolete and old equipment for forest sylviculture and harvesting activites.

54. Root causes include the following:

Illegal extraction of timber

55. Illegal extraction of timber is mostly carried out by local population, mainly for personal consumption. Especially in the last few years the problem has intensified due to rising costs for energy. Data collected within the scope of FAO project on "Wood Energy for Sustainable Rural Development in Serbia" showed that 3.85 million m^3 of wood fuel was unregistered, of which approx. 2.76 million m^3 came from the 'gray market', i.e. from private forests.

Forest fires

56. Forest fires cause significant damages every year. In 2007, there were 258 fires affecting over 16,144 ha of forests. Fires are generally caused by inappropriate agricultural practices and tourism activities, this is exacerbated by very dry summers. Aggravating this situation, there is limited forest road infrastructure in Serbian forests which would allow adequate forest fire management and control. Both Law on Forests and Law on Wild Game and Hunting specify very clearly the obligations on forest users' and owners' part in preventing and remedial actions in the context of fires. In reality, due to reasons described further below, forest fires are still a significant cause for forest degradation and destruction.

Agricultural, energy and construction sector impacts

57. Agriculture has both positive and negative impacts on forests. On the one hand, in the past decades, forests have naturally regenerated on agricultural land abandoned by their owners. In the past few years, however, agricultural investment has increased. Investors buy large tracts of agricultural land and clear the regenerated forest for agricultural production, which is more profitable than forestry. Also, burning of agricultural wastes on the field causes forest fires almost every year.

58. 1.2 million of Serbian households, particularly in poor rural areas, rely on fuelwood to cover their energy needs. Currently the demand exceeds the potential supply from available forest resources. Therefore, afforestation and restoration need to be promoted in order to ensure locally sufficient supply for energy needs, but also for the wood-based industry and the economy as a whole.

59. Finally, pressure on forests from construction sector has become more severe due to big infrastructure projects (highways, industry, oil pipelines, etc.). Over the next years, 10-20,000 ha of forests is estimated to be converted into land for construction, with no or limited afforestation projects to compensate for the loss in forest area.

1.2.2 Baseline initiatives

Forest management and protection

60. The Ministry for Agriculture and Environmental Protection (MAFW) implements various forest management and protection related activities from resources under the Forest Fund and a fund for specialized services in private forests as the part of the Forestry Directorate overall yearly budget for providing services in private forests. This fund will form the main baseline for this GEF project, for both components 1 and 2.

61. The **Forest Fund** is a special account for forest improvement and protection established under the Law on Forests. Based on draft National Forest Programme, every year the Government approves Annual Regulation on how to utilize money from the Fund. Activities that would form the baseline are; amelioration of degraded forests and shrubs, silviculture in state-owned forests, protection and maintenance of newly established forests, maintenance and construction of forests roads for forest reforestation and afforestation, protection of forests against forest fires, R&D for forestry development, development of forest management plans (regional forest management plans and forest management plans for private forests), training, and importantly National Forest Inventory (NFI). The Forest Fund also includes a special fund to provide technical assistance to the private forest owners and associations in the implementation of management plans. The special fund represents the proceeds by the tax on wood harvesting, and is executed through the **PEs Srbjasume and Voivodinasume**.

62. Vovjvodinasume and Srbjasume manage over 90 % of the State Forest in Serbia. PEs are in charge to sustainably manage state forests, make them economically profitable and maintain their environmental functions. This includes collecting seeds and reproduction material, forest protection activities, tending, harvesting and finally selling the wood. In addition PEs provide technical assistance to Private Forest Owners (PFOs) and PFO Associations (PFOAs). Forest management in Protected Areas is implemented by the National Park Administrations, which are also organized as Public Enterprises.

Training and capacity development in the forestry sector

63. The **Technical High School in Kraljevo** is the primary center for the education of forest technicians in the country, and the venue for forest related capacity building of the MAFW.

In addition, the **Chamber of Forest Engineers** is a professional body with the mission to improve of capacities of forestry professionals in implementation of SFM through continuous on the job trainings and education, providing services in private forests, as well as protection of public interest in the forests.

64. The **German Ministry for Food, Agriculture and Consumer Protection (BMEL)** has been cooperating with the Government of Serbia for several years, strengthening capacities of forestry sector institutions, and developing guidelines on SFM. The project Promotion of Vocational and Practical Postgraduate Training in the Serbian Forestry Sector, currently under final negotiation, will be implemented in 2017-2019 and will aim to develop and implement vocational training and practical postgraduate training programmes for relevant professional group. The project will target Serbian forest engineers, forest technicians and forest workers; Trainers and employees of the forestry chamber of forest engineers and technical schools; and public forest enterprises Srbijašume and Vojvodinašume. The project envisages the following results: i) Guidelines for the implementation of sustainable forest management in the respective forest management units are officially adopted and vocational training and practical postgraduate trainings based on them are developed; ii) The forestry chamber is able to fulfil the tasks defined in forestry law and implements vocational training and practical postgraduate training measures for forest engineers based on a licensing system accepted by all parties; iii) The vocational training and practical postgraduate training of forest technicians is improved at a selected training centre acting as pilot centre; iv) The implementation of practical work in the forest by forest workers is improved and a concept on vocational training and practical postgraduate training of forest workers is elaborated; v) The prerequisites for starting co-operations and partnership between German and Serbian institutions and associations on the topic of vocational training and practical postgraduate training are established.

65. The baseline also include the **FAO** project *Capacity building for sustainable wildlife management*, to be funded under the Technical Cooperation Programme (TCP). The project aims to develop an improved system for planning and monitoring wildlife populations and their habitats. The expected result is an informed and evidence-based decision-making on wildlife related issues, using a landscape approach and focusing on livelihoods. This includes developing a Report on management of wildlife resources in Serbia; strengthening national capacities for implementing wildlife resources assessment, management and monitoring; preparing an action plan for strengthening wildlife populations; and drafting a proposal for the National Development Wildlife Management Programme. The project will be implemented in 2017-2018 with a total budget of USD 300,000.

66. The project will also build on the results achieved under two initiatives financed through **European Union Instrument for Pre-accession Assistance (IPA)**, which are currently in their final phase: *Technical Assistance project "Climate Change Strategy with Action Plan"* (2016-2017) and *"Establishment of a mechanism for implementation of the Monitoring Mechanism Regulation (MMR)"* (2015-2017). The projects assisted in the preparation of a comprehensive cross-sectoral climate change strategy and action plan, identify and assess cost-effective GHG mitigation potential for Serbia, while taking into account policies and goals, and assessed opportunities for and costs of climate change adaptation. Furthermore, the projects helped review and improve the legislative and institutional framework, and built capacities of all relevant stakeholder necessary for successful transposition and implementation of MMR and ESD as well as to improve the reporting to UNFCCC. Results included an Action plan for legal framework, draft Law on Climate Change, Training Needs Assessment, Recommendations for institutional set-up, QA/QC procedures for SEPA's development of the GHG inventory and capacity building of the Ministry and SEPA staff.

1.2.3 Remaining barriers

67. The main barriers that need to be addressed to overcome the problems described above are as follows:

1. Weak information systems and availability

68. The lack of a comprehensive availability of updated information on forests, including forest biodiversity, carbon stocks and socio-economic aspects, is a significant barrier for developing and implementing multi-functional forest management plans at local level. Furthermore, it hinders Serbia to fulfill its international reporting obligations related to biodiversity protection and climate change mitigation at European and global levels. Such requirements include the CBD and UNFCCC at global level, as well as Natura 2000 and the EU LULUCF requirements at European level.

69. Serbia conducted a national forest inventory in 2009. Due to limited resources and methodological shortcomings, information on biodiversity, interaction between forests and climate change, anthropogenic-induced destabilization factors (forest fires, excessive felling, etc.) as well as socio-economic information, were not collected.

70. Although the Law on Forests requires the development of a national forest information system, and an Integrated Forest Information System (IFIS) development study was conducted in 2005, there has been very little progress in its implementation. There is no comprehensive information management system to enable effective decision making related to biodiversity conservation and SFM that incorporates BD concerns and climate change mitigation issues. Whatever information available, at present, is difficult to access and is not organized nor presented to effectively support decision-making processes at management or policy levels.

71. Forest data and biodiversity data are spread across a variety of databases that are not accessible for the respective institutions working in the forest sector, which means that available data are not used to the extent possible There is especially space for more effective allocation of available human capacities and improved coordination between the MAFW, the forest sector forest sector and the Institutes for Nature Conservation. Lack of co-ordination also leads to overlapping research and irrational use of the modest human and material resources.

72. The current GHG inventory in Serbia is based on the annual data on timber harvesting from the statistical office and on the results of the latest NFI (2009) in regard of growth and forest stock. The current system established has several weak points such as low level of detail, no dynamic data for forest growth (only one growth rate used for the entire period), high uncertainty of the default values used and a low knowledge of the GHG inventory team on forestry dynamics.

73. The weaknesses of the GHG inventory system, needs to be addressed through an adapted NFI design and improved cooperation activities of the Serbian Environmental Protection Agency, SEPA, responsible for the GHG inventory and the Forestry Directorate, responsible for the NFI.

74. Finally, there is no rulebook or protocol on the exchange of information between institutions, which are responsible for nature protection and use of natural resources. All geo-spatial data and data from other inventories are found in databases held by the institution

collecting the data. Data exchange is based largely on good personal connections between employees of the institutions.

2. Inadequate policy and strategic framework and sectoral coordination

75. The National Forest Development Strategy (2009) provides general guiding principles and goals for the sector. The strategy is comprehensive in providing the generic and globally recommended directions for sustainable forest management and biodiversity conservation. However, no specific guidance and priorities in the context of forest carbon management and climate change, and integration of biodiversity conservation in productive landscapes is provided. This is an important barrier to overcome at the national level. It is essential to clearly prioritise and set specifc pathways for sustainable forest management that incorporates climate change mitigation and biodiversity conservation objectives for systematic implementation. The Forest Fund also lacks policies and guidelines for how to mainstream biodiversity conservation practices and objectives into its work, especially in non-state forests.

76. The FDS is rather accurate in formulating the institutional shortcomings to introducing sustainable forest management. Not much has changed, which among others can be contributed to the fact that the strategy lacks an implementation strategy or action plan. Management is not sufficiently effective due to defects in the system of financing, underdeveloped capacities of inspection and management institutions as well as an uncoordinated monitoring system. The current set-up of having the forest and nature conservation sectors in two Ministry requires closer and more efficient collaboartion for integrating biodiversity concerns into forest management. Past practice showed that the various departments within the MAFW and MEP were working rather independently and an institutional structure to support effective cooperation between the forest and nature conservation sectors is missing.

77. The need to strengthen the coordination is urgent in view of enabling the integration of biodiversity concerns into forest management but also to mainstream the requirements stemming from the EU Birds and Habitats Directives with forestry, agriculture and water management. Currently the forest sector is not sufficiently involved in the Natura 2000 process. Such involvement is essential in order to achieve favourable conservation status of Natura 2000 forest habitat types and species. The FDS proposes to have the forest sector actively participating in the formulation of the National Strategy and Action Plan of biodiversity protection and enhancement.

3) Lack of involvement of the private forest sector

78. The lack of involvement of the private sector in forest management programmes, also the lack of capacities and incentives for the private forest owners is a real barrier for achieving sector wide acceptance and introduction of sustainable forest management in Serbia.

79. Nearly 50% of the forests are owned and managed by private persons or institutions like monasteries and churches. Although there is little knowledge about extent to which sustainable forest management is practiced in private forests, experts suggest that management does not take the principles of sustainable forest management into account. Currently there is close to none cooperation and exchange of information between the public forest sector in terms of policy making and management, and the private sector. The only link is through the elaboration of the management plans for the forest management units through the Public Enterprises. However, in practice, these links are mostly very indirect,

as over 99 % of the private forest owners who own less than 100 ha of forest fall under the forest management programmes at municipal level.

80. Involvement of private forest owners, poses an important challenge for meaningful SFM implementation, in particular regarding biodiversity conservation, which require implementation of practices at scale to restore and maintain habitats. The number of PFOs is very high (about 800,000), and the size of individual holdings is very small – 70 % of the PFOs own less than 1 ha of forest.

4) Lack of understanding and technical capacity on Sustainable Forest Management

81. In Serbia, there is a lack of understanding among forestry professionals on sustainable forest management and its linkages with economic, social and environmentally sound development. In particular, the linkages between forest management and climate change adaptation and mitigation, as well as forest management and biodiversity conservation, are not well reflected in management practices and plans. The insufficient number of trained personnel for biodiversity monitoring and multi-functional forest management hampers mainstreaming biodiversity conservation and climate change mitigation in forest management plans. Increasing the knowledge about SFM harmonized with climate change concerns and biodiversity management and protection is especially relevant in view of the commitments of Serbia stemming from the Paris Agreement and from the Natura 2000 obligations.

82. The technical expertise available to support forest inventories and management planning of the forestry administration is limited. The technical capacity in the Forest Directorate is limited to 58 persons. Apart from the Public Enterprises Srbijasuma, Vojvodinasume, the Forest Faculty and a few private forest management organisations, some of the five National Park enterprises have own forest experts who are responsible for the stand inventories as well as the elaboration of management plans for the national parks. In cases where there is a lack of capacities in the National Park, the Forest Faculty has been responsible for the elaboration of the management plan.

83. Finally, and importantly, there are currently no mechanisms in place to support private forest owners in updating their knowledge and capacities to improve management practices so that these are harmonized with the requirements of biodiversity protection and climate change adaptation and mitigation. To change this situation a special approach is required to permanent and qualified education and information of private forest owners. The creation of a forest extension service to help private forest owners and support to the creation and strengthening of forest associations are possible remedies to address the current shortcomings.

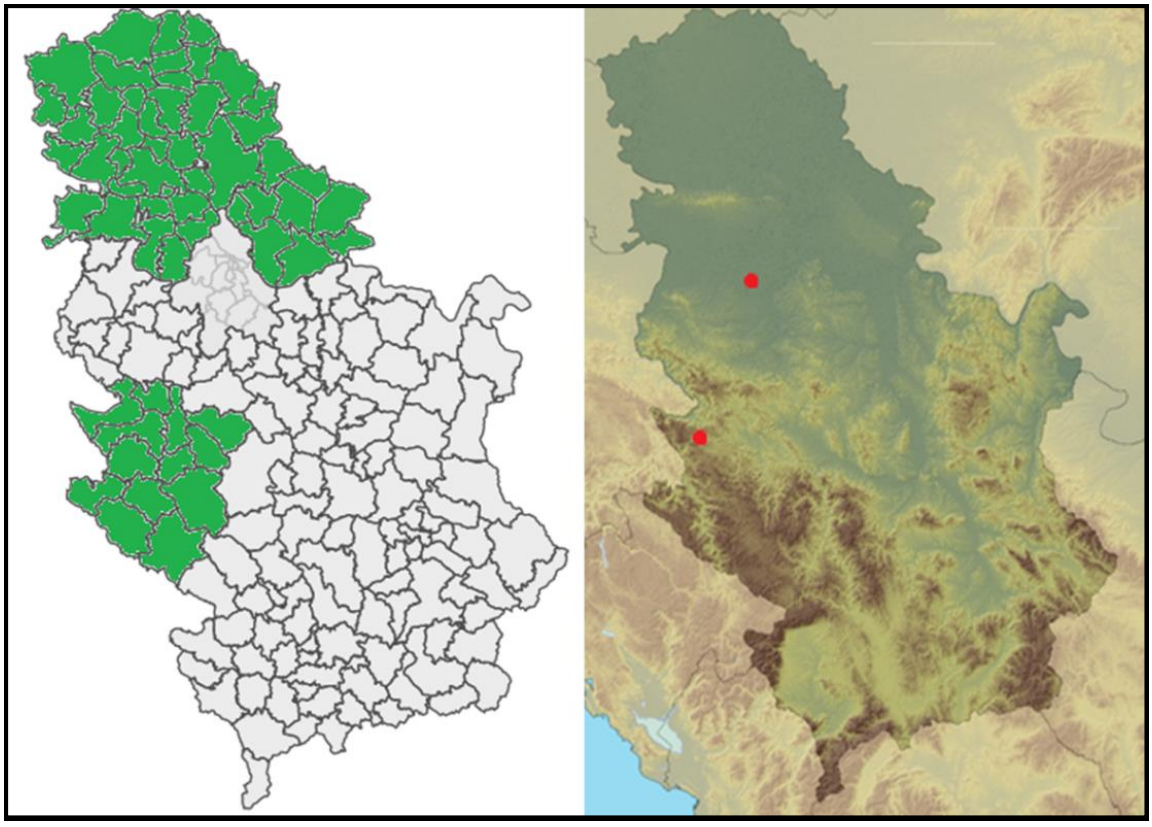
1.2.4 Areas of intervention

84. At territorial level, the project will focus its intervention in selected pilot areas at three levels: forest region, protected area, and forest management unit.

85. At regional level, the project focuses on two of the seven forest regions recently defined through the amendment of the Forest Law: Western Serbia and Voivodina. The regions have been selected because they represent diversity in terms of biogeographical region, landscape, and forest type.

Table 1.4: Basic information of the two project intervention areas

Selected regions	Bio-geographical region	Landscape	Forest types	Forest cover, ha
Vojvodina	Panonian region	Low land	Poplar, Oak and Ash	152.004
West Serbia	Continental region	Mountain	Beech and Conifers	324.006
			Total	**476,010**



Map 2. Location of the two selected regions in Serbia (Source: Dejan Miletic, SE Srbijasume).

86. Within each region, one protected area has been selected: The Obedska Bara in Vojvodina and Tara Mountains National Park in West Serbia. These two areas are selected because they represent different protection levels, management structures and forest types. Both protected areas include state and non-state ownerships, which is also an important criterion when it comes to improving forest management in Serbia.

87. The Obedska Bara Special Nature Reserve in Voivodina region is partly protected as a Special Nature Reserve and as a Ramsar site and is dominated by lowland oak forests. It is famous for its different marsh and forest habitats, numerous species of mammals, fish, amphibians, reptiles, insects and exceptional abundance of flora, ichtyofauna and

ornithofauna. The Obeska Bara was included as a biological hotspot along the Sava River.[7]Thanks to the low altitude and the strategic importance of the Oak forests present in the area, the Obeska Bara is still in a close-to-natural state, with gradual changes in land cover and land use. The mosaic of forests and wetlands with patches of natural biotopes is dominated by a mixture of old lowland Pedunculate Oak-Ash-Hornbeam forests. Complexes of lowland ecosystems are of outstanding quality due to the natural flooding. Annex 8 contains a list of Natura 2000 habitat types and focal species in Obedska Bara.

88. The Tara Mountains in Western Serbia region are protected as a National Park and the dominant forests are beech and conifer forests. The Tara National Park hosts 34 forest and 19 meadow communities where the forest plant communities are of the greatest value of the Park. Due to the favorable geographical position and various environmental factors contribute to a great biological diversity, the species found in the Tara National Park, make up one third of the flora of Serbia (more than 1100 species). Tara is known as a refuge for many endangered endemic, relict and endemic-relict species, amongst which the most valuable is the endemic- relict Serbian spruce. There are 210 species of plants under the government protection in the Tara National Park: 47 species are strictly protected, while the remaining 163 are endangered species. Endangered plant species include Mountain maple, Derventan Cornflower, Gladioli, Orchids and Crested wood fern. There are five (5) species listed as Red Book of flora of Serbia: Leontopodium alpinum – Edelweiss, Waldsteinii trifolia, Adenophora lilifolia – Lilyleaf Ladybell, Cladium mariscus – Saw sedge, Dryopteris cristata – crested wood fern. Annex 9 contains further information on species and habitat types found in the Tara National Park.

89. At the forest management unit level, 2-4 FMUs will be selected in each region based on the following criteria: i) Forest ownership (public/private forest, diversity of forest owners), ii) Diversity of forest types, iii) Location within and outside of the protected area, 4. Area covered. The selection of the pilot FMUs will be done at project inception.

90. For a detailed description of the project intervention areas, please refer to Appendix 7.

[7] Project “Protection of Biodiversity of the Sava River Basin Floodplains” 2007-2009 (http://savariver.com/)

1.3 THE GEF ALTERNATIVE

1.3.1 Project strategy

91. The project strategy is aimed at strengthening capacities of actors of the public and private sector of mainstreaming biodiversity conservation and management of carbon stocks into forest management planning and implementation. This will mainly be achieved through (i) improving information availability to enable informed decision making in forest development and management, and reporting according to international standards and practices, (ii) strengthening coordination and dialogue between key public and private stakeholders, (iii) strengthening capacities of forest managers to implement SFM practices through guidance materials and trainings and (iv) generating strategies to provide incentives to private forest owners to engage in SFM, and (v) implementation of updated forest development plans and forest management plans according to SFM guidelines in two pilot regions, taking a landscape approach.

92. The strategy builds on the close engagement of key stakeholders to ensure sustainability of the results. The capacities of the public forest enterprises which by law manage public forests and perform technical activities the private forests will be strengthened. Private forest owners and their associations will be engaged in training and technical assistance activities at the local level, as well as in the coordination platform at the national level.

93. The project objective will be delivered through the following three components, building on the baseline initiatives outlined in section 1.2.2.

Component 1: Enabling environment for multifunctional sustainable forest management

94. ***This component will address barriers 1 (weak data availability and information systems) and barrier 2 (weak policy and strategic framework).*** Through this component, decision making capacity of actors in forest policy and management will be improved ensuring that up-to-date information on forestry, biodiversity conservation and carbon stocks is available as well as collected, processed and analyzed according to international standards and requirements. To address information gaps, methodologies to collect forest biodiversity and carbon data will be developed both for the forest inventory as well as the forest development and forest management plans at regional and local levels.

95. Understanding social issues of forest management is also necessary to achieve the most optimal policy development and implementation. A mapping on private forest owners and users will be conducted and data on forest use will be collected (disaggregated by sex and age). This will allow policy-makers to develop strategies that can ensure sustainable use of forests and better livelihoods of owners and users. In addition, the Government of Serbia will be supported in the development and implementation of indicators to monitor the use of forests by forest owners and users disaggregated by sex, age, and educational level, and on the type of use of forests (collection of NWFPs and firewood; for subsistence or marketing).

96. Taking in consideration the principles and guidelines introduced by the Voluntary Guidelines on National Forest Monitoring[8], the second NFI will be carried out, assessing biodiversity and carbon information on the ground. Furthermore, an integrated Forest Information System will be developed to enable users to access the information for strategic and operational purposes. This will enable Serbia to report to Forest Europe, to identify potential Natura 2000 sites with high conservation values and to prepare distribution maps

[8] FAO 2017. Voluntary Guidelines on National Forest Monitoring. Available at: http://www.fao.org/3/a-I6767e.pdf

of Natura 2000 forest habitat types. Furthermore, a Monitoring, Verification and Reporting scheme for the forest sector will be developed to allow reporting on the the carbon balances of the sector according to international standards. This will also facilitate the country's access to international climate funding.

97. Under this component, climate change mitigation (CCM) and biodiversity (BD) concerns will be mainstreamed into the forest development strategy through the development of guidelines for good SFM practices. Based on these guidelines, manuals for forest planners, managers and users to at regional and management unit level will be developed to conduct Nature Value Asessement and Key Biotopes mapping. Key stakeholders from public, private, academic sectors and civil society will take an active role in advising the processes and validating the products through a multisectoral coordination platform on SFM.

98. Finally, institutional capacities on sustainable forest management will be strengthened through a comprehensive training programme for forest planners and managers.

99. Co-financing for this component amounts to 6.194.237 USD will include contributions from the Forest Fund for the implementation of the National Forest Inventory (NFI), in particular the remote sensing component, such as salaries of staff, equipment, and the adquisition of satellite images. The PEs Srbjasume and Voivodinasume will provide complementary staff and equipment for NFI implementation, particularly for field surveys, as well as the development of the FIS. The Forest Institutes in Belgrade and Novi Sad will provide staff resources to contribute for the development of the methodology for forest and biodiversity information collection and management. The Forest Technical High School in Kraljevo will support the capacity building programme through its training activities. Finally, the Chamber of Forest Engineers will provide support to the capacity building component through its training and advisory services.

100. GEF incremental financing for this component amounts to 2,144,108 USD and will cover international and national consultants for the development of a methodology for improved biodiversity and carbon assessment in forest inventory, planning and management. GEF funds will be used for experts and equipment to develop an integrated information system containing easily accessible forest and biodiversity related information, including hardware, software and training of users and operators. Furthermore, GEF resources will be utilized to expand the scope of the NFI to include information relevant to biodiversity and climate change mitigation and to move towards an integrated Forest Ressources Assessment and Monitoring System. Funds will also be provided for experts to develop an MRV system for the forest sector as integral part of the NFI, as well as guideline documents for good SFM practices for common forest types. GEF incremental resources will also ensure policy and legislative level changes to incorporate BD and climate change concerns in to forest management, and sectoral coordination. Finally existing capacities will be strengthened by focusing on specific aspects relevant to mainstreaming biodiversity and climate change mitigation concerns into forest management.

Component 2: Multifunctional forest management

101. This component will primarily address barrier 3 (lack of private sector involvement) and barrier 4 (lack of capacity on SFM implementation). Based on the methods and tools developed under component 1, this component will aim to mainstream carbon stock, biodiversity conservation and socio-economic issues into forestry development and management plans at regional and local level. Interventions along the complete planning cycle at forest region, management unit and management programme levels according to the Forestry Law and Forest Development Strategy will ensure scalability from pilot to

national level. Interventions will focus on two pilot regions, West Serbia and Vojvodina. The regions have been selected to include representative forest types, as well as an array of public and private owners, including the church. Furthermore, they include two important protected areas, the Obeska Bara and Tara National Parks, with a total area of 44,658 ha.

102. Co-financing for component 2 of 17,902,904 USD will include contributions from the Forest Fund for the development and implmenetation of forest management plans, including targeted investments and technical assistance for forest protection, afforestation, tending of newly established forests, as well as maintenance and construction of forests roads for forest reforestation and afforestation. Furthermore, the Special Fund for assistance to private forest owners will provide support to the private forest owners and their associations in development and implementing FMP's such as marking of trees and issuing of marketing licences. These funds will be targeted at the pilot regions, but also in other parts of the country, providing a solid base for scaling up. The PEs Srbijasume and Voivodinasume will provide support in terms of staff and equipment for the implementation of local project activities, including setting up of demonstration plots for good practices, advisory and monitoring services to private forest owners, and development of Forest Management and operational plans. At the regional level, their will support staff and non-staff resources for the development of the forest development plans. PE National Parks :Tara NP, Fruška Gora NP and Djerdap NP will provide staff and equipment to support the assessment of the biodiversity status and impact of land use on biodiversity in the project areas, as well as or the development of improved FMP's in the FMUs under their respective jusidictions.

103. GEF incremental financing for component 2 (813,214 USD) will cover experts and travel costs to perform an evaluation of the current status for forest biodiversity, impacts and threats for Obeska Bara and Tara National Parks, as well as Nature Value Assessment and mapping of key biotopes in selected FMUs within and outside protected areas. Furthermore, experts and training resources will be provided to support Revision and updating on the Forest Development Plans for two pilot regions (Voivodina and Western Serbia) as well as 4-8 selected Forest Management Units based on manual and information from biodiversity assessment. Furthermore, technical guidance will be provided to private owners drafting of yearly operational plans of the selected FMUs. Resources will cover forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, and assessment of Natura 2000 restrictions to evaluate management options. Support to Forest Owners to implement practices defined in the operational plans will be provided through workshops for forest owners on FMP implementation and establishment of demonstration plots for typical management measures in common forest types. Furthermore,, GEF funds will be used to develop options for involvement of private forest users, namely (i) the development of a concept for a comprehensive forest extension service for private forest owners and users, (ii) analysis of potential incentives for forest owners to implement SFM (fiscal incentives, ecosystem services, market access, certification schemes), and (iii) an action plan and policy recommendations to mainstream incentives for SFM for private forest owners into forest policy. Finally, study tours for selected private forest owners from the pilot areas to visit successful implementation of SFM practices in other European countries will be funded.

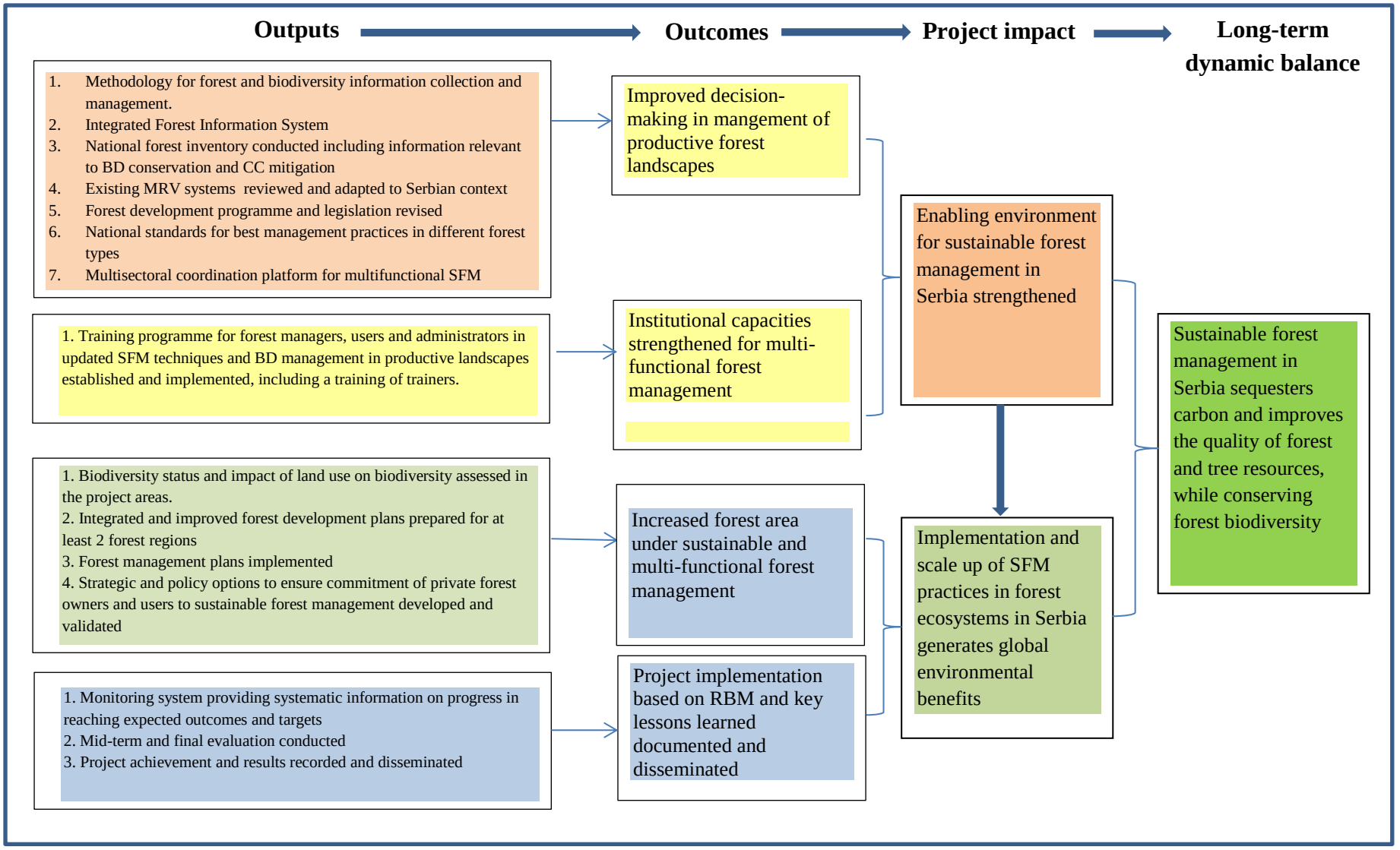
Component 3: Monitoring, evaluation and dissemination of lessons learned

104. This component will ensure that the project's progress is tracked and periodic evaluations are conducted for adaptive management. Under this component, project results and achievements will be disseminated for replicability and scaling up.

105. Co-financing for component 3 (1.983.000 USD) will include contributions from the Forest Fund for the use of offices, transportation, support staff, monitoring and evaluation of project achievements. FAO will provide in-kind contributions to ensure that the project results are showcased and disseminated in international networks on sustainable forest management.

106. GEF incremental financing for component 3 (161,400 USD) will cover the set up and maintenance of a monitoring and evaluation system according to FAO and GEF standards. Adequate staff resources of the coordination team will ensure that reporting requirements are met. Independent evaluators will be contracted to perform mid-term and final evaluations of the project. A part-time communications expert and communications equipment will ensure the development and implementation of the communication strategy, and the publication of a document on results and lessons. Finally, travel costs will be covered to present the project results at an international conference.

Figure 2. Project Theory of Change


Outputs
Outcomes
Project impact
Long-term dynamic balance
1. Methodology for forest and biodiversity information collection and management.
2. Integrated Forest Information System
3. National forest inventory conducted including information relevant to BD conservation and CC mitigation
4. Existing MRV systems reviewed and adapted to Serbian context
5. Forest development programme and legislation revised
6. National standards for best management practices in different forest types
7. Multisectoral coordination platform for multifunctional SFM
1. Training programme for forest managers, users and administrators in updated SFM techniques and BD management in productive landscapes established and implemented, including a training of trainers.
1. Biodiversity status and impact of land use on biodiversity assessed in the project areas.
2. Integrated and improved forest development plans prepared for at least 2 forest regions
3. Forest management plans implemented
4. Strategic and policy options to ensure commitment of private forest owners and users to sustainable forest management developed and validated
1. Monitoring system providing systematic information on progress in reaching expected outcomes and targets
2. Mid-term and final evaluation conducted
3. Project achievement and results recorded and disseminated
Improved decision-making in mangement of productive forest landscapes
Institutional capacities strengthened for multi-functional forest management
Increased forest area under sustainable and multi-functional forest management
Project implementation based on RBM and key lessons learned documented and disseminated
Enabling environment for sustainable forest management in Serbia strengthened
Implementation and scale up of SFM practices in forest ecosystems in Serbia generates global environmental benefits
Sustainable forest management in Serbia sequesters carbon and improves the quality of forest and tree resources, while conserving forest biodiversity

1.3.2 Project objectives, outcomes and outputs

Project objectives

107. Global environmental objective: To contribute to the conservation of biodiversity and climate change mitigation through the promotion of multifunctional sustainable forest management in productive forest landscapes

108. Development objective: To support government institutions and private forest owners in applying sustainable forest management practices at national, regional, and local levels in selected ecosystems through better knowledge, capacities, information and incentives.

Project outcomes

109. The objective will be achieved through four outcomes:

Outcome 1.1 Improved decision-making in management of productive forest landscapes at the national, regional and local level.

The targets for this outcome are as follows:

- Increased degree of support for low GHG development in policy, planning and regulations

Baseline: Rating 2: Climate change mitigation contribution in the forest sector mentioned in national CCM strategy, but outdated; no sectoral strategy and implementation

Target: Rating 6: CCM consideration reflected in sectoral documents and action plans, as well as forest development and forest management plans under implementation

- Quality of MRV systems

Baseline: Rating 2: Very rudimentary MRV available only taking into account forest area with assigned C-values, but not dynamics included, not covering the whole forest area and not up to international standards

Target: Rating 8: Strong standardized measurements processes established and implemented through NFI; reporting is widely available in multiple formats through FIS; verification of information through FIS

Outcome 1.2 Institutional capacities strengthened for multi-functional forest management

The target for this outcome is as follows:

- 10 institutions from public, private, academic and civil society institutions with increased capacities in SFM

Baseline: To be determined at inception, determined through a survey

Target: 10 institutions with a higher ranking than baseline, determined through a survey

Outcome 2.1 Increased forest area under sustainable and multi-functional forest management

The targets for this outcome are as follows:

- 20,000 ha of public and private forests in four (4) to eight (8) selected forest management units, under sustainable forest management plans, stratified by forest users, including afforestation, restauration of low-quality high forests, and conversion of short-rotation coppice stands into high forests in addition to the baseline situation in the management units (direct coverage).
  Baseline: to be determined at project inception, during the selection of the pilot forest management units

- 476,010 ha of public and private forests, in two (2) forest regions including two (2) protected areas covering 44,658 ha, under Forest Development Planning with special attention to biodiversity conservation and carbon sequestration (indirect coverage)
  Baseline: Zero (0) ha under Forest Development Plans covering carbon and biodiversity considerations

- 1,784,288 t CO2-eq sequestered through conversion of coppice into high forests, as compared to the baseline scenario.
  Baseline: 20 % of the planned interventions (see appendix 10 for a detailed description of the carbon benefits calculation)

110. Under the project, forest development plans (FDPs) for two regions (Voivodina and Western Serbia) covering 476,010 ha will be updated based on the methodology and information generated by the project. These FDPs will form the framework for the forest management planning in all forest management units in the regions. For example, areas identified in the FDP for forest regeneration, afforestation, or management restrictions due to biodiversity concerns must be reflected in the respective FMP. The area in the forest regions under improved FDPs is considered as ***indirect coverage***.

111. At the local level, two to four forest management units in each of the two pilot region will be selected covering at least 20,000 ha of public and private forests in total. These will be selected at project inception based on best available information on representative forest types, ecosystems, and ownership structure. In these pilot FMPs, the project will carry out mapping exercises and a continuous training program for forest owners and managers to enable the implementation of practices for biodiversity conservation and carbon sequestration which will be continually monitored over the project lifetime. The area of the pilot FMUs is considered as ***direct coverage*** of the project.

Outcome 3.1 Adaptive management ensured and key lessons shared

The targets for this outcome are as follows:

- One (1) M&E system ensuring timely delivery of reports on project benefits
  Baseline: 0 M+E systems
- One (1) communication and dissemination strategy implemented
  Baseline: 0 communication strategies

Project outputs:

112. The outcomes will be delivered through the following outputs:

Component 1: Enabling environment for multifunctional sustainable forest management.

<u>Output 1.1.1:</u> Methodologies for forest and biodiversity information collection and management harmonized with global and regional standards and reporting requirements

Targets:

- Methodology and guidelines for biodiversity information collection in NFI following international standards
- Methodology and guidelines for biodiversity assessment and management for forest planning at regional and management unit level, following international standards

Activities:

113. To achieve this output, the following activities will be carried out:

114. For the methodology for including biodiversity data into the National Forest Inventory, a full list of biodiversity data to be monitored, including a description of the selection criteria, including detailed elements under the five main groups: (i) Structures and Composition, (ii) Valuable biodiversity trees, (iii) Focal Habitats / Key Biotopes, including old growth, water bodies, etc., (iv) Focal Species, including selected indicator/flagship species, and (v) Impacts and Threats, including invasive alien species. Elaborate guidelines and manual and field forms for biodiversity assessment in forests as part of the NFI.

115. The methodoly will be designed to enable the preparation of maps of Natura 2000 habitat types for each bio-geographical region of Serbia. An analysis of the feasibility of linking the current biodiversity monitoring by the Institutes of Nature Protection with the NFI will be carried out. A training needs assessment for mapping biodiversity data for field mappers will be conducted.

116. For the Forest Region and Forest management unit level, data collection methodologies will include assessing nature values and key biotopes as part of the forest stand inventory, based on the five main groups. Furthermore, user-friendly tools, field mapping manual and field forms will be elaborated for conducting Nature value Asesement and Key Biotopes mapping in forests,. Also, guldelines will include planning measures for safeguarding and maintaining nature values and key biotopes based on the analysis of collected data at forest management unit and forest region level.

<u>Output 1.1.2:</u> Integrated Forest Information System including biodiversity, carbon and socio-economic information

Targets:

- Integrated Forest information System (IFIS) including web-based user interface operational

Activities:

117. Building on existing data sources, an integrated forest information system (IFIS) including biodiversity and forest carbon information will be established. The system will link currently scattered databases in the forest sector (Forest Directorate, public enterprises, national parks) as well as other relevant information sources on forest biodiversity, including the Institute for Nature Conservation in Belgrade and the Provincial Institute for Nature Conservation in Novi Sad, which maintain the main biodiversity databases INCVP (Novi Sad) INCS (Belgrade). Information from these databases will be integrated under a single umbrella.

118. The integrated information system will act as a single source of georeferenced information for informed decision making, in multifunctional forest management, at all levels. This includes:

- Information for strategic planning and analysis, for example, in forest policy, updating the national forest strategy, and reporting to international bodies such as FAO, Forest Europe/MCPFE, UNCBD and UNFCCC
- Information for tactical (medium and short-term) forest management planning, for example, development of the 10 year Forest Development Plans at regional level and Forest Management Plans at FMU/FMP levels
- Information for operational management and control, for example, design and implementation of the yearly operational plans at FMU/FMP levels, certification and monitoring of compliance with Forest Development Plans and Management Plans, for example, detection of clearcutting and forest fires.
- Information on socio-economic aspects of forests, with particular attention to the use of forests by local population.

119. IFIS will enable the integration of data relevant for biodiversity conservation and management based on outputs 1.1.1 and 1.1.3, as well as information on carbon stocks.

120. The IFIS design (Figure 1) will be based on Service Oriented Architecture with data service, processing service and catalogue service. The system will contain the following components: 1) web portal as the medium through which the users interact with the system and with each other; 2) central database (data repository); 3) metadata catalogue; 4) data service; 5) workflow component (management of the procedures); 6) data processing service; 7) GIS tools. Data will be publicly accessible in common formats through a user-friendly web interface, according to the needs of users.

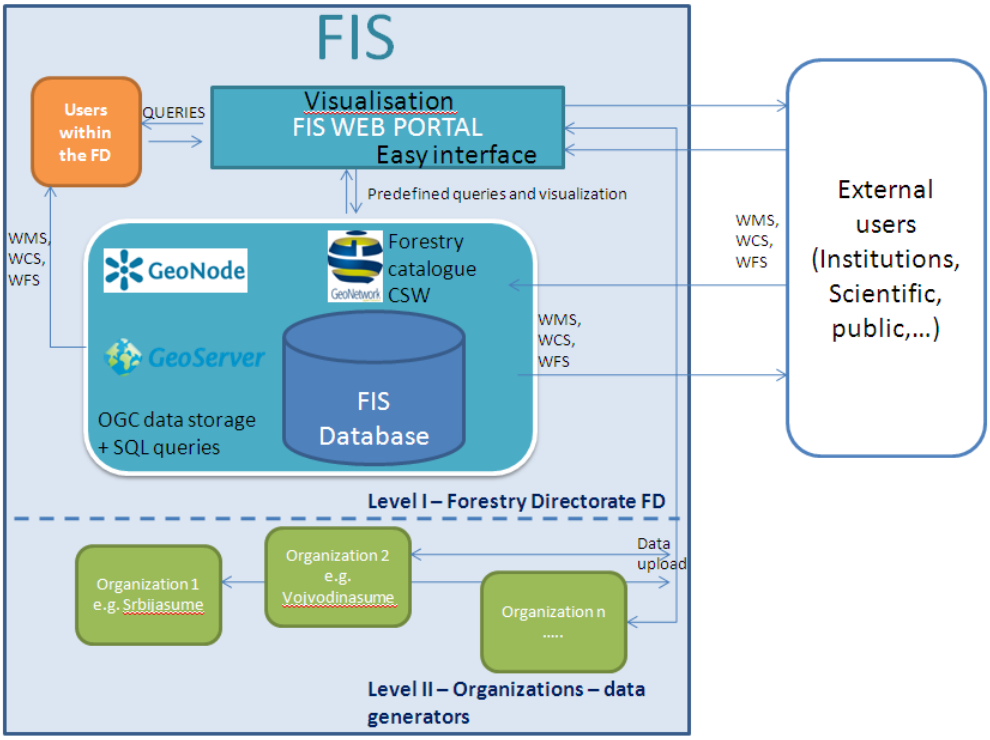


Figure 1. General concept of IFIS architecture

121. A training programme on data management will be carried out for 30 operators in institutions linked to the FIS platform, including public enterprises, the directorate of forests, the forest faculty and Institutes of nature conservation. The trainings will cover general rules and operational procedures, database architecture, use of GIS and GPS devices, remote sensing as modern source of forest information, and application of forestry software.

122. To familiarize forest managers and staff of agencies in the use of the information system, training on IFIS structure and use will be included in the SFM training programme implemented under output 1.2.1, as well as the trainingat field level (output 2.1.1).

123. The legal framework for the functioning of the information system will be strengthened, through development of a by-law which regulates information exchange of forest-related information. To further address barriers regarding data sharing, IFIS will be promoted among relevant actors to encourage participation, as part of the national roundtable (output 1.1.6) and through dedicated information material (output 3.1.3).

124. In addition, based on the pilot mapping carried out under Output 2.1.3, the Government of Serbia will be supported in the development and implementation of indicators to monitor the use of forests disaggregated by sex, age, educational level, and on the type of use of forests (collection of NWFPs and firewood; for subsistence of marketing). This indicator will feed the IFIS.

<u>Output 1.1.3:</u> National forest inventory conducted including assessment and collection of information relevant to biodiversity conservation and climate change mitigation

Targets:

- Total forest area (2,2 million ha approx.) covered through NFI, including identification of priority areas for biodiversity conservation according to the updated methodology

Activities:

125. Under this output, the project will support the Government of Serbia in carrying out the second National Forest Inventory (NFI), based on an improved methodology developed under output 1.1.1 drawing on lessons from the first inventory as well as from international experiences and the principles, elements and guidelines suggested on the FAO-Voluntary Guidelines on National Forest Monitoring. The scope of the inventory will be expanded to include information relevant to biodiversity conservation and forest carbon management. The inventory will include three stages of information collection: 1. Photo interpretation, 2. Field survey, 3. Extended field survey in identified priority areas for biodiversity conservation.

126. The first Serbian NFI was in line with most European NFIs at that time, in terms of sampling design, field data collected and results. As a one phase NFI with terrestrial survey only, all sample plots were visited in the field, even though about 70% were non-forest sample plots. In contrast, the second NFI will be developed as a two phases NFI. Plots for the first phase will be based on systematic grid of 500x500m over the full Serbian territory that include 35.544 sample locations. In each plot aerial photo-interpretation of forest and non-forest will be carried out using the most recent images/orthophotos. The second phase will be based on a subset of the plots defined in the first phase, taking in consideration only

plots including forest. From the subset of plots with forest, a sample grid of 4x4 km will be used to select the second phase plots for the field survey, with the exception of the region of the plain area of Vojvodina, where there is a very low forest cover (7% compared to 37% forest cover in the rest of the country) and it was decided to increase the grid density to 2x2 km in order to get reliable NFI information for this region.

127. The two phases approach will lower the costs for field work substantially as compared to the first NFI. For the field plots, clusters of 4 sample sub-plots will be used. The total number of NFI clusters will be about 8.900 (3.500 clusters in mountain and hilly areas and 5.400 clusters in plain area). The number of forest clusters (cluster with at least one sample plot located in forest) is estimated to be about 2.800. Those clusters will be permanently marked in the field and could be re-measured in future successive NFI campaigns.

128. The scope of the data collection within the framework of the NFI will be expanded to include information relevant to biodiversity conservation and forest carbon stock. More specifically, this will include the following: forest biodiversity (at tree, stand and site levels), on deadwood (stumps and heaps of branches), on forest soils, forest edges, understory, forest management (including functional zoning of forest ecosystems), forest for recreation, anthropogenic-induced destabilization factors (forest fires, excessive felling), on forest roads/forest accessibility.

129. The photointerpretation will be carried out in cooperation with the National Geodetic Institute. The field survey will be carried out by PEs Srbjasume and Voivodinasume, respectively, which have qualified personnel. Seven field teams are foreseen to carry out the data collection during the four years of the project. For the analysis and interpretation of data, the project will collaborate with the Faculty of Forests as well as the Forest Institutes in Belgrade and Voivodina.

130. Activities under the output include photointerpretation and mapping, training of the field teams in the improved methodology, implementation and supervision of the field surveys, as well as processing and analysis of georeferenced inventory data. All NFI data will be integrated into the Forest Information System. Finally, a comprehensive report on the NFI will be published.

<u>Output 1.1.4:</u> Existing carbon monitoring, reporting and verification (MRV) systems, reviewed and adapted to Serbian context

Target:

- MRV system based on international standards designed and validated

Activities:

131. A detailed assessment of existing carbon MRV systems will be conducted. A proposal for the development and implementation of the MRV system based on international standards and adapted to the Serbian context will be developed. This will include a proposal for (i) the institutional setup, (ii) the necessary capacities to be allocated, (iii) the choice and description of the protocol. The MRV system will be developed in close coordinaton with the FIS to ensure that the FIS provides the data in the required formats. The process to develop and validate the MRV system will include an assessment of existing MRV systems in the country, as well as consultations with key actors from public, private and academic sectors, and civil society. Finally, a series of 3 workshops with institutions from the forestry and environmental sectors will be held to validate the proposal.

<u>Output 1.1.5:</u> Forest development strategy and legislation revised to incorporate biodiversity, climate change mitigation and socio-economic concerns

Targets:

- Recommendations to mainstream biodiversity, climate change mitigation and socio-economic concerns in forest development planning and legislation

Activities:

132. Under this output, recommendations based on SFM criteria by the Ministerial Conference for the Protection of Forests in Europe (MCPFE) will be formulated to mainstream SFM into forest development strategy and legislation. The recommendations will provide clear and time-bound directions for incorporating forest carbon management and biodiversity conservation into forest policy and legislation, forest development and management plans, and their subsequent implementation. Aspects related to decent livelihoods in sustainable use of forests will also be included to ensure that they are taken into consideration into the revised forest development strategy and legislation. Furthermore, recommendations will be provided to ensure that the forest development strategy includes a gender-responsive budgeting, mandatory in Serbia since 2016 under the national Budget System Law. The recommendations form an input for the high-level multistakeholder dialogue on sustainable forest management (output 1.1.7)

133. Activities under the output include a series of in-depth consultations with the key stakeholder groups and institutions, and the drafting of the recommendation document by a team of specialists in forest policy and legislation. Consultation will be inclusive, in line with Principle 2.C of the Non-legally binding instrument on all types of forests, of the Resolution adopted by the General Assembly on 17 December 2007[9] will be followed, in which it is established that "*major groups as identified in Agenda 21, local communities, forest owners and other relevant stakeholders contribute to achieving sustainable forest management and should be involved in a transparent and participatory way in forest decision-making processes that affect them, as well as in implementing sustainable forest management, in accordance with national legislation"* (p.3-4).

<u>Output 1.1.6:</u> National standards for best management practices in different forest types

Target:

- 15 guideline documents for sustainable sylvicultural practices in different forest types, integrating climate change mitigation and biodiversity, updated and developed

Activities

To enable informed decision making of forest managers at the local level, existing guideline documents for forest management in the different forest types of Serbia will be revised and improved to include carbon and biodiversity conservation considerations in line with international and EU standards. These guidelines will form the basis for capacity-buiding activities of the project under output 1.2.1 as well as the interventions in the pilot areas at regional and forest management unit level (outputs 2.1.2 and 2.1.3).

[9] Available at: http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/62/98

Activities under the output include revision of existing guidelines, consultations with national and international specialists on forest management in Serbia, drafting of guideline documents and validation through a review process.

<u>Output 1.1.7:</u> National level multisectoral coordination platform for multifunctional sustainable forest management established

Targets:

- 4 high-level roundtable consultation on sustainable forest management with participation of at least 30 participants from public, academic, civil society and private sectors
- 4 thematic multi-actor working groups established and at least 2 meetings conducted per year

Activities

134. Under this output, a mutlisectoral and multilevel stakeholder platform for sustainable multifunctional forest management will be established. To ensure effective coordination of institutions within the forestry sector and between the forest and other relevant sectors, the platform will discuss challenges and issues in forestry and non-forest sectors that directly or indirectly influence management of forest landscapes. The platform will take an advisory role for the project, and will serve to validate and disseminate the project results. In particular, the recommendations for the SFM mainstreaming in strategy and legislation (output 1.1.5), the MRV system (output putput 1.1.4.) and FIS management and data sharing (output 1.1.2), the action plan for strengthening private forest owners' and users' involvement and the proposal for an extension service (output 2.1.4) will be part of the agenda's platform.

135. Under this output, the Department of Forests will convene at least four high-level consultations during the project lifetime. Furthermore, the platform will form four multi-actor working groups on specific topics which hold biannual meetings and report to the high-level forum. The groups will be composed of members of the coordination platform, however, other institutions or experts may be invited. The themes of the working groups will be defined during the first meeting of the high level form. They may include (1) Forest information and data sharing agreements, (2) mainstreaming SFM into legislation and strategy, (3) private sector involvement in the forest sector and (4) capacity development and extension.

<u>Output 1.2.1:</u> Training programme for forest managers, users and administrators in updated SFM techniques and BD management in productive landscapes established and implemented, including a training of trainers

Targets:

- 120 staff members of forestry administration and institutes and private forest owners trained in updated SFM techniques and biodiversity management (six three-day trainings with 20 participants each)
- 20 Trainers from PEs, Forest Faculty and Institutes with capacities developed to conduct trainings (2 trainings of 5 days with 10 participants each)

Activities

136. This output will strengthen capacities of forest planners and managers in SFM and BD conservation at all levels, including public and private sectors. 120 members/staff of the main stakeholder institutions will be trained. The targeted organizations and groups are PEs, NP staff, PFOs, PFOAs, staff of Directorate of Forests as well as academic and research institutes. The training will focus on developing skills in BD monitoring and protection, forest carbon management and monitoring, conflict resolution and improved administration. Furthermore it will include strengthening skills in forest fire prevention and control, forest restoration, methods to control deforestation and forest degradation, and harvesting techniques. Finally, participants will be trained in the use of the newly designed FIS for improved decision making. The training will integrate the improved guidelines on sustainable forest management (Output 1.1.4) and the methods and guidelines for biodiversity assessement and monitoring at regional and local level (output 1.1.1).

137. Activities will include six three day training courses with participation of project experts in biodiversity and forest management. To allow a wide dissemination of the knowledge and skills, a training of trainers programme will be conduced for 20 qualified participants to train them in methodological and didactical skills, using a hands-on approach in real training settings. These trainers serve as qualified resources for further trainings organized by PEs, NPs, FD, as well as PFOAs. All the trainings will include a module on socio-economic issues in sustainable forest management. This module will cover topics on how to communicate with formal and informal forest users for sustainable use of forests.

Component 2: Multifunctional forest management

Output 2.1.1: Biodiversity status and impact of land use on biodiversity assessed in the project areas

Targets:

- Evaluation of the status for forest biodiversity, impacts and threats covering 475,000 ha of forests in Western Serbia and Voivodina regions, including Obeska Bara and Tara protected areas
- Nature value assessment and biotope mapping in 4-8 forest management units covering 20,000 ha of public and private forest lands

Activities

138. Building on existing but largely incomplete datasets, an assessment of the status and impact of land use on biodiversity will be carried out in the two pilot regions, including a nature value assessment and key biotope mapping in at least four pilot Forest Management Units selected under output 2.1.3. This assessment will serve as a basis for integration of biodiversity conservation in Forest Development Plans and Management Plans to be developed and implmenented under the project (outputs 2.1.2 and 2.1.3)

139. Activities under the output will include collection of exising data on forest biodiversity in the pilot regions and selected FMUs, development and preparation of a field survey, and analysis of data, and identification of recommendation of management options for three levels: i) Forest Region (Forest Development Plans), ii) Protected Area (Protected Area Management Plan), iii) Forest Management Unit (Forest Management Plan / Programme)

Output 2.1.2: Integrated and improved forest development plans prepared for at least 2 forest regions

Targets:

- Two (2) forest development plans of Western Serbia and Voivodina covering 475,000 ha developed and monitored based on the new FDP procedures
- 16 professionals of the forest planning teams in Western Serbia and Voivodina regions continually trained in application of new procedures (six 2-day workshops over the project)

Activities

140. At regional level, Forest Development Plans for two regions totaling a forest area of 476,010 ha including West Serbia (324,006 ha) and Vojvodina (152,004 ha), will be developed based on the methodology and guidelines for FDP development (output 1.1.1) the new SFM guidelines (output 1.1.4), as well as new data generated by the BD assessment (output 2.1.1.), NFI (output 1.1.1) and IFIS (output 1.1.2), to include climate change, biodiversity and socio-economic considerations. The planning teams in the Voivodina and Western Serbia will be trained and will receive regular technical advice in the revision of the FDPs to ensure their participation in the planning process. The process will serve to validate the FDP guidelines.

<u>Output 2.1.3:</u> Forest management plans implemented

Targets

- Four (4) to eight (8) pilot forest management units in Western Serbia and Voivodina regions covering at least 20,000 ha with updated and monitored management and operational plans based on the new FMP procedures
- Forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, assessment of Natura 2000 restrictions and management options implemented in 4-8 pilot FMUs covering 20,000 ha
- Hundred (100) forest managers and forest owners of the pilot FMUs continually trained and coached in the application of new procedures (in each of the two regions, 20 2-day workshops with 25 Participants each)
- Sixteen (16) demonstration plots for typical management measures in forest types most common to the pilot regions established (eight (8) in each pilot region)

Activities

141. At local level, two to four Forest Management Units will be selected in each of the pilot regions at project inception. The selection criteria include representativeness in terms of forest owners, forest types, and management structures. They will include public FMUs, and forest management prorammes at municipal level, comprising private owners.

142. The size of the individual pilot FMUs can vary between 1,000 and 5,000 ha. The total area of the units under improved forest management plans will be at least 20,000 ha.

143. A pilot mapping of forest use will be conducted, including in the collection of NWFPs and firewood and considering sex, age, location, etc of forest users, so policy-makers can develop strategies that can simultaneously ensure better livelihoods for these population and the sustainable use of forests. This mapping will include training on socio-economic issues of forests and survey techniques, and a field survey.

144. Technical assistance under this output will be based on the methodologies on FMP and SFM developed under component 1, and the information generated under the biodiversity

assessment under output 2.1.1. To improve planning decisions, forest site mapping, erosion risk assessment and landslide catastre, as well as forest function mapping will be carried out in the pilot FMUs.

145. The implementation of the plans in the pilot FMUs will be accompanied by an intensive continuing training programme for forest owners, planners of public enterprises, national park administrations and other actors. In total, 10 two-day workshops are foreseen, to guide the development, evision and monitoring of management and operational plans as well as frequent field visits by the forest management specialists to support implementation. Furthermore, 16 demonstration plots of 0.25-0.5 ha will be established in for typical SFM measures including (i) restoration of forests through assisted natural regeneration and tree planting, (ii) afforestation of new areas and (iii) the conversion of coppice forests to high forests. These plots will cover all typical forest types in the pilot areas. Finally, excursions and open days of the forests for forest owners and users will be organized to disseminate the practices within and outside the pilot FMUs.

Output 2.1.4: Strategic and policy options to ensure committment of private forest owners and users to sustainable forest management, developed and validated

Targets:

- Concept for a comprehensive forest extension service for private forest owners and users available
- Action plan and recommendations to mainstream incentives for SFM for private forest owners into forest policy developed and validated
- 2 Study tours for private forest owners to visit successful implementation of SFM practices in other European countries (2 study tours of five days and 8 participants each)

Activities

146. To enable mainstreaming of the improved forest planning and management into FMP processes across the country, especially in private forests, the project will identify and develop options to enable the government to implement measures to increase commitment of private owners for sustainable forest management. First, a concept for a comprehensive forest extension service for private forest owners will be developed. Building on the current system of technical assistance by the state enterprises, options will be identified to expand the services to include biodiversity aspects and carbon-smart practices. In addition, special measures to ensure that the forest extension service reaches those most vulnerable, and both women and men, will be developed. Second, potential incentives for SFM (fiscal, certification, market access, and support to associations) will be analyzed. An action plan and recommendations will be proposed for inclusion into forest policy. The action plan will be discussed and validated by the consultation platform and by private forest owners. Finally, selected PFOs from the pilot regions will have the opportunity to participate in a study tour to visit SFM practices in similar contexts as Serbia in other European countries.

Component 3: Monitoring, Evaluation and dissemination of lessons learned

Output 3.1.1: Monitoring system providing systematic information on progress in reaching expected outcomes and targets

Targets:

- Monitoring and evaluation system in place complying with FAO and GEF standards

Activities

147. Under this component, a monitoring and evaluation system will be established according to FAO and GEF standards, including CCM and BD tracking tools. The system will ensure that required progress and evaluation reports will be prepared and submitted to the steering structure, FAO and the GEF within the agreed timeframe and will allow an adaptive management of the project. The system will include gender sensitive indicators.

Output 3.1.2: Mid-term and final evaluation conducted

Target

- Mid-term and final evaluations conducted

Activities

148. After 24 months of project implementation, a mid-term project evaluation will be launched under the responsibility of the project team and in close coordination with FAO Office of Evaluation (OED) and the FAO-GEF Coordination Unit,,. The mid-term review will be conducted by an external evaluation team. Six months before the end of project implementation a final project evaluation will be launched. The evaluation will be managed by OED and designed in consultation with all relevant stakeholders, including the FAO-GEF Coordination Unit, the LTO and other partners. The evaluation will be led by an external team leader and carried out by an external team under the overall responsibility of OED.

Output 3.1.3: Project achievement and results recorded and disseminated

Targets

- Communication strategy developed and implemented
- At least 20 articles, interviews and features about the projects in local media (print, radio, TV)
- Set up and regular posts on social media channels (facebook, twitter, Instagram)
- Project website functional and updated monthly
- Information leaflets on key products disseminated
- Publication on lessons learned produced and available electronically
- Project results presented in at least one international forum/conference on SFM

Activities

149. A communication strategy will be develeped to ensure that project products, milestones, results and lessons are widely disseminated to key actors using appropriate communication tools and methods. This includes information material on key products such as the updated SFM guidelines for forest managers, use of the IFIS, and the guidelines on forest management and development planning. The information will be disseminated through presence in local media, as well as the set up and regular update of a project web site, and social media channels as appropriate. In accordance with FAO Environmental and Social Management Guidelines, all relevant project information will be disclosed to project stakeholders in a timely manner and a grievance mechanism will be set up. A publication on lessons learned will be prepared, and the project results will be presented at least in one international forum on SFM to disseminate the results to an interenational audience.

1.3.3 Project Stakeholders

Primary stakeholders

150. Primary stakeholders of the project are managers of public forests in the public enterprises and National Parks and private forest owners who will be empowered to implement sustainable management of the forest, through better knowledge on the state of forest biodiversity. Also, they will have increased their knowledge and capacity to apply management options to conserve biodiversity and increase carbon stock. Other primary stakeholders are policymakers and decision makers in the public sector who deal with forestry, at the national and the regional level. They will benefit from the updated information on forests and guidelines which enable forestry development planning taking into account multiple functions of forests including biodiversity conservation and climate change adaptation and mitigation based on international standards. Finally, primary stakeholders include other government agencies dealing with climate change, biodiversity protection and socio-economic aspects of forests which will benefit from the information generated under the project to fulfil Serbia's international reporting requirements in these areas and improve national plans and policies. Also, researchers will directly benefit from the information generated under the project.

151. Stakeholders were consulted at two workshops during the preparation phase, as well through interviews with the experts who designed the project. In accordance with FAO Environmental and Social Management Guidelines, all relevant project information will be disclosed to project stakeholders in a timely manner and a grievance mechanism will be set up at project inception.

Key stakeholders

Stakeholder	Type of engagement in project implementation
Ministry of Agriculture, Forestry and Water Management - Directorate of Forests	The Directorate of Forests is one of the main beneficiaries of the project. The DF will lead the project implementation process along with FAO. It will provide the bulk of the cofinancing through the Forest Fund which administers. The DF will be responsible to transform and adopt recommendations of the project into policies and programmes.
Ministry of Envrionmental Protection (MEP), notably Department for Nature Protection, and other relevant Ministries	MEP and all other relevant government entities will be involved in extensive consultations to understand their current and potential role in promoting and implementing sustainable forest management, and to address conflicts and barriers, for example with regard to data sharing.
PE Voivodinasume and Srbjasume	The PEs are beneficiaries of the project, and key project implementation partners at regional and local level. They will be involved in the implementation of the NFI field surveys, validation of strategies, training activities and implementation of SFM at regional and local level. Important contributors of cofinancing.
Private forest owners and their associations	PFOs and PFOAs are main beneficiaries of the project, and key project implementation partners at local level. They will be involved in the validation of strategies, training activities and implementation of SFM at local level.
Academic and research institutes:	Academic institutions are expected to play a key role in capacity building, information management and dissmeniation activities.

Stakeholder	Type of engagement in project implementation
Forest Faculty Kraljevo School	They will play a central role in providing expertise, for instance in te definition of SFM guidelines. The Kraljevo Forest Technical High School will play a fundamental role in supporting the SFM training programme.
Civil Society Organizations	CSOs will play a vital role in validating recommendations and strategies produced under the project. Furthermore, they are valuable partners for dissemination of information. The project will ensure that those CSOs working with rural women are engaged.
Local communities	Local communities are important partners for project implementation at local level. They will be involved in all relevant consultations, to contribute their understanding and perspectives and sustainable forest management, threats and opportunities of forests. The project will ensure that women and menresiding in the pilot areas and depending on forests for their livelihoods, are informed and engaged. Furthermore, they will play an important part in disseminating information.
State Environmental Protection Agency (SEPA)	As the main clearing house for environmental information in Serbia, SEPA will have a crucial role in ensuring that the information products and services generated under the project are compatible with existing information systems. Also, SEPA will have a key role in facilitating data and information exchange with other environmental databases of the government.
Institutes of Nature Conservation Serbia and Voivodina	As legal entities charged with approving the forest management plans, the Institutes are important partners to advise and approve the Forest Management Plans at local level and Forest Development Plans at regional level. Furthermore, they will be engaged in the validation of products such as the SFM guidelines.
PE National Parks	The PEs of the National Parks are beneficiaries of the project, and key project implementation partners at regional and local level. They will be involved in the assessment of forest biodiversity in the pilot areas, validation of strategies, training activities and implementation of SFM at local level. NPs Tara, Fruska Gora, and Djerdap are important contributors of cofinancing.
Chamber of Forestry	The Chamber of Forestry will be an important ally of the project for the dissemination of information through its network of members and partners. It will provide co-financing through training and advisory services.
The Coordination Body for Gender Equality of the Prime Minister's Office	The Coordination Body for Gender Equality of the Prime Minister's Office is the main body for gender equality of Serbia. It provides technical advice and coordination support on gender equality issues.
Statistical Office of the Republic of Serbia	The Statistical Office of the Republic of Serbia is a key partner in enriching the IFIS with socio-economic data, which will help better in understanding the socio-economic aspects that impact the sustainable forest management, so strategies to address them can be delevoped. The Statistical Office is also a key partner in advancing

Stakeholder	Type of engagement in project implementation
	towards the nationalization and implementation of the Sustainable Development Goals (SDGs) related to Forests.

Women and men use of forests

152. During the preparation of the project document, a gender assessment was conducted to identify women and men use and dependency of forests from communities living in the pilot areas, including field research. According to these findings, men are predominantly engaged in firewood collection, whereas women tend to be more engaged in the collection of non-wood forest products (NWFPs). Forest work is socially considered to be more appropriate to men, and private forests are registered in the name of a male family member, who usually tend to take the decisions regarding the family forests. Women also are less likely to attend to meetings related to forest use or management. More information and knowledge on economic opportunities from forest was identified as a key need and interest from women and men who, even though partly depend on forests for their livelihoods, feel do not have sufficient information on how to improve their livelihoods with forests.

153. A gender mainstreaming strategy has been incorporated throughout the project document, and all relevant outputs include gender and social inclusion considerations, including the following:

- Under Output 1.1.2, the project will support the development nd implementation of indicators to monitor the use of forests disaggregated by sex, age, educational level, which will feed the IFIS and will allow for improved decision making.
- Under Output 1.1.5, the project will support the inclusion of a gender-responsive budget in the forest development strategy.
- Under Output 1.2.1 the project will develop training modules on socio-economic issues in sustainable forest management, including gender mainstreaming.
- Under output 2.1.4, the project will develop special measures to ensure that the forest extension service reaches those most vulnerable, and both women and men.

154. In addition, the M&E system on the project will include gender sensitive indicators.

1.3.4 Expected global environmental and adaptation benefits

Biodiversity conservation

155. The project will contribute to conservation of globally important biodiversity in forest landscapes at national level, through mainstreaming biodiversity conservation into forest policy and legislation, and at regional and local level through mainstreaming biodiversity conservation into forest planning and management in two pilot regions, Western Serbia and Voivodina.

156. At national level, biodiversity conservation will be improved through improved availability of biodiversity information in the forested areas, through the NFI and IFIS. This will provide the basis for informed decision making in forest planning taking into account conservation requirements. Furthermore, coordination between forestry and environmental sectors will be improved through the multisectoral coordination platform, allowing for an alignment of sector strategies, facilitation of data exchange, and improved targeting of forestry and conservation programs.

157. At regional level, biodiversity conservation will be mainstreamed in two forest development plans of two pilot regions (Voivodina and Western Serbia) covering 476,010 ha of diverse forest types and landscapes. The plans will be updated based on a new FDP manual including criteria for BD conservation and updated information available through the NFI, as well as an assessment of the BD status in the region *(indirect coverage of the project*). The regions include the Obeska Bara Special Nature Reserve (Voivodina Region) and Tara National Park (Western Serbia Region) totaling 44,658 ha.

158. At local level, biodiversity will be conserved through the implementation of forest management plans in at least 4 forest management units in the buffer zone of the protected areas covering an area of at least 20,000 ha of private and bublic forests *(direct coverage of the project*). This will be achieved through an on-the-ground assessment or management options compliant with the Natura 2000 directive, establishment of demonstration plots for good management practices, and a training programme for forest owners and managers.

Carbon sequestration

159. The carbon benefits accruing from SFM were calculated using the EX-ACT tool and are summarised in Table 1.5 below.

Table 1.5. Calculation of project carbon benefits using EX-ACT.

EX-ACT Module	**SFM Activity**	**Area (ha)**	**C balance (tCO2-eq)**	**C Balance tCO2-eq. year^{-1}**	**Emission Factor (tCO2-eq.year^{-1}.ha**
Conversion of coppice to *Subtropical mountains systems*	*Deforestation*	8,820	+ 429,316	+ 21,466	*+ 2.43*
	Afforestation		-865,424	*-43,271.2*	*-4.9*
	Total [10]	***8,820***	*-436,108*	***-21,805.2***	***-2.47***
Afforestation/Reforestation	*Subtropical humid forest on Grassland*	511	-92,852	*-4642.6*	*-9.08*
	Subtropical humid forest on Degraded Land	1,134	-350,409	*-17,520.4*	*-15.45*
	Total	***1,645***	***-443,261***	***-22,163***	*-6.37*
Forest Degradation and management	*Improved management of degraded forest lands*	9,535	-904,920	-45,246	-4.74
Total Area		**20,000 ha**			
Net Carbon Balance			**-1,784,288**		
Net carbon balance Per hectare per year					***-4.46***

160. Annex 10 presents the detailed description of carbon benefits.

[10] to avoid double counting on the EX-ACT tool, the initial area of deforestation is not taken into account within the final results.

1.4 LESSONS LEARNED

161. In the design of the project, the following lessons have been taken into consideration:

162. *Transparency, participation and communication:* A high level of transparency and an adequate dissemination strategy such as a project web page and dissemination of booklets and regular information sharing can increase the level of trust and increase the support in the implementation of project results. Ensuring equal and active involevementof all relevant stakeholders by creating project implementation working groups at the outset of a project can also secure better communication, build trust and ensure that all relevant perspectives are reflected in the design of products and implementation of activities. Ensuring coherence between project outcomes and and polcy objectives can secure project sustainability beyond project lifetime. Contribution of local partners in project implementation needs to be highly appreciated and can lead to better acceptance of project results by local stakeholders. The project has incorporated this in the design through the establishment of a high-level coordination platform on sustainable forest management which will create adequate space for participation and validation of products by all key stakeholders. The communication strategy backed by adequate resources will ensure that all project activities are widely disseminated.

163. *Involvement of private forest owners:* Historical and cultural aspects have forest owners in Serbia to cooperate but experiences elsewhere show that with a targeted programme supported by the government it is possible to bring small owners together and raise awareness about the need to cooperate. Key in the introduction and acceptance of SFM is the willingness of small forest owners to cooperate. Experiences in many European countries including some countries in the Balkan (e.g Croatia, Macedonia) show that it is possible to bring private forest owners together if they see the need to cooperate. The project will make use of these experiences by working closely with private forest owners at the local level, fostering exchange and cooperation through local workshops in the pilotFMUs over the whole project lifetime. Furthermore, exchange of expeience with forest managers in other countries with experiences on sustainable forest management will be fostered through study tours.

164. *Forest information system:* The main lesson from previos projects on forest information systems is that a clear and unequivocal support of top management bodies, is necessary for the establishment of a unique information system. This means both financial and political support for the application of procedures must be secured. If the system is well structured, it will continue to operate independently. The project design takes this into consideration through the strong support of the Forestry Directorate both in terms of staff and co-financing. For successful implementation, it is necessary to train users during the project, and form a pool of dedicated practicioners to be able to provide continuing support. This is considered through the extensive training activities and communication strategy. Finally, participating institutions who provide input to the information system need to perceive the benefit of the information through transparent and open access to information relevant to their mandate. This will be ensured through a web-based information platform which guarantees that information is available.

165. *Considering socio-economic aspects of forests:* Even though forest over-exploitation by local communities is documented to be one of the major reasons for forest degradation in Serbia as in other countries of Europe, forest policies usually tend to miss socio-economic considerations. These considerations are key for a sustainable forest management, and as such will be considered throughout all project implementation.

166. *National forest inventory:* Lessons from the first national forest inventory and international experiences include the importance to make the information available to interested institutions and individuals. This will be achieved under the project through the parallel development of the Forest Information System, where the NFI data will be uploaded and made available though a web-based interface.

167. The project will also allow systematic collection on biodiversity according to international standards, as well as interaction between forests and climate change, anthropogenic-induced destabilization factors (forest fires, excessive felling, etc.) which were sufficiently included in the first inventory. This will enable forest planners and managers to improve formulation and implementation of forest development and management plans, and allow reporting on forest biodiversity and carbon stocks to European and global institutions.

168. Learning from the firest NFI and international good practices, the NFI will be implemented in to phases: photo-interpretation phase and terrestrial survey phase, in order to benefit from the very important advantages of photo-interpretation, and to focus the field survey on a detailed assessment of actually forested areas.

169. Finally, the sample plots will be identified precisely with state-of-the art GPS devices, the centers of all plots will be marked permanently with a metal stick and the position of each sample tree in the sample plot will be precisely identified. This will allow a systematic sampling of the plots in future revisions of the inventory. This will be a major improvement over the first inventory, as sampling done during the PPG phase showed it was implossible to locate the sample plots of the first NFI, as they had only been marked with wooden sticks.

1.5 STRATEGIC ALIGNMENT

1.5.1 Consistency with national development goals and policies

170. The project is consistent with national development goals and policies as expressed in the National Strategy for Sustainable Development, the national Forest Development Strategy, as well as the national Biodiversity Strategy.

171. The National Strategy for Sustainable Development (2007) defines as strategic objectives regarding the management and use of forests and forest land

(i) Harmonization of national legislation in the area of sustainable forests management with the EU legislation;
(ii) Enhancing the situation of forests: by transferring low forests into high forests, amelioration of degraded forests and low forests of bad quality, supporting natural recovery and protection of forests;
(iii) Improving sustainable management in forests and protected natural areas;
(iv) Increase the territory under forests to 29% of the territory of Serbia by 2015.

172. The Forestry Development Strategy (FDS) of the Republic of Serbia (2008) identifies the need for improvement of forest management, taking into account protected area management and sustainable management of the surrounding landscapes. According to the Strategy, the general state of forests is unsatisfactory, and the actual state of state forests is

characterized by an unfavorable age structure, unsatisfactory density of stocking and forest cover percentage; unfavorable stand condition - high percentage of stands with discontinuous canopy and weeded areas and unsatisfactory health condition. The project addressed these concerns through its silviculturalactivities.

173. According to the Biodiversity Strategy of the Republic of Serbia for the period 2011-2018, the main obstacles in nature conservation are lack of data (national flora, national vegetation, and national fauna) and an integral information system and inadequate management of forest ecosystems and protected areas. It stipulates involvement of climate change issues into biodiversity related documents and actions and underline the importance of relations with forestry related planning. These obstacles are directly addressed by the project.

174. The project is also in line with the National Strategy for Gender Equality 2016 – 2020[11] and the gender-responsive budgeting principle of the Budget Law of Serbia introduced in 2016.

1.5.2 Consistency with national communications and reports to the United Nations Convention to Combat Desertification, Convention on Biological Diversity, Stockholm Convention on POPs, United Nations Framework Convention on Climate Change (as applicable).

175. The first National Communication to the UNFCCC articulates the contribution of the forest sector to GHG emissions and proposes certain actions in regard to emission reduction in this sector. There is a specific mention of lack of capacities in forest carbon management and availability of adequate inventory data. The project will address these gaps directly.

1.5.3 Consistency with GEF focal area

176. The project is fully consistent with GEF biodiversity, climate change mitigation and sustainable forest management focal area strategies, contributing directly to BD-4 Program 9, CCM-2 Program 4 as well as SFM-2.

177. With regard to Biodiversity focal area programme 9, managing the human-biodiversity interface, the project will contribute to outcome 9.1 Increased area of production landscapes and seascapes that integrate conservation and sustainable use of biodiversity into management, by implementing sustainable forest management in 20,000 ha and mainstreaming biodiversity conservation in forest development plans covering 475,000 ha. Furthermore, the project will contribute to outcome 9.2 Sector policies and regulatory frameworks incorporate biodiversity considerations, through a validated strategy document based on the sustainable balanced scorecard approach as well as a validated action plan and policy recommendations to mainstream incentives for SFM for private forest owners (fiscal incentives, ecosystem services, market access, certification schemes)into forest policy.

178. The National Forest Inventory and integrated Forest Information System will provide information on globally significant biodiversity will be available to policy makers, forestry planners and managers to take informed decisions on management options and to adapt the forest manageremnt to include biodiversity conservation.

179. Through its results, the project will contribute to the following Aichi Targets:

[11] Available at: http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/102844/124487/F281260892/SRB102844%20Srb.pdf

Aichi Biodiversity Target	Project Outputs	Indicators
Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Output 1.2.1: 120 staff/members (forest users, forestry administration and institutes) trained in updated SFM techniques and BD management in productive landscapes.	120 forest managers trained in biodiversity use and conservation (data will be desaggregated by sex and age)
Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	- Output 1.1.5: Forest development programme and legislation revised to incorporate biodiversity climate change mitigation and socio-economic concerns - National standards for best management practices in in different forest types developed	- One (1) Recommendation document available - 15 SFM guidelines available and disseminated
Target 3 By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	Output 2.1.4 Strategic and policy options to ensure committment of private forest owners and users to SFM through extension, incentive mechanisms and certification, developed and validated	One (1) concept for a comprehensive forest extension service for private forest owners One (1) validated action plan and policy recommendations to mainstream incentives for SFM for private forest owners (fiscal incentives, ecosystem services, market access, certification schemes) into forest policy
Target 7 By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Output 2.1.2: Integrated and improved sustainable forest development plans prepared Output 2.1.3: Forest management plans implemented	Two forest regions covering 475,000 ha under improved forest development plans Four (4) to eight (8) forest management units covering at least 20,000 ha of forest lands under sustainable forest management

180. The project is consistent with the GEF climate change mitigation strategy, contributing to the corporative target to curbing GHG emissions by directly reducing GHG emissions in the forest sector by 1.7 million t CO2eq over the project lifetime. The project will contribute to the development of MRV systems for the forest sector through improving collection and management of carbon information in NFI and FIS, and development of an MRV framework.

181. Specifically, the project contributes to Objective 2 Demonstrate Systemic Impacts of Mitigation Options, and Program 4, Promote conservation and enhancement of carbon stocks in forest, and other land use, and support climate smart agriculture, through the implementation of low-GHG forest management practices in 20,000 ha and mainstreaming carbon considerations in forest development plans covering 475,000 ha. Furthermore, the project will support low GHG development in the sectoral policy, planning and regulatory framework by developing a set of strategies and tools, and improve the available of information as a basis for informed policy decisions and enforcement of regulations.

182. Finally, the project is consistent with the GEF sustainable forest management strategy. It contributes to Objective 2: Enhanced Forest Management: Maintain flows of forest ecosystem services and improve resilience to climate change through SFM, increasing the area of sustainably managed public and private forests by 20,000 ha over the project lifetime, including small-scale private forest owners. Furthermore, improved availability and access to information will enable public and private forest managers to take more informed management decisions about SFM. The capacity of the government to provide incentives to forest owners for SFM will be strengthened through the development of strategies and action plans to mainstream SFM incentives into forest policy.

1.5.4 Consistency with FAO's Strategic Framework and Objectives

183. The project is in line with the FAO Strategic Results Framework (2014-2019) and in particular with Strategic Objective 2 (SO2) Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner; its Outcome 1 (2O1) Producers and natural resource managers adopt practices that increase and improve agricultural sector production in a sustainable manner; and its related Output 2 (20102) Integrated and multi-sectoral approaches for ecosystem management, restoration climate change adaptation and mitigation are identified, assessed, disseminated and their adoption by stakeholders is facilitated.

184. Moreover, the project is coherent with FAO´s Regional Priorities for Europe and Central Asia and is aligned Regional Initiative 3: Sustainable Agriculture and Natural Resources Management in a Changing Climate: "Support member countries of the region to address the interlinked challenges of a climate change and degraded natural resource through transitioning to more climate resilient and sustainable national agriculture and food system to contribute effectively to national sustainability and climate change goals".

185. The project is also in line with the the FAO Policy on Gender Equality[12], the FAO Regional Gender Equality Strategy for Europe and Central Asia 2016 – 2017[13], the Voluntary Guidelines on the responsible Governance of Tenure of land, fisheries and forests in the context of national food security (VGGT)[14] that FAO is engaged in promoting and its VGGT technical guide on Improving governance of forest tenure[15].

186. Finally, the project will be in included in the FAO Country Programming Framework for Serbia which is currently under preparation.

[12] Available at: http://www.fao.org/docrep/017/i3205e/i3205e.pdf
[13] Available at: www.fao.org/3/a-i5501e.pdf
[14] Available at: http://www.fao.org/docrep/016/i2801e/i2801e.pdf
[15] Available at: http://www.fao.org/3/a-i3249e.pdf

SECTION 2 – FEASIBILITY

2.1 ENVIRONMENTAL IMPACT EVALUATION

187. Annex 5 provides an environmental and social screening of the project following FAO's Enrivonmental and Social Guidelines (ESMG), the project has been rated as Moderate risk. The table below illustrates the Environmental and Social Risk management plan.

Risk identified	Risk Classification	Risk Description in the project	Mitigation Action (s)	Progress on mitigation action	Indicators
The project will be implemented within a legally designated protected area or its buffer zone.	Moderate risk	Project intervention areas include two protected areas: Obedska Bara in Vojvodina and Mount Tara in Western Serbia. Project activities in the two PAs include the implementation of the National Forest Inventory, assessment of current status of biodiversity and impact of land use on it, design of forest development plans and their implementation in selected pilot areas.	All project activities are designed to incorporate biodiversity concerns in forest management in Serbia. The NFI will allow collect up-to-date information on forest resources including biodiversity. In addition, the forest management plans will be designed to incorporate BD concerns. These measures will also improve protected areas management.		- Status for forest biodiversity, impacts and threats covering 475,000 ha of forests in Western Serbia and Voivodina regions, including Obeska Bara and Tara protected areas - Nature value assessment and biotope mapping in 4-8 forest management units covering 20,000 ha of public and private forest lands including Obeska Bara and Tara protected areas
The project will establish or manage planted forests.	Moderate risk	The project will support forest development and management planning in 2 regions, including both naturally regenerated and planted forest. In addition, the project will support the implementation of forest management plans in selected pilot areas, which may include reforestation and afforestation activities.	The project will act in full compliance with national forest policies and legislation and in observance with the Voluntary Guidelines on Planted Forests. In order to reduce any environmental risk, both the guidelines on multifunctional forest management planning and the forest management plans to be developed with project support will incorporate state-of-the-art-knowledge of conserving of biological diversity. This will include inter alia use seeds/seedlings/saplings of native tree species well adapted to the local conditions		- Forest development plans of 2 regions are developed in full compliance with provided guidance - Number of hectares of native and planted forest recovered based on forest management plans.

			and prevention of monocultures as appropriate. Both measures will limit to the extent possible spread of biotic damaging agents.		
The project will operate in a sector, area or value chain where producers and other agricultural workers are typically exposed to significant occupational and safety risks	Moderate risk	The project will operate in the forestry sector, where producers may be exposed to significant occupational and safety risks.	The project will ensure all workers' safety and health by adopting minimum OSH measures and contributing to improve capacities and mechanisms in place for OSH in forestry. To this end, the project will include an OSH dedicated module in the training of trainers programme that will be developed under output 1.2.1.		- Number of training sessions including OSH

2.2 RISK MANAGEMENT

2.2.1 Risks and mitigation measures

188. Please see Risk Matrix in Appendix 4.

2.2.2 Analysis of fiduciary risks and mitigation measures (only for OPIM projects)

189. Not applicable

SECTION 3 – IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

3.1 INSTITUTIONAL ARRANGEMENTS

190. In addition to FAO as GEF Agency, the main institutions involved in the project are the Ministry of Agriculture, Forestry and Water Management (MAFW) - Directorate of Forests, and Ministry of Environamental Protection – Departments responsible for Nature Protection, Biodiversity and Climate Change.

191. The Directorate of Forests will be the project implementing partner. The Directorate of Forests will be responsible for ensuring the overall coordination of the project's implementation, as well as coordination and collaboration with partner institutions, local community organizations and other entities participating in the project, and for managing at the national level the cofinancing agreed during the formulation of the project.

192. FAO and the implementing partners will collaborate with the implementing agencies of other programs and projects in order to identify opportunities and mechanisms to facilitate synergies with other relevant GEF projects, as well as projects supported by other donors. This collaboration will include: (i) informal communications between GEF agencies and other partners in implementing programs and projects; and (ii) exchange of information and outreach materials between projects.

193. The project will develop mechanisms for collaboration with the following initiatives in Serbia:

194. GEF Project #5822 Enhanced Cross-Sectoral Land Management through Land Use Pressure Reduction and Planning, implemented by UNEP. The project aims to develop instruments and mechanisms for integrated land use management, remediation, and capacity development to reduce pressures on land as a natural resource from competing land uses in the wider landscape and to support reversal of land degradation.

195. GEF Project #4517 Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia, implemented by UNDP.

196. At global level, interactions with the following GEF-funded SFM projects implemented by FAO will be sought to incorporate lessons and foster exchange of experiences:

- GEF Project #4761 Sustainable management of mountainous forest and land resources under climate change conditionsin the Kyrgyz Republic;
- GEF Project #4744 Mainstreaming biodiversity conservation, SFM and carbon sink enhancement into Mongolia's productive forest landscapes;
- GEF Project #5139 Sustainable forest management to enhance the resilience of forests to climate change in China.

3.2 IMPLEMENTATION ARRANGEMENTS

197. The Food and Agriculture Organization (FAO) is the GEF agency responsible for monitoring and providing technical backstopping during project implementation. Technical backstopping will be provided in ccordination with MAFW - Directorate of Forests. FAO's role and responsibilities is described in sub-section 3.2.2 below.

198. For strategic decisions a **Project Steering Committee (PSC)** will be established, which will consist of representatives of MAFW, MEP and FAO. Its main function is to guide the implementation of the project, check and approve the annual work plans, approve the financial and technical reports, and provide strategic guidance to the driving general project (section 3.2.3 describes features of the PSC).

199. The MAFW will designate a **National Project Director (NPD)**. The NPD will be a MAFW- Directorate of Forests staff and will be have the responsibility of supervising and guiding the Project Coordinator (see below) on the government policies and priorities. He/she will also be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. He/she will be responsible for requesting FAO the timely disbursement of GEF resources that will allow the execution of project activities, in strict accordance with the Project Results-Based Budget and the approved AWP/B for the current project year.

200. A GEF-financed **Project Team (PT)** will be established. The main responsibility of the PT, following the directives and decisions of the Project Steering Committee and under the supervision of the NPD, is to ensure coordination and execution of the project through the rigorous and effective implementation of the AWP/B.

201. Under the supervision of the NPD, the PT will be headed by a full-time **Project Coordinator (PC)** (financed by GEF funds) who will be in charge of project daily management and technical supervision including: i) coordinate and closely supervise the implementation of project activities; ii) day-to-day project management; iii) coordination with related initiatives; iv) ensuring collaboration between the participating national, provincial and local institutions and organizations; v) implement and manage the project M&E plan and its communication program; vi) prepare the Project Progress Reports (PPRs), containing information on the activities carried out and the progress in the achievement of outcomes and outputs; vii) organize annual project workshops and meetings to monitor project progress and will prepare the Annual Work Plans and Budgets (AWP/B); vii) submit PPRs together with the AWP/B to the Project Management Committee (PMC) for approval and presentation to the Project Steering Committee (PSC) and FAO; viii) act as secretary to the PMC and PSC; ix) supporting the preparation of PIRs, mid-term review and final evaluations.

202. Moreover, following FAO rules and regulations and in accordance with the Project Document and the AWP/Bs, the PC will assist the NPD in the identification of targeted expenditures and disbursements that should be requested to FAO for timely project execution.

203. The PC will supervise the work of, provide technical backstopping, and assess the reports and outputs produced by project national consultants (financed by GEF funds).

204. The **Budget and Operations Officer** will be responsible for the day-to-day financial management and operation of the project including raising contracts and procure other needed inputs in accordance with the approved budget and annual work plans. The Budget and Operations Officer will work in close consultation with the NPD, PC, Budget Holder (BH, see below), Lead Technical Officer (LTO, see below) and project executing partners, and will take the operational responsibility for timely delivery of needed inputs to produce project outputs[16].

[16] Detailed TORs in Appendix 6

3.2.2 FAO's roles and responsibilities

FAO's role in the project governance structure

205. FAO will be the the GEF Agency of the Project. As the GEF Agency, FAO will supervise and provide technical guidance for the overall implementation of the project. The administration of GEF grants will be in accordance with FAO rules and procedures and in accordance with the agreement between FAO and the GEF Trustee. As the GEF agency for the project, FAO will:

- Administrate funds from GEF in accordance with the rules and procedures of FAO;
- Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers and the rules and procedures of FAO;
- Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;
- Conduct at least one supervision mission per year; and
- Report to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, on project progress and provide financial reports to the GEF Trustee.

206. At the request of the Government of Serbia, FAO will also be executing agency of GEF resources, including financial management, procurement of goods and contracting of services, according to FAO rules and procedures. As financial executor, FAO will provide to the Project Steering Committee semi-annual reports including a financial statement of project expenditures.

207. In accordance with the present Project Document and the AWP/B(s) approved by the PSC, FAO will prepare budget revisions to maintain the budget updated in the financial management system of FAO and will provide this information to the PSC to facilitate the planning and implemementation of project activities. In collaboration with the PT and the PSC, FAO will participate in the planning of contracting and procurement processes. FAO will process due payments for delivery of goods, services and products upon request of the PT and based on the AWP/B and Procurement Plans that will be annually approved by the PSC.

FAO's roles in internal organization

208. The roles and responsibilities of FAO staff are regulated by the *FAO Guide to the Project Cycle, Quality for Results, 2015*, Annex 4: Roles and Responsibilities of the Project Task Force Members, and its updates.

209. The FAO Regional Office for Europe and Central Asia (REU) will be the **Budget Holder** (BH) and will be responsible for the management of GEF resources. As a first step in the implementation of the project, FAO REU will establish an interdisciplinary Project Task Force (PTF) within FAO, to guide the implementation of the project.

210. The PTF is a management and consultative body that integrate the necessary technical qualifications from the FAO relevant units to support the project. The PTF is composed of a Budget Holder, a Lead Technical Officer (LTO), the Funding Liaison Officer (FLO) and one or more technical officers based on FAO Headquaters (HQ Technical Officer).

211. In consultation with the LTO, the BH will be responsible for timely operational, administrative and financial management of the GEF project resources, including in particular: (1) the acquisition of goods and contracting of services for the activities of the project, according to FAO's rules and procedures, in accordance with the approved AWP/B; (2) process the payments corresponding to delivery of goods, services and technical products in consultation with the PSC; (3) provide six-monthly financial reports including a statement of project expenditures to the PSC; and (4) at least once a year, or more frequently if required, prepare budget revisions for submission to the FAO-GEF Coordination Unit through the Field Programme Management Information System (FPMIS) of FAO.

212. The BH, in accordance with the PTF, will give its non-objection to the AWP/Bs submitted by the PSC as well as the Project Progress Reports (PPRs). PPRs may be commented by the PTF and should be approved by the LTO before being uploaded by the BH in FPMIS.

213. The **Lead Technical Officer (LTO**) for the project will be the Forestry Officer in the Regional Office for Europe and Central Asia. The role of the LTO is central to FAO's comparative advantage for projects. The LTO will oversee and carry out technical backstopping to the project implementation. The LTO will support the BH in the implementation and monitoring of the AWP/Bs, including work plan and budget revisions. The LTO is responsible and accountable for providing or obtaining technical clearance of technical inputs and services procured by the Organization.

214. In addition, the LTO will provide technical backstopping to the PT to ensure the delivery of quality technical outputs. The LTO will coordinate the provision of appropriate technical support from PTF to respond to requests from the PSC. The LTO will be responsible for:

- Review and give no-objection to TORs for consultancies and contracts to be performed under the project, and to CVs and technical proposals short-listed by the PT for key project positions, goods, minor works, and services to be financed by GEF resources;

- Supported by the BH, review and clear final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;

- Assist with review and provision of technical comments to draft technical products/reports during project execution;

- Review and approve project progress reports submitted by the NPC, in cooperation with the BH;

- Support the BH in examining, reviewing and giving no-objection to AWP/B submitted by the NPC, for their approval by the Project Steering Committee;

- Ensure the technical quality of the six-monthly Project Progress Reports (PPRs). The PPRs will be prepared by the NPC, with inputs from the PT. The BH will submit the PPR to the FAO/GEF Coordination Unit for comments, and the LTO for technical clearance. The PPRs will be submitted to the PSC for approval twice a year. The BH will upload the approved PPR to FPMIS.

- Supervise the preparation and ensure the technical quality of the annual PIR. The PIR will be drafted by the NPC, with inputs from the PT. The PIR will be submitted to the BH and the FAO-GEF Coordination Unit for approval and finalization. The FAO/GEF

Coordination Unit will submit the PIRs to the GEF Secretariat and the GEF Evaluation Office, as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The LTO must ensure that the NPC and the PT have provided information on the co-financing provided during the year for inclusion in the PIR;

- Conduct annual (or as needed) supervision missions;

- Review the TORs for the mid-term review, participate in the the mid-term workshop with all key project stakeholders, development of an eventual agreed adjustment plan in project execution approach, and supervise its implementation; and

- Provide comments to the TORs for the final evaluation; provide information and share all relevant background documentation with the evaluation team. Participate in the final workshop with all key project stakeholders, as relevant. Contribute to the follow-up to recommendations on how to insure sustainability of project outputs and results after the end of the project.

215. The **HQ Technical Officer** is a member of the PTF, as a mandatory requirement of the FAO Guide to the Project Cycle. The HQ Officer has most relevant technical expertise - within FAO technical departments - related to the thematic of the project. The HQ Technical Officer will provide effective functional advice to the LTO to ensure adherence to FAO corporate technical standards during project implementation, in particular:

- Supports the LTO in monitoring and reporting on implementation of environmental and social commitment plans for moderate projects. In this project, the HQ officer will support the LTO in monitoring and reporting the identified risks and mitigation measures (Appendix 4) in close coordination with the project partners.
- Provides technical backstopping for the project work plan.
- Clears technical reports, contributes to and oversees the quality of Project Progress Report(s) (PPRs – see Section 3.5).
- May be requested to support the LTO and PTF for implementation and monitoring.
- Will contribute to the overall ToR for the final evaluation; review the composition of the evaluation team and support the evaluation function.

216. The FAO-GEF Coordination Unit will act as **Funding Liaison Officer (FLO).** The FAO/GEF Coordination Unit will review the PPRs and financial reports, and will review and approve budget revisions based on the approved Project Budget and AWP/Bs. This FAO/GEF Coordination Unit will review and provide a rating in the annual PIR(s) and will undertake supervision missions as necessary. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the FAO GEF Coordination Unit. The FAO GEF Coordination Unit may also participate in the mid-term review and in the development of corrective actions in the project implementation strategy if needed to mitigate eventual risks affecting the timely and effective implementation of the project. The FAO GEF Coordination Unit will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed.

217. The FAO Financial Division will provide annual Financial Reports to the GEF Trustee and, in collaboration with the FAO-GEF Coordination Unit, request project funds on a six-monthly basis to the GEF Trustee.

3.2.3 Decision-making mechanisms of the project

218. The **Project Steering Committee (PSC)** will take decisions on the overall project management and will be in charge of ensuring the project strategic approach for the operational tasks. The PSC will be chaired by the Head of the Forestry Directorate, and will be composed of representatives of the MAFW, MEP, FAO (LTO and BH). The PSC mayinvited other respresenatives of stakeholders as needed. The PSC will meet at least twice a year and its responsibilities will include: (i) overall oversight of project progress and achievement of planned results as per the project document; (ii) take decisions in relation to the practical organization, coordination and implementation of the project; (iii) facilitate cooperation between (national and local institutions) and project participating partners and project support at the local level; (iv) advise on other on-going and planned activities facilitating collaboration between the Project and other programmes, projects and initiatives; (v) facilitate that co-financing is provided in a timely and effective manner; and (vi) review and approve the six-monthly Project Progress Reports and the AWP/B. vi) advising on other on-going and planned activities facilitating collaboration between the Project and other programmes, projects and initiatives. The PMC may also be involved in technical evaluation of project progress and outputs, and eventual development of an agreed adjustment plan in project execution approach, if needed.

219. Responsibilities: Approve annual work plans, budgets and progress reports prepared by the NPC and FAO. All PSC decisions must be taken under consensus. The PSC shall meet in ordinary session every 6 months; however, if members consider it necessary, the PSC may convene extraordinary meetings. One of these meetings of the PSC must be carried before 10 December of each year, where the PSC must approve the annual work plan and budget of the project, for the following period.

3.3 PLANNING AND FINANCIAL MANAGEMENT

3.3.1 Financial plan (by components, outcome and co-financiers)

Table 3.1: Financial plan (by components, outcome and co-financier).

Institution		Institute of Forestry	Novi Sad University	NP Fruska Gora	NP Djerdap	PE Srbijasume	PE Vojvodinasume	FAO	NP Tara	Forest school Kraljevo	NP Kopaonik	MAEP Forest Fund	Forest Chamber	Total Cofinancing	% Cofinancing	GEF	% GEF	Total
Component 1		**445,000**	**445,000**	**-**	**-**	**500,000**	**220,000**	**365,000**	**-**	**713,000**		**3,286,237**	**220,000**	**6,194,237**	**74%**	**2,144,108.33**	**26%**	**8,338,345**
Outcome 1.1	**Cash**							200,000				3,286,237		3,486,237				
	In kind	445,000	445,000			500,000	220,000	65,000						1,675,000				
	Total	445,000	445,000	-	-	500,000	220,000	265,000	-	-		3,286,237	-	5,161,237	72%	2,011,722	28%	7,172,959
Outcome 1.2	**Cash**							100,000						100,000				
	In kind							-		713,000			220,000	933,000				
	Total	-	-	-	-	-	-	100,000	-	713,000		-	220,000	1,033,000	89%	132,387	11%	1,165,387
Component 2		**-**	**-**	**285,200**	**142,600**	**480,000**	**200,000**	**-**	**855,600**	**-**	**142,600**	**15,796,904**	**-**	**17,902,904**	**96%**	**813,213.52**	**4%**	**18,716,118**
Outcome 2.1	**Cash**											10,951,904		10,951,904				
	In kind			285,200	142,600	480,000	200,000		855,600		142,600	4,845,000		6,951,000				
	Total	-	-	285,200	142,600	480,000	200,000	-	855,600	-		15,796,904	-	17,902,904	96%	813,214	4%	18,716,118
Component 3		**-**	**-**	**-**	**-**	**-**	**-**	**35,000**	**-**	**-**		**1,948,000**	**-**	**1,983,000**	**92%**	**161,400**	**8%**	**2,144,400**
Outcome 3.1	**Cash**											1,248,000		1,248,000				
	In kind							35,000				700,000		735,000				
	Total	-	-	-	-	-	-	35,000	-	-		1,948,000	-	1,983,000	92%	161,400	8%	2,144,400
PMC	**Cash**													-				
	In kind							100,000						100,000				
	Total	**-**	**-**	**-**	**-**	**-**	**-**	**100,000**	**-**	**-**		**-**	**-**	**100,000**	**39%**	**155,936**	**61%**	**255,936**
Total Project		**445,000**	**445,000**	**285,200**	**142,600**	**980,000**	**420,000**	**500,000**	**855,600**	**713,000**	**142,600**	**21,031,141**	**220,000**	**26,180,141**	**89%**	**3,274,658**	**11%**	**29,454,799**

Table 3.2 Confirmed sources of co-financing

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount ($)
Government	Ministry of Agriculture, Forestry and Water Management *	Cash	15.486.141
Government	Ministry of Agriculture , Forestry and Water Management *	In-Kind	5.545.000
Government	Institute of Forestry	In-Kind	445.000
Government	Novi Sad University	In-Kind	445.000
Government	National Park Fruska Gora	In-Kind	285.200
Government	National Park Djerdap	In-Kind	142.600
Government	National Park Tara	In-Kind	855.600
Government	Public Enterprise Srbijasume	In-Kind	980.000
Government	Public Enterprise Vojvodinasume	In-Kind	420.000
Government	Forest technical high school Kraljevo	In-Kind	713.000
Government	Chamber of Forestry Engineers	In-Kind	220.000
Government	National Park Kopaonik	In-Kind	142,600
GEF Agency	FAO	Cash	300.000
GEF Agency	FAO	In-Kind	200.000
Total Co-financing			26,180,141

3.3.2 GEF Contribution

220. GEF contribution of of USD 3,274,658 will finance inputs needed to generate the outputs and outcomes under the Project. These include: (i) local and international consultants to support mainstreaming of biodiversity, climate change and socio-economic consideration in forest management, forest inventory, capacity development and project M&E; (ii) technical support to develop the IFIS (iii) support to information and knowledge

management; (vi) LoA/contracts with technical institutions and service providers supporting the delivery of specific project activities on the ground; (v) international flights and local transport and equipment; and (vi) training and awareness raising material.

3.3.3 Government Contribution

221. The Ministry for Agriculture and Environmental Protection (MAFW) will provide co-financing for an amount of USD 21,031,141 mainly though the Forest Fund. Constributions will include the following: support to the implementation of the National Forest Inventory (NFI), in particular the remote sensing component, including salaries of staff, equipment, satellite images (output 1.1.3), Research and Development in forests and forestry (Output 1.1.6), Investments/Technical assistance for national level multisectoral coordination platform for multifunctional SFM (output 1.1.7), Development of forest management plans (regional forest management plans and forest management plans for private forests), Support to the private forest owners and their associations in implementing FMP's (marking of trees and issuing of marketing licences), Investments/Technical assistance for forest protection, afforestation, tending of newly established forests, maintenance and construction of forests roads for forest reforestation and afforestation, education and promotion in forestry and other plans and projects in accordance to Forest Development Strategy (output 2.1.2), and use of offices, transportation, support staff, monitoring and evaluation of project achievements (output 3.1.1).

222. In addition, the Public enterprises Srbijasume and Voivodinasume will provide logistical support, and staff resources for data collection and processing capacities for NFI implementation and IFIS development (outcome 1.1). Furthermore, they will collaborate with staff resources in the development and implementation forest management plans in the FMUs pertaining to the enterprises in the pilot areas (outcome 2.1).

223. The National Park Public Enterprises will support to the assessment of biodiversity status and impact of land use on biodiversity in the project areas, as well as the implementation of improved FMP's in the pilot area (outcome 2.1). Co-financing amounts to USD 855,600 (NP Tara), USD 285,200 (NP Fruska Gora), USD 142,600 (NP Kopaonik) and USD 142,600 (NP Djerdap) over the whole project period.

3.3.4 FAO Contribution

224. FAO will contribute USD 300,000 in cash through the TCP project on wildlife management (TCP/SRB/643840), which aims to strengthen capacity of the MAFW for informed and evidence-based decision-making on wildlife related issues, using a landscape approach.Furthermore, FAO will provide resources from its regular programme on forests to support project management activities, and to disseminate project lessons and findings through its global technical networks, in relevant publications, expert consultations and conferences, contributiong to outcome 3.1.

3.3.5 Inputs from other co-financiers

225. The Technical High School in Kraljevo will contribute to the project with activities toward increasing capacities for multi-functional forest management of forest managers and owners through training in updated SFM techniques and BD management in productive landscapes. The Institute of Forestry in Belgrade and the Institute for Lowland Forestry and Environment Protection at the University of Novi Sad will provide inputs to the development of the elements of the methodology for forest and biodiversity information

collection and management harmonized with global and regional standards and reporting requirements (outcome 1.1). The Chamber of Forest Engineers will provide a total of 220,000 USD in cofinancing through its training and advisory services (outcome 1.2).

3.3.6 Financial management and reporting on GEF resources

226. Financial management and reporting in relation to the GEF resources will be carried out in accordance with FAO's rules and procedures, and in accordance with the agreement between FAO and the GEF Trustee. On the basis of the activities foreseen in the budget and the project, FAO will undertake all operations for disbursements, procurement and contracting for the total amount of GEF resources.

227. **Financial records**. FAO shall maintain a separate account in United States dollars for the Project's GEF resources showing all income and expenditures. Expenditures incurred in a currency other than United States dollars shall be converted into United States dollars at the United Nations operational rate of exchange on the date of the transaction. FAO shall administer the Project in accordance with its regulations, rules and directives.

228. **Financial reports**. The BH shall prepare six-monthly project expenditure accounts and final accounts for the project, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the un-liquidated obligations as follows:

1. Details of project expenditures on outcome-by-outcome basis, reported in line with Project Budget (Appendix 3 of this Project document), as at 30 June and 31 December each year.
2. Final accounts on completion of the Project on a component-by-component and outcome-by-outcome basis, reported in line with the Project Budget (Appendix 3 of this Project Document).
3. A final statement of account in line with FAO Oracle Project budget codes, reflecting actual final expenditures under the Project, when all obligations have been liquidated.

229. **Financial statements**: Within 30 working days of the end of each semester, the FAO Regional Office for Europe and Central Asia (REU) shall submit six-monthly statements of expenditure of GEF resources, to present to the Project Steering Committee. The purpose of the financial statement is to list the expenditures incurred on the project on a six monthly basis compared to the budget, so as to monitor project progress and to reconcile outstanding advances during the six-month period. The financial statement shall contain information that will serve as the basis for a periodic revision of the budget.

230. The BH will submit the above financial reports for review and monitoring by the LTO and the FAO GEF Coordination Unit. Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

231. Responsibility for cost overruns: The BH shall utilize the GEF project funds in strict compliance with the Project Budget (Appendix 3) and the approved AWP/Bs. The BH can make variations provided that the total allocated for each budgeted project component is not exceeded and the reallocation of funds does not impact the achievement of any project output as per the project Results Framework (Appendix 1). At least once a year, the BH will submit a budget revision for LTO clearance and approval the FAO/GEF Coordination Unit through FPMIS. Cost overruns shall be the sole responsibility of the BH.

232. **Audit** The Project shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

233. The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the Governing Bodies of the Organization and reporting directly to them, and an internal audit function headed by the FAO Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the terms of reference of each. Internal audits of imprest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

3.4 PROCUREMENT

234. At the request of the Government of Serbia, FAO will procure the equipment and services foreseen in the budget (Appendix 3) and the AWP/Bs, in accordance with FAO rules and procedures.

235. Careful procurement planning is necessary for securing goods, services and works in a timely manner, on a "Best Value for Money" basis, and in accordance with the Rules and Regulations of FAO. It requires analysis of needs and constraints, including forecast of the reasonable timeframe required to execute the procurement process. Procurement and delivery of inputs in technical cooperation projects follow FAO's rules and regulations for the procurement of supplies, equipment and services (i.e. Manual Sections 502 and 507). Manual Section 502: "Procurement of Goods, Works and Services" establishes the principles and procedures that apply to procurement of all goods, works and services on behalf of the Organization, in all offices and in all locations, with the exception of the procurement actions described in Appendix A – Procurement Not Governed by Manual Section 502. Manual Section 507 establishes the principles and rules that govern the use of Letters of Agreement (LoA) by FAO for the timely acquisition of services from eligible entities in a transparent and impartial manner, taking into consideration economy and efficiency to achieve an optimum combination of expected whole life costs and benefits ("Best Value for Money").

236. The FAO Representative will prepare an annual procurement plan for major items which will be the basis of requests for procurement actions during implementation. The plan will include a description of the goods, works, or services to be procured, estimated budget and source of funding, schedule of procurement activities and proposed method of procurement. In situations where exact information is not yet available, the procurement plan should at least contain reasonable projections that will be corrected as information becomes available.

237. Before commencing procurement, the PC will update the project´s Procurement Plan (Appendix 5) for approval by the Project Steering Committee. This plan will be reviewed during the inception workshop and will be approved by the BH. The NPC will update the Plan every six months and submit the plan to the BH for approval.

3.5 MONITORING AND REPORTING

238. The monitoring and evaluation of progress in achieving the results and objectives of the project will be based on targets and indicators in the Project Results Framework (Appendix 1 and descriptions in sub-section 1.3.2). Project monitoring and the evaluation activities are

budgeted at USD 129,060 (see Table 3.3). Monitoring and evaluation activities will follow FAO and GEF policies and guidelines for monitoring and evaluation. The monitoring and evaluation system will also facilitate learning and replication of the project's results and lessons in relation to the integrated management of natural resources.

3.5.1 Oversight and monitoring responsibilities

239. The monitoring and evaluation roles and responsibilities specifically described in the Monitoring and Evaluation table (see Table 3.3 below) will be undertaken through: (i) day-to-day monitoring and project progress supervision missions (PT); (ii) technical monitoring of indicators; (iii) mid-term review and final evaluation (independent consultants and FAO Evaluation Office); and (v) monitoring and supervision missions (FAO).

240. At the beginning of the implementation of the GEF project, the PT will establish a system to monitor the project's progress. Participatory mechanisms and methodologies to support the monitoring and evaluation of performance indicators and outputs will be developed. During the project inception workshop (see section 3.5.3 below), the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project's Results Framework with all project stakeholders; (ii) review of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will be required for inclusion in consultant contracts, to ensure compliance with the monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders in the project. The M&E Expert (see TORs in Appendix 6) will prepare a draft monitoring and evaluation matrix that will be discussed and agreed upon by all stakeholders during the inception workshop. The **M&E matrix** will be a management tool for the NPC and the Project Partners to: i) six-monthly monitor the achievement of output indicators; ii) annually monitor the achievement of outcome indicators; iii) clearly define responsibilities and verification means; iv) select a method to process the indicators and data.

241. The **M&E Plan** will be prepared by the M&E Expert in the three first months of the PY1 and validated with the PSC. The M&E Plan will be based on the M&E Table 3.3 and the M&E Matrix and will include: i) the updated results framework, with clear indicators per year; ii) updated baseline, if needed, and selected tools for data collection (including sample definition); iii) narrative of the monitoring strategy, including roles and responsibilities for data collection and processing, reporting flows, monitoring matrix, and brief analysis of who, when and how will each indicator be measured. Responsibility of project activities may or may not coincide with data collection responsibility; iv) updated implementation arrangements, if needed; v) inclusion of the tracking tool indicators, data collection and monitoring strategy to be included in the mid-term review and final evaluation; vi) calendar of evaluation workshops, including self-evaluation techniques.

242. The day-to-day monitoring of the project's implementation will be the responsibility of the PC and will be driven by the preparation and implementation of an AWP/B followed up through six-monthly PPRs. The preparation of the AWP/B and six-monthly PPRs will represent the product of a unified planning process between main project stakeholders. As tools for results-based-management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output and outcome targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output and outcome targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with all stakeholders and coordinated and facilitated through project planning and progress review

workshops.These contributions will be consolidated by the NPC in the draft AWP/B and the PPRs.

243. An annual project progress review and planning meeting should be held with the participation of the project partners to finalize the AWP/B and the PPRs. Once finalized, the AWP/B and the PPRs will be submitted to the FAO LTO for technical clearance, and to the Project Steering Committee for revision and approval. The AWP/B will be developed in a manner consistent with the Project Results Framework to ensure adequate fulfillment and monitoring of project outputs and outcomes.

244. Following the approval of the Project, the PY1 AWP/B will be adjusted (either reduced or expanded in time) to synchronize it with the annual reporting calendar. In subsequent years, the AWP/Bs will follow an annual preparation and reporting cycle as specified in section 3.5.3 below.

3.5.2 Indicators and sources of information

245. For indicators and corresponding sourecs of information, please refer to the results framework in appendix 1.

3.5.3 Reporting schedule

246. Specific reports that will be prepared under the monitoring and evaluation program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) Annual Project Implementation Review (PIR); (v) Technical reports; (vi) Co-financing reports; and (vii) Terminal Report. In addition, the GEF[17] tracking tool for land degradation will be completed and will be used to compare progress with the baseline established during the preparation of the project.

247. **Project Inception Report.** After FAO internal approval of the project an inception workshop will be held. Within three month of the project start, the NPC will prepare a project inception report in consultation with the FAO Regional Office for Europe and Central Asia and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix (see above). The draft inception report will be circulated to FAO, the PSC, for review and comments before its finalization, no later than three months after project start-up. The report will be cleared by the FAO BH, LTO and the FAO/GEF Coordination Unit. The BH will upload it in FPMIS.

248. **Annual Work Plan and Budget(s) (AWP/Bs)**. The NPC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project outcomes and outputs and divided into monthly timeframes and targets and milestone dates for output and outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO Regional Office for Europe and Central Asia will circulate the draft AWP/B to the FAO Project Task Force and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the PT will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection. The BH will upload the AWP/Bs in FPMIS.

[17] *GEF LD Tracking Tool.*

249. **Project Progress Reports (PPR).** The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework (Appendix 1), AWP/B and M&E Plan. Each semester the National Project Coordinator (NPC) will prepare a draft PPR, and will collect and consolidate any comments from the FAO PTF. The NPC will submit the final PPRs to the FAO Regional Office for Europe and Central Asia every six months, prior to 10 June (covering the period between January and June) and before 10 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PMU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

250. **Annual Project Implementation Review (PIR)**. The NPC, under the supervision of the LTO and BH and in coordination with the national project partners, will prepare a draft annual PIR report[18] covering the period July (the previous year) through June (current year) no later than July 1st every year. The LTO will finalize the PIR and will submit it to the FAO-GEF Coordination Unit for review by July 10th. The FAO-GEF Coordination Unit, the LTO, and the BH will discuss the PIR and the ratings[19]. The LTO is responsible for conducting the final review and providing the technical clearance to the PIR(s). The LTO will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat and the GEF Independent Evaluation Office as part of the Annual Monitoring Review of the FAO-GEF portfolio. The PIR will be uploaded to FPMIS by the FAO-GEF Coordination Unit.

251. **Technical reports**. The technical reports will be prepared as part of the project outputs and will document and disseminate lessons learned. Drafts of all technical reports must be submitted by the Project Coordinator to the PSC and BH, which in turn will be shared with the LTO for review and approval and to the FAO-GEF Coordination Unit for information and comments before finalization and publication. Copies of the technical reports will be distributed to the Liaison Committee and the PSC and other project stakeholders, as appropriate. These reports will be uploaded in FAO FPMIS by the BH.

252. **Co-financing reports**. The NPC will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all the project cofinanciers and eventual other new partners not foreseen in the Project Document. Every year, the NPC will submit the report to the BH before July 10th covering the period July (the previous year) through June (current year). This information will be used in the PIRs.

253. **GEF Tracking Tools**. In compliance with GEF policies and procedures, tracking tools on the Cilmate Change, Biodiversity and Sustainable Forest Management focal areas should be sent to the GEF Secretariat in three stages: (i) with the project approval document by the GEF Executive Director; (ii) with the mid-term review of the project; and (iii) with the final evaluation of the project.

[18] Prior to the preparation of the PIR report, the FAO-GEF Coordination Unit will provide the updated format as every year some new requirements may come from the GEF.
[19] The NPC, the BH, the LTO and the FAO/GEF Coordination Unit should assign ratings to the PIR every year. The ratings can or cannot coincide among the project managers.

254. **Final Report**. Within two months prior to the project's completion date, the Project Coordinator will submit to the PSC and FAO Regional Office for Europe and Central Asia a draft final report. The main purpose of the final report is to give guidance to authorities (ministerial or senior government level) on the policy decisions required for the follow-up of the Project, and to provide the donor with information on how the funds were utilized. Therefore, the terminal report is a concise account of the main **products, results, conclusions and recommendations** of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for ensuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the integrated landscape management in the three microregions in the context of the development priorities at national and departmental levels, as well as in practical execution terms. This report will specifically include the findings of the final evaluation as described in section 3.6 below. A project evaluation meeting will be held to discuss the draft final report with the PSC and the Project Liaison Committee before completion by the Coordinator and approval by the BH, LTO, and FAO-GEF Coordination Unit.

3.5.4 Monitoring and Evaluation summary

255. Table 3.3 summarizes the main monitoring and evaluation reports, parties responsible for their publication and time frames.

Table 3.3. Summary of main monitoring and evaluation activities

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Inception, final and annual planning workshops	NPC; FAO REU (with support from the LTO, and FAO-GEF Coordination Unit)	Within two months of project start up	USD 4050
Project Inception report	NPC, Expert M&E and FAO REU with clearance by the LTO, BH and FAO-GEF Coordination Unit	Within three months after project start	-
Set-up and operation of M+E System, training of project staff in M+E	PC, National M+E Expert, International M+E Expert	Months 2-4 1 month /year during years 2,3,4	USD 24,000 (two months of oft he national M+E expert, 1 mission of te international expert)
Field-based impact monitoring	NPC; PC, Component Coordinator 2; project partners, local organizations	Continuous	USD 25,000 (7% of the Project Coordinator and Component Coordinator 2's time, technical workshops to identify indicators, monitoring and evaluation workshops)
Supervision visits and rating of	PC; FAO (FAO REU, LTO). FAO-GEF	Annual, or as needed	FAO visits will be borne by GEF agency fees

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
progress in PPRs and PIRs	Coordination Unit may participate in the visits if needed.		Project Coordination visits shall be borne by the project's travel budget
Project Progress Reports (PPRs)	PC, with stakeholder contributions and other participating institutions	Six-monthly	USD 6,580 (3.5% of the Project Coordinator's time)
Project Implementation Review (PIR)	Drafted by the PC, with the supervision of the LTO and BH. Approved and submitted to GEF by the FAO-GEF Coordination Unit	Annual	FAO staff time financed though GEF agency fees. PT time covered by the project budget.
Co-financing reports	PC with input from other co-financiers	Annual	USD 1880 (1% of the Coordinator's time)
Technical reports	PC, FAO (LTO, FAO REU)	As needed	
Mid-term review	FAO REU, External consultant, in consultation with the project team, including the FAO-GEF Coordination Unit and others	Midway through the project implementation period	USD 35,000 by an external consultancy
Final evaluation	FAO Independent Evaluation Unit in consultation with the project team, including the FAO-GEF Coordination Unit and others	At the end of the project	USD 50,000 FAO staff time and travel costs will be financed by GEF agency fees.
Terminal Report	NPC; FAO (FAO REU, LTO, FAO-GEF Coordination Unit, TCS Reporting Unit)	Two months prior to the end of the project.	USD 6550
Total budget			**USD 153,060**

3.6 EVALUATION PROVISIONS

256. At the end of the first 18 months of the project, the BH will arrange a **Mid-Term Review** (MTR) / **Mid-Term Evaluation (MTE**) in consultation with the PSC, the PT, the LTO and the FAO-GEF Coordination Unit. The MTR will be conducted to review progress and

effectiveness of implementation in terms of achieving project objective, outcomes and outputs. The MTR will allow mid-course corrective actions, if needed. The MTR will provide a systematic analysis of the information provided under the M&E Plan (see above) with emphasis on the progress in the achievement of expected outcome and output targets against budget expenditures. The MTR will refer to the Project Budget (see Appendix 3) and the approved AWP/Bs for PY1 and PY2. The MTR will contribute to highlight replicable good practices and main problems faced during project implementation and will suggest mitigation actions to be discussed by the PSC, the LTO and FAO-GEF Coordination Unit.

257. An independent Final Evaluation (FE) will be carried out six months prior to the terminal report meeting. The FE will aim to identify the project impacts, sustainability of project outcomes and the degree of achievement of long-term results. The FE will also have the purpose of indicating future actions needed to expand on the existing Project in subsequent phases, mainstream and up-scale its products and practices, and disseminate information to management authorities and institutions with responsibilities in food security, conservation and sustainable use of natural resources, small-scale farmer agricultural production and ecosystem conservation to assure continuity of the processes initiated by the Project. Both the MTR and FE will pay special attention to outcome indicators and will be aligned with the GEF Tracking tools (CCM, BD, SFM focal areas).

3.7 COMUNICATION AND VISIBILITY

258. A communication strategy will be develeped to ensure that project products, milestones, results and lessons are widely disseminated to key actors using appropriate communication tools and methods. This includes information material on key products such as the updated SFM guidelines for forest managers, use of the IFIS, and the guidelines on participation in certification schemes. The information will be disseminated through presence in local media, as well as the set up and regular update of a project website, and social media channels as appropriate. A publication on lessons learned will be prepared, and the project results will be presented at least in one international forum on SFM to disseminate the results to an interenational audience.

259. To ensure smooth implementation of the communication strategy, a part-time communication expert will be hired for a total dedication of 12 months over the whole prject period.

260. FAO will ensure that the project findings are distributed to a wide range of stakeholders in the region and at global level, through its international networks on sustainable forest management.

SECTION 4 – SUSTAINABILITY OF RESULTS

4.1 SOCIAL SUSTAINABILITY

261. Private forest owners who for the most part own less than 1 ha of forest and communities which benefit from forest resources in Serbia form part of the core stakeholders and beneficiaries of this project. Private forest owners are among the main addressees of the comprehensive training and capacity development activities at the Forest Management Unit level to be implemented under component 2. Local farmers will benefit significantly from their enhanced forest management knowledge and capacity they stand to gain in the context of the project.

262. Private forest owners and users will benefit from the enhanced capacities of the publicforest enterprises to provide technical assistance in forest management. Indirectly, they benefit also from improved decision making at national and regional level based on better information available through the NFI and IFIS. Eventually, the strategic orientation given by the project in terms of development of incentives and extension for private forest owners can create additional revenue streams to incentivize SFM, carbon reductions and biodiversity conservation which will directly benefit local communities. Local co-benefits deriving from the creation of GEBs are thus particularly pronounced in this GEF project enhancing social and socioeconomic sustainability.

263. Forest users, including poor and forest-dependent women and men, will benefit from the development of forest policies that consider their socio-economic needs and from the creation of forest extension services that support them in the sustainable economic exploitation of forests.

264. Local communities will be an active participant in the project ensuring local ownership. Participatory practices will place strong emphasis on the realization of gender equality throughout the project implementation process. Furthermore, the training and capacity development mechanisms (output 2.1.3) that are envisioned to operate well beyond project duration will also serve as knowledge exchange fora to be used for forest owners' interaction on past experience. The conscious inclusion of women in these knowledge exchange mechanisms will further strengthen the gender equality focus of the project.

4.2 ENVIRONMENTAL SUSTAINABILITY

265. The project is geared towards the creation of long-term environmental benefits, aiming at sustainable impact that will improve environmental conditions well beyond the scope and duration of the project itself. Through the multi-level intervention strategy at local, regional and national level, the project provide important foundations to integrate environmental concerns for forest management at policy level, as well as in the implementation of forest management plans on the ground, which will lead to the improved environmental services flows from forest landscapes (biodiversity, landscape integrity, water source protection). In the long term, these flows may generate tangible benefits for forest owners and local communities, for example through development of tourism or availability of non-wood forest products, which in turn will increase sustainablility. Finally, better information on forest biodiversity enables policy makers, planners and forest managers to take informed decisions on their management options under an environmental perspective.

4.3 FINANCIAL AND ECONOMIC SUSTAINABILITY

266. The proposal is is financially sound, building on a large base of public-sector investments in the forestry sector through the stable Forest Fund and strong institutions such as the Public Forest Enterprises which have the financial capacity to carry forward the activities of the project. Key for the financially and economic sustainability are the project interventions which give strategic orientation to the government on creating incentives for private forest owners to engage in sustainable forest management. The implementation of these incentives can leverage investments from the private sector.

267. Through better information on forests and the strengthening of MRV systems, the project will provide the groundwork for Serbia to accede to funds from international partners who co-finance investments to climate change mitigation in the sector.

4.4 SUSTAINABILITY OF CAPACITY DEVELOPMENT

268. The capacity development strategy of the project is designed to leave long term capacities installed in the country. All activities have been designed to be embedded in institutional structures to mainstream the developed capacity into the day-to-day activities of the institutions. The project will implement a training of trainers' programme to form qualified trainers which are available to train forest managers, planners and extensionists, for example, in the context of training activities organized by the Forest Directorate or the Public Enterprises (1.2.1). The activities to guide implementation of Forest Development Plans and Forest Management Plans (outputs 2.1.2 and 2.1.3) and will be implemented with a view to maximize the presence of project personnel in the field, providing on-the-job training to forest planners, managers and owners, in the public enterprises as well as the communities. This will ensure that the activities are closely aligned with the issues that the trainees deal with, and that a lasting impact is created. The SFM coordination platform will create an interinstitutional space for knowledge sharing among key actors. Finally, through the implementation of the communication strategy, dissemination of the findings to a broad range of stakeholders will be ensured.

269. The sustainability of the results will be ensured by the continuous involvement of local stakeholders within every single stage of the project's implementation. Beside the ongoing collaboration between international and national experts, relevant stakeholders will be constantly part of the project's pro-gress e.g. as part of the planned workshops and trainings. This approach will not only facilitate the ownership and commitment on a national level, but will moreover provide a transparent and sound base for collaboration. Applying stakeholder's input as part of the solution for a number of tasks within the project will furthermore lighten the transfer of knowledge and experience from other, previous projects addressing similar topics.

270. Finally, the project will draw as much as possible on local experts to implement the activities, which will serve to consolidate the capacity of local institutions, when the experts return to national institutions after the close of the project.

4.5 APPROPRIATENESS OF TECHNOLOGIES INTRODUCED and COST/EFFECTIVENESS

Technologies

271. The approaches and technologies which will be introduced by the project, for example in the implementation of the National Forest Inventory (Output 1.1.3) or the Forest Information System (Output 1.1.2), build on existing capacities in Serbia, and selected and

validated by local experts and stakeholders in the preparation phase. They have been tried and validated in other countries in the region with similar characteristics.

272. The practices to be introduced to implement Forest Management Plans at the local level, are based on extensive experience in forest management of the public forest enterprises and designed so that the y can be easily adopted by forest owners and managers. There is no reason to expect that any of the practices/methods introduced and developed will be inappropriate. This situation will be monitored using standard FAO procedures and mechanisms.

Cost-effectiveness

273. The project can be considered cost-effective as it buids as much as possible on existing institutional structures, for example, implementation of the surveying activities for the NFI through the public enterprises Voivodinasume and Srbjasume which have a wide network of experienced field staff and offices. Furthermore, most activities will be carried out by local experts, which in addition to being cost-effective, builds local capacities and facilitates replication.

274. Cost-effectiveness is also an important criterion for the practices to be implemented at local level. The project will favor low-cost approaches to sustainable forest management which require little investments and can easily be adopted by forest managers.

4.6 INNOVATIVENESS, REPLICATION and SCALE-UP

Innovativeness

275. In the context of Serbia, the project is innovative as it is implementing management approaches to generate the multiple benefits of forests including biological diversity conservation and climate change mitigation. This is a very inicipient development in a country where forests are managed largely for the timber. However, it will be of high relevance in the future where forests will be managed much more for other benefits they provide to society. Thus, the project will provide an important base for Serbia to situate itself in this new global context and to access markets based on these requirements.

276. This is especially the case in non-state forests where lack of appropriate forest management plans, guidelines for forest management or appropriate financial mechanisms (such as payments for ecosystem services or certification of forest management) causes loss of forest biodiversity. The GEF grant will help bend the trajectory of forest management in Serbia in this way.

277. Another innovative aspect is the systematic integration and strengthening of private forest owners in the project. As more than half of the forests of Serbia are in private hands, PFOs involvement plays fundamental role for the implementation of sustainable forest management, particularly for biodiversity conservation. Until now, access of private forest owners to capacity building, information, and incentives is limited. Through the project, PFO involvement in forest management will be strengthened both through targeted activities at the local level, as well as at the national level through the development of strategic options for strengthening the inclusion of PFOs, for example through extension or incentive mechanisms.

Replication and up-scaling

278. The project has been designed to facilitate replaction and upscaling of the activities in the pilot intervention area. It is fully compatible with the forest policy and management structure, covering the whole **planning circle** from the new regional forest development plans through 10-year forest management plans and forest management programmes to the annual operational plans will be implemented and opportunities for improvements in cooperation and tuning of planning mechanisms presented. This facilitates the replication of the approach other forest regions as well as forest management unit level. Furthermore, close cooperation will be established with the PEs Voivodinasume and Srbjasume, key stakeholders which are involved in the management of more than 90 % of the Serbian forests. These will be implementing the activities at local level, and will thus build the capacity to upscale them to other areas of the country.

279. The upscaling potential will further be reinforced by the SFM guidelines to be developed under the project, which will cover the most relevant forest types at national level.

280. Finally, the project includes strategic orientation at the policy level and the development of concrete options to mainstream and replicate experiences through grojects and programmes, such as a national forest extension service. Furthermore, it creats and strengthens strengthen inter-institutional mechanisms for cooperation, for example through collaboration on data sharing in the context of the FIS development, and the multisectoral coordination platform. These mechanisms constitute important bases to share and replicate project experiences.

APPENDICES

APPENDIX 1: RESULTS FRAMEWORK

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Objective: To promote multifunctional sustainable forest management to conserve biodiversity, enhance and conserve carbon stocks and secure forest ecosystem services in productive forest landscapes							
Component 1: Enabling environment for multifunctional sustainable forest management							
Outcome 1.1 Improved decision-making in mangement of productive forest landscapes	*Indicator CCM-9: Degree of support for low GHG development in policy, planning and regulations*	Rating - 2: Climate change mitigation contribution in the forest sector mentioned in national CCM strategy, but outdated; no sectoral strategy and implementation		Rating - 6: CCM consideration reflected in sectoral documents and action plans, as well as forest development and forest management plans under implementation	1 Strategy to mainstream BD and CCM aspects in legislation (output 1.1.5) 15 SFM guidelines for typical forest types (output 1.1.6) 1 Guidelines for regional forestry development and forest management planning (output 1.1.1) 1 Concept for a comprehensive forest extension service (output 2.1.4) 1 Action plan to mainstream incentives for SFM into forest	Collaboration of sector institutions Capacities of forest planners and management to apply guidelines Willingness of the government to mainstream recoommendation into sector policy and plans	Project coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
					policy (output 2.1.4)		
	Indicator CCM-10: Quality of MRV Systems	Rating - 2: Very rudimentary MRV available only taking into account forest area with assigned C-values, but not dynamics included, not covering the whole forest area and not up to international standards		Rating - 8: Strong standardized measurements processes established and implemented through NFI; reporting is widely available in multiple formats through IFIS; verification of information through IFIS	Strategy document IFIS reports	NFI and IFIS are functional Institutions collaborate with data	Project coordinator
	Indicator BD-4: Mainsteaming biodiversity into policy and regulatory frameworks	Step 3 - Forestry: Regulations are in place to implement the legislation: Forest Law and and FDS include biodiversity considerations, FMPs only exist for part of the FMUs		Step 4 - Forestry: The regulations are under implementation in pilot areas because of clear guidelines and improved capacities of forest managers	Yearly operational plans of Forest Management Units Forest Development Plan documents	Capacities and willingness of forest planners and management to apply guidelines Willingness of the government to mainstream recommendations into sector policy and plans	Project coordinator
Output 1.1.1: Methodology for forest and biodiversity information collection and management	Methodology and guidelines for biodiversity information collection in NFI available, following	0	One (1) Methodology and guideline available following international standards	One (1) Methodology and guidelines available following international standards	Methodology and guidelines documents		Project coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
harmonized with global and regional standards and reporting requirements	international standards						
	Methodology and guidelines for biodiversity assessment and management for forest planning at regional and management unit level, following international standards	0	Two (2) methodology and guideline documents for biodiversity assessment management for forest planning (1 for FDP and 1 for FMP)	Two (2) methodology and guideline documents for biodiversity assessment management for forest planning (1 for FDP and 1 for FMP)	Methodology and guideline documents		Project coordinator
Output 1.1.2: Integrated Forest Information System (IFIS) including biodiversity, carbon and socio-economic information	Integrated Forest information System including web-based user interface operational and regularly used	0	IFIS is operational	IFIS operational and including comprehensive forestry information, regularly accessed	IFIS reports Visitor statistics of web portal	Institutions collaborate with sharing information By-law on information sharing adopted Support by the government for FIS operation	Forest information specialist
Output 1.1.3: National forest inventory conducted including assessment and collection of information relevant to biodiversity	Forest area inventoried, including identification of priority areas for biodiversity conservation according to the updated methodology	0 % of area inventoried	75 % ha of forest area inventoried	100 % of forest area inventoried	NFI records	Collaboration of the relevant sector institutions Availability of qualified personnel for surveying and data analysis	NFI coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
conservation and climate change mitigation							
Output 1.1.4: Existing carbon monitoring, reporting and verification (MRV) systems, reviewed and adapted to Serbian context	MRV system based on international standards designed and validated	0	One (1) MRV system designed and validated by 20 specialists from forestry and environmental sector	One (1) MRV system designed and validated by 20 specialists from forestry and environmental sector	MRV system design document Validation workshop reports	Collaboration of the relevant sector institutions	Project coordinator
Output 1.1.5: Forest development programme and legislation revised to incorporate biodiversity climate change mitigation and socio-economic concerns	Recommendations for to mainstream biodiversity and climate change mitigation concerns in forest development planning and legislation	0	One (1) Recommendation document available	One (1) Recommendation document available	Recommendation document	Collaboration of the relevant sector institutions	Project coordinator
Output 1.1.6: National standards for best management practices in	Guideline documents for sustainable sylvicultural practices in different forest	No management guidelines	15 SFM guidelines available and disseminated	15 SFM guidelines available and disseminated	Guideline documents		Project coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
different forest types	types, integrating climate-smart forestry and biodiversity conservation based on EU habitats directive						
Output 1.1.7: National level multisectoral coordination platform for multifunctional sustainable forest management established	High-level roundtable consultation on sustainable forest management with participation of at least 30 participants from public, academic, civil society and private sectors	0	Two (2) high-level roundtable consultations	Four (4) high-level roundtable consultations	Minutes of meeting; roundtable declarations	Willingness of public, academic, civil society and private sectors to engage in the process	Project coordinator
	Thematic multi-actor working groups established and at least 2 meetings conducted per year	0	Three (3) thematic multi-actor working groups established and four (4) meetings held	Four (4) thematic multi-actor working groups established and 14 meetings held	Minutes of meeting working group resolutions	Willingness of public, academic, civil society and private sectors to engage in the process	Project coordinator
<u>Outcome 1.2</u> Institutional capacities strengthened for multi-functional forest management	*Public, private, academic and civil society institutions with increased capacities in SFM*	TBD at inception	10 institutions with a higher ranking than baseline (TBD at inception)	15 institutions with a higher ranking than baseline (TBD at inception)	Survey results	Willingness of public, academic, civil society and private sectors to engage in the process	Project coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.2.1: Training programme for forest managers, users and administrators in updated SFM techniques and BD management in productive landscapes established and implemented, including a training of trainers.	Forest managers in state forest enterprises and private forest associations trained in the application of SFM techniques and BD management in productive landscapes	0	80 forest managers trained (3 day training programme)	120 forest managers trained (3 day training programme)	Training records	Willingness of public, academic, civil society and private sectors to engage in the process	Project coordinator
	Trainers in SFM and biodiversity management for national capacity building activities	0		20 Trainers successfully completed training programme (2x5 day training programme)	Training records	Willingness of public, academic, civil society and private sectors to engage in the process	Project coordinator
Component 2: Multifunctional forest management							
<u>Outcome 2.1</u> Increased forest area under sustainable and multi-functional forest management	*Indicator CCM-1: Total Lifetime Direct and Indirect GHG Emissions Avoided (Tons CO2eq)*	*0 tCO2eq direct emissions avoided*		*1,784,288 tCO2eq direct emissions avoided*	Records from yearly operational plans of forest management units	Engagement of public and private forest owners Absence of extreme drought or forest fires in the intervention areas	Project coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	Indicator SFM-3: Area of sustainably managed forest, stratified by forest management actors (ha)	*State Forests (PE Srbjasume/Voivodinasume/National Parks Tara and Fruska Gora): TBD* *Church Forests: TBD* *Private Forests: 0 ha* *Total: TBD*		*State Forests (PE Srbjasume/Voivodinasume, National Parks Tara and Fruska Gora): TBD* *Church Forests: TBD* *Private Forests: TBD* *Total: 20,000 hain addition to baseline*	Records from yearly operational plans of forest management units	Engagement of public and private forest owners Absence of extreme drought or forest fires in the intervention areas	Project coordinator
	Indicator BD-1: Area under which the project will directly and indirectly contribute to biodiversity conservation (Ha.)	Direct coverage: 0 ha Indirect coverage: 0 ha		*Direct coverage: 20,000 ha* *Indirect coverage: 476,010 ha*	Records from yearly operational plans of forest management units	Engagement of public and private forest owners Absence of extreme drought or forest fires in the intervention areas	Project coordinator
Output 2.1.1: Biodiversity status and impact of land use on biodiversity assessed in the project areas	Status for forest biodiversity, impacts and threats in the Obeska Bara and Tara protected areas assessed	0 ha	44,658 ha assessed	44,658 ha assessed	Reports and maps		Forest biodiversity specialist
	Nature value assessment and biotope mapping in 4-8 forest management units covering 20,000 ha of public and private forest lands including Obeska	0 ha	20,000 ha assessed	20,000 ha assessed	Reports and maps		Forest biodiversity specialist

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	Bara and Tara protected areas						
Output 2.1.2: Integrated and improved forest development plans prepared for at least 2 forest regions	Forest development plans of Western Serbia and Voivodina developmed and monitored based on the new FDP procedures	0 FDPs	Two (2) FDPs covering 475,000 ha	Two (2) FDPs covering 475,000 ha	Forest Development Planning documents	Engagement of forest administration Absence of extreme drought or forest fires in the intervention areas	Regional Coordinators
Output 2.1.3: Forest management plans implemented	Pilot forest management units in Western Serbia and Voivodina regions covering at least 20,000 ha with updated and monitored management and operational plans based on the new FMP procedures			4-8 FMUs / 20,000 ha	Records from yearly operational plans of forest management units	Engagement of public and private forest owners Absence of extreme drought or forest fires in the intervention areas	Regional Coordinators
	Demonstration plots for typical management measures in common forest types	0 plots	12 plots	16 plots	Implementation reports	Engagement of public and private forest owners Absence of extreme drought or forest fires in the intervention areas	Regional Coordinators

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.1.4: Strategic and policy options to ensure committment of private forest owners and users to sustainable forest management developed and validated	Concept for a comprehensive forest extension service for private forest owners and users	0	1 concept document validated	1 concept document validated	Document		Extension Coordinator
	Action plan and recommendations to mainstream incentives for SFM for private forest owners into forest policy developed and validated	0	One (1) action plan validated by 45 key actors in public, private and academic sector	One (1) action plan validated by 45 key actors in public, private and academic sector	Action Plan	Willingness and capacity of the government to mainstream recommendations into sector policy and plans	Project coordinator
Component 3: 3. Monitoring, Evaluation and dissemination of lessons learned							
Outcome 3.1 Adaptive management ensured and key lessons shared	*M&E system ensuring timely delivery of project benefits and adaptive results-based management*	0	Up-to-date monitoring and reporting on outcomes, outputs and activities	Up-to-date monitoring and reporting on outcomes, outputs and activities	Progress and evaluation reports		Project coordinator
Output 3.1.1: Monitoring system providing systematic information on progress in reaching expected outcomes and targets	*Monitoring and evaluation system operational*	0	Inception Report and six-monthly progress reports	Six-monthly project reports and terminal reports	Report documents		Project coordinator

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.1.2: Mid-term and final evaluation conducted	Mid-term conducted		Mid-term evaluation conducted		Mission reports		BH Project team
	Final evaluation conducted			Final evaluation conducted	Mission reports		OED
Output 3.1.3: Project achievement and results recorded and disseminated	Appearances in local and national media	0	10 media appearances (articles, interviews, features)	20 media appearances (articles, interviews, features)	Documentation		Communication expert
	Project website and presence in social media	0	One (1) Project website and active social media accounts	One (1) Project website and active social media accounts	Website and social media usage statistics		Communication expert
	Publications on lessons learned	0		One (1) publication on lessons learned	Document		Communication expert
	Presentation at international SFM events	0		One (1) presentation in international SFM forum	Presentation, proceedings		Project coordinator

APPENDIX 2: WORK PLAN

Output	Activities	Responsible	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1: Enabling environment for multifunctional sustainable forest management																		
Outcome 1.1 Improved decision-making in mangement of productive forest landscapes																		
Output 1.1.1: Methodology for forest and biodiversity information collection and management harmonized with global and regional standards and reporting requirements	Design methodology for collecting and analysis of biodiversity and carbon information for NFI	Forest Biodiversity Expert																
	Design methodology for assessing forest biodiversity and nature values as part of SFM for forest development and management planning	Forest Biodiversity Expert / Forest Management Expert																
	Development of manuals and technical guidelines for integrating CCM and BD conservation into forest development and management planning	Forest Biodiversity Expert / Forest Management Expert																
Output 1.1.2: National forest information system, including biodiversity and carbon information, operational	Design of a By-law on data sharing arrangements for FIS	Legal Expert																
	Design of methodology and operating procedures of FIS	FIS Contractor																
	Finalize technical specification of equipment and software	IT expert / FIS Contractor																
	Procurement of equipment and software	IT expert / FIS Contractor																
	FIS internal standards definition	FIS Contractor																
	Development of earth observation products for forest management (monitoring of logging operations, forest fires)	FIS Contractor																

	Design of FIS systems architecture	FIS Contractor																	
	Development of FIS platform	FIS Contractor																	
	Testing and validation of FIS platform	FIS Contractor																	
	Training of FIS operators and users (FD + PE staff)	FIS Contractor																	
Output 1.1.3: National forest inventory conducted (including assessment and collection of information relevant to biodiversity conservation and climate change mitigation)	Training of NFI field mappers for the BD mapping	Component 1 / NFI Coordinator																	
	Photo Interpretation (First NFI phase)	Component 1 / NFI Coordinator																	
	Field surveys including biodiversity and carbon data	Component 1 / NFI Coordinator																	
	Processing and analysis of data from field mapping and identification of potential BD hotspots as well as threatened areas	Component 1 / NFI Coordinator																	
	Production of GIS layers	Component 1 / NFI Coordinator																	
	Final NFI report including carbon and biodiversity information and maps	Component 1 / NFI Coordinator																	
Output 1.1.4: Existing carbon monitoring, reporting and verification (MRV) systems, reviewed and adapted to Serbian context	Development of a proposal for institutional setup framework including the necessary capacities to be allocated, the choice and description of the protocol and the development of the MRV system	MRV Expert																	
	Validation workshops on MRV proposals	MRV Expert																	
Output 1.1.5: Forest development strategy and legislation revised to incorporate biodiversity and climate change mitigation concerns	Consultations with key stakeholders	Forest Policy Expert / Legal Expert																	
	Development of recommendations to mainstream SFM into forest development strategy and legislation	Forest Policy Expert / Legal Expert																	

Output 1.1.6: National standards for best management practices in different forest types	Consultations with researchers and forest managers	Forest Management Specialist																	
	Revision of existing SFM guideline documents	Forest Management Specialist																	
	Revision and completion of at least 15 guideline documents for sustainable sylvicultural practices in different forest types, integrating climate-smart forestry and biodiversity conservation based on EU habitats directive	Forest Management Specialist																	
Output 1.1.7: National level multisectoral coordination platform for multifunctional sustainable forest management established	High level roundtable consultations on SFM in Serbia with participation of public, academic, civil society and prrivate sector	National Project Coordinator / MAFW																	
	Regular consultations of multi-actor working groups on Forest information, forest development planning, forest management systems, and private forest owners integration	National Project Coordinator / MAFW																	
Outcome 1.2 Institutional capacities strengthened for multi-functional forest management																			
Output 1.2.1: Training programme for forest managers, users and administrators in updated SFM techniques and BD management in productive landscapes established and implemented, including a training of trainers	Development of capacity development strategy and training modules: FDP and FMU level Planning, management, monitoring; Forest information system	Component 1 / NFI Coordinator																	
	SFM and biodiversity training of 120 forest users, managers and planners (6 3-day trainings with 20 participants)	Component 1 / NFI Coordinator																	
	Prepare and conduct a training of trainers programme (20 Trainers, 2 trainings of 5 days)	Component 1 / NFI Coordinator																	
	At least 3 test trainings for the new trainers	Component 1 / NFI Coordinator																	
Component 2: Multifunctional forest management																			

Outcome 2.1 Increased forest area under sustainable and multi-functional forest management																			
Output 2.1.1: Biodiversity status and impact of land use on biodiversity assessed in the project areas	Conduct review of existing knowledge and data as well as new NFI data on forest biodiversity, threats and impacts in the project areas (Vojvodina and Western Serbia)	Forest Biodiversity Expert																	
	Evaluate the current status for forest biodiversity, impacts and threats for Obeska Bara and Tara National Parks	Forest Biodiversity Expert																	
	Conduct Nature Value Assessment and mapping of key biotopes in four to eight selected FMUs within and outside protected areas	Forest Biodiversity Expert																	
Output 2.1.2: Integrated and improved forest development plans prepared for 2 forest regions	Training of planning teams in Vojvodina and Western Serbia regions	Component 2 / Forest Management Coordinator																	
	Development of the Forest Development Plans for two pilot regions (Voivodina and Western Serbia) based on FDP manual and information from biodiversity assessment	Component 2 / Forest Management Coordinator																	
	Technical assistance to planning teams on implementation of technical guidelines of the FDP manual	Component 2 / Forest Management Coordinator																	
Output 2.1.3: Integrated Forest management plans implemented	Selection of 8 FMUs (4 in Vojvodina and 4 in Western Serbia)	Project Coordinator																	
	Support revision and updating of 10 year forest management plans in the selected FMUs based on the updated FDPs, the Protected Area management plan and information from biodiversity assessment according to the FMP manual	Component 2 / Forest Management Coordinator																	

	Support to private owners drafting of yearly operational plans of the selected FMUs	Component 2 / Forest Management Coordinator																	
	In 8 selected FMUs, perform forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, assessment of Natura 2000 restrictions and management options	Component 2 / Forest Management Coordinator																	
	40 2-day workshops for forest owners on FMP implementation	Component 2 / Forest Management Coordinator																	
	Support to Forest Owners to implement practices defined in the operational plans	Component 2 / Forest Management Coordinator																	
	Organization of excursions and Open days of the Forests	Component 2 / Forest Management Coordinator																	
	Establishment of 16 demonstration plots for typical management measures in common forest types	Component 2 / Forest Management Coordinator																	
Output 2.1.4: Strategic and policy options to ensure committment of private forest owners to sustainable forest management developed and validated	Development of a concept for a comprehensive forest extension service for private forest owners	Forest Extension Specialist																	
	Analysis of potential incentives for forest owners to implement SFM (fiscal incentives, ecosystem services, market access, certification schemes)	Forest Economist																	
	Development of an action plan and policy recommendations to mainstream incentives for SFM for private forest owners into forest policy	Forest Economist																	
	4 validation and dissemination workshops for action plan and policy recommendation for private forest owner organizations	Component 2 / Forest Management Coordinator																	

	Organization of 2 study tours for private forest owners to visit successful implementation of SFM practices (8 PFO, 5 days each)	Component 2 / Forest Management Coordinator																		
Component 3: 3. Monitoring, Evaluation and lessons dissemination																				
Outcome 3.1 Adaptive management ensured and key lessons shared																				
Output 3.1.1: Monitoring system providing systematic information on progress in reaching expected outcomes and targets	Set up of monitoring and evaluation system	M&E Expert	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Preparation of Annual Work Plan and Budget	Project Coordinator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Preparation of inception report	Project Coordinator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Preparation of project progress reports	Project Coordinator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Preparation of final report	Project Coordinator																		
Output 3.1.2: Mid-term and final evaluation conducted	Mid term evaluation mission	FAO																		
	Final evaluation mission	FAO																		
	Set-up of grievance mechanism	FAO																		
	Preparation of a communications strategy	Communication expert																		
Output 3.1.3: Project achievement and results recorded and disseminated	Ensure presence in local media	Communication expert																		
	Preparation of information products	Communication expert																		
	Setting up and maintenance of a project website / social media	Communication expert																		
	Documentation and publicatio of lessons learned	Communication expert																		
	Presentation of results at international conference	Project Coordinator																		

APPENDIX 3: PROJECT BUDGET

Budget GEF SFM Serbia final.xlsx

APPENDIX 4: RISK MATRIX[1]

	Description of risk	Impact[2]	Probability of occurance[1]	Degree of incidence	Mitigation actions	Responsible party
1	Lack of close and collaborative cooperation between institutional stakeholders	The lack of collaboration among stakeholders will negatively influence the sustainability of the results, particularly with regard to the information system, and the application of products such as SFM standards. Furthermore, replication of the activities at regional and local level will be difficult.	ML	MH	Close and collaborative cooperation between many institutional stakeholders will be essential for the project to achieve its stated goal and objectives. This will be achieved through involvement of all stakeholders from the beginning of the project inception process and through establishment of the national multisectoral coordination platform. A communication strategy will also be developed and regular meetings and presentation of project results in different phases of the project implementation will be organized.	Forest Directorate
2	Low technical capacity of experts and institutions at national and local level halting the project's progress	The lack of technical capacities may slow down the identification of qualified experts and institutions to implement project activities difficult. It may also slow down progress of project execution.	L	ML	The assessment conducted during the PPG phase shows that this risk is low and suitable national experts can be identified. However, some international experts will be hired with project resources in order to provide guidance on some specific technical issues and further strengthen capacities at the national level. In terms of institutional capacity, the risk will be mitigated through the project's capacity building activities.	Project Steering Committee (PSC) Project team
3	Lack of political support for the project	Lack of political support can lead to serious delays project execution. Some outcomes may not be achieved, or have	L	MH	Achievement of the project goals, especially in regard to policy development and enforcement will rely on political	PSC

[1] Please consult available corporate guidelines and training for information on how to complete the risk log on the ERM website.
[2] H: High; MH: Moderately High; ML: Moderately Low; L: Low

	Description of risk	Impact[2]	Probability of occurance[1]	Degree of incidence	Mitigation actions	Responsible party
		a limited impact, particularly at policy level.			willingness. Engagement of high level officials throughout the project implementation and involvement of appropriate officials in the project steering committee will aid in ensuring political support. In the preparation phase, high-level officials were engaged in workshops and discussions.	
4	Natural changes in ecosystems and associated species due to gradual changes in climate and extreme weather events.	Natural changes in ecosystems may impact the validity of some products such as the national guidelines for SFM. Extreme weather events such as droughts and floods and associated events such as forest fires during project implementation may divert resources and interest from the project activities, and limit the impact, particularly at local level.	Unknown	L (gradual changes) MH (extreme events)	Outputs and capacity building activities will be designed, taking into account likely changes in ecosystems. The information system developed under the project will identify changes in ecosystems likely to be linked to climate change (e.g. occurrence of forest fires, pests and diseases, spread of invasive species) so that remedial actions can be taken.	Project team PSC
5	Lack of willingness and capacities of private forest owners to engage in project activities	The lack of interest and capacities of private forest owners may slow the implementation of activities at local level, and negatively influence in the replication of activities.	M	H	The communication activities of the project will ensure that private forest owners are aware of the projects and the associated benefits. Alliances will be sought with local forest owners associations and community-based organizations to establish good relationships with local stakeholders. Regular activities and presence of project staff in the intervention areas will also help build trust.	Project team
6	Difficulties to implement forest management plans at Forest Management Unit level due to a fragmentation of private forests	The high fragmentation of private forest management units composed of many parcels of less than 1 ha makes it difficult to implement activities with a view to improve larger-scale ecosystem	MH	MH	To ensure the generation of the global environmental benefits, the project will intervene both in forest management units of public enterprises with a uniform tenure structure, and FMUs at municipal level	Project team

	Description of risk	Impact[2]	Probability of occurance[1]	Degree of incidence	Mitigation actions	Responsible party
		conservation due to the involvement of a large amount of stakeholders.			comprised of holdings of small private forest owners, who for the most part own parcels of 1 ha or less. In the municipal FMUs, the project will work as much as possible with local forest users associations	
7	Lack of willingness of institutions to share information	The lack of institutions to share information may impede the proper functioning and updatio of the forest information system.	MH	MH	The establishment of the forest information system relies on the willingness of institutions to share data, which is a sensitive issue in Serbia. To mitigate the risk, the project will ensure a regular information flow to partner institutions, ensuring the transparency of the information system including protocols as well as clear regulations on data use and access rights. Furthermore, a by-law on data sharing will be developed which governs the data sharing agreement between the Forest Directorate and other agencies under the Ministry of Agriculture and Environment.	Project coordinator PSC Forest Directorate

APPENDIX 5: ENVIRONMENTAL AND SOCIAL ASSESSMENT

APPENDIX 6. TERMS OF REFERENCE [22]

Budget and Operations Officer (FAO-REU)

Timing/Duration Full time for project duration

Background: Under the overall supervision of the FAO Regional Representative for Europe and Central Asia and in close cooperation with other FAO staff, the incumbent will provide operational support to the implementation, monitoring and evaluation of the project for timely delivery of its outcomes and outputs. In particular he/she will perform the following tasks:

- Ensure smooth and timely implementation of project activities in support of the results-based work plan, through operational and administrative procedures according to FAO rules and standards;
- Coordinate the project operational arrangements through contractual agreements with key project partners;
- Arrange the operations needed for signing and executing Letters of Agreement (LoA) and Government Cooperation Programme (GCP) agreements with relevant project partners;
- Maintain inter-departmental linkages with FAO units for donor liaison, Finance, Human Resources, and other units as required;
- Undertake day-to-day management of the project budget, including the monitoring of cash availability, budget preparation and budget revisions to be reviewed by the Project Coordinator;
- Ensure the accurate recording of all data relevant for operational, financial and results-based monitoring;
- Ensure that relevant reports on expenditures, forecasts, progress against work plans, project closure, are prepared and submitted in accordance with FAO and GEF defined procedures and reporting formats, schedules and communications channels, as required;
- Execute accurate and timely actions on all operational requirements for personnel-related matters, equipment and material procurement, and field disbursements;
- Participate and represent the project in collaborative meetings with project partners and the Project Steering Committee, as required;
- Be responsible for results achieved within her/his area of work and ensure issues affecting project delivery and success are brought to the attention of higher level authorities through the BH in a timely manner,
- In consultation with the FAO Evaluation Office, the and the FAO-GEF Coordination Unit, support the organization of the mid-term review and final evaluations, and provide inputs regarding project budgetary matters;

Minimal requirements:

1. University Degree in Economics, Business Administration, or related fields.
2. Five years of experience in project experience in planning, project implementation and management/administration of development programmes including the preparation, monitoring and evaluation of development projects and operations procedures
3. Knowledge of FAO's project management systems.

[22] Consultants' Terms of Reference will be revised and validated at project inception.

Location: Budapest, Hungary

Language: English

National Project Director

Timing/Duration	Full time for project duration
Background	The NPD will be a senior officer seconded to the Project by the national lead agency.
Main tasks	• Assume overall responsibility for the successful execution and implementation of the project, accountability to the Government and FAO for the proper and effective use of project resources; • Serve as a focal point for the coordination of projects with other Government agencies, FAO and outside implementing agencies; • Ensure that all Government inputs committed to the project are made available; • Supervise the work of the Project Coordinator and ensure that the Project Coordinator is empowered to effectively manage the project and other project staff to perform their duties effectively; • Supervise the preparation of project work plans, updating, clearance and approval, in consultation with FAO and other stakeholders and ensure the timely request of inputs according to the project work plans; • Represent the Government institution (national counterpart) at the tripartite review project meetings, and other stakeholder meetings; • Build and strengthen synergies and collaboration with other countries and contribute to the regional collaboration component to ensure knowledge exchange and benefits at national level.

PT Staff

Title	**National Project Coordinator (PC)**
Timing/Duration	Full time for project duration
Background	The PC is a GEF funded position reporting to the Budget Holder and LTO.
Main tasks	• Manage Project TeamPTTeam • Prepare annual and quarterly work plans and related budget (WP/B) and prepare TOR for all inputs; • Ensure all PT staff and all consultants fully understand their role and their tasks, and support them in their work; • Oversee day-to-day implementation of the project in line with the WP/B; • Assure quality of project activities and project outputs; • Organise regular planning and communication events, starting with inception mission and inception workshop; • Oversee preparation and implementation of M&E framework; • Oversee preparation and implementation of Project communication and knowledge management frameworks; • Prepare progress reports and all monitoring reports. • Lead interactions with stakeholders • Liaise with government agencies and regularly advocate on behalf of the Project; • Coordinate project interventions with other ongoing activities, especially those of co-financers and other GEF projects; • Facilitate and strengthen collaboration between national project's stakeholders and regional/international partners to ensure smooth implementation and delivery of project's activities; • Support the establishment of the project as an umbrella for SFM implementation in Serbia and encourage regional/international partners to support this initiative; • Regularly promote the project and its outputs and findings on a national, and where appropriate, regional stage.
Key competencies/qualifications	• Advanced degree in in natural resources management or related fields • At least ten years of experience in the project/programme management in the natural resources management sector in Serbia; • Demonstrated ability to adopt new ideas; • Demonstrated commitment to participatory and bottom-up approaches;

- Demonstrated ability to communicate, including advocating to government agencies;
- English and Serbian language skills

Location: Belgrade, Serbia

Language: Serbian and English

Title	**Project Assistant**
Timing/Duration	Full time for project duration
Background	The Administrative Assistant will be working under the direct supervision of the Project Coordinator and in close cooperation with the national staff of the project, the FAOR and the FAO LTO
Main tasks	• Support financial and administrative actions to ensure smooth project operations • Assist in the preparation of annual and quarterly workplans and preparation of ToR for all inputs; • Oversee day-to-day implementation of the project in line with the workplans; • Contribute in the assurance of quality of project activities and project outputs; • Assist in the organisation of regular planning and communication events, starting with inception mission and inception workshop; • Provide assistance in the preparation and implementation of M&E framework; • Provide assistance in the preparation and implementation of Project communication and knowledge management frameworks; • Assist in the preparation of progress reports and all monitoring reports. • Assist in the coordination project interventions with other ongoing activities, especially those of co-financers and other GEF projects.
Key competencies/qualifications	• Secondary school certificate; • familiarity with FAO or other donors' administrative procedures, strong familiarity with computers and Microsoft Word, Excel; • Full competency and fluency in English. Fluency in Serbian • strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Monitoring and Evaluation expert**
Timing/Duration	6 months total (3 months in year 1 and 1 month in years 2,3,4)
Background	Monitoring and Evaluation will be working under the direct supervision of the Project Coordinator and in close cooperation with the national staff of the project, the FAO BH and the FAO LTO
Main tasks	• Design and set-up of a project Monitoring and evaluation system in accordance with FAO and GEF standards, • Train Project Coordinator, Project Assistant and Component Coordinators in monitoring and evaluation of key project results and impacts; • Design a system for monitoring the effectiveness of the project's communications; • Biannual review of state of reporting • Contribution to six-monthly project reports
Key competencies/qualifications	• Degree in business administration, public administration, finance, economics or related field; • Familiarity with FAO or other donors' Monitoring and evaluation procedures, • At least 5 years experience related to project M&E • Full competency and fluency in English. Fluency in Serbian • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Communications Expert**
Timing/Duration	12 months part-time over the project duration
Background	This GEF funded position reports to the Project Coordinator.
Main tasks	This assignment will support FAO and the PT communicating and disseminating messages from the project. The assignment will cover written, verbal, electronic and other forms of media. This assignment contributes to all Outcomes of the project. The consultant will work with the RC. Specific tasks include: • Support the PC in monitoring and evaluation of key project results and impacts; • Design a system for monitoring the effectiveness of the project's communications;

	• Determine the principal messages to be disseminated by the Project; • Determine the key audiences for each message; • Determine the optimal media for conveying the messages to the targeted audience; • Draft a communication strategy; • Train PT and national staff on communication techniques; • Work with the PT to design, develop and support use of communication tools as the project evolves, conveying the project findings and outputs: websites, posters, leaflets, TV interviews, radio interviews, Facebook, twitter, etc.
Key competencies/qualifications	• Advanced degree in impact monitoring and communications • Eight years of experience in communications or media relations with a national government agency or international private sector organization • Demonstrated ability to (i) train (ii) develop communication tools – written, verbal, electronic, etc. • Perfect English and Serbian language skills • Previous work in Central Asia is highly preferential.

International consultants

Title	**Forest Biodiversity specialist**
Timing/Duration	80 days over the whole project duration, 53 days home-based, 27 days in 5 missions to Serbia
Background	Reports to the project coordinator, works closely with the Forest biodiversity expert and biologist
Main tasks	• In collaboration with the Forest biodiversity expert, design methodology for collecting biodiversity information as part of NFI • Design methodology for assessing forest biodiversity and nature values as part of SFM for Forest Management Plans and Forest Development Plans • Design training needs assessment training material for NFI field mappers and participate in training based on the methodology • Revision of the 15 forest management guidelines under a biodiversity perspective • Technical supervision of the evaluation of the current status for forest biodiversity, impacts and threats for Obedska Bara and Tara National Parks • Technical supervision of the Nature Value Assessment and mapping of key biotopes in four selected FMUs within and outside protected areas • Advise on biodiversity-related management practices and training activities in the pilot FMUs and forest regions

- Perform other duties as required.

Key competencies/qualifications	• Advanced university degree in biology or forestry • At least 8 years of work experience in assessment and management of forest biodiversity • Familiarity with international norms and standards on forest biodiversity assessment • Experience in the region an advantage • Full working knowledge of English; knowledge of Serbian is a strong asset • Ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Forest Management Expert**
Timing/Duration	80 days over the whole project duration, 53 days home-based, 27 days in 5 missions to Serbia
Background	Reports to the project coordinator, works closely with the Forest Management Expert / Component 2 Coordinator
Main tasks	• Technical supervision of preparation of at least 15 guideline documents for sustainable sylvicultural practices in different forest types, integrating biodiversity conservation based on EU habitats directive; • Collaboration with a manual and technical guidelines for forest development and forest management planning integrating CCM and BD considerations into FDP and FMP procedures • Review of strategy and action plan to mainstream SFM in policy and legislation • Review the proposal of an MRV system for the forestry sector • Lead training needs assessment and design of training materials for sustainable forest management for technicians and forest owners • Participate in training of forest planner and managers • Technical supervision of the implementation of activities in pilot FMUs , and the Forest Development Plans • Perform other duties as required.
Key competencies/qualifications	• Advanced University degree (preferably PhD) in forest management planning or forest inventory, or other related disciplines; • At least ten years of progressively professional experience with forest management planning and implementation, in particular in private forests; • Familiarity with international norms and standards on forest carbon assessment • Experience in the region an advantage

- Full working knowledge of English.
- Knowledge of Serbian an advantage
- strong ability to work under pressure and against tight deadlines;
- Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Forest Inventory Expert**
Timing/Duration	160 days over the whole project duration, 100 days home-based, 60 days in 10 missions to Serbia
Background	Reports to the project coordinator, works closely with the NFI Coordinator / Component 1 Coordinator, as well as the Forest inventory specialist and the Forest statistician

Main tasks	• Technical supervision of the implementation of the NFI, including:
	  o Training of NFI field mappers
	  o Photo Interpretation (First NFI phase)
	  o Field surveys including BD and CCM data
	  o Data processing and analysis
	  o Analysis of BD data from field mapping and identification of potential hotspots as well as threatened areas
	  o Detailed mapping of identified priority areas
	  o Analysis of BD data, production of GIS layers and report on biodiversity information and maps in NFI
	• Preparation of the final NFI report
	• Perform other duties as required.

Key competencies/qualifications	• Advanced University degree (preferably PhD) in forest management or forest inventory, or other related disciplines; • At least ten years of progressively professional experience in design and implementation of national forest inventories including international NFI-collaboration projects; • Experience in the region an advantage • Full working knowledge of English. • Knowledge of Serbian an advantage • strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Forest Policy Expert**

Timing/Duration	24 days over the whole project duration, 8 days home-based, 16 days in 4 missions to Serbia
Background	Reports to the project coordinator, works closely with the Forest Management Specialist and Forest Economist
Main tasks	• Review of strategy and action plan to mainstream SFM in policy and legislation; • Contribute to the analysis of potential incentives for forest owners to implement SFM (fiscal incentives, ecosystem services, market access, certification schemes); • Facilitation of high-level roundtable consultations on SFM in Serbia with participation of public, academic, civil society and private sector.
Key competencies/qualifications	• Advanced University degree (preferably PhD) in political science, development economics, or other related disciplines; • At least ten years of progressively professional experience in design and implementation of policy frameworks for the forest sector • Experience in the facilitation of high-level consultation processes; • Experience in the region an advantage • Full working knowledge of English. • Knowledge of Serbian an advantage • strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Monitoring and Evaluation expert**
Timing/Duration	15 days total (5 days fome based, and 10 days in Belgrade in 2 missions)
Background	The Monitoring and Evaluation expert will be working under the direct supervision of the Project Coordinator and in close cooperation with the national staff of the project, the FAO BH and the FAO LTO
Main tasks	• Review and provide recommendations to the project monitoring and evaluation system in accordance with FAO and GEF standards, • Train Project Coordinator, Project Assistant and Component Coordinators in monitoring and evaluation of key project results and impacts; • Train staff of national institutions in monitoring and evaluation of impacts of projects and programmes

Key competencies/qualifications	• Degree in project management, business administration, public administration, finance, economics or related field; • Familiarity with FAO or other donors' Monitoring and evaluation procedures, • At least 5 years experience related to project M&E • Full competency and fluency in English. • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**International MRV expert**
Timing/Duration	20 days in year 1, 10 days home-based and 10 days in two missions to Belgrade.
Background	Reports to the project coordinator, works in close cooperation with the national MRV consultant, the NFI Team, the Information System Specialist in the Forest Directorate, and the Department of Climate Change in MAFW
Main tasks	• Prepare a structure of an MRV system for the forest sector • Collect background information and analyse Monitoring, Reporting and Verification (MRV) systems; • Provide inputs to the proposal for the MRV system for the forest sector, including institutional setup framework, the choice and description of the protocol; • Participate in validation workshops on MRV proposals; • Based on the report of the national MRV expert, prepare final documentation of the MRV system • Perform other duties as required.
Key competencies/qualifications	• University degree in relevant field such as environment, natural resources management; • Knowledge of UNFCCC guidelines on MRV systems; • At least 5 years of experience in assessment of GHG emissions and reporting, preferably in the forestry sector; • Full working knowledge of English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

National consultants

Title	**Forest Biodiversity expert**
Timing/Duration	Part-time over the whole project duration (24 months)
Background	Reports to the project coordinator, works closely with coordinators of components 1 and 2 and under technical guidance the Forest biodiversity expert.
Main tasks	• In collaboration with the international Forest biodiversity expert, design methodology for collecting biodiversity information as part of NFI; • Design methodology for assessing forest biodiversity and nature values as part of SFM for FMP and FDP; • Perform training needs assessment and elaborate training material for NFI field mappers; • Participate in training based on the methodology; • Perform evaluation of the current status for forest biodiversity, impacts and threats for Obedska Bara and Tara National Parks; • Design and implementation of the Nature Value Assessment and mapping of key biotopes in four selected FMUs within and outside protected areas; • Participate in trainings for forest planners and managers; • Advise on biodiversity-related management practices and training activities in the pilot FMUs and forest regions; • Perform other duties as required.
Key competencies/qualifications	• Advanced university degree in biology or forestry; • At least 8 years of work experience in assessment and management of forest biodiversity; • Sound knowledge of the Forestry sector in Serbia; • Full working knowledge of Serbian and limited working capacity in English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Forest biologist**
Timing/Duration	Part-time over the whole project duration (24 months).
Background	Reports to the Forest Biodiversity Coordinator, works closely with coordinators of components 1 and 2 and with the Forest biodiversity expert.
Main tasks	• Collaborate in the preparation of the methodology for collecting biodiversity information as part of NFI; • Collaborate in the preparation of the methodology for assessing forest biodiversity and nature values for FMP and FDP; • Design training needs assessment training material for NFI field mappers and participate in training based on the methodology;

	• Assist with evaluation of the current status for forest biodiversity, impacts and threats for Obeska Bara and Tara National Parks; • Design and implementation of the Nature Value Assessment and mapping of key biotopes in four selected FMUs within and outside protected areas; • Participate in trainings for forest planners and managers; • Perform other duties as required.
Key competencies/qualifications	• Advanced university degree in biology or forestry • At least 5 years of work experience in assessment and management of forest biodiversity • Full working knowledge of Serbian and limited working capacity in English. • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**National Forest Inventory Coordinator – Component 1**
Timing/Duration	Full time over the 46 months, based in Belgrade, with regular travel to the project regions.
Background	Reports to the project manager, works in close cooperation with the international NFI Specialist, the Forest Inventory Specialist and the Forest Statistician.
Main tasks	• Oversee implementation of the NFI; • Design of methodology for photointerpretation, field mapping, and data analysis; • Training of NFI field mappers; • Prepare detailed ToR for the Letter of Agreement for the Photo Interpretation phase and technical supervision of the implementation (First NFI phase); • Field surveys including BD and CCM data; • Data processing and analysis; • Analysis of BD data from field mapping and identification of potential hotspots as well as threatened areas; • Detailed mapping of identified priority areas; • Analysis of BD data, production of GIS layers and report on biodiversity information and maps in NFI; • Preparation of the final NFI report; • Perform other duties as required.
Key competencies/qualifications	• Advanced University degree (preferably PhD) in forest management or forest inventory, or other related disciplines;

	• At least ten years of progressively professional experience in design and implementation of national forest inventories including international NFI-collaboration projects; • Sound knowledge of the Forestry sector in Serbia • Full working knowledge of Serbian and limited working capacity in English. • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**National Forest Inventory Specialist**
Timing/Duration	12 months full time, based in Belgrade, with regular travel to the project regions.
Background	Reports to the component coordinator 1,under technical guidance of the international NFI Specialist, in close cooperation with the Forest Inventory Specialist and the Forest Statistician
Main tasks	• Contribute to the design of methodology for field mapping, and data analysis; • Training of NFI field mappers; • Field surveys including BD and CCM data; • Data processing and analysis; • Analysis of BD data from field mapping and identification of potential hotspots as well as threatened areas; • Assist in the preparation of the final NFI report; • Perform other duties as required.
Key competencies/qualifications	• University degree in forest management or forest inventory, or other related disciplines; • At least 5 years of progressively professional experience in design and implementation of national forest inventories including international NFI-collaboration projects; • Sound knowledge of the Forestry sector in Serbia • Full working knowledge of Serbian and limited working capacity in English. • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Forest Statistician**
Timing/Duration	3 months, based in Belgrade

Background	Reports to the Coordinator of Component 1, under technical guidance of the international NFI Specialist, in close cooperation with the Forest Inventory Specialist and the Forest Statistician.
Main tasks	• Support implementation of the NFI, including: i) Design of methodology for data analysis; ii) Data processing and analysis; iii) Assist in the preparation of the final NFI report. • Perform other duties as required.
Key competencies/qualifications	• Advanced University degree in statistics; • At least 5 years work experience of with statistical data analysis, in the forestry sector • Full working knowledge of Serbian and limited working capacity in English. • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Information System Specialist**
Timing/Duration	2 months in year 1, based in Belgrade.
Background	Reports to the project manager, works in close cooperation with the Coordinator of Component 1 and the Information System Specialist in the Forest Directorate.
Main tasks	• Revise technical specifications for the development of the system structure, including: i) Infrastructure for central information system (Hardware, network equipment and virtualization platform); ii) Central information system development with appropriate off the shelf software licences and maintenance; iii) SWSS including GIS and BI software licences with maintenance; iv) Robust GPS devices for forestry inspectors; v) Digital maps (topomaps 1:25000, orthophotos). • Provide technical inputs for the preparation of the necessary procurement documentation. • Perform other duties as required.
Key competencies/qualifications	• University degree in relevant field such as ICT, engineering or other related field. • At least 5 years of experience in ICT, in software programming, system engineering or related field. • Full working knowledge of Serbian and limited working capacity in English. • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Forest Management Specialist, Coordinator of Component 2 and Coordinator or field activities in Western Serbia**
Timing/Duration	46 months full time, based in Belgrade, with regular visits to the pilot regions
Background	Reports to the project coordinator, under technical guidance of the international Forest Management Expert, in close coordination with the Forest Biodiversity specialists and the NFI team
Main tasks	• Coordinate the activities at the level of forest regions and forest management units, and responsible for implementation in Western Serbia • In coordination with the International Forest Management Expert, preparation of at least 15 guideline documents for sustainable sylvicultural practices in different forest types, integrating climate change considerations and biodiversity conservation based on EU habitats directive; • Participation in the selection process of pilot FMUs; • Collaboration with a manual and technical guidelines for forest development and forest management planning integrating CCM and BD considerations into FDP and FMP procedures; • Perform a training needs assessment and design training materials for sustainable forest management for technicians and forest owners; • Participate in training of forest planner and managers; • Coordination of the implementation of activities in pilot FMUs in Western Serbia , and the Forest Development Plans, including forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, assessment of Natura 2000 restrictions and management options; • Conduct workshops for forest owners on FMP implementation; • Organization of excursions and Open days of the Forests; • Establishment of demonstration plots for typical management measures in common forest types; • Perform other duties as required.
Key competencies/qualifications	• Advanced University degree (preferably PhD) in forest management planning or forest inventory, or other related disciplines; • At least ten years of progressively professional experience with forest; management planning and implementation, in particular in private forests; • Experience in the region an advantage; • Full working knowledge of Serbian; • Limited working knowledge of English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Title	**Forest Management Specialist, Coordinator or field activities in Voivodina Region**
Timing/Duration	24 months with based in Novi Sad.
Background	Reports to the Coordinator of component 2, under technical guidance of the international Forest Management Expert, in close coordination with the Forest Biodiversity specialists and the NFI team
Main tasks	• Coordinate the activities at the level of forest regions and forest management units; • Participation in the selection process of pilot FMUs; • Perform training needs assessment and design of training materials for sustainable forest management for technicians and forest owners; • Participate in training of forest planner and managers; • Coordination of the implementation of activities in pilot FMUs in Voivodina, and the Forest Development Plans, including forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, assessment of Natura 2000 restrictions and management options; • Conduct workshops for forest owners on FMP implementation; • Organization of excursions and Open days of the Forests; • Establishment of demonstration plots for typical management measures in common forest types; • Perform other duties as required.
Key competencies/qualifications	• Advanced University degree (preferably PhD) in forest management planning or forest inventory, or other related disciplines; • At least 8 years of progressively professional experience with forest management planning and implementation, in particular in private forests; • Experience in the region an advantage; • Full working knowledge of Serbian; • Limited working knowledge of English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**MRV expert**
Timing/Duration	4 months in year 1, based in Belgrade.
Background	Reports to the component manager 1, works in close cooperation with the NFI Team, the Information System Specialist in the Forest Directorate, and the Department of Climate Change in MAFW
Main tasks	• Collect background information and analyse Monitoring, Reporting and Verification (MRV) systems;

	• Consult with key stakeholders in MRV processes; • Development of a proposal for an MRV system for the forest sector, including institutional setup framework, the choice and description of the protocol; • Facilitate validation workshops on MRV proposals; • Perform other duties as required.
Key competencies/qualifications	• University degree in relevant field such as environment, natural resources management; • Knowledge of UNFCCC guidelines on MRV systems; • At least 5 years of experience in assessment of GHG emissions and reporting, preferably in the forestry sector; • Full working knowledge of Serbian and limited working capacity in English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Legal expert**
Timing/Duration	2 months in year 1, based in Belgrade
Background	Reports to the component manager 1, works in close cooperation with the Information Specialist in the Forest Directorate and the Legal Office of MAFW
Main tasks	• Collect background information and analyse current data sharing arrangements in the forest sector and related fields; • Draft a by-law on data sharing and information exchange under the Forest Information System, including exchange protocols; • Include changes proposed by legal experts in the Ministry; • Perform other duties as required.
Key competencies/ qualifications	• University degree in law; • At least 8 years professional experience in the public sector; • Experience in drafting legal norms and protocols, preferably in the environment / forestry fields; • Full working knowledge of Serbian and limited working capacity in English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Forest Economist**
Timing/Duration	4 months, based in Belgrade.

Background	Reports to the component manager 1, works in close cooperation with the Forest Management Specialist.
Main tasks	• Perform an analysis of potential incentives for forest owners to implement SFM (fiscal incentives, ecosystem services, market access, certification schemes); • Develop a draft action plan and policy recommendations to mainstream incentives for SFM for private forest owners into forest policy; • Finalize documents based on observations in the validation phase; • Perform other duties as required.
Key competencies/qualifications	• University degree in foresty policy or economics; • At least 8 years professional experience related to forest policy and strategy; • Experience in drafting strategy documents, preferably in the environment / forestry fields; • Experience in the private sector; • Full working knowledge of Serbian and limited working capacity in English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.
Title	**Extension Specialist**
Timing/Duration	3 months, based in Belgrade.
Background	Reports to the component manager 2, works in close cooperation with the Forest Management Specialist
Main tasks	• Review background documentation and conduct stakeholder interviews; • Develop a concept for a comprehensive forest extension service for private forest owners in Serbia; • Finalize documents based on observations in the validation phase; • Perform other duties as required.
Key competencies/qualifications	• University degree in forestry, agriculture; • At least 8 years professional experience related to extension, preferably in the forest sector; • Experience in the private sector; • Full working knowledge of Serbian and limited working capacity in English; • Strong ability to work under pressure and against tight deadlines; • Strong drafting and interpersonal skills, honesty, orientation on achievements.

Letters of Agreements and Contracts

Title	**Forest Information System Development and Training of Users**
Timing/Duration	**2 years**
Objective:	Establishment of the Forest Information System, and Training of Users and Operators
Main tasks	• Design of methodology and operating procedures of FIS • Finalize technical specification of equipment and software • FIS internal standards definition • Development of earth observation products for forest management (monitoring of logging operations, forest fires) • Design of FIS systems architecture • Development of FIS platform • Testing and validation of FIS platform • Training of FIS operators and users 1. Basic concepts and using of databases 2. GIS & GPS usage 3. Remote sensing as modern source of forest information 4. Application of forestry software 5. Rules, operational procedures

Title	**Procurement of hardware and software for FIS and NFI implementation**
Timing/Duration	**2 years**
Objective:	Provision of adequate hardware and software for the FIS system
Main tasks	• Infrastructure for central information system (Hardware, network equipment and virtualization platform) • Central information system development with appropriate off the shelf software licences and maintenance • Sector Sub-system software including GIS and BI software licences with maintenance: o National Forest Inventory o Forest management and planing on the stand level o Private forests o Protection of forests o Seed and seedlings production o Nature protection

- 40 Robust GPS device for forestry inspectors
- Digital maps (topomaps 1:25000, orthophotos)

Title	**Photointerpretation, Remote sensing and mapping for NFI and Forest Management Units**
Timing/Duration	**2 years**
Objective:	Carry out photointerpretation phase of NFI Provide GIS support to fieldwork in forest regions and management units
Main tasks	• Elaboration of photo-interpretation manual for photo-interpretation of NFI clusters and sample plots, NFI dot grid of 500x500m, specific data and spatial GIS analyses, thematic NFI forest maps • Detection of Forest – Non-forest NFI Clusters/Sample Plots in the 4x4 km/2x2 km NFI grid; • Estimation of Forest area in a 500x500 m systematic grid/by vectoring forest limits; • Estimation of Land cover and to detect Land cover change in a 500x500 m systematic grid. • Generation of thematic forest maps based on NFI data • Provide GIS support for forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, assessment of Natura 2000 restrictions and management options in pilot forest management Units

Title	**Field mapping for NFI (2 contracts / LoAs)**
Timing/Duration	**2 years**
Objective:	Carry out field mapping phase of NFI Provide logistic support to fieldwork in forest regions and management units
Main tasks	• Organization, and coordination of field surveys • Communication between field survey teams and central coordinators • Recording of data on Sample Plots in the 4x4 km/2x2 km NFI grid and delivery of data • Training of field staff (localization of sample plot centers, assessments on sample plots, use of instruments) • Field work necessary to evaluate the current status for forest biodiversity, impacts and threats for Obedska Bara and Tara National Parks

- Field teams to conduct Nature Value Assessment and mapping of key biotopes in four selected FMUs within and outside protected areas
- Support for forest site mapping, erosion risk assessment, landslide cadastre, forest function mapping, assessment of Natura 2000 restrictions and management options in pilot forest management Units

Terms of reference for the project steering committee

Role of the PSC

The PSC will be the policy setting body for the project; as and when required, the PSC will be the ultimate decision making body with regard to policy and other issues affecting the achievement of the project's objectives. The PSC will be responsible for providing general oversight of the execution of the Project and will ensure that all activities agreed upon under the GEF project document are adequately prepared and carried out. In particular, it will:

- Provide overall guidance to the Project Management Unit in the execution of the project.
- Ensure all project outputs are in accordance with the Project document.
- Review, amend if appropriate, and approve the draft Annual Work Plan and Budget of the project for submission to FAO.
- Provide inputs to the mid-term review and final evaluations, review findings and provide comments for the Management Response
- Ensure dissemination of project information and best practices

Meetings of the PSC

1. The Project Steering Committee meetings will normally be held biannually (on rotational bases), but the Chairperson will have the discretion to call additional meetings, if this is considered necessary. Meetings of the PSC would not necessarily require a physical meeting and could be undertaken electronically. No more than 7 months may elapse between PSC meetings.

2. Invitations to a regular PSC meeting shall be issued not less than 90 days in advance of the date fixed for the meeting. Invitations to special meetings shall be issued not less than forty days in advance of the meeting date.

Agenda

1. A provisional agenda will be drawn up by the Project Coordinator and sent to members and observers following the approval of the Chairperson. The provisional agenda will be sent not less than 30 days before the date of the meeting.

2. A revised agenda including comments received from members will be circulated 5 working days before the meeting date.

3. The Agenda of each regular meeting shall include:

a) The election of the Vice-Chairperson

b) Adoption of the agenda

c) A report of the Project Coordinator on Project activities during the inter-sessional period

d) A report and recommendations from the Project Coordinator on the proposed Annual Work Plan and the proposed budget for the ensuing period

e) Reports that need PSC intervention

f) Consideration of the time and place (if appropriate) of the next meeting;

g) Any other matters as approved by the Chairperson

4. The agenda of a special meeting shall consist only of items relating to the purpose for which the meeting was called.

The PT

The PT will act as Secretariat to the PSC and be responsible for providing PSC members with all required documents in advance of PSC meetings, including the draft Annual Work plan and Budget and independent scientific reviews of significant technical proposals or analyses. The PT will prepare written report of all PSC meetings and be responsible for logistical arrangements relative to the holding of such meetings.

Functions of the Chairperson

1. The Chairperson shall exercise the functions conferred on him elsewhere in these Rules, and in particular shall:

a) Declare the opening and closing of each PSC meeting

b) Direct the discussions at such meetings and ensure observance of these Rules, accord the right to speak, put questions and announce decisions

c) Rule on points of order

d) Subject to these Rules, have complete control over the proceedings of meetings

e) Appoint such ad hoc committees of the meeting as the PSC may direct

f) Ensure circulation by the Secretariat to PSC members of all relevant documents

g) Sign approved Annual Work Plans and Budgets and any subsequent proposed amendments submitted to FAO

h) In liaison with the PSC Secretariat, the Chairperson shall be responsible for determining the date, site (if appropriate) and agenda of the PSC meeting(s) during his/her period of tenure, as well as the chairing of such meetings

Participation

The PSC will be chaired by the Ministry of Agriculture, Forestry and Water Management. Other PSC members with the right to vote include MEP, FAO. The Project Coordinator will be the Secretary to the PSC. Other institutions, including representatives of implementing partners, may be invited or requested to participate as observers.

Decision-making

1. All decisions of the PSC shall be taken by consensus.

Reports and recommendations

1. At each meeting, the PSC shall approve report text that embodies its views, recommendations, and decisions, including, when requested, a statement of minority views.

2. A draft Report shall be circulated to the Members as soon as possible after the meeting for comments. Comments shall be accepted over a period of 20 days. Following its approval by the Chairperson, the Final Report will be distributed and posted on the Workspace as soon as possible after this.

Official languages

The official languages of the PSC shall be Serbian and English.

APPENDIX 7. DESCRIPTION OF THE PROJECT INTERVENTION AREAS

Voijodina Region

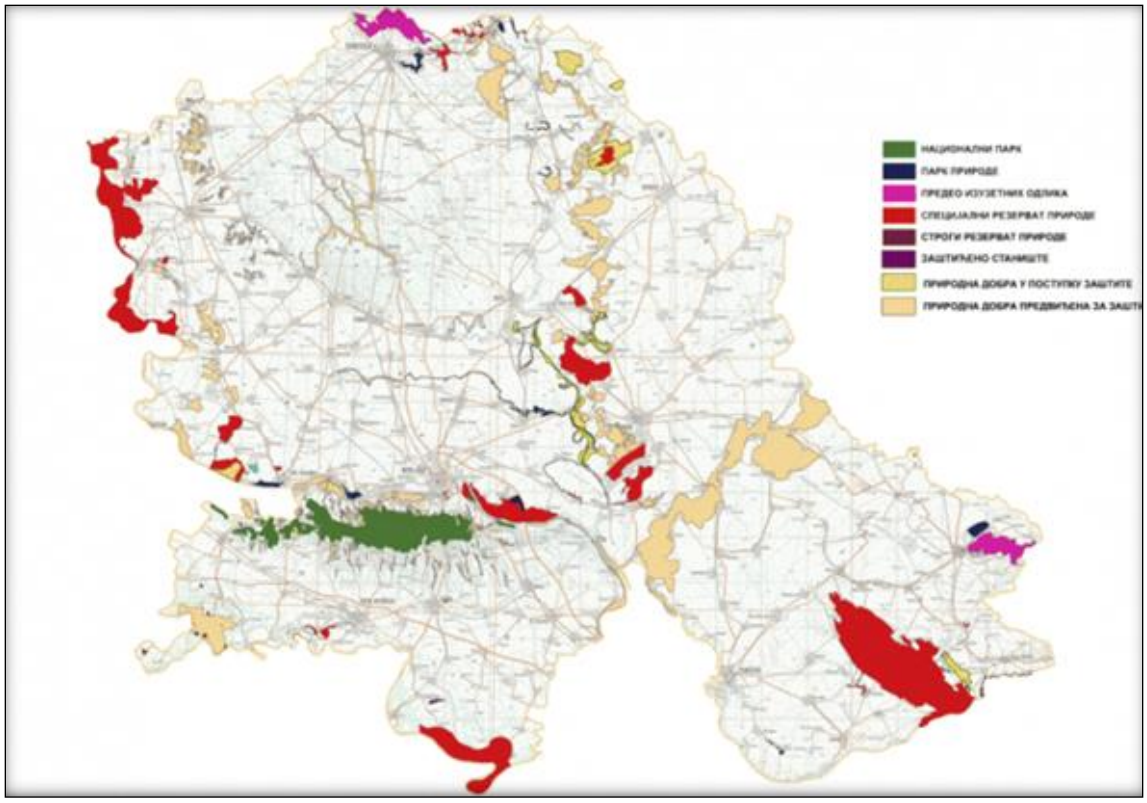
The forest cover in Vojvodina region is 7.1% (NFI, 2009). The main tree species in forests managed by the Public Enterprise "Vojvodinašume" are Oak, Poplar, Willow, Polish and American Ash and Acacia.

The private forests account for only 5% of the total forest area, including forests owned by the church at Fruska gora mt. The Public Enterprise Vojvodinasume performs professional and technical services, including forest management planning and the practical forest operations, such as marking and harvesting trees, stamping harvested timber, issuing transport permits, recording completed works and providing advisory activities to private owners.

Table: Forest types and ownership in Vojvodina

Forest type	**Area, ha**	**Area %**	**Volume, m3**	**Volume %**	**Volume m3/ha**
High forest	25 254	17	9 313 597	28	369
Coppice forest incl. mix	74 266	49	13 175 335	39	177
Artificial planting	52 242	34	10 961 863	33	210
Shrubs and brushwood	243	0,2	-	-	-
Total	**152 003**	**100**	**33 450 795**	**100**	**220**
Forest ownership	**Area, ha**	**Area %**	**Volume, m3**	**Volume %**	**Volume m3/ha**
State	122 185	80	28 343 522	84	232
Private	29 818	20	5 215 435	16	175
Total	**152 003**	**100**	**33 558 957**	**100**	**221**

There are **134 protected areas** In Vojvodina provance totaling approximately 136.552 ha, covering 6,30% of the territory of the province, including one (1) National Park (NP), 16 special nature reserves (SRP), 9 nature parks (PP), three areas with specific features (PIO), 2 protected habitats (IA) and a large number of monuments of nature (SP).



Map of Vojvodina with protected areas (Source: PS for Urban Planning and Environmental Protection).

Selected site in Vojvodina: Obedska Bara Special Nature Reserve

Obedska Bare is partly protected as a Special Nature Reserve and located in the floodplains of the Sava River. The dominant land use is forest.

Obedska Bara is famous for its different marsh and forest habitats, numerous species of mammals, fish, amphibians, reptiles, insects and exceptional abundance of flora, ichtyofauna and above all ornithofauna.

The mosaic of forests and wetlands with patches of natural biotopes are dominated by a mixture of old lowland Pedunculate Oak-Ash-Hornbeam forests. Complexes of lowland ecosystems are of outstanding quality due to the natural flooding. Oxbows and mostly overgrown old meanders are the most outstanding landscape features. Grasslands are present both in small patches and in larger complexes, but the succession toward a forest vegetation, caused by insufficient number of wild and domestic herbivores is visible almost everywhere. The site is surrounded by arable land from the north and by the river in the south.

Name of site: Obedska bara	
Protection status	Half of the site area (9820 ha) is protected as a Special Nature Reserve ‘’Obedska bara’’
Ownership	State: 95 %,

Name of site: Obedska bara	
	Non-state: 5%
Total Surface	19.667 ha
Main land uses	Forestry (dominant) combined with hunting and extensive farming, arable land
Management plans	Management Plan for the Special Nature Reservce: 10-yr plan and 1-yr plan Forest Management Plans for FMUs: 10-yr plans and 1-yr operational plans Forest Management Programmes on municipality level: 10-yr plans and 1-yr operational plans Water management plan.
Organisation responsible for the SNR management	PE ‘’Vojvodinašume’’ Preradovićeva 2, 21131 Petrovaradin, Serbia
Important land use features	Old meander with pond, meadows, marshes and arable land within forest matrix

The dominant land use in Obeska Bara is forestry with 17.047 ha (86.7%) of forests, of which 13.097 ha (78.6%) is covered by natural or semi-natural deciduous forests and 3.950 ha (20.1%) consists of poplar plantations. The forestry is combined with moderate hunting management. Within the forest area there is a special hunting area that covers 7.895 ha (40.1%), of which 2.257 ha (11.5%) is fenced and intensively managed. This area is overpopulated with game species.

About 1.655 ha (8.4%) of the land covered with forests, pastures and arable land is fenced off and primarily managed for needs of the Serbian Armed Force. There are some pastures belonging to the villages. The biggest part of the former pastures has been afforested through contracts between Public Enterprise Vojvodinašume and local communities.

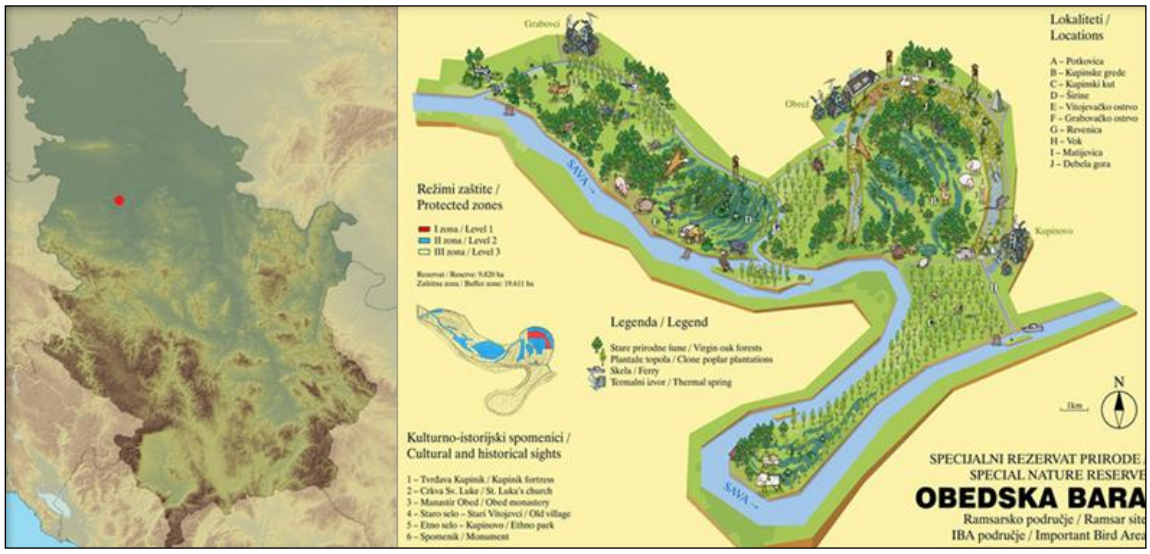
The remaining part is agricultural land in private ownership. The land situated behind the dyke covers 8.584 ha (44.7%), which is never flooded and rarely waterlogged, due to the higher altitude and the water management and drainage system. Regular flooding of the foreland provided particular biodiversity values, which has been recognized and timely protected. Exactly 9.820 ha (49,9%) of the site is protected as Special Nature Reserve Obedska bara, which is managed by the Public Enterprise Vojvodinašume.

Extensive farming, e.g. pig herding and cattle grazing, used to be common within the area, but during last decades significantly decreased. The number of pigs, cattle and sheep vary from year to year but the area is not overgrazed.

Thanks to the low altitude and the strategic importance of the Oak forests present in the area, the Obeska Bara is still in a close-to-natural state, with gradual changes in land cover and land use. The traditional extensive grazing used to be a common activity that shaped the landscape and maintained open wetland areas until a few decades ago. There is a process of intensive succession of wetlands into dry land ecosystems. Most of area was converted from forests into arable land during the beginning of the twentieth century.

Owing to its exceptional natural values, Obedska Bara has been included on the Ramsar Convention list in 1977. It was the first site of its kind in Serbia. In 1989, it was also declared an international Important Bird Area (IBA).

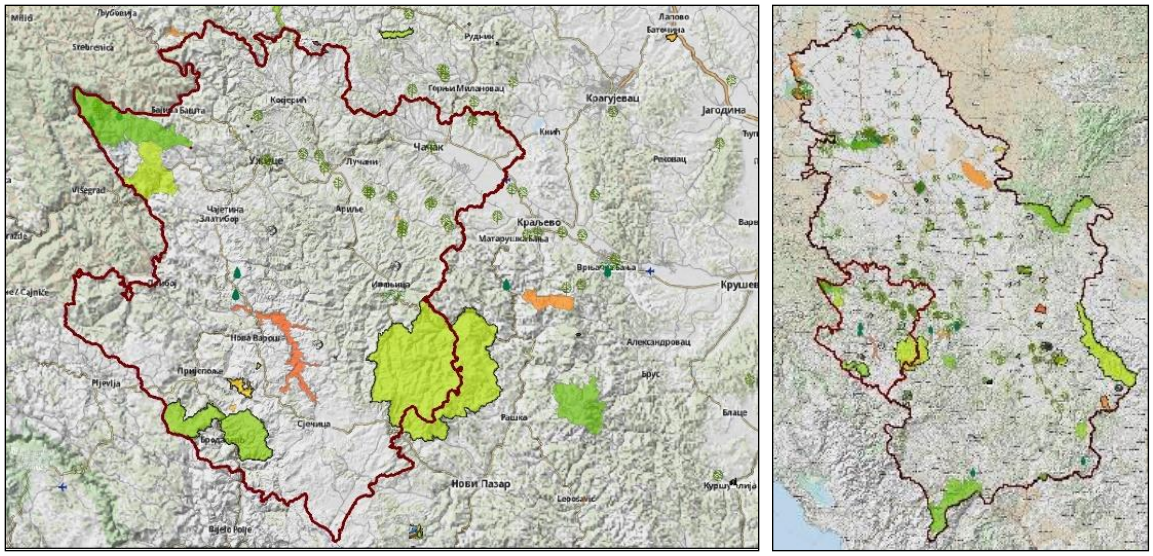
During the Life project "Protection of Biodiversity of the Sava River Basin Floodplains" 2007-2009 (http://savariver.com/), the Obeska Bara was included as a biological hotspot along the Sava River. The biodiversity team lead by K. Kitnaes prepared a biodiversity report with detailed information about the site, including lists of Natura 2000 habitat types and focal species. The lists are included to this report in Annex II.



Map of the Special Nature Reserve Obedska Bara (Source: Left: https://sr.wikipedia.org/wiki/Обедска_бара. Right: http://www.navodi.com/2013/04/obedska-bara-pticiji-eldorado/).

Western Serbia Pilot Region

The forests and forestlands of West Serbia is divided into three (3) main forest areas: Golija, Tara-Zlatibor and Limsko forest and one National Park "Tara". The state forests in this region are managed by the Public Enterprise "Srbijasume" and the Public Enterprise "National Park Tara".



Map of West Serbia with protected area (Source: Ljiljana Vamovic, SE Srbijasume).

The forest cover in the region of West Serbia is approximately 325.000 ha. The main tree species in the forests managed by PE Srbijašume and PE National Park Tara are Spruce, Fir, Beech and Oak.

The private forests in West Serbia account for around 57% of the total forest area including forests owned by the church. The PE Srbijaume and the PE National Park Tara perform professional and technical jobs, including forest management planning, marking and felling trees, stamping harvested timber, issuing transportation documentation, records of completed works as well as provide advisory forest management activities to the private owners.

Table: Forest types and ownership in West Serbia

Forest type	**Area, ha**	**Area %**	**Volume, m3**	**Volume %**	**Volume m3/ha**
High forest	126 255	39	32 150 110	56	369
Coppice forest	141 926	44	20 492 083	36	144
Artificial planting	35 583	11	4 337 028	8	210
Shrubs and brushwood	20 242	6	1015	0	0
Total	**324 006**	**100**	**56 980 236**	**100**	**176**
Forest ownership	**Area, ha**	**Area %**	**Volume, m3**	**Volume %**	**Volume m3/ha**

State	138 362	43	27 752 066	49	201
Private	185 644	57	29 228 170	51	157
Total	**324 006**	**100**	**56 980 236**	**100**	**176**

There are **29 protected areas** in the region covering approximately 121,615 ha. These are: One (1) National Park (NP), 2 Park of Nature, 5 special nature reserves (SRP), 4 areas with specific features (PIO), 5 strict nature reserve, 11 monuments of nature (SP) and 1 area of significant nature value.

Selected site in Western Serbia: Tara National Park

The Tara National Park hosts 34 forest and 19 meadow communities (according to national classification system) where the forest plant communities are of the greatest value of the Park. Of special interest is the vegetation of meadows, pastures and mountain peatlands. On rocks and sandbanks the presence of interesting plant communities with endemic character has been discovered, such as a plant community dominated by endemic species Derventan cornflower *(Centaurea derventana)*.

Due to the favorable geographical position and various environmental factors contribute to a great biological diversity, the species found in the Tara National Park, make up one third of the flora of Serbia (more than 1100 species). Tara is known as a refuge for many endangered endemic, relict and endemic-relict species, amongst which the most valuable is the endemic- relict Serbian spruce. This species is often referred to as the Empress of endemics, a tertiary relict species tens of millions of years old, which today inhabits only the area around the middle flow of the river Drina.

There are 210 species of plants under the government protection in the Tara National Park: 47 species are strictly protected, while the remaining 163 are endangered species. Endangered plant species on Tara are next to the Serbian spruce among others Mountain maple, Derventan Cornflower, Gladioli, Orchids and Crested wood fern. There are five (5) species listed as Red Book of flora of Serbia: *Leontopodium alpinum* – Edelweiss, *Waldsteinii trifolia, Adenophora lilifolia* – Lilyleaf Ladybell, *Cladium mariscus* – Saw sedge, *Dryopteris cristata* – crested wood fern.

The Tara National Park holds the biggest and the best preserved population of Serbian Spruce; the total area of its distribution extends to only approx. 60 hectares at altitudes of 800 to 1.600 meters above sea level. The species was discovered in the Zaovine village in 1875 by a Serbian botanist Josif Pančić. The Spruce species has a straight and slender trunk with a pyramidal treetop. It grows on highly rocky and poor limestone above all but on other fields as well. It is resistant to drought, excessive humidity and frost.

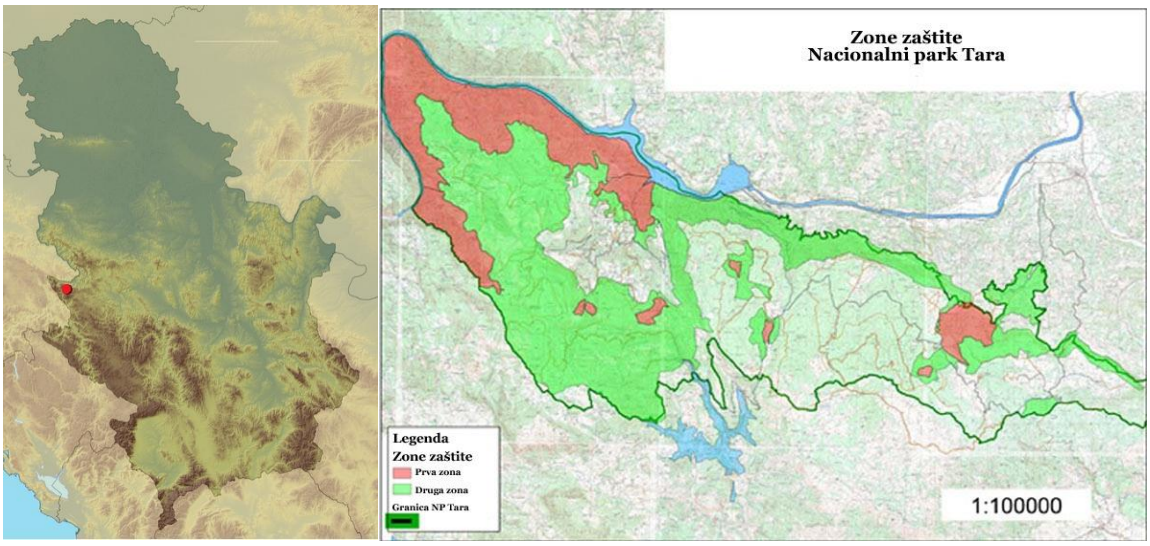
The forests are dominated by mixed forests of fir, spruce and beech; the large area covered with Serbian spruce forests in the national park are of special importance.

In Annex II, further information on species and habitat types found in the Tara National Park is provided.

Name of site: National park Tara	
Protection status	Tara NP has status as National Park since 1981.
Ownership:	Total forest area: 15.030 ha State: 11.105 ha (74%) Non-State: 3.925 ha (26%)
Total Surface Area	24.991,82 ha
Main land uses	Forests: 15.030 ha Agriculture: 1.300 ha Buildings and other constructions: 1.040 ha Others: 7.622 ha
Management plans	Management Plan for the National Park: 10-yr plan and 1-yr plan Forest Management Plans for FMUs: 10-yr plans and 1-yr operational plans Forest Management Programmes on municipality level: 10-yr plans and 1-yr operational plans Water management plan.
Organisation responsible for the NP management	PE National Park Tara Milenka Topalovića 3, Bajina Bašta, Serbia, web: www.nptara.rs
Important land use features	34 forest and 19 meadow communities

The dominating land uses in the Tara National Park is forestry with forests covering 15.030 ha of the nationalpark (60,1%), while agriculture only constitute with 1.300 ha. The remaining area is mainly dedicated to meadows and peatlands.

The area of Mt Tara has been identified as an Important Plant Area (IPA) and important Bird Area - (IBA). Since 2003, Mt Tara was also proclaimed as prime Butterfly Areas (PBA) and has been identified as an important site in the framework of the Emerald Network.



Map of the Tara National Park (Source: Left: https://sr.wikipedia. org/sr/Национални_парк_Тара. Right: http://www.geografija.rs/nacionalni-parkovi/tara/nacionalni-park-tara-proglasenje-i-zone-zastite/).).

APPENDIX 8: HABITAT TYPES AND FOCAL SPECIES IN OBESKA BARA

List of Habitat Types of Obedska Bara (Source: K. Kitnaes et al., Sava River Biodiversity team 2010)

Habitat type	Coverage in site	Conservation Status			Threats and Impacts
		A	*B*	*C*	
1530	0,1			X	100 - Cultivation, 141 - abandonment of pastoral systems, 421 - disposal of household waste, 950 - Biocenotic evolution, 954 - invasion by a species
3130	0,1		X		803 - infilling of ditches, dykes, ponds, pools, marshes or pits, 810 - Drainage, 850 - Modification of hydrographic functioning, general, 920 - Drying out, 950 - Biocenotic evolution, 954 - invasion by a species
3150	0,4		X		803 - infilling of ditches, dykes, ponds, pools, marshes or pits, 810 - Drainage, 850 - Modification of hydrographic functioning, general, 920 - Drying out, 950 - Biocenotic evolution, 954 - invasion by a species
3270	0,9		X		810 - Drainage, 811 - management of aquatic and bank vegetation for drainage purposes, 850 - Modification of hydrographic functioning, general, 950 - Biocenotic evolution, 954 - invasion by a species
6440	0,1		X		810 - Drainage, 850 - Modification of hydrographic functioning, general, 950 - Biocenotic evolution, 954 - invasion by a species
6450	0,1		X		162 - artificial planting, 810 - Drainage, 850 - Modification of hydrographic functioning, general, 950 - Biocenotic evolution, 954 - invasion by a species
6510	0,2		X		141 - abandonment of pastoral systems,162 - artificial planting, 421 - disposal of household waste, 810 - Drainage, 850 - Modification of hydrographic functioning, general, 950 - Biocenotic evolution , 954 - invasion by a species
9160	39,5		X		160 - General Forestry management, 162 - artificial planting, 165 - removal of forest undergrowth, 166 - removal of dead and dying trees, 170 - Animal breeding, 421 - disposal of household waste, 502 - roads, motorways, 954 - invasion by a species
91E0	1,2			X	160 - General Forestry management, 162 - artificial planting, 165 - removal of forest undergrowth, 180 - Burning, 810 - Drainage, 850 -

Habitat type	Coverage in site	Conservation Status			Threats and Impacts
		A	*B*	*C*	
					Modification of hydrographic functioning, general , 954 - invasion by a species
91F0	31,7		X		160 - General Forestry management, 162 - artificial planting, 165 - removal of forest undergrowth, 166 - removal of dead and dying trees, 170 - Animal breeding, 810 - Drainage, 850 - Modification of hydrographic functioning, general, 954 - invasion by a species
Reedbeds	5,6	X			810 - Drainage, 811 - management of aquatic and bank vegetation for drainage purposes, 850 - Modification of hydrographic functioning, general, 951 - drying out / accumulation of organic material, 952 – eutrophication

Table: N2000 focal species of Obedska Bara (Source: K. Kitnaes et al., Sava River Biodiversity team, 2010)

Focal Species	Population size	Conservation Status			Threats and Impacts
		A	*B*	*C*	
Triturus dobrogicus	C		X		421 - disposal of household waste, 803 - infilling of ditches, dykes, ponds, pools, marshes or pits, 853 - management of water levels, 951 - drying out / accumulation of organic material, 952 - eutrophication
Emys orbicularis	C	X			421 - disposal of household waste, 803 - infilling of ditches, dykes, ponds, pools, marshes or pits, 853 - management of water levels, 951 - drying out / accumulation of organic material, 952 - eutrophication
Bombina bombina	C	X			100 - Cultivation, 164 - forestry clearance, 165 - removal of forest undergrowth, 810 - Drainage, 850 - Modification of hydrographic functioning, general, 853 - management of water levels
Phalacrocora pygmaeus	3-20bp		X		210 - Professional fishing, 220 - Leisure fishing, 810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out / accumulation of organic material

Focal Species	Population size	Conservation Status			Threats and Impacts
		A	*B*	*C*	
Ixobrichus minutes	30-40bp	X			920 - Drying out, 950 - Biocenotic evolution, 951 - drying out / accumulation of organic material
Nycticorax nycticorax	300-450bp	X			810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out / accumulation of organic material
Ardeola ralloides	20-35bp		X		810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out/accumulation of org. material
Egretta garzetta	40-90bp		X		810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out / accum. organic material
Casmerodius albus	4-8bp		X		810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out/accum. organic material
Ardea cinerea	40-70bp		X		810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out/accum. organic material
Ardea purpurea	20-30bp		X		810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out/accum. organic material
Ciconia nigra	15-18bp	X			160 - General Forestry management, 162 - artificial planting, 230 - Hunting, 502 - roads, motorways, 810 - Drainage, 850 - Modification of hydrographic functioning, 951 - drying out/accumulation of organic material
Plegadis falcinellus	0-1bp		X		810 - Drainage, 850 - Modification of hydrographic functioning, 920 - Drying out, 950 - Biocenotic evolution, 951 - drying out/accum. organic material
Haliaeetus albicilla	4-5bp	X			160 - General Forestry management, 162 - artificial planting, 230 - Hunting, 243 - trapping, poisoning, poaching, 502 - roads, motorways, 810 - Drainage, 850 - Modification of hydrographic functioning, 951 - drying out / accumulation of organic material

Focal Species	Population size	Conservation Status			Threats and Impacts
		A	*B*	*C*	
Aquila pomarina	3bp		X		141 - abandonment of pastoral systems, 160 - General Forestry management, 162 - artificial planting, 230 - Hunting, 243 - trapping, poisoning, poaching, 502 - roads, motorways, 810 - Drainage, 850 - Modification of hydrographic functioning, 950 - Biocenotic evolution, 951 - drying out/accum. Org. material
Falco cherrug	1-2bp		X		100 - Cultivation, 141 - abandonment of pastoral systems, 240 - Taking / Removal of fauna, general, 243 - trapping, poisoning, poaching, 950 - Biocenotic evolution
Alcedo athis	5-10 bp		X		165 - removal of forest undergrowth, 220 - Leisure fishing, 403 - dispersed habitation, 701 - Noise nuisance, 810 - Drainage, 811 - management of aquatic and bank vegetation for drainage purposes, 951 - drying out / accumulation of organic material
Dendrocopos medius	200-300bp	X			160 - General Forestry management, 162 - artificial planting, 164 - forestry clearance, 165 - removal of forest undergrowth, 166 - removal of dead and dying trees
Ficedula albicollis	150-200bp		X		160 - General Forestry management, 162 - artificial planting, 164 - forestry clearance, 165 - removal of forest undergrowth,166 - removal of dead and dying trees
Lanius minor	3-5bp		X		100 - Cultivation, 101 - Smodification of cultivation practices, 110 - Use of pesticides, 141 - abandonment of pastoral systems
Saxicola rubetra	C		X		100 - Cultivation, 101 - Smodification of cultivation practices, 110 - Use of pesticides, 141 - abandonment of pastoral systems, 950 - Biocenotic evolution
Lutra lutra	C		X		100 - Cultivation, 243 - trapping, poisoning, poaching, 403 - dispersed habitation, 701 - Noise nuisance, 803 - infilling of ditches, dykes, ponds, pools, marshes or pits, 810 - Drainage, 850 - Modification of hydrographic functioning, 951 - drying out / accumulation of organic material
Castor fiber	A		X		100 - Cultivation, 243 - trapping, poisoning, poaching, 403 - dispersed habitation, 701 - Noise nuisance, 803 - infilling of ditches, dykes, ponds, pools, marshes or pits, 810 - Drainage, 850 - Modification of hydrographic functioning, 951 - drying out / accumulation of organic material

APPENDIX 9: HABITAT TYPES AND FOCAL SPECIES IN TARA NATIONAL PARK

FLORA

There are 34 forest and 19 meadow communities, where the forest plant communities are the fundamental phenomenon and the greatest value of Tara. Capacity is dominated by mixed forests of fir, spruce and beech, and Serbian spruce forests in the national park makes this area different from anything similar in the world.

The favorable geographical position and the mutual influences of various environmental factors contributing to great biological diversity, and so far discovered and described species in the National Park Tara, make up one third of the flora of Serbia (more than 1100 species) and contain over 80% of its flora elements. Tara is known as a refuge for many endangered endemic, relict and endemic-relict species, amongst which the most valuable is the endemic- relict Serbian spruce.

The vegetation of meadows, pastures and mountain peats is very diverse. Communities of plantain, corn buttercup, matgrass, smooth flatsedge, rattle and crested dogstail replace each other on the fields of Tara. Especially interesting are the meadow peat of monocot and purple moor grass.

On rocks and sandbanks the presence of interesting plant communities with endemic character has been discovered, such as a plant community dominated by endemic species Derventan cornflower (*Centaurea derventana*).

Rare and endangered species of flora of NATIONAL PARK TARA

There are 210 species of plants under the government protection in the Tara National Park: 47 species are strictly protected, while the remaining 163 are endangered species. At the preliminary Red list of flora of Serbia (Stevanović et al, 2003) there is 115 taxa certain degree of vulnerability. Major endangered plant species on Tara are the Serbian spruce, mountain maple, yew, holly, Derventan Cornflower, male and female peony, mountain sasa, gladioli, orchids, crested wood fern and other. Endemism is an ecological state of being unique to a defined geographic location. The most important species that is a symbol of the entire area is the Serbian spruce, often called the Empress of endemics, tertiary relict species tens of millions years old, which in today's world inhabits only the area around the middle flow of the river Drina. Local endemic *Aquilegia grata subsp. nikolići* and *Centaurea derventana* Derventan Cornflower have very limited distribution.

In this area there are 5 species listed as Red Book of flora of Serbia: Leontopodium alpinum – Edelweiss, *Waldsteinii trifolia, Adenophora lilifolia* – Lilyleaf Ladybell, *Cladium mariscus* – Saw sedge, *Dryopteris cristata* – crested wood fern.

The Serbian spruce is a type of an endemic species in the middle course of the Drina River. The biggest and the best preserved population are in Tara National Park. The total area of its distribution extends to about only 60 hectares, at altitudes of 800 to 1.600 meters above sea level. The species was discovered in the village of Zaovine, on Tara, in 1875 by a Serbian botanist Josif Pančić. As a tree the spruce has a

straight and slender trunk with a pyramidal treetop. It grows on highly rocky and poor lime-stone above all but on other fields as well. It is resistant to drought, excessive humidity and frost. Because of its limited range, it does not present an important source of food for wildlife, however it does provide shelter for birds and small mammals.

FAUNA

As a result of favorable orographic, edaphic-hydrological, biotic, and especially climatic conditions, on Mt. Tara has appeared long ago and still maintain, a very rich fauna, both in species and number of individuals who inhabit the protected area.

At Tara were recorded so far: 53 species of mammals, 140 species of birds, 25 species of amphibians and reptiles, 19 species of fishes and 115 species of butterflies

Rare and endangered species of fauna of the National Park Tara

Invertebrates are the most numerous and most diverse group of organisms. Only some groups of invertebrates and insects, snails and living butterflies have been explored on Tara so far. Other groups haven't been systematically researched and only certain species have been cited. In the group of invertebrates there is an endemic and relict species of grasshopper Pyrgomor-phella serbica.

Tara is among the richest European mountains in terms of diversity of butterflies. The following species are protected under the Annex 2 of Directive 92/43/EEC: *Lycaena dispar, Hypodryas maturna, Euphydryas eurodryas, Hypodryas aurinia*.

Other species of insects are known to be located on Tara, which are protected under the Annex 2 of Directive 92/43/EEC are: Rosalia alpina, Morimus funereus. Mountain stream ecosystems are populated with numerous species of aquatic insects, leeches, crabs, among which the attention should be paid to the strictly protected species of the stone crayfish – *Austropota-mobius torrentium*.

Ichthyofauna 19 species of fish were noted in the fishing waters which are managed by The National Park, mainly from the aspect of nationally important species which are strictly protected such as Balkan Loach *Cobitis elongata* and the tench *Tinca tinca*. Species that are important on the European level are: *Hucho Hucho* - the huchen, *Rutilus pigus* - Danube Roach, *Cobitis Elongata* - Balkan Loach, *Sabanejewia aurata*.

Fauna of amphibians and reptiles (Herpethofauna) is characterized by considerable diversity. The level of protection is important at the national level, 16 species, and the three European species: Triturus cristatus - Great Crested Newt, *Emys orbicularis* - European pond turtle, *Bombina variegate* - Yellow-bellied toad.

Fauna of birds There are about 100 species of birds strictly protected by National laws. Many species are on the list of species of European importance (31 species) as Corncrake (*Crex crex*) that nests in the mountain meadows, Western Capercaillie (*Tetrao urogallus*) and Eurasian Three-toed Woodpecker (*Picoides trydactilus*). Tara is on the list of IBA areas, primarily to populations of 6 species: Peregrine Falcon, Golden Eagle, gray woodpecker, green woodpecker and ordinary roach.

Tara is an important nesting for the woodcock in western Serbia, which is considered extremely important for nesting of Hazel Grouse, Eurasian Pygmy Owl and Long-tailed owl in Serbia.

The fauna of mammals of Tara includes 53 species. However, least studied groups of mammals are bats considered a very significant diversity of this group in the area. The area is primarily important as a habitat for large carnivores such as gray wolf – *Canis lupus* and brown bear – *Ursus arctos*. The bear is strictly protected wild species and in the park there is the largest popu-lation of them in Serbia, with a reproduction center in the country. Types of beasts that populate Tara are the wild cat – *Felis silvestris*, pine marten - *Martes martes*, etc. The necessary research in terms of determining the presence of Eurasian lynx – *Lynx lynx* and common jackal – *Canis aureus* in this area. One of the endangered species, the European Otter – *Lutra lutra* is an inhabitant of aquatic habitats of the park.

The presence of Alpine Pine Vole – *Microtus multiplex* should be noted as a representative of rodents with Tara as the only habitat in Serbia and the easternmost habitat in the Balkans. Especially interesting is the presence of the Alpine Shrew – *Sorex alpinus*, which is on the World's Red List, and Eurasian Water Shrew –*Neomys fodiens*, in addition to aquatic habitat species. From the aspect of protection at the national level 19 species are very important, 7 of which are found in ANNEX 2. Directive 92/43/EEC.

Some of the species that are important for protection at the national and European level are: European Otter, gray wolf, brown bear, Eurasian lynx. Area of Tara Mountain is considered extremely important habitat for the conservation of mountain goats.

FORESTS

The area of Tara National Park is typical forested area with preserved and most productive forest communities not only in Serbia but also in Europe.

Over 75% of the surface area of Tara National Park is covered by forests, covering 34 different communities. Starting from the lowest position of the Drina River interspersed community of alder, willow, elm, oak, then the community white and black pine, beech communities to the highest positions where finally occur mixed forests of fir, spruce and beech with admixture of other deciduous trees.

The National Park is a natural habitat for five species of conifers: fir, spruce, black and white pine, and the only habitat in the world of Serbian spruce (Picea omorika).

The Serbian spruce is a type of an endemic species in the middle course of the Drina River. The biggest and the best preserved population are in Tara National Park. The total area of its distribution extends to about only 60 hectares, at altitudes of 800 to 1.600 meters above sea level. The species was discovered in the village of Zaovine, on Tara, in 1875 by a Serbian botanist Josif Pančić. As a tree the spruce has a straight and slender trunk with a pyramidal treetop. It grows on highly rocky and poor lime-stone above all but on other fields as well. It is resistant to drought, excessive humidity and frost. Because of its limited range, it does not present an important source of food for wildlife, however it does provide shelter for birds and small mammals.

ECOSYSTEMS

In Serbia and Tara National Park, there are terrestrial ecosystems and inland water ecosystems.

Forest ecosystems are the most complex terrestrial ecosystems. Forests and forest ecosystems cover 28% of Serbia, which is lower than the average forest coverage of Europe. In the National Park Tara forests cover 80% of the national park, which is an excellent forest cover. Despite a large number of tree species, forests of Tara also have many other species of plants, animals, fungi and microorganisms. The complexity of Tara forests is also reflected in their expressed storyness and difference in age, which makes these ecosystems very complex and diverse. The space next to deciduous forest of Tara National Park ecosystem is inhabited with mixed and coniferous ecosystems, with a total of 34 forest communities within it. Forest ecosystems of Tara Mountain are among the best preserved and the most productive forest ecosystems of Europe.

Meadow ecosystems occupy a small percentage of the Tara National Park. In the area of Tara Mountain many types of meadows were developed with 19 meadow plant communities. Meadow vegetation in the area mainly occurred as a secondary formation, on the habitats of different forest communities.

Mountain peats are important and sensitive habitats in the meadow ecosystems, with characteristic species inhabiting them, and they are on the list of protected habitats of Europe. These habitats are present in the closed depressions and sinkholes with deeper clay and swampy bottoms and around mountain rivers and streams. Many rare species can be found in this type of habitat, such as Epipactis palustris Marsh Helleborine and Iris sibirica Siberian iris. In addition to these important meadow ecosystems, vegetation of rocks and vegetation of rock creep and the rubble are also important.

Vegetation of rocks is the most common on vertical rocks and cliffs in the canyon of the river and the semi-limestone massif. The cracks and cavities of rocks are mainly inhabited with moss and ferns and many endemic species.

Vegetation of rock creep and the rubble. In terms of vegetation with a sparse vegetation, mostly represented is the turf grass, adapted to poor conditions of life but some endemic species can also be found there. Special attention must be paid to the Urban Spurge Euphorbia subhastata and Derventan Cornflower Centaurea derventana, endemic plant species that are rare and endangered as released on the Red List of flora of Serbia.

Agricultural ecosystems are represented in the form of a small, isolated area covered with crops, fruit trees, and few cereal culture. Production of these cultures is mainly of organic origin.

Inland water ecosystems in the National Park Tara are consisted of lakes, streams and rivers ecosystems in the National Park Tara. In these types of ecosystems there live 19 species of ichthyofauna. The area belongs to the salmon family (trout) and the transitional barbel region, with the addition of species that inhabit clear, cold mountain water (Brown trout - *Salmo trutta*, fario and lake trout - *Salmo trutta m. lacustris*, the huchen - *Hucho Hucho*) and present indigenous cyprinid (carp) fishing species (chub - Leuciscus cephalus, Common Nase - *Chondrostoma nasus*, Danube Roach - *Rutilus pigus*, barbel - *Barbus barbus*). Mountain stream ecosystems are populated with numerous species of aquatic insects, leeches, crabs, among which the strictly protected species stone crayfish - *Austropotamobius torrentium* has an important place.

All ecosystems are interconnected and as such maintain the overall balance and stability in nature.

Source: Webpage of Tara NP

APPENDIX 10: CALCULATION OF CARBON BENEFITS

PROJECT TITLE:	Contribution of Sustainable Forest Management to a Low Emission and Resilient Development
COUNTRY/CONTINENTAL REGION:	Serbia / Western Europe
CLIMATE & MOISTURE REGIME:	Warm Temperate moist
DOMINANT REGIONAL SOIL TYPE:	Low Activity Clay soils (HAC)[23]
DURATION OF THE PROJECT IMPLEMENTATION:	4 years
DURATION OF EX-ACT'S ANALYSIS:	20 years[24]
TOTAL AREA (HA):	20 000 hectares

Carbon Estimation for Contribution of SFM to a Low Emission and Resilient Development, Serbia

EXECUTIVE SUMMARY

[23] Default Values are provided using the IPCC-2006 simplified soil classification.

[24] The accounting period is defined as the sum of the implementation phase and the capitalization phase. These values are set at minimum 20 years used either in IPCC 1996 or 2006 Guidelines and are gathered from a large compilation of observations and long-term monitoring.

The project aims to promote Sustainable Forest Management (SFM) practices among the actors of the public and private sector, strengthening their capacities of mainstreaming biodiversity conservation and management of carbon stocks into forest management planning and implementation. It will contribute to the reversal of the ongoing biodiversity losses; increasing demand of illegal extraction of timber, forest fires, agricultural, energy and construction sector impacts, and climate change.

Two project sites on an area of 20,000 ha representative of the different types of ecosystems in Serbia are concerned by the project. At territorial level, the project will focus its intervention in selected pilot areas at three levels: forest region, protected area, and forest management unit. At regional level, the project focuses on two of the seven forest regions recently defined through the amendment of the Forest Law, Site 1: Western Serbia (10,000 ha) and Site 2: Voivodina (10,000).

The project components are the following:

Component 1: Enabling environment for multifunctional sustainable forest management;
Component 2: Multifunctional forest management;
Component 3: Monitoring, evaluation and lessons dissemination;

This document is reflecting a carbon estimation of the Component 2: Multifunctional forest management leading to enhance carbon sequestration potential, increase forest area under sustainable and multi-functional forest management, and other benefits. Notwithstanding, the other components relating to lessons dissemination, monitoring of forest resources and the adoption of information management systems are primordial to ensure the achievement and success of the on-site activities and the development of SLM practices by implementing a M&E system ensuring timely delivery of reports on project benefits.

Table 1: Project Structure - With Project/Without Project

PROJECT STRUCTURE		Activity	Site	With Project Scenario	BAU Scenario
Outcome 2: Multifunctional forest management by increasing forest area under sustainable and multi-functional forest management	**Output 2.1.3:** Forest management plans implemented	**Forest Plantation**	West Serbia: Continental region	**8,820 ha** of area of coppice converted to sustainably harvested high forests 'subtropical mountain forests', capturing 32,632.15 tonnes of CO_2eq per year. 652,463 tCO2eq sequestered for the entire duration of the project.[25]	**1674 ha** of subtropical mountain forest will be created without the project.
		Afforestation	AP Vojvodina: Panonian region	511 ha of subtropical humid forest with increased forest cover through new afforestation, capturing 904,920 tonnes of CO_2eq per year. 92,852 tCO2eq sequestered for the entire duration of the project.	**102 ha of** subtropical humid forest with increased forest cover.
		Forest Management	West Serbia: Continental region	**9,535 ha** of Boreal conifer forest for which the degradation level will be reduced from 40 percent[26] (moderate) to 30 percent (low) capturing 45,246 tonnes of CO_2eq per year. 904,920 CO_2eq sequestered for the entire duration of the project.	**1907 ha** of subtropical mountain forest, which would stay moderately degraded.
		Reforestation	AP Vojvodina:	**1,134 ha** deciduous forests in the temperate zone 'subtropical humid forest'' with increased forest cover through reforestation, capturing 17,520.45 tonnes of CO_2eq per year.	**226 ha of** subtropical humid forest

[25] The carbon balance is calculated by comparing the gross results between the without- and with-project scenario gives the difference achieved through project implementation, which is also called the project's carbon-balance.

			Panonian region	350,409 tCO2eq sequestered for the entire duration of the project.	will be afforested.
		Total		**Sustainable Management activities in** AP Vojvodina and West Serbia **regions concerning 20,000 ha could sequester 89,214 tonnes of CO_2eq per year.** **For the entire duration of the project: -1,784,288 tonnes of CO_2eq is captured.**	

1. Forest management

Rehabilitation activities of **9,535 ha** of moderately degraded <u>Boreal conifer forest</u> by the establishment of tree nurseries, the conduction of trainings and the use of the watershed management approach could <u>sequester carbon at an annual rate of 45,246 tonnes</u> of carbon dioxide equivalent (CO2eq/year) or <u>904,920</u> <u>tonnes of CO2eq for the entire accounting duration of the analysis (20 years)</u>.

Forests in the area of influence of the project, West Serbia, with a biogeographic area considered as Continental region are classified as <u>subtropical mountains systems</u> based on FAO's Global Ecological Zones (FAO, 2011). These types of forest have, on average, an above-ground biomass of 63.5 tonnes of carbon per ha (tC/ha). The below-ground biomass, litter, and soil carbon are, respectively, 17.1, 24.3, ,38 and soil's organic C stocks (SOC ref) of 88 tonnes of carbon per ha (tC/ha) under native vegetation based on the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance for Land Use, Land Use Change and Forestry.

The management of the subtropical mountains systems will lead to a lower level of degradation, from 40 percent of biomass lost without project to 30 percent of biomass lost with project (based on experts' consultation). The initial state of degradation is based on the level of forest degradation characterized by low standing volume of only about 161 m^3/ha and a low annual increment of about 4.0 m3/ha.

It is assumed that without project intervention, the level of degradation would remain as "moderate'' level. Additionally, no fire occurrence has been considered in both scenarios.

<u>Baseline scenario</u>: without the project, 9,535 ha of moderately degraded forest with no change in the forest state of degradation.

Table 2: Management and degradation, Forest degradation and management:

Type of Vegetation that will be degraded	Site	Degradation level of the vegetation			Area (ha)		
		Initial State	Without Project	With Project	Start	Without	With
<u>subtropical mountains systems</u>	West Serbia: Continental region	Moderate	Moderate	Low	9,535	9,535	9,535

The Management Degradation module is filled as follows:

5.1. Forest degradation and management

AEZ map — Zone 1 = Subtropical humid forest — Zone 2 = Subtropical dry forest — Zone 3 = Subtropical steppe — Zone 4 = Subtropical mountains systems

Type of vegetation that will be degraded	Degradation level of the vegetation: Initial State	At the end: Without project	At the end: With project	Fire occurrence and severity: Without (y/n)	Periodicity (year)	Impact (% burnt)	With (y/n)	Periodicity (year)	Impact (% burnt)	Area (ha): Start	Without	*	With	*	Total Emissions (tCO2-eq): Without	With	Balance
Forest Zone 4	Moderate	Moderate	Low	NO	1	100%	NO	1	100%	9,535	9,535	D	9,535	D	0	-904,920	-904,920
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Select the vegetation	Select level	Select level	Select level	NO	1	100%	NO	1	100%		0	D	0	D	0	0	0
Total Forest Degradation and Management															0	-904,920	-904,920

* Note concerning dynamics of change : "D" corresponds to default/linear, "I" to immediate and "E" to exponential (Please refer to the guidelines)

Tier 2

2. Afforestation/Reforestation activities

2.1 Afforestation of subtropical humid forest trees

Afforestation activities of 511 hectares of subtropical humid forest trees on rangelands[27] using climate smart forest practices, and mainstreaming climate smart forestry practices and delivering technical trainings could sequester 4,642.6 tonnes of CO2eq per year or 92,852 tonnes of CO2eq on 20 years.

Baseline scenario: without the project, **20 percent** of the achieved afforestation with the project will be planted. A total of **102 ha** of afforested area.

2.2 Reforestation of subtropical humid forest

Reforestation activities of **1,134 ha** deciduous forests in the temperate zone on degraded land[28], based on FAO's Global Ecological Zones (FAO, 2011) the vegetation is considered subtropical humid forest. The reforestation and restoration activities have as objective ensuring locally sufficient supply for energy needs, for wood-based industries and the economy in general. The aforementioned practices could sequester 17,520.45 tonnes of CO2eq per year or 350,409 tonnes of CO2eq on 20 years.

Baseline scenario: without the project, **20 percent** of the achieved afforestation with the project will be planted. A total of **226 ha** of afforested area.

The forest in the area of influence of this restoration activity (AP Vojvodina Panonian region) is classified as subtropical humid system. These types of forest have, on average, an annual above-ground biomass growth rate of 2.35 tonnes of carbon per ha per year (tC/ha/year) for systems up to 20-year old and after 20 years. The below-ground biomass annual growth rate is 0.74 tonnes of carbon per ha per year (tC/ha/year) for systems up to 20-year and after 20-year-old. Those are the default values extracted from IPCC 2006.

Table 3: Basic information of the two project intervention areas

Selected regions	Bio-geographical region	Landscape	Forest types	Forest cover (ha)
AP Vojvodina	Panonian region	Low land	Poplar, Oak and Ash	151.762
West Serbia	Continental region	Mountain	Beech and Conifers	324.006
			Total	475.768

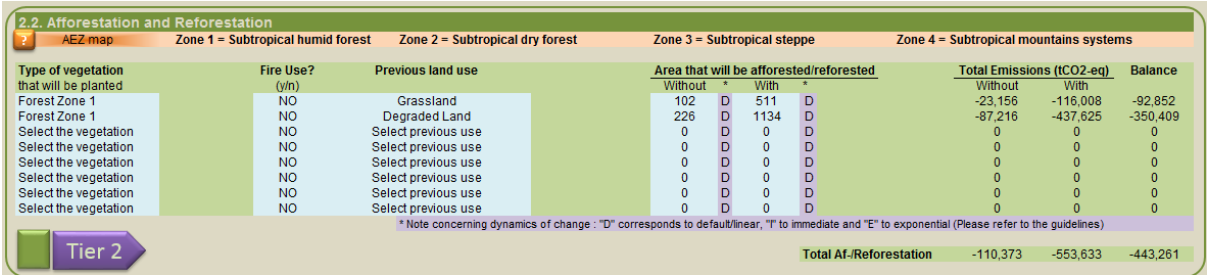
Table 4: Annual Growth rates for Subtropical humid forest up to 20-yr old

Type of vegetation	Growth rates for systems up to 20-year old	Growth rates for systems after 20-year old

[27] Degraded land: the default biomass C stock (tC ha-1) for system present before A/R, for the different climatic zones values for using the default C content of 0.47 is set to 1, and can thus be used for areas where very little vegetation will be present.

	Above-ground	Below-ground	Above-ground	Below-ground
Forest Zone 1: Subtropical humid forest	2.35	0.74	2.35	0.74

The afforestation/reforestation module is filled as follows:



2.2. Afforestation and Reforestation

AEZ map | Zone 1 = Subtropical humid forest | Zone 2 = Subtropical dry forest | Zone 3 = Subtropical steppe | Zone 4 = Subtropical mountains systems

Type of vegetation that will be planted	Fire Use? (y/n)	Previous land use	Area that will be afforested/reforested Without	*	With	*	Total Emissions (tCO2-eq) Without	With	Balance
Forest Zone 1	NO	Grassland	102	D	511	D	-23,156	-116,008	-92,852
Forest Zone 1	NO	Degraded Land	226	D	1134	D	-87,216	-437,625	-350,409
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0

* Note concerning dynamics of change : "D" corresponds to default/linear, "I" to immediate and "E" to exponential (Please refer to the guidelines)

Tier 2

Total Af-/Reforestation -110,373 -553,633 -443,261

3. Plantation of harvested high forests

The project is targeting the conversion of 8,820 hectares of coppice forest into harvested high forests in the Western part of Serbia. To analyse the conversion, we subdivided the activity into two separate sub-activities: **deforestation of coppice forest** (deforestation) without fire use and **forest plantation** of high forest (afforestation). Thus, the activity would capture 32,632.15 tonnes of CO2eq per year or 652,463 tCO2eq for the entire duration of the project, through the promotion of firewood plantations with the involvement of local communities and the assessment of economic benefits for the population.

3.1 Deforestation

The type of vegetation concerned is coppice forest 'subtropical steppe forest', whereby EX-ACT differentiates between those forest that is naturally grown and part of plantations. This activity could emit 21,465.8 tonnes of CO2eq per year while the 20 hectares of the Contribution of Sustainable Forest Management to a Low Emission and Resilient Development project site or 429,316 tCO2eq for the entire duration of the project.

Regarding the IPCC classification these two possibilities are described as follows:

- Natural forest: Extensive management practices, with reduced or minimal human intervention.

- Plantation: Intensive management practices.

The distinction between the two categories also depends on the definitions fixed by the country of interest. Since the project is concerned with a natural primary forest, we choose "Forest Zone 4".

No information is provided regarding the usually harvested wood products that will be conserved in their natural form and thus keep storing carbon for a long time (e.g. in the case of

building material for construction). For the sake of simplicity and in order to engage in a conservative estimate, we assume that no wood is harvested for such purposes here.

Baseline scenario: without the project, 1764 ha equivalent to 80 percent of the coppice forest will be deforested in the future. With the project intervention, the conversion will take place and 8,820 ha will be cleared. In both cases the deforested area is set aside land (final use after deforestation).

The deforestation activities thus can be entered as follows:

2.1. Deforestation

AEZ map | Zone 1 = Subtropical humid forest | Zone 2 = Subtropical dry forest | Zone 3 = Subtropical steppe | Zone 4 = Subtropical mountains systems

Type of vegetation that will be deforested	HWP# (tDM/ha)	Fire Use? (y/n)	Final use after deforestation	Forested area (ha) Start	Without	*	With	*	Deforested area (ha) Without	With	Total Emissions (tCO2-eq) Without	With	Balance
Forest Zone 3	0	NO	Set aside	8820	1764	D	0	D	7056	8820	1,711,019	2,140,335	429,316
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Select the vegetation	0	NO	Select Use after deforestation	0	0	D	0	D	0	0	0	0	0
Total Deforestation											1,711,019	2,140,335	429,316

#Harvested Wood Products

* Note concerning dynamics of change : "D" corresponds to default/linear, "I" to immediate and "E" to exponential (Please refer to the guidelines)

Tier 2

3.2 Forest plantation

Planting woody plantation, **subtropical mountain forest**, on 8,820 hectares of deforested coppice, **subtropical steppe**, could sequester 54,088.95 tCO2eq per year or 1,081,779 tCO2eq for the accounting duration.

Without the project intervention, 20 percent (1764 ha) of **subtropical mountain forest** would be planted.

2.2. Afforestation and Reforestation

AEZ map | Zone 1 = Subtropical humid forest | Zone 2 = Subtropical dry forest | Zone 3 = Subtropical steppe | Zone 4 = Subtropical mountains systems

Type of vegetation that will be planted	Fire Use? (y/n)	Previous land use	Area that will be afforested/reforested Without	*	With	*	Total Emissions (tCO2-eq) Without	With	Balance
Forest Zone 1	NO	Grassland	102	D	511	D	-23,156	-116,008	-92,852
Forest Zone 1	NO	Degraded Land	226	D	1134	D	-87,216	-437,625	-350,409
Forest Zone 4	NO	Set Aside	1764	D	8820	D	-216,356	-1,081,779	-865,424
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Select the vegetation	NO	Select previous use	0	D	0	D	0	0	0
Total Af-/Reforestation							-326,728	-1,635,413	-1,308,684

* Note concerning dynamics of change : "D" corresponds to default/linear, "I" to immediate and "E" to exponential (Please refer to the guidelines)

Tier 2

Activities	Project Site	Type of Vegetation	Previous Land use	Area (ha)		Total Area (ha) per project site	
				Without	With	Without	With
Forest Management and Degradation	Continental region	Forest Zone 4: Subtropical mountains systems	-	**Moderately degraded** on 9,535 ha	**Low degraded** on 9,535 ha	9,535	9,535

Afforestation/Reforestation	Panonian region	Forest Zone 1: subtropical humid forest trees	Grassland	102	511	2,092	10,465
	Panonian region	Forest Zone 1: subtropical humid forest trees	Degraded Land	226	1134		
Deforestation/Afforestation	Continental region	Forest Zone 3: subtropical steppe forest	Set aside land	1764	0	1764	8820
	Continental region	Plantation Zone 4: Subtropical mountains systems	Set aside land	1764	8820		

Table 4: Project activities description for the BUS scenario and with the project scenario:

Carbon monitoring system based on EX-ACT for SFM, Serbia

The Ex-Ante Carbon-balance Tool (EX-ACT) developed by FAO in 2010[29], to assess a project's net carbon-balance. This is the net balance of tons of CO_2 equivalent (tCO_2eq) GHGs that were emitted or carbon sequestered as a result of project implementation compared to a "without project" scenario. EX-ACT captures project activities in following five modules: land use change, crop production, livestock and grassland, land degradation, inputs and investment. EX-ACT estimates the carbon stock changes as well as GHG emissions per unit of land, expressed in tCO_2eq per hectare and year. When the results are negative, it means the sequestration of carbon, a positive one means the emission of CO2eq. It should be noted that the uncertainty level with project is 38.7 percent partly explained by the absence of essential data related to carbon sequestration and forest characteristics.

EX-ACT is particularly applicable for SFM as it offers the following advantages:

- Simple, user friendly, interactive, and participatory;
- Robust and offers a broad of scope of GHG analysis;
- Flexible in terms of requirements for coefficients and site-specific data;
- Can handle land use conversion, changes in forest and grassland management practices and projections over long time horizons;
- Its outputs can also be used in the financial and economic analyses of projects.

Typically, GHG emissions are reported in units of carbon dioxide equivalent (CO2e). Gases are converted to CO2eq by multiplying by their global warming potential (GWP)[30]. The emission factors listed in this document have been converted to CO2eq automatically by EX-ACT using the GWP listed in the table below.

Gas	***100-year GWP***
CO_2	1
CH_4	21

[29] EX-ACT Tool - FAO

[30] Global Warming Potentials: The Global Warming Potentials (GWP) used for presentation of CH4 and N2O in terms of CO2 equivalent are 21 and 310, respectively. For HFCs, PFCs, and SF6 the GWP values for a 100-year time horizon have been used. (source of GWP: Climate Change 1995: The Science of Climate Change, table 4, p. 22, Intergovernmental Panel on Climate Change, 1996).

N_2O	310

Source: Intergovernmental Panel on Climate Change (IPCC), fourth Assessment Report (ar4), 2007. See the footnote for further explanation.

The carbon balance (C Balance) of the project which consists on the difference of tCO2eq emitted or sequestered between a scenario with project and a scenario business-as-usual (BAU or baseline scenario) demonstrate the benefits of implementing the project and its different components in terms of mitigation potential. For this project which covers 20 years in EX-ACT (4 years of implementation and 16 years of capitalization), the **net carbon balance is -1,784,288 tonnes of CO2eq** which means the sequestration of almost 1.8 million of tCO2eq on the entire project (20 years) and a **mitigation potential of 4.46 tones of CO2eq per hectare and per year** compared to a scenario ''without project'' (Business-as-usual, BAU scenario).

Among the components of the project, promoting a better management of 9,535 hectares of degraded forest land is the first project component with the highest mitigation potential -904,920 tCO2-eq and second in terms of carbon sequestration within soils -706,687 tCO2-eq.

The afforestation activities, which cover a total of ***1,645*** hectares presents the second mitigation potential with a carbon balance of - 443,261 tCO2-eq or *-6.37* tCO2-eq /ha/year and first in terms of carbon sequestration within soils -918,157 tCO2-eq. Details about the project activities are summarized in Table 1.

All the activities in the project are presenting a negative carbon balance (mitigation), it underlines the interest to implement this project to a better mitigation potential and the improvement of the carbon stocks. (e.g.: the promotion of the replacement of the coppice forest by high wood forest and Sustainable Forest Management).

Table 5: Carbon balance from SFM Project in Serbia

EX-ACT Module	**SFM Activity**	**Area (ha)**	**C balance (tCO2-eq)**	**C Balance tCO2-eq. year^{-1}**	**Emission Factor (tCO2-eq.year^{-1}.ha**
Conversion of coppice to *Subtropical mountains systems*	*Deforestation*	8,820	+ 429,316	+ 21,466	*+ 2.43*
	Afforestation		-865,424	*-43,271.2*	*-4.9*
	Total [31]	***8,820***	*-436,108*	***-21,805.2***	***-2.47***
Afforestation/Reforestation	*Subtropical humid forest on Grassland*	511	-92,852	*-4642.6*	*-9.08*
	Subtropical humid forest on Degraded Land	1,134	-350,409	*-17,520.4*	*-15.45*
	Total	***1,645***	***-443,261***	***-22,163***	*-6.37*
Forest Degradation	*Improved management of degraded forest lands*	9,535	-904,920	-45,246	-4.74

[31] to avoid double counting on the EX-ACT tool, the initial area of deforestation is not taken into account within the final results.

and management					
Total Area		**20,000 ha**			
Net Carbon Balance			**-1,784,288**		
Net carbon balance Per hectare per year					***-4.46***

Figure.1: Total Project GHG Impacts

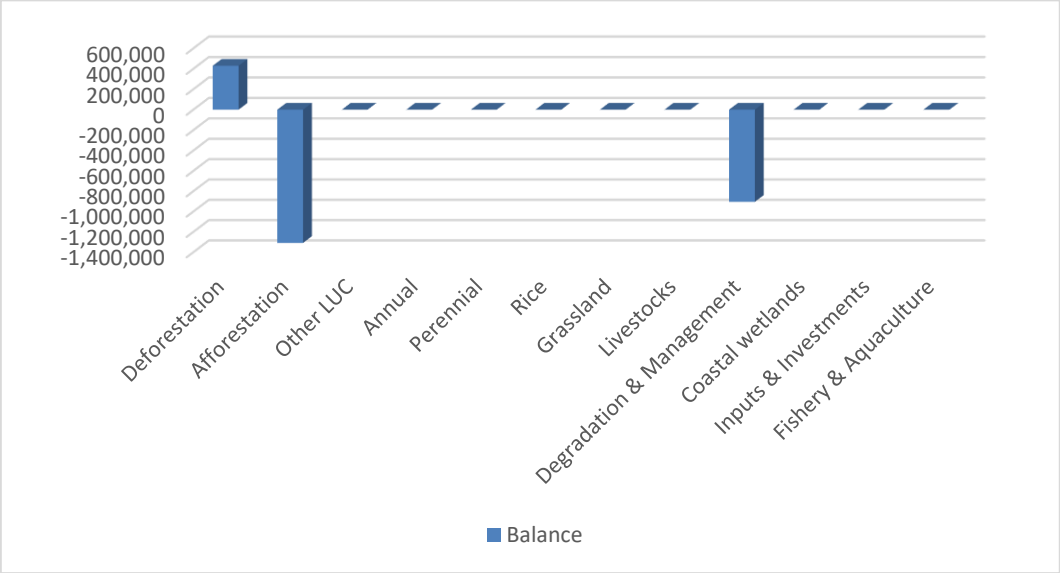


Figure 1 identifies that under project implementation, the forest restorations are providing net carbon sinks.

Total GHG impacts by GHG

Figure 2 below identifies that main GHG impact induced by Contribution of Sustainable Forest Management to a Low Emission and Resilient Development when compared to the status quo situation, is mainly supplied by reductions in CO2 emissions (-99%) due to the reduction of deforestation rate and improving forest management practices. The carbon sequestration is mainly due to the carbon storage within the biomass -1,263,102 tCO2-e over 20 years, whereas the soil's carbon sequestration is estimated at -552,748 tCO2-e over 20 years.

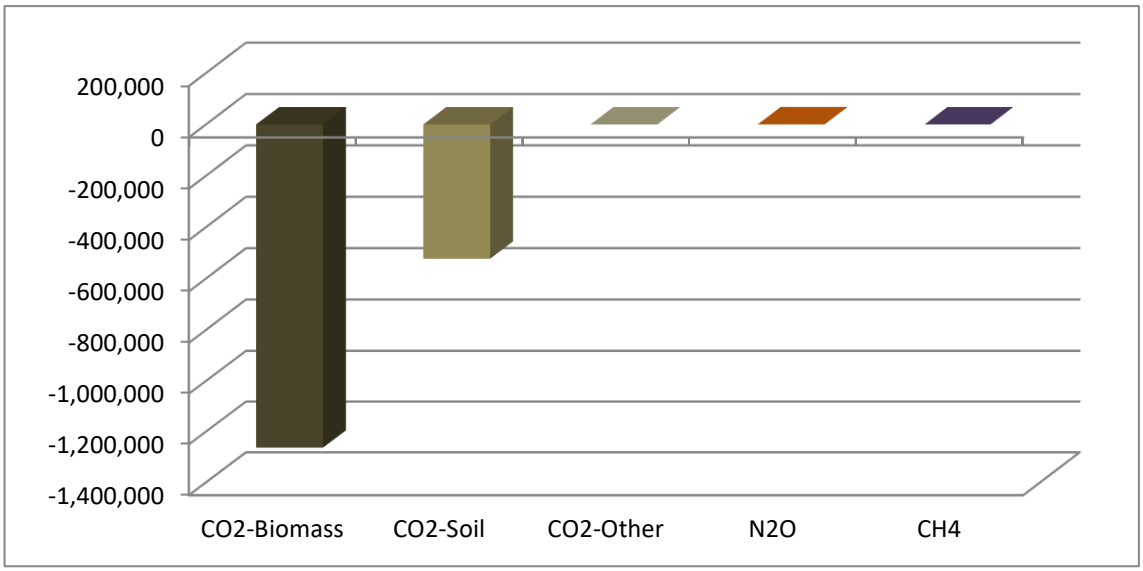


Figure 2 identifies that under project implementation, the main carbon pool is respectively the above-ground Biomass and the below-ground Biomass.