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IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF Number 016646/GEF Grant No. R2013-0037-BA

ON A

GRANT

FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US\$5.58 MILLION

TO

BOSNIA AND HERZEGOVINA

FOR THE

SUSTAINABLE FOREST AND LANDSCAPE MANAGEMENT PROJECT (P129961)

NOVEMBER 22, 2019

Environment, Natural Resources & The Blue Economy Global Practice
Europe And Central Asia Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective September 18, 2019)

Currency Unit = Convertible Marka (KM)

KM 1 = US\$0.56

US\$1 = KM 1.77

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AM	Aide Memoire
APCU	Agriculture Projects Coordination Unit
BiH	Bosnia and Herzegovina
CFMC	Cantonal Forest Management Company
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EU	European Union
EUTR	EU Timber Regulation
EX-ACT	Ex-Ante Carbon-balance Tool
FAO	Food and Agriculture Organization of the United Nations
FBiH	Federation of Bosnia and Herzegovina
FDPCP	Forest Development and Conservation Project
FM	Financial Management
FMIS	Forest Management Information System
FMPAP	Forest and Mountain Protected Areas Project
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GEO	Global Environmental Objective
GPS	Global Positioning System
Ha	Hectare
ICR	Implementation Completion and Results Report
IO	Intermediate Outcome
IRR	Internal Rate of Return
M&E	Monitoring and Evaluation
MAFW	Ministry of Agriculture, Forestry and Water Management
MAWF	Ministry of Agriculture, Water Management and Forestry

MTR	Midterm Review
NDC	Nationally Determined Contribution
NTFP	Non-timber Forest Product
PAD	Project Appraisal Document
PDO	Project Development Objective
PIU	Project Implementation Unit
PROFOR	Program on Forests
RS	Republika Srpska
RS Šume	Šume Republike Srpske
SFLM	Sustainable Forest and Landscape Management
SFLMP	Sustainable Forest and Landscape Management Project
TTL	Task Team Leader
UNECE	United Nations Economic Commission for Europe

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P129961	Sustainable Forest and Landscape Management Project
Country	Financing Instrument
Bosnia and Herzegovina	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	

Organizations

Borrower	Implementing Agency
Ministry of Finance and Treasury	FBiH Ministry of Agriculture, Water Management and Forestry, RS Ministry of Agriculture, Forestry and Water Management

Project Development Objective (PDO)

Original PDO

A. Proposed Development Objective:

To build capacity of forestry sector stakeholders and to demonstrate approaches for sustainable forest and land management through integrated management of vulnerable forest, scrub and pasture landscapes.

PDO as stated in the legal agreement

To build capacity of forestry sector stakeholders and to demonstrate approaches for Sustainable Forest Land Management (SFLM) through integrated management of vulnerable forest, scrub and pasture landscapes.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
TF-16646	5,575,758	5,575,758	5,059,340
Total	5,575,758	5,575,758	5,059,340
Non-World Bank Financing			
Borrower/Recipient	0	0	0
Total	0	0	0
Total Project Cost	5,575,758	5,575,758	5,059,340

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
15-Jan-2014	09-Jun-2014	24-Apr-2017	31-May-2019	31-May-2019

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
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KEY RATINGS

Outcome	Bank Performance	M&E Quality
Moderately Satisfactory	Moderately Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	12-Apr-2014	Satisfactory	Satisfactory	0
02	29-Nov-2014	Satisfactory	Satisfactory	.60
03	15-Jun-2015	Satisfactory	Satisfactory	.60



04	04-Dec-2015	Satisfactory	Satisfactory	1.73
05	28-May-2016	Satisfactory	Satisfactory	2.43
06	02-Dec-2016	Satisfactory	Satisfactory	2.63
07	01-Jun-2017	Satisfactory	Satisfactory	3.24
08	05-Dec-2017	Satisfactory	Moderately Satisfactory	3.31
09	07-Jun-2018	Satisfactory	Satisfactory	3.73
10	18-Dec-2018	Moderately Satisfactory	Moderately Satisfactory	3.92
11	30-May-2019	Moderately Satisfactory	Moderately Satisfactory	4.29

SECTORS AND THEMES

Sectors

Major Sector/Sector

(%)

Agriculture, Fishing and Forestry

100

Public Administration - Agriculture, Fishing & Forestry

5

Forestry

95

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)

(%)

Private Sector Development

100

Jobs

100

Environment and Natural Resource Management

101

Climate change

20

Mitigation

20

Environmental Health and Pollution Management

81

Air quality management

27

Water Pollution

27

Soil Pollution

27



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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. **Bosnia and Herzegovina (BiH) has a unique and complex political and institutional structure.** At the time of the Sustainable Forest and Landscape Management Project (SFLMP)¹ appraisal, almost 20 years had passed since the Dayton Peace Accords brought an end to armed conflict and established BiH's complex administrative system, which consists of two entities² (the Federation of Bosnia and Herzegovina [FBiH] and the Republika Srpska [RS]), and one autonomous district (Brcko District). All three have their own constitutions and governments and are politically, administratively, and fiscally autonomous. FBiH is further divided into 10 cantons, each with its own government, and 79 municipalities. Much progress had been made in rebuilding the country and its infrastructure, and institutions were in place to govern the country. The economic situation was improving and BiH became a potential candidate country for the European Union (EU) membership. However, BiH was facing challenges, such as residual ethnic tension, a bloated civil service, an unemployment rate at 27 percent, a restrictive environment for private sector growth, low workforce participation, and a poverty rate that had remained at 15 percent since the global financial crisis in 2008.

Sector Context

2. **BiH is one of the most forest-rich countries in Europe, but the forest resources are underutilized.** Based on the nationwide inventory conducted in 2006–2009, with support from the World Bank,³ BiH has 3.2 million ha of forests and other forest land (1.7 million ha in FBiH and 1.5 million ha in RS), which is 63 percent of the total territory (World Bank 2011). Out of this, 6 percent is characterized as low-productivity forest land that includes shrubs, infertile forest land, and other types of wooded areas (Mataruga et al. 2019). The forests in Bosnia and Herzegovina have a typical southeast European structure of forests consisting of high and coppice forests—1.65 million ha high forest and 1.25 million ha coppice forest (FAO 2015). In terms of forest types, broadleaf forests are predominant, accounting for 66 percent of the forests in FBiH and 74 percent in RS (Mataruga et al. 2019). Forests have an estimated average standing volume of 172 m³/ha and the estimated total growing stock of 550 million m³ (World Bank 2011). The total annual increment is estimated to be 11.2 million m³ or 5.2 m³/ha (United States Agency for International Development 2012 cited in FAO 2015). Around 5.7 million m³ is harvested annually, which is only about 50 percent of the annual increment (UNECE 2018). The harvesting rate in coppice forests is even lower,

¹ In the Project Appraisal Document, the L in SFLMP has been used interchangeably to refer to land and landscape.

² A note on terminology: when referring to the country of Bosnia and Herzegovina (that is, Federation of Bosnia and Herzegovina and Republika Srpska), the term 'state' is used. The terms 'federation' and 'federal' refer specifically to the Federation of Bosnia and Herzegovina, that is, one of the two entities.

³ The inventory was financed under the Forest Development and Conservation Project (P079161, FDCP, 2003–10), but its results were never officially disclosed.



about 43 percent (FAO 2015). With respect to forest ownership, around 80 percent are public forests, and around 20 percent are privately owned (FAO 2015).⁴

3. **In terms of management, the sector faces challenges of limited accessibility, need for forest certification, and inadequate focus on production-oriented sustainable forest management.** This includes inadequate regeneration in poor and burnt sites, backlog of thinning, frequent fire, and inadequate seedling supply for restoration. State-owned forests are managed by public enterprises at the entity level (RS) or at the cantonal level (FBiH) and are under the overall control of the relevant ministry departments and entity parliaments. Additional discussion is presented in the theory of change section (paragraphs 12–16 on pages 8–10).

4. **The forest sector contributes to the national economy both directly and indirectly and provides significant livelihood support to the rural population.** Wood exports account for about 11 percent of the total exports of Bosnia and Herzegovina (FIPA, 2011). Although the contribution of forestry to gross domestic product in BiH remains low—according to Mataruga et al. (2019), it was only 0.83 percent in 2010⁵—it remains a strategically important economic activity due to export and job opportunities. In terms of employment, the forest sector (including processing) employed 6.5 percent of the total workforce in RS and 4.6 percent in FBiH in 2008 (Mataruga et al. 2019). In a mountainous country like BiH where 42 percent is made up of mountains and 24 percent of hills, forests play a critical role of protecting watersheds, especially for the middle and lower Danube (World Bank 2013). In its Nationally Determined Contribution (NDC), BiH has committed to maintain its forest-based sinks. In addition, the beauty of BiH's forest and mountainous landscapes presents an opportunity for nature-based tourism. Rural people largely depend on forests for energy, employment, recreation, and non-timber forest products (NTFPs) such as mushrooms, berries, and herbs as well as hunting (World Bank 2013).

5. **The institutional framework for forest management is structured differently across the two entities, and in FBiH, forest institutions are decentralized.** At the state level, the Sector for Agriculture, Food, Forestry, and Rural Development, within the Ministry of Foreign Trade and Economic Relations, is responsible for drawing up policies, coordinating activities, and harmonizing entity-level plans relevant for international relations on the environment and climate change (European Commission 2019). At the entity level, the overall responsibility for forests in FBiH lies with the Ministry of Agriculture, Water Management and Forestry (MAWF), and in RS with the Ministry of Agriculture, Forestry and Water Management (MAFW). In FBiH, the ownership of public forest resources rests at the entity level while management rights are transferred to 10 cantons. The cantons transfer these rights to Cantonal Forest Management Companies (CFMCs), one in each canton (FAO 2015). In RS, the Forestry Department within the MAFW has the overall responsibility of forests at the entity level, but the management responsibilities for public forests are transferred to Šume Republike Srpske (RS Šume), a public forest enterprise (Avdibegović et al. 2015).

6. **The legal framework governing forest resources management is different between the entities.** At the BiH state level, there is neither a forest policy nor a framework for regulating forests due to the decentralized administrative structure. At the entity level, in FBiH, there is no entity-level legislation and

⁴ Mataruga et al. (2019) report 70 percent public forest and 30 percent private forest, based on the data obtained from the Second National Forest Inventory.

⁵ This includes only wood production, not wood processing.



nine cantons have adopted their own forestry regulations. RS has laid down rules for the forestry sector through several laws and secondary legislations (European Commission 2019). In RS, Forest Law (2008) provides the overall framework and is supported by a series of 32 regulations adopted during 2009–2010 relating to timber sales and technical norms of forest management (Marić 2016).

Higher-level Objectives to Which the Project Contributed

7. **BiH, as a potential candidate country to EU, aims at eventually following the EU's approach to forest management.** In the EU, the formulation of forest policies is the competence of the Member States. The EU's general approach to forest management is based on sustainable forest management, balanced development of multiple forest functions, and efficient use of resources. Other priority areas include competitiveness and sustainability of forest-based industries, ecosystem services, value addition, climate change impact on forests, and the role of forests on climate change mitigation. The EU Timber Regulation (EUTR)⁶ prohibits placing illegally harvested timber on the EU market (that is, sale and import). While forest certification is not, *ex lege*, a sufficient condition to prove compliance with EUTR, having certification indicates BiH's and forest managers' commitment to comply with legality and international best practices.

8. **The RS Forestry Development Strategy (2011–2021), prepared with the World Bank support, aims at sustainable development of forestry to enhance and maintain all forest functions.** The strategy lists a wide spectrum of goals and measures for its implementation. Some of the priority goals include increasing the contribution of forestry to rural and overall social development and ensuring availability of financial means needed for strategy implementation (World Bank 2013). In FBiH, a strategic planning exercise was ongoing at the time of the project appraisal (World Bank 2013).

9. **The proposed project was fully consistent with the Country Partnership Strategy (CPS) for FY2012–2015.** The CPS had three main pillars: (a) support economic growth by tackling bottlenecks to foster productivity and competitiveness; (b) improve social inclusion by strengthening fiscal sustainability of social benefits and improving the delivery of basic public services; and (c) strengthen sustainable use of key natural resources, such as water and forests, and improve climate change adaptation (World Bank Group 2011). The project aimed at supporting BiH to ensure that forests and associated natural landscapes, which are important for the country's economic development, are managed sustainably.

Rationale for Bank Support

10. **The World Bank has been involved in the natural resources and environment sector in BiH since the end of the armed conflict.** From 1998 to 2003, the Forestry Project (P045134), financed by IDA, EU, and the Italian and Norwegian governments, focused on forest sector recovery and forest ecosystem protection. The successful implementation of that project provided the confidence for continuing the World Bank's support of the forest sector (World Bank 2011). In 2003, an IDA Credit of SDR 2.8 million (+SDR 2.3 million Additional Funding) provided finance to the FDCP. The FDCP supported FBiH and RS on strategic planning exercises, including the second state forest inventory. The Italian government provided cofinancing for biodiversity activities which included most of the preparation studies for the Forest and

⁶ Regulation (EU) No 995/2010 of the European Parliament and of the Council of October 20, 2010 (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32010R0995>).



Mountain Protected Areas Project (P087094, FMPAP, 2009–13). The FMPAP was a Global Environment Facility (GEF) financed operation which aimed at strengthening the institutional and technical capacity for protected area management and expanding the national network of forest and mountain protected areas.

11. **Strategically, it was important for the World Bank to remain engaged in the sector, and the World Bank adopted a ‘no-regrets’ approach in the project.** The World Bank aimed to help BiH build capacity to manage the forests sustainably through this project. In addition, forestry plays an important role in the national economy and rural livelihoods, and strengthening sustainable use of key natural resources, including forests, was identified as one of the pillars of the World Bank CPS. In the SFLMP, the World Bank focused on technical issues, which need to be dealt with on a regular basis also in the unique institutional framework of the country. These included such technical issues as accessibility, forest certification, forest management information systems (FMIS), and demonstrations for sustainable forest management.

Theory of Change (Results Chain)

12. **Issues and challenges.** BiH aims at modernizing the forest sector in a way that contributes to economic development, job creation, and exports in a sustainable way while respecting environmental values and local livelihoods. To do this, capacity was built through two approaches—one top-down and one bottom-up. Under the top-down approach, the project invested in institutional capacity building through forest certification, strategic planning, and information management. Under the bottom-up approach, field activities to demonstrate good and innovative methodologies for natural resource management (forest management, fire management, road rehabilitation, nurseries, and so on) contributed to capacity building and institutional strengthening at the central (ministries) and local (forest enterprises and communities) levels. For example, by going through the forest certification process, forest managers improved their understanding of multipurpose forest management (including compliance to national laws and to international treaties and agreements, community rights, long-term social and economic well-being of forest workers, high conservation value forests, and maintaining of the ecological functions and integrity of forests).

13. **The project logic was, on one hand, based on addressing technical capacity constraints at the central level and, on the other hand, demonstrating good management practices at the local or field level.** This improved capacity was to improve sector outcomes in a unique institutional framework. Technical capacity was seen as a necessary condition to ensure sustainability of forestry in Bosnia and Herzegovina. Some specific areas of capacity building were as follows:

- **Accessibility.** It is one of the hindrances for sustainable forest management due to insufficient road network: BiH has an average forest road density of 9.4 m/ha (10.1 m/ha in FBiH and 9.1 m/ha in RS), which is significantly below other European countries with broadly similar topography; for example, Austria has 36 m/ha and Switzerland has 40 m/ha (World Bank 2011). Low forest road density prevents effective forest and fire management, reduces recreational opportunities, and increases harvesting costs. The project aimed to build capacity at entity and decentralized levels on assessing the desired forest road network and by creating databases of the existing road network. The master plans also allow designing future investments to improve accessibility.



- **Forest certification is essential to meet market demand for forest products from sustainably managed forests.** Certification of sustainable forest management provides independent third-party verification that the current management practices meet internationally agreed standards for environmental, social, and economic sustainability.⁷ This is to ensure that forests are not managed or harvested in a manner that creates environmental damage, is socially just, and has solid economic foundations. Forest certification is helpful in accessing environmentally sensitive markets where consumers and other buyers want to be sure that they are not contributing to unsustainable forestry. Therefore, BiH's ambition to increase its forest product exports brought about the need to focus on forest certification. At the time of appraisal, 100 percent of the state-managed forests in RS and 10 percent of the state-managed forest in FBiH had been certified. There was a need to certify the remaining uncertified forests and maintain the already certified forests through annual audits and recertification as required by the Forest Stewardship Council (FSC). In addition to building capacity to increase exports, the certification process also taught involved stakeholders (for example, central forest authorities, forest managers at the field level, local communities, and the private sector) the principles of sustainable forest management and how it is assessed.
- **Decision makers in either entity do not have adequate FMIS to monitor essential elements of forest management such as carbon sequestration or emission and forest losses due to fires and pests.** BiH is vulnerable to increased climate-related hazards, including forest fires. The country also has a strong focus on ecosystem approach for adaptation and mitigation, but all forest management activities require good-quality and timely information on the forest resource and change pattern. Improving the quality of information and access to it can strengthen the capacity of forest agencies to conduct targeted and timely management activities. Improved access to information is also essential to build transparency and participation by the public in forest management.
- **Backlog of thinning and coppice management and inadequate seedling supply to restore degraded and burnt areas demonstrate that there is limited focus to production-oriented sustainable forest management.** Overall, 17 percent of the forest areas were classified as low-quality degraded forests and an additional 6 percent as underutilized pasture land or bare landscapes (World Bank 2013). Restoration and reforestation of these burnt and other degraded lands was thus a priority in national forest management. Practical field operations and demonstrations in improved management built capacity in forest management units on restoration of degraded and burnt lands, on how to involve communities in environmental management and recreational services, and on how to increase the value of production forests through appropriate silvicultural practices. Capacity building also included investments in technical capacity in seedling production and forest fire management.

14. **Inputs and activities.** The project inputs included US\$5.58 million of resources and five years of implementation. To address accessibility, the project supported developing strategic forest road master plans. The project supported forest certification and annual audits of the certified forests to contribute to BiH's ambition to increase wood product exports. The project contributed to incorporating climate change information into already existing FMIS. The project aimed at demonstrating sustainable forest practices

⁷ In Bosnia and Herzegovina, standards of the FSC were used.



by undertaking pilot activities. These included reforestation in lands recently damaged by fire or other hazards, thinning, conversion from coppice to high forest, nursery development, wildlife management, and ecotourism.

15. **Outputs and outcomes.** The project outputs and outcomes form the important basis to address the issues and challenges in the sector. Within its scope, the project aimed to achieve an overall outcome of building capacity of forestry sector stakeholders in several key aspects. For example, preparation of strategic forest road master plans was to provide, at the output level, strategic directions to establish forest road networks and improved capacity to design investments that would support improving accessibility in the forests. Similarly, forest certification provides a solid foundation for accessing environmentally sensitive wood product markets in Europe and elsewhere. The certification process itself also supports improved capacity in the participating organization through exposure to modern and systematic assessment of forest management practices and third-party verification. Field activities, such as reforestation/afforestation, thinning, and production of quality seedlings, have contributed to improved forest health and vigor.

16. **Assumptions.** The key assumptions behind the project design included the following: (a) the existing FMIS is in sound condition and functioning, (b) forests have been managed at certifiable standards, (c) seedlings are available for planting, (d) implementers are motivated to innovate and pilot for demonstration, and (e) demonstration outputs are maintained and scaled up. A key underlying assumption of the project is that project achievements would continue to be built on and scaled up, after which, the long-term outcome of the project—increased export to environmentally sensitive market, improved carbon sequestration, and climate-resilient sustainable forest management to optimize forest production—could be achieved. An additional assumption was the interlink between the two project components: demonstrating approaches for sustainable forest land management was also expected to lead to building capacity for Sustainable Forest and Landscape Management (SFLM), the first part of the Project Development Objective (PDO), and vice versa.

Project Development Objectives (PDOs)

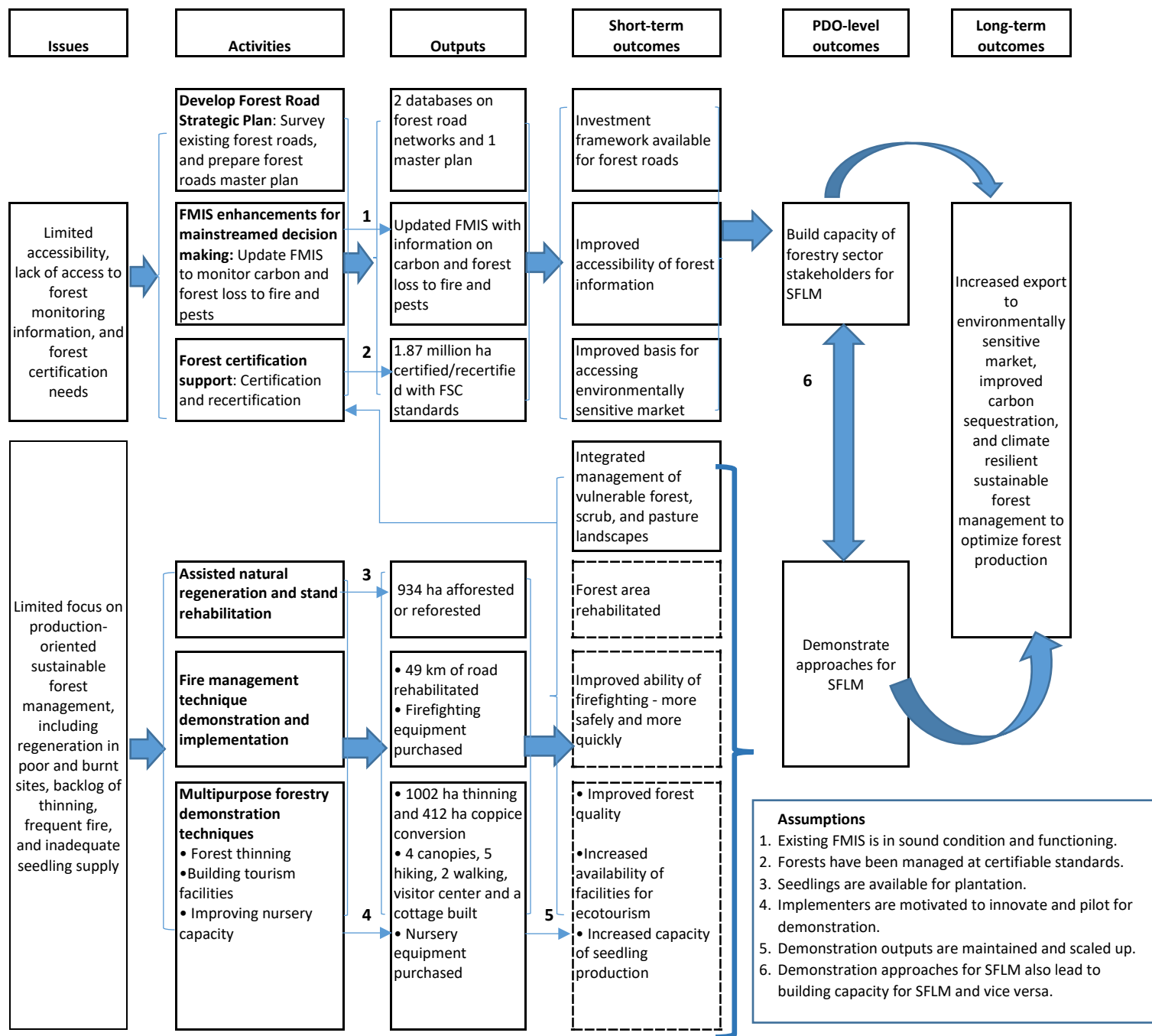
17. The overall PDO, as given in the GEF Grant Agreement between BiH and IBRD dated April 1, 2014, is “to build capacity of forestry sector stakeholders and to demonstrate approaches for Sustainable Forest Land Management (SFLM) through integrated management of vulnerable forest, scrub and pasture landscapes.”⁸

18. The Global Environmental Objective (GEO) is not stated in the Legal Agreement. The GEO in the PAD is same as the PDO in the PAD.

⁸ The PDO formulation in the Project Appraisal Document (PAD) and in the Operations Portal (to build capacity of forestry sector stakeholders and to demonstrate approaches for sustainable forest **and** land management through integrated management of vulnerable forest, scrub and pasture landscapes [emphasis added]) differs slightly from that of the Legal Agreement because of the word ‘and’ in between ‘sustainable forest’ and ‘land management’. This could imply that the demonstration approaches would be applied both to sustainable forest management and management of all types of land. This Implementation Completion and Results Report (ICR) is based on the PDO in the Grant Agreement.



Figure 1. Schematic Diagram of Theory of Change





Key Expected Outcomes and Outcome Indicators

19. Based on the PDO, this project has two outcomes: (a) to build capacity of forestry sector stakeholders for sustainable forest land management; and (b) to demonstrate approaches for sustainable forest land management. The achievement of these outcomes was to be measured through the following, single PDO-level outcome indicator: Land area where sustainable land management practices have been adopted as a result of the project (ha)

20. Results indicators for each component, as noted in the PAD, are presented in annex 1.

Components

21. The project had three components, which are briefly presented below:

Component 1. Enhanced Planning and Monitoring for SFLM (estimated cost at appraisal: US\$1.070 million; actual cost at closing: US\$0.846 million)

22. This component aimed at strengthening the enabling environment for sustainable forest management. This had three subcomponents.

- *Subcomponent 1.1. Forest Certification Support.* The subcomponent helped certify new forests using FSC standards and supported annual audits and recertification of previously certified forests.
- *Subcomponent 1.2. Forest Road Strategic Plan.* This included two main activities: (a) preparation of a forest roads master plan and (b) adoption of forest road rehabilitation guidelines to minimize environmental and social impacts.
- *Subcomponent 1.3. Forest Management Information System (FMIS) Enhancements for Mainstreamed Decision Making.* This involved two key activities: (a) introduction of information related to climate change and (b) dissemination of information to stakeholders.

Component 2. Demonstration and Replication of SFLM Techniques in Vulnerable Areas (estimated cost at appraisal: US\$4.230 million; actual cost at closing: US\$4.481 million)

23. This component aimed at implementing pilot activities to demonstrate already developed sustainable forest management practices to substantially improve forest/habitat management, which would help BiH's climate change mitigation and adaptation program. This component included four subcomponents.

- *Subcomponent 2.1. Afforestation - Assisted Natural Regeneration and Stand Rehabilitation.* Activities under this included afforestation⁹ of fire-affected sites and karst areas and after-planting management such as weeding.

⁹ The project documents such as PAD use 'afforestation' though, in most cases, the planned activities were reforestation.



- *Subcomponent 2.2. Multipurpose Forestry Demonstration Techniques.* This subcomponent involved activities such as thinning of forests, conversion of coppice forest to high forest, biomass management, hunting and wildlife management, forest-based tourism, and removal of waste dumped illegally in the forest.
- *Subcomponent 2.3. Fire Management Technique Demonstration and Implementation.* This subcomponent intended to engage local communities in implementing appropriate small-scale fire management interventions. Activities included rehabilitation of firefighting access roads, purchase of equipment (vehicles, high-pressure water pumps, and firefighting accessories), and training.
- *Subcomponent 2.4. Local Stakeholder Capacity Building.* Under this subcomponent, the project provided various trainings to stakeholders at the local administrative and community levels to participate in various forest management-related activities.

Component 3. Project Management (estimated cost at appraisal: US\$0.276 million; actual cost at closing: US\$0.249 million)

24. This component supported project management in both entities. This included (a) operational support in project management, financial management (FM), and procurement; (b) annual audits; and, (c) project evaluations at midterm and closing.

25. **There is a slight difference in the estimated total cost of the project (US\$5.576 million) and actual cost at closing (US\$5.36 million).** According to the World Bank's Operations Portal, the project had disbursed 96.1 percent (US\$5.36 million) as of September 30, 2019 (end of application). Undisbursed balance is US\$0.22 million (3.9 percent of the grant).

Project Institutional and Implementation Arrangements

26. The Ministry of Finance and Treasury of BiH signed the GEF Grant Agreement for a total amount of US\$5,575,758 and transferred one half of the funds to FBiH and the other half to RS (US\$2,787,879 each) through Subsidiary Grant Agreements.

27. In FBiH, the MAWF had the overall responsibility of managing the project. The existing Project Implementation Unit (PIU) was in charge of day-to-day project management. On the ground, most activities under Component 2 and certification under Component 1 were carried out with and by the CFMCs and Cantonal Forest Administrations. FMIS and roads master plan development were done centrally with the ministry. The FBiH PIU provided the necessary technical support and oversight.

28. In RS, the MAFW had the overall responsibility of managing the project. The existing Agriculture Projects Coordination Unit (APCU) managed the day-to-day fiduciary activities of the project under close supervision of the ministry. On-the-ground activities under Component 2 were carried out by RS Šume and overseen by the ministry. The ministry, together with RS Šume, led the work on Component 1.



B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

29. Not applicable.

Revised PDO Indicators

30. Not applicable.

Revised Components

31. Not applicable.

Other Changes

32. **At the midterm review (MTR) stage (April 2017), both the PIUs and the World Bank agreed to include additional project activities under Component 2.** The specific activities were identified and agreed later, within the overall scope of the project. In RS, new activities included equipment for a new nursery in Trebinje, game repellents to reduce road traffic accidents with wildlife, and an exchange visit to the Russian Federation. In FBiH, additional subprojects for demonstration activities were identified, including afforestation, thinning, and fire management. The savings were mainly also from demonstration activities under Component 2, and there was no major impact on the resource distribution among components. The new activities were comparable to the original design and contributed toward meeting the original Results Framework target. The change did not constitute a project restructuring.

Rationale for Changes and Their Implication on the Original Theory of Change

33. **Exchange rate gains and project savings allowed new activities to be added to utilize the increase in local currency resources.** Both PIUs managed to implement agreed activities below budget, thereby generating savings. Additionally, the favorable exchange rate between the grant currency (U.S. dollar) and the local currency (KM) allowed additional activities to be financed. Increased project budget from these two sources was allocated for new activities, within the overall scope of the project. By allocating additional resources (in local currency) to field activities, the new activities had a positive impact on the achievement of the PDO.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating Context

34. **Rating: High.** The PDO remains highly relevant to the governments' objectives and the World Bank priorities for BiH as stated in the current Country Partnership Framework (CPF - Report No. 99616-BA).



35. **Relevance with the government priorities.** As explained in paragraph 7 and 8, the PDO fits well with government objectives and priorities; more specifically with the RS Forestry Development Strategy (2011–2021), FBiH Forest Policy, and FBiH five-year Action/Investment Plan. Priorities by both entities in the sector focus around sustainable forest management and harnessing the potential of forestry sector, so the project aimed at building capacity for the same.

36. **Relevance with the World Bank's CPF.** The PDO aligns very well with the World Bank's CPF for BiH (July 2015–June 2020). Recognizing BiH's forests as among the most pristine in Europe and one of the country's most significant natural resources, the CPF highlights that forests require good management to preserve their development potential. The CPF recognizes the role of forests in job creation, livelihood support, watershed protection, and promotion of tourism. Forests are largely underutilized from an economic perspective and require effective mechanisms to ensure good management, transparency, and financial sustainability. The CPF expects that the SFLMP would further support sustainable forests and landscape management practices, in particular forest certification, forest road strategic plan, and the number of SFLM techniques to be adopted jointly by key local actors. One of the three focus areas of the CPF—building resilience to natural shocks—includes sustainable management of natural resources. Under this focus area, one of the objectives of the CPF (Objective 3a) is 'Prevent the degradation of natural resources'. The SFLMP contributed directly to Indicator 3 for this objective (Increased area where sustainable land management practices were adopted). The CPF also proposes a forest sector lending operation during the CPF period to build on the SFLMP, and the World Bank has started discussions with the Clients on a follow-up investment operation.

37. **Relevance for the GEF.** As described in the PAD, the project intended to generate outcomes relating to sustainable forestry, land degradation, and climate change focal areas. The project has contributed to climate change mitigation through increased carbon sequestration and contributed to adaptation through an improved forest and fire management that increases the resilience of forests against climate change-induced threats. The project is still relevant to the GEF's latest Programming Directions (dated April 2, 2018), more specifically to climate change and land degradation focal areas and sustainable forest management.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

Outcome 1: To build capacity of forestry sector stakeholders for sustainable forest land management

38. The first of two outcomes of the PDO has been assessed as partially achieved, with some shortcomings. The following results were realized as a result of the project.

39. **Certification of sustainable forest management demonstrates that wood products made from wood from Bosnia and Herzegovina meet international standards for good forest management.** This forms an improved basis for BiH wood products accessing environmentally sensitive markets, for example, in Europe. Previously, FBiH had smaller areas certified, and in RS, certification was about to expire. As a result of the project, BiH now has 1.867 million ha of forest certified with FSC standards (1,116,505 ha in



RS and 750,595 ha in FBiH).¹⁰ In FBiH, the project supported annual audit of 535,199 ha in three cantons (Una-Sana, Tuzla, and Canton 10) and pre-assessment and main assessment of 24,903 ha in Bosnia-Podrinje Canton. During the project, Ikea—an international furniture conglomerate—supported certification of 12,743 ha in Central Bosnia. An additional 63,773 ha is in the process of being certified in the Central Bosnia Canton.

40. **In RS, the project supported the annual audit of 1.2 million ha in 2014, 2015, and 2016.** Recertification of RS forests started in October 2017. RS Šume now has recertification issued for 1,011,218 ha of forest. The certification is valid until March 2023 (MAFW 2019). Certification is evidence that forest management in these areas meets international requirements that are applied to all FSC-certified forests to demonstrate their sustainable management. This can contribute to increased access to international markets because many major companies and consumers prefer to buy products from certified forests. Similarly, initiatives such as green building standards and public procurement rules have often an explicit preference for certified products.

41. **FSC certification has to be audited every year, and forest managers have therefore strong motivation to maintain good-quality management of the forests.** Both RS and FBiH had commenced forest certification before this project. Based on discussion with the counterparts, the certification would have been continued without the project; however, the scale of achievement would have been much smaller. The project helped reach out to more cantons, which otherwise would not have been possible. The World Bank's Aide Memoire (AM) from April 2017 notes that partly due to the supply of FSC-certified wood, the BiH wood processing industry has achieved a 14 percent growth in wood export in the few past years. However, there was inadequate evidence to attribute this directly to the project.

42. **Ability to readily access information on existing forest roads and readiness to implement forest road master plan.** The SFLMP contributed to a better understanding of the current state of the forest roads network, including total length, location, and distribution by supporting an entity-level roads master plan (RS) or notable data collection on roads and preliminary work on the master plan (FBiH). At the beginning of the project, such information was lacking, and relevant authorities and stakeholders consider availability of such information as a valuable outcome of the project. This new information gives, for the first time, authorities up-to-date information on forest roads, their condition, and maintenance and investment needs. The data with the master plans provide a basis for the improvement of the road network in support of improved forest management, fire management, harvesting, and recreation. RS has compiled a database of over 5,000 roads. RS carried out in-depth analysis, including openness assessment,¹¹ suitability of terrain for log transportation, thematic maps on forests based on fire vulnerability, distance from watch centers, and forest biomass assessment. Based on this information, RS has finalized a forest road master plan. The plan presents four scenarios: 'do nothing', 'do minimum', 'do maximum', and 'do optimum'. For each scenario, a multicriteria analysis was performed including on financial and economic aspects.

43. On the FBiH side, the master plan was not completed by the project closure. However, the FBiH PIU continues to work on finalizing the master plan with the Government's own funding. FBiH has detailed

¹⁰ Certificates issued by the certifier can be viewed on the FSC website at this link: <https://info.fsc.org/certificate.php>.

¹¹ Openness has been assessed both in absolute and relative terms. The absolute term gives the total length, and the relative term gives their spatial distribution providing a clear picture of the status of forest openness.



information for each road (4,586 total roads including 2,906 forest truck roads and 1,680 public forest roads) on various attributes such as location, age, lanes, inclination, traffic load, soil depth, other technical details, history of road maintenance, and structures on the road. FBiH has also finalized guidelines for the construction, reconstruction, and maintenance of forest truck roads to standardize the process throughout the entity.

44. Improved accessibility of forest information provides forest management agencies better access to information allowing more informed management and planning. The project supported adding features to existing FMIS to monitor carbon sequestration or emission, and forest losses to fires and pests. However, soon after the project started, it was discovered that the existing FMIS in FBiH was dysfunctional. Despite some challenges and delays in making it functional, FBiH now has an FMIS running again. The FMIS is accessible to the public (upon request and subject to approval by the ministry). A consultant team has been working on adding new information on the originally identified three key indicators (carbon stocking and areas affected by fire and pests) as well as on potential Natura 2000 sites in FBiH. In RS, RS Šume's own funds were used to add climate change-related attributes to the existing FMIS. The updated FMIS is functional in RS.

45. The forest management bodies in both entities have improved technical capacity to conduct their work due to increased availability of equipment and trained professionals to carry out regular forest management activities. Both PIUs purchased equipment necessary in forestry operation such as computers, global positioning system (GPS) devices, calipers, vehicles, a wood-chopping machine, protective field gears, and brush cutters. The detailed list of the equipment is presented in annex 1. The PIUs provided the equipment to relevant forest management units. Commercial suppliers of the equipment organized basic trainings for using the equipment. The equipment remains in sound condition, and agencies continue to use them.

46. Key staff in forest management bodies gained knowledge on new and modern approaches to forest management in topics relevant to project activities. The project supported organizing trainings on various thematic areas such as on Ex-Ante Carbon-balance Tool (EX-ACT) by the Food and Agriculture Organization of the United Nations (FAO) and World Bank Safeguard Policies. This has allowed, for example, populating the FMIS with relevant carbon data. Training was provided to 21 government institutions. These included three institutions from RS and 18 from FBiH (see annex 1 for details). In addition, a group of officials from RS MAFW and RS Šume visited Russia to learn about Russian forest management system. The major outcome of the visit has been a strengthened network at the technical level to collaborate on forestry and landscape management issues. This will allow, in the future, learning and applying the extensive knowledge Russia has in the management of temperate forests, both for protection and production.

Outcome 2: To demonstrate approaches for sustainable forest land management

47. The second of the two outcomes of the PDO has been assessed as fully achieved. The activities were selected based on the perceived shortcomings in the forest management practices in Bosnia and Herzegovina. Degraded forests are ideally restored through natural regeneration with seeds from nearby forests. However, this is not always possible, for example, in severely degraded or isolated sites. For instance, the karst lands in the southeastern part of the country have harsh natural conditions and natural regeneration does not happen easily. This requires active approaches and increased implementation



capacity to ensure greening of the environment. Improved management of existing forests, for example, through thinning, improves their productive capacity and allows growing more valuable commercial timber. This, combined with forest certification under Component 1, creates an improved basis and capacity for increased economic activity and strengthens the financial basis for sustainable forest management. The same applies to the removal of illegal dumpsites and building ecotourism facilities; these demonstrate to local forest managers and communities appropriate ways to improve the quality of forested environments and the health, recreational, and economic benefits to local communities.

48. The activities were selected largely based on current forest management plans in consultations with forest management agencies—RS Šume and cantonal forest enterprises. The agencies also committed themselves to necessary management of the sites for example to help survival of the seedlings and young trees.

49. **Forest rehabilitation.** The FBiH PIU rehabilitated fire-affected areas and bare lands through reforestation/afforestation. A total of 560 ha in five cantons were rehabilitated with site-specific species by cantonal forest enterprises that are also in charge of the management of the sites. Additional 96 ha was restored through assisted natural regeneration. In Bosnia-Podrinje Canton, fencing was installed in 24 ha to protect young forests from herbivores. In RS, 373.5 ha was planted on mostly unfavorable sites, including in karst where regeneration does not occur naturally due to poor site quality (see table 1). The species planted include *Pinus spp*, *Quercus spp*, *Picea abies*, and *Robinia spp*. In both FBiH and RS, the survival rate has been estimated at over 80 percent.

Table 1. Site Conditions and Area of Afforestation/Reforestation

Entity	Site conditions	Area, ha
RS	Favorable	22.1
	Medium favorable	287.4
	Hard	14.0
	Karst conditions	50.0
	<i>Sub-total</i>	<i>373.5</i>
FBiH	Sites unclassified	560.0
Total		933.5

50. **Improved forest quality through thinning and coppice conversion.** Both entities treated selected forest areas with thinning and converting coppice forest into high forest for quality timber production. RS did thinning on 491 ha and improved coppice conversion in 151 ha (total 642 ha). In FBiH¹², thinning was done in 511 ha—mostly in pine and mixed-species forest. This also includes clearing young forests of overgrowth in 80 ha. Coppice forest of 261 ha was converted into high forest in the Central Bosnia Canton. Although both FBiH and RS did not collect detailed data to monitor change in forest quality, it was evident from visually comparing project area and non-project area that forest quality had improved after the project interventions (see figure 2 and 3).

¹² Under the indicator “area under enhanced production on state lands”, FBiH reports 1842 ha, which includes forest land where the treatment included thinning, coppice conversion, afforestation, reforestation, protection of forest services, fire management. RS reports 642 ha, which includes thinning and coppice conversion.



Figure 2. A Site with Coppice Management (Left) and an Untreated Site Nearby (Right) in Hercegovosanski Canton, FBiH



(Photo source: The ICR author)

Figure 3. A Site with Thinning (Left) and a Nearby Untreated Site (Right) in Banja Luka, RS



(Photo source: The ICR author)

51. **Increased availability of facilities to promote ecotourism.** FBiH constructed four canopies (one with sanitation facilities), five hiking and two walking paths, and a football playground in the Central Bosnia Canton. Similarly, in Kresovo municipality, four canopies and two reservoirs (Lake Vaganj and Torine) have been constructed. In RS, the project supported building of a visitor center in Mosor, Kupres, and a hunters' cottage in the special hunting area 'Kamenica'. The cottage is located in Canyon Brusnica (about 30 km from Visegrad) in the Babina Gostilja mountain. It provides protection and accommodation for workers, staff, and hunters. During field visits, representatives of hunters' association and local government officials shared their plans of promoting ecotourism using these facilities.

52. **Improved ability of firefighting—more safely and more quickly.** RS rehabilitated 26.7 km of firefighting access roads, and FBiH rehabilitated 22.1 km. The roads are usable not only for fire prevention and control but also for regular traffic and for accessing forests for forest management activities. RS APCU procured two forest fire protection vehicles with high-compression pumps for the Karst Center in Trebinje. In FBiH, the PIU purchased one firefighting truck, 285 firefighting backpacks, and high-pressure pumps for



various CFMCs. The new equipment and related training are expected to improve the efficiency and effectiveness of wildfire management in both entities.

53. **Improved nursery facilities in Doboj and a new nursery in Trebinje.** RS APCU procured equipment for seedling production in the Central Nursery Garden in Doboj. RS Šume did preparatory works (site preparation, housing complex for the equipment, resolving of ownership issues, water and power supply, and so on). The contractor installed new production equipment and provided training. The installed equipment is fully operational and involves state-of-the-art technology that improves process efficiency, enhances seedling vitality, and achieves higher levels of planting success. Nursery operations are also expected to meet certification standards that will provide potential access to export markets in the region. The Doboj nursery has a production capacity of 2.5 million seedlings per year. So far, 350,000 seedlings have been produced, and demand for seedlings is growing. Seedlings are also being purchased by FBiH and foreign buyers.

54. **RS also established a new nursery for Mediterranean species in Trebinje.** RS Šume prepared design and specifications of the equipment, local authorities issued a building permit, and the PIU signed a contract with ITC Zenica to supply the equipment. The nursery is equipped with an automation system with sensors for temperature and moisture and an irrigation boom. There is no comparable nursery in the region, and demand for the seedlings is expected to be high.

55. **Improved wildlife and road traffic safety in three hunting areas.** RS installed 70 game repellents in three hunting areas¹³ in collaboration with local hunting associations. The ministry and hunting associations carried out a survey to collect data on the most frequent accident locations with damage to and from wild animals. Based on the survey, setting up game repellent devices was considered as an efficient method to reduce accidents. Since installing the repellents, there has been a dramatic reduction of road traffic accidents compared with the baseline scenario (only one deer was hurt in an accident).

56. **Increased awareness of waste disposal.** In FBiH, illegal waste dumping in the forest has been a major environmental concern. This has negatively affected the water quality and recreational values and has become an issue for forest certification. The project supported cleaning the dumping sites in 12 locations. The work involved local communities and their members. Warning signs against disposal have been put in several places. In some sites, afforestation has been done after clearing, while in others, the site remains as barren land and vegetation is starting to grow. Nearby communities have gradually been changing their behaviors and avoiding disposal in and around the sites where the project intervened.

Justification of Overall Efficacy Rating

Rating: Substantial

57. **Both entities did extensive work in implementing improved forest management practices on the ground.** Many of the result indicators have been exceeded. FBiH did not fully complete the forest road master plan, but it has developed a comprehensive database of existing forest roads and it will continue the master plan preparation with the Government's own resources. Each project activity contributed to the capacity-building outcome of the project directly or indirectly. As discussed under the original theory

¹³ These sites and respective hunting associations include Prnjavor (Hunting association Prnjavor), Vucjak (Hunting association Vucjak from Brod), and Motajica (Hunting association Motajica from Derventa).



of change (see paragraph 12 on page 8) there was both top-down and bottom-up capacity building: the project built higher-level institutional capacity by supporting forest certification, strategic planning on forest roads, and information management. These all exposed central forest administrators to new ways of working that will, in the longer term, enhance strategic planning in the sector. The local forest management unit-level management benefited from participation in the activities. For example, by going through the forest certification process, forest managers improved their understanding of multipurpose forest management. Under the bottom-up approach, the project invested in field activities to demonstrate good and innovative methodologies for natural resource management (forest management, fire management, road rehabilitation, nurseries, and so on). Similarly, RS officials' visit to Russia has strengthened potential collaboration with the Russian Government and academic institutions on issues related to forestry and landscape management. The project also financed physical capacity by investing in nurseries, road rehabilitation, fire management equipment, and so on.

58. **All these activities provided forest stakeholders in both entities with examples of modern approaches to forest and landscape management.** This provides readiness for replicating these new approaches elsewhere if and when opportunities arise. New physical capacity, for example, nurseries, allows expanded forest restoration, and fire management capacity allows faster responses in fire incidents.

C. EFFICIENCY

Assessment of Efficiency and Rating

Rating: Modest

(a) Economic Analysis

59. The SFLMP supported investments at two levels: Component 1 supported general enabling environment and Component 2 supported tangible field investments. The assessment of economic benefits of implementing Component 1 is not feasible, and hence, no comprehensive economic analysis of all project investments was undertaken in the ICR. The focus was on assessing the direct economic impacts of the pilot activities under Component 2. This approach was the same as in the original economic analysis in the PAD.

60. In the original analysis in the PAD, an internal rate of return (IRR) was calculated at the appraisal, both with and without carbon benefits. The project IRR was estimated at 8.5 percent over a lifetime of 25 years. This was based on export-driven valuation of forest products and standing timber. The economic analysis included the estimated social value of carbon sequestration services and resulted in an economic IRR of 19.2 percent. This latter analysis was based on adopting a constant US\$20 price for tCO₂e in 25 years and using the FAO EX-ACT to estimate the impacts of a project on the carbon balance.

61. Replicating financial and economic analysis in the PAD by using updated data was not deemed entirely appropriate, because the original analysis had several shortcomings (see the section below – III.A. Key Factors during Preparation). Instead, in this ICR, a new analysis was undertaken building on the general approach of the analysis conducted at appraisal. The ICR analysis used a similar discounted cash flow model as in the PAD and adapted the EX-ACT model used in the appraisal. The analysis was carried out jointly for the two entities, just like in the PAD. However, significant changes were made regarding



the 'with- and without-project' scenarios and calculation of key benefits to address the weakness of the original analysis.

62. **The analysis demonstrates the efficiency of the project and the contribution it can make to improve sustainably wood supply for multiple uses and enhance carbon sequestration services.** The financial IRR was estimated at 5.8 percent and economic IRR, with carbon, at 12.7 percent. It is noted here that the decline in the economic performance (against the PAD estimates) is due to changes in the analysis and not due to weaker project performance. The revised financial and economic analysis in this ICR addresses the issue of overestimation of benefits at the appraisal.

63. The IRR is to a limited degree sensitive to the price development or harvesting utilization rate. The IRR is reduced by 1.3 percent down to 4.2 percent if only 50 percent of the annual available cut is being utilized; at the same time, economic IRR return increases due to increased carbon stock. If the average wood price goes up by 10 percent, the IRR increases to 5.8 percent from 5.4 percent. The economic IRR is sensitive to the development of carbon price over time. When the constant US\$20 carbon price (the same price as in the PAD) is used, instead of the World Bank's annually increasing social cost of carbon, the economic IRR drops down to 7.7 percent.

64. **The IRR achieved by the project is acceptable for afforestation and reforestation projects with long rotation periods and not particularly high annual natural forest growth rates.** The economic IRR is reasonable, reflecting the increasing importance placed on mitigation of climate change, which again is reflected on high and increasing social cost of carbon over time. In addition, this new analysis acknowledges incremental wood flows and carbon sequestration due to improved forest management. The economic IRR is not higher because of balancing wood production and delivery of carbon sequestration services; in principle, all harvestable commercial wood is assumed to be harvested and harvesting always reduces carbon stock. Additional information on the analysis is presented in annex 4.

(b) Aspects of Design and Implementation Efficiency

65. **The project was generally implemented as originally designed.** This contributed toward efficiency. There were no cost overruns—actually due to favorable exchange rate developments, the project saw an increase in funding in domestic currency terms. The savings were allocated for additional demonstration activities in both entities (see paragraph 32 on page 144). In both entities, staff turnover among the key organizations (PIU and the respective ministry) were small, and generally, project teams had good experience from previous World Bank-financed operations. There was no project extension despite the increased implementation delays toward the end of the project. The project was not restructured, even if the MTR could have been used as an opportunity to address deficiencies in the monitoring and evaluation (M&E) system and some unforeseen obstacles in the FMIS component.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Overall outcome rating: Moderately Satisfactory

66. The rating is based on the combined rating of relevance, efficacy, and efficiency. The project with its highly relevant PDO achieved substantial outcomes with modest efficiency. The project achieved all



intended outputs and outcomes except one output, which is the forest road master plan in FBiH. In most other outputs, both the PIUs exceeded the targets set in the project Results Framework.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

67. The project did not have specific activities focusing on gender. As discussed in the PAD and in some AMs, the project originally aimed at collecting gender-disaggregated data related to capacity-building activities that benefited both male and female administrative staff and representatives of local communities and participation of females in demonstration activities. This was partially caused by the structure of the Results Framework; indicators related to institutional development were based on the number of target institutions, not individual beneficiaries, that would have allowed collecting gender-disaggregated data.

Institutional Strengthening

68. **Capacity building was the objective of the project, so it has significantly improved better understanding of sustainable forest management.** This is discussed in detail in the Efficacy section above.

Mobilizing Private Sector Financing

69. **The project did not formally mobilize the private sector, but the private sector has benefited from the project achievement.** Forest certification is originally a private standard and an industry self-regulation tool. Wood exporters are encouraged by forest certification as it aims to strengthen their access to global markets. Some private forest owners have been impressed with demonstration activities and are willing to replicate in their own forests. Although the project had no direct influence to make this happen, it is worth mentioning that Ikea—an international furniture chain—has interest in Bosnia's forest. It has been supporting forest certification in Central Bosnia Canton. Ikea has financed certification of 12,743 ha, and an additional 63,773 ha is in the process of being certified.

Poverty Reduction and Shared Prosperity

70. **Although poverty reduction was not an explicit target, the project contributed to poor communities' livelihood.** While implementing activities under Component 2, members of the surrounding community were hired to do afforestation, cleaning of illegal waste depots, and similar activities. The project hired rural men and women as seasonal labor force through local employment bureaus. This helped generate additional income for the local population. Forest products from thinning and other project activities were also given free to surrounding communities. This helped them meet their essential needs.



III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

71. **Project objectives.** The PDO is two-layered and covers essential elements in improving forest and landscape management. However, at the same time, it remains somewhat circular and not entirely clear: It states that capacity would be built and SFLM approaches demonstrated through integrated management. The way it was presented includes both means (through integrated management) and ends (demonstration and capacity). In most other cases, the causality would be different: management of forests and land would be improved (end) through the strengthening of capacity and demonstration (means). With the current PDO, the end is increased capacity for SFLM and demonstration by means of integrated management for the long-term implicit objective of sustainable forest and land management.

72. **Project design.** The project design included important and relevant activities to address the pertinent technical issues in the institutionally complex BiH forestry sector. However, the design had some shortcomings. First, the FMIS component was designed to add new attributes to existing FMIS in both entities. However, soon after the project started, the existing FMIS in FBiH was found to be dysfunctional, and the project had to backtrack and start reconstructing the system rather than just adding new elements. This was not envisioned during the project preparation. While the FMIS component is found to have strong rationale to be included in the project, conditions for implementation readiness did not appear to have been fully in place. This resulted in several challenges during implementation, and the component could have been adjusted during the MTR.

73. Second, the demonstration ambition of the project appears to have been less developed. The project lacked systematic follow-up on the demonstration activities. For example, thinning is a silvicultural practice where smaller, often undergrowth, trees are harvested to allow other trees to grow in size and value with less competition. As thinning was one of the demonstration activities, different thinning intensities could have been tested in different forest types in several locations. Then the effects of different types of thinning could have been monitored in terms of basal area, volume, stem form, and crown height.¹⁴ Documenting and communicating demonstration results through publication and exchange visits to let people come and see could have helped in understanding and replicating the activity by relevant stakeholders in their respective locations. Selection of fewer, more focused, and strategic activities might have been more impactful for demonstration and piloting.

74. **Appropriate selection of stakeholders to engage in project activities.** The project appropriately selected all the relevant stakeholders to work with. The FBiH PIU implemented most of the project activities through the CFMCs and the federal and cantonal forest administrations. RS APCU implemented through RS Šume. CFMCs in FBiH and RS Šume in RS are responsible for managing forests; so, their involvement in the project is very important for scaling up project activities. Based on the nature of the activities, both the PIUs involved other stakeholders—such as local communities for afforestation and

¹⁴ It is likely that there would have been only marginal differences during the project period. However, the project did not even build a system that would allow assessing those differences later.



cleaning dumping sites, hunters' associations for installing game repellents, and municipalities to build a visitor center.

75. **Readiness for implementation.** Both entities had implemented World Bank-financed forestry projects, and the existing PIU (that is, FBiH PIU and RS APCU) managed this project. The staff had already been trained and well-acquainted with World Bank operational, fiduciary, and safeguards procedures at the time of project preparation. As for project-level activities in FBiH, detailed project designs for each canton were finalized and verified through deskwork and field visits, before the project became effective.

76. **Adequacy of risk assessment.** The PAD mentions the complex institutional structure and lack of entity forest law in the Federation as the key risk. It also recognizes that this was largely outside the project sphere of influence. This risk did materialize, for example, under the subcomponent on forest roads master plans that was delayed severely due to slow access to information from the cantonal forest administrations and enterprises. In addition, selection of areas for certification was slower than anticipated partly due to the decentralized structure. One risk that was not identified in the Operational Risk Assessment Framework in the PAD but did influence project implementation in both entities was the difficulty in attracting adequate bids for subprojects particularly in remote areas.

B. KEY FACTORS DURING IMPLEMENTATION

(a) Factors Subject to the Control of the Government and/or Implementing Entities

77. **Legislation, commitment, and coordination.** Due to the complex governance structure with highly decentralized administrative arrangements and absence of forest law in FBiH, the management of the forest sector in FBiH is challenging. Cooperation and coordination between the federal sector ministry, the PIU, the cantonal authorities, and CFMCs required a lot of effort and time and was sometimes cumbersome, affecting the pace of project implementation. The unsettled institutional framework left project coordination across the various administrative and territorial levels cumbersome, including coordination between the ministry and PIU. The FBiH PIU encountered several delays in receiving the necessary data from cantons. Some cantons changed their position in terms of receiving project support. For example, the FBiH PIU collected information from the cantons related to their interest in certification activities to be financed by the project. Some of the cantons retracted their original decision to participate in certification; so, new cantons had to be identified to replace them. Cumulative effects of examples like this caused delay in the overall project implementation. For example, as noted in the World Bank's AM from November 2016, the MAWF initiated activities on the preparation of the forest roads master plan (for example, preparing forms and manuals for roads survey) more than two years after the project became effective.

78. In RS, there were no issues related to institutional and policy framework; this allowed the APCU, particularly the ministry, to take strong leadership in the project. The RS APCU had no issues in terms of coordination with and engaging RS Šume. The RS APCU, ministry, and RS Šume had strong collaboration during the project preparation and implementation. The same team that was involved in project design remained responsible for project implementation.

79. **Human resources and organizational capacity.** Both the FBiH PIU and RS APCU had technically competent people involved in managing the project. However, it appeared that the FBiH PIU did not have



the adequate number of people fully dedicated to this project. According to the Project Manual, the project management team in RS consisted of eight members headed by the Assistant Minister for Forestry and Hunting, whereas in FBiH, the project management team, as indicated in the Project Manual, consisted of three members. Two other officials from the federal ministry were also involved in the project, including an Assistant Minister of the Federal MAWF. However, they also had other obligations in the ministry. In addition, the FBiH ministry and PIU did not have technical experts in FMIS. The project allocated resources to hire an external expert to support the FMIS.

80. **One of the reasons for a different level of progress by the two entities was also the uneven baseline.** For example, on forest certification, RS had already certified its public forests; so, the project supported annual audits and recertification. This was much easier due to experience. On the other hand, FBiH had to do certification in the cantons where the experience in certification process did not exist. Similarly, in terms of forest road master plan, RS started with detailed area surveys to update its in-house information regarding forest road network, whereas FBiH had to start with scoping current information and plans prepared at the cantonal level.

(b) Factors Subject to the Control of the World Bank

81. **The World Bank adequately supervised the project.** It conducted 11 implementation support missions—twice a year—and one technical mission. Each mission reviewed and assessed the progress of project activities since the last mission against the PDO and agreed on the next steps. The review also included fiduciary (procurement and FM) and environmental safeguards. Each mission met with the key counterparts from both entities, and included field visits, which helped confirm the quality of fieldwork and the status of safeguard compliance. AMs adequately discussed the progress made and the issues faced by the project. They covered all elements of project supervision—technical, financial, procurement, and safeguards. Each AM included a table of next steps, consisting of the issue, agreed action, suggested deadline, and party responsible. The World Bank changed the task team leader (TTL) only once, and the rest of the task team, including a co-TTL, remained largely unchanged. The transition arrangement was smooth. The Country Management Unit also got involved, especially toward the end of project implementation, in closely following up with the project, monitoring the progress of the pending activities, participating in missions, and helping resolve any implementation challenges.

82. **The World Bank provided sound support to project implementation focusing on development impacts.** Before supporting a new activity, the World Bank requested for careful review to better understand its effectiveness.¹⁵ The World Bank strived to bring the best knowledge from across the organization.¹⁶ In FBiH, public projects go through external verification to ensure compliance with the supply contracts. The World Bank cautioned that delays in this process may lead to a lack of interest from

¹⁵ When the RS ministry proposed for game management and prevention of wildlife-vehicle collision, the World Bank team encouraged the RS APCU to conduct a detailed review of scientific literature to survey whether the proposed method could be expected to be effective in the Bosnian conditions. The RS APCU did such an assessment and came up with a positive result; when the World Bank provided no-objection, it implemented the activity.

¹⁶ When RS proposed to procure equipment for tranquilizing and transferring wildlife (particularly bears) that have entered villages and farmlands, the World Bank asked to prepare a brief note so that the team could seek guidance from relevant technical experts, safeguard experts, and legal experts in the World Bank. Later, the PIU gave up the idea.



vendors to engage in World Bank-financed operations. The World Bank advised the PIU and ministry inspection teams to find informal amicable solutions to prevent potential problems.

83. The World Bank collaborated with the FAO to provide orientation and training related to carbon accounting and monitoring. With modest technical assistance resources from the FAO, a capacity-building workshop on EX-ACT was organized in Banja Luka for representatives from both RS and FBiH. At the ICR stage, the World Bank employed an FAO expert to undertake economic analysis and efficiency assessment of the project.

84. **Complementary to the project, the World Bank brought in additional resources and conducted two analytical studies.** These studies included (a) review of forest and land regulations, policy, and economic incentives and (b) supply chain analyses of forest sector opportunities. The first study reviewed the land and forestry laws in Bosnia and Herzegovina (BiH) and the explicit or implicit economic and/or policy instruments contained within the regulatory framework that may support or challenge the implementation of sustainable forest management in the country. The second study—with the support of Program on Forests (PROFOR) —studied supply chain issues in enhancing opportunities for value-added processing of forest products. The project’s Implementation Support Missions and these study missions were conducted concurrently to ensure coherence in dialogue and reduce transaction burden. The reports provided general guidance on the topics and will be particularly useful in the entity authorities and the World Bank design options for follow-up engagement.

85. **The World Bank consulted with relevant stakeholders to explore current challenges and future opportunities in the forest sector.** It remained proactive in terms of exploring options to meet long-term financing requirements of the sector. From the beginning of the project implementation, the task team held meetings with the EU delegation to review potential long-term and near-term financing needs in the forest sector through Instruments for Pre-Accession Assistance or related funds. The World Bank repeatedly offered guidance and advice on the process and mechanism of a World Bank-financed follow-up project. In April 2018, the World Bank organized a multi-stakeholder workshop in Sarajevo, which was attended by 32 participants from the World Bank Group, nongovernmental organizations, academia, private sector, and project implementing agencies. A series of presentations were made on the status of the forest sector, EU forestry policy, supply chain opportunities, and selected lessons from other countries in the region.

(c) Factors outside the Control of the Government and/or Implementing Entities

86. **Macroeconomic environment.** Due to favorable change in the exchange rates, both the PIUs were able to conduct additional project activities: RS was able to build a new nursery to produce seedlings of Mediterranean species, procure other equipment, and conduct a study tour to Russia, and the Federation was able to implement new demonstration subprojects. These additional activities contributed to the achievement of the PDO.

87. **Natural disaster.** The *bora* storm that severely affected the eastern coast of the Adriatic Sea and across the central Apennine peninsula in February 2019 also damaged the nursery constructed in Trebinje in December 2018. The damage was mainly on the roof and was assessed to be of approximately KM 10,000. Because the PIU had assurance of covering any damage for a year with the contractor, ITC Zenica undertook reconstruction in April 2019. Unfavorable weather conditions also delayed other fieldwork.



Most demonstration activities—primarily thinning, conversion, and afforestation—were not possible during the winter/snow season delaying some tasks.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

88. **The M&E system utilized existing institutional arrangements.** According to the PAD, the project's M&E arrangement would involve 'implementing agencies and the PIUs as lead and coordinating organizations, complemented by cantonal offices, facilitating organizations, community-based organizations, project beneficiaries and other stakeholders as needed'. In the Results Framework, there is one PDO-level indicator, which has a clear link with the demonstration outcome of the PDO and intermediate indicators for this outcome. However, the link of the PDO-level indicator with capacity-building outcome of the PDO and associated intermediate indicators could have been made more explicit. An additional PDO-level indicator covering capacity-building outcome and associated intermediate indicator might have been helpful. Similarly, focus on impact or outcome evaluation would have been helpful to better understand project results and communicate to the relevant stakeholders.

89. **The Results Framework included three World Bank corporate indicators.** However, two key indicators were somewhat confusing: Intermediate Outcome (IO) 2.1(a) Area restored or re/afforested and IO 2.1(b) Area re/afforested. Both indicators have exactly the same annual targets. So, it is unclear whether the target is for restoration or reforestation/afforestation; if it is for the one, it would not be for the other. Some intermediate indicators appeared to be accounting the same project activity twice as a number of demonstration projects and areas are covered by those projects. All indicators have been provided with baseline and targets. For each indicator, sources of data, frequency of reporting, and responsibility for collecting information have been specified.

90. The indicators are measurable, achievable, relevant, realistic, and time-bound, but additional specificity would have been helpful. In the indicator 'demonstration subprojects completed relating to innovative SFLM methods', it is unclear how 'subprojects' are defined. For example, if the project supported thinning in, say, 50 sites, one could count it as 50 subprojects (based on the number of sites) or one subproject (based on the type of activity). Similarly, specific definition of 'innovative method' and 'vulnerable forest' would have helped better interpret the Results Framework. Collection of gender-disaggregated data was emphasized in the PAD and in AMs during supervision missions, but having gender aspects inbuilt in the Results Framework would have encouraged the PIUs to collect relevant information.

M&E Implementation

91. **Both the PIUs regularly measured the indicators included in the Results Framework and reported to the World Bank for the Implementation Status and Results Reports.** In addition, the PIUs updated, at the MTR stage, the GEF tracking tools for climate change mitigation, land degradation, and sustainable forest management, which were prepared before Board submission. The PIUs commit to further update the tools at completion, which needs to happen within a year of project closing. Collection



of gender-disaggregated data in the biannual project progress report, as requested by the World Bank, did not appear to have happened systematically and regularly. On the FBiH side, there had been a lack of formal progress reports since the MTR (one incomplete draft report was submitted during an implementation support mission in April 2019). This was mainly because of the slowdown in technical preparation and decision making in the FBiH PIU and difficulties in data collection and communication in the highly decentralized forest sector administration in the Federation. However, data for the Results Framework were communicated separately and timely, as requested. Once an activity was completed, no follow-up monitoring was done to see further outcome and impact. For example, RS reported the production of 350,000 seedlings in Central Nursery Garden Doboj since the equipment had been installed in November 2016. The progress report the World Bank received in March 2019 reported the same figure. The nursery had remained operational, but no additional data were collected to show the impact of the project activity.

92. The M&E functions and processes are likely to be sustained after project closing at the activity and output level. The project used existing monitoring and supervision arrangements in the forest sector; they were not introduced only for the project. In the Federation, field monitoring of demonstration activities was done by the cantonal forest companies. For the verification of the results, staff from the Inspection Department visited the field and verified that the work was completed as agreed before a payment could be made by the PIU.

M&E Utilization

93. M&E data on performance and results progress were used for management and decision making. For example, in FBiH, when the additional demonstration activities were selected after the MTR (see paragraph 29 on page 14), site selection criteria for the new activities were adjusted based on M&E data to ensure that the new activities targeted specifically those results indicators that were not yet achieved through already implemented activities. During the project, several communication and dissemination activities were carried out. For example, the World Bank produced a short video with an interview of the World Bank Country Manager and FBiH counterparts, and RS published press articles on firefighting vehicles, reforestation activities, and so on. One constraint is that the M&E data were used to provide evidence of inputs and achievement of outputs but were not leveraged further to provide evidence of outcomes. This gives a somewhat limited picture of the project achievements.

Justification of Overall Rating of Quality of M&E

94. The overall rating for M&E is Modest. This is mainly because M&E should have allowed for better assessment of impacts of the project and should have avoided the issues related to M&E design as aforementioned. The monitoring systems delivered well in line with the design, but a greater focus on impact evaluation aspects should have been embedded in the system to allow for better interpretation of results in terms of effects/impacts of the project. In addition, there were notable delays, missed deadlines, and inadequate descriptive technical progress reporting in FBiH after the MTR stage, even if Results Framework data were provided. Gender data were not collected.



B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

(a) Environmental and Social safeguards

95. **The project was classified as a Category B - partial assessment, and two safeguard policies were triggered: Environmental Assessment - OP/BP 4.01 and Forests - OP/BP 4.36.** The environmental assessment instrument identified, based on the safeguard rating, was a stand-alone Environmental Management Framework (EMF). The EMF covers primarily demonstration activities under Component 2. BiH prepared and disclosed it online on October 25, 2013. The client also distributed hard copies of the EMF in local language to relevant institutions. Public consultations were carried out in October 2013 in line with OP 4.01, and the final EMF was disclosed on InfoShop on November 1, 2013.

96. **The AM at the MTR stage noted that site-specific Environmental Management Plans (EMPs) had been prepared, reviewed, and approved by the World Bank for each activity, where applicable, and included in the bidding documents for works.** Both the PIUs reflected on the implementation of the EMF in their regular reporting to the World Bank team. As part of the implementation support missions, the World Bank team visited sample sites selected randomly for safeguard supervision. In one of the sites where ecotourism facilities were being built, the World Bank observed, in November 2015, room for improvement on the wastewater management practices. The issue was resolved rapidly with the PIU taking the lead role in finding and establishing an adequate solution. No other issues were noted during the implementation of the project.

(b) Financial Management

97. **FM arrangements at both the PIUs remained adequate and satisfactory to the World Bank's requirements throughout the project period.** Both the FBiH PIU and RS APCU prepared quarterly interim financial reports. The compliance was satisfactory in all aspects of FM including accounting, budgeting, organization and staffing, internal controls, counterpart funding, audit, and financial reporting. FM assessment by the World Bank during the project appraisal was satisfactory, and overall risk was rated Moderate both before mitigation measures and after. Both the FBiH PIU and RS APCU had dedicated FM specialists responsible for FM and accounting.

98. **Internal controls and internal audit.** The FBiH PIU and RS APCU had adequate internal controls for the project, including regular reconciliation of bank accounts, adequate segregation of duties, proper accounting policies and procedures, and monthly reconciliation of disbursement summaries with accounting records. During the eighth implementation support mission in April 2018, the World Bank FM specialist carried out a walkthrough testing, which found one case of internal control weaknesses. The issue was successfully resolved by the end of the mission.

99. **Planning and budgeting.** Planning and budgeting were adequate in both the FBiH PIU and RS APCU. Both the PIUs prepared annual plans and budgets based on their detailed Procurement Plan for all project activities. The budgets were entered in the accounting software, and estimated cost and actual cost of an activity were analyzed. The project had no government counterpart funding in cash, and the eligibility percentages had been established at 100 percent in the Grant Agreement.



100. **External audit reporting.** The World Bank provided a temporary audit waiver to combine the audit of FY2014 and FY2015. It also received external audit reports on time for the following fiscal years. In each case, the auditors had issued an unmodified (clean) opinion on the project financial statements. The auditors did not find any cases of accounting problems and internal control deficiencies to report in the management recommendation letter.

(c) Disbursement

101. **Disbursement arrangement has been found satisfactory in both the PIUs, and no ineligible expenditures occurred.**

(d) Procurement

102. **As assessed by the World Bank during the project appraisal and implementation, procurement aspects remained strong in both the PIUs.** During the appraisal, the World Bank found no need of strengthening procurement capacity to meet project requirements, and the procurement risk was rated Low, which remained the same throughout project implementation. For procurement, both PIUs followed the World Bank's 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, and the provisions stipulated in the Legal Agreements. Both the FBiH PIU and RS APCU had prepared separate Procurement Plans, which were regularly updated, reviewed, and approved by the World Bank and disclosed to the public. Each contract financed by the project was agreed between the client and the World Bank through the Procurement Plan in terms of procurement methods or consultant selection method, need for prequalification, estimated costs, prior review requirements, and time frame.

103. **Both the FBiH PIU and RS APCU had dedicated procurement specialists with extensive experience and proven track record in World Bank-financed projects.** The FBiH PIU had two full-time procurement officers, whereas the RS APCU had one. The World Bank's procurement specialist carried out the procurement post review in June 2018. The review found that both the FBiH PIU and RS APCU procured goods and services properly, timely, and transparently following the World Bank procurement guidelines and complying with the provisions in the Legal Agreements. Contracts were administrated with due attention. The post review did not find any cases of inappropriate practices or questionable decisions/actions or noncompliance with the agreed provisions. No indications were observed that could lead to possible fraud or corruption related to the procurement processes, contract administration, or any other related issues at the contract, project, sector, or country level. Both the PIUs followed the recommendations from the post reviews.

104. **Toward the end of the project, a company submitted a letter to the World Bank alleging the FBiH PIU of misprocurement.** In the letter dated May 20, 2019, MIPEX AUTO RS d.o.o. Banja Luka alleged it did not receive the tender document in advance (but still submitted the bid), the FBiH PIU did not share minutes of the bid opening, the deadline of May 30, 2019, for delivering firefighting vehicle was impossible, and the procurement process was annulled to favor a certain bidder. The World Bank forwarded the letter to the FBiH PIU asking for a response, which the FBiH PIU did, after having received clearance to the draft response from the World Bank. The FBiH PIU had responded to the same company



clarifying similar concerns on April 25, 2019. In the end, the firefighting vehicle was not purchased because the required number of bids were not received even after rebidding. Based on the clarification provided by the FBIH PIU, it can be concluded that there had been no breach of policies, principles of public procurement, or World Bank guidelines. However, the FBIH PIU could have successfully purchased the firefighting vehicle had the procurement process been initiated earlier.

105. **Some bidding processes were unsuccessful and had to be repeated.** This led to delays. Both the PIUs suffered from not receiving quality bids for competitive selection. Finding local contractors was also a challenge. FBIH launched the tender for consulting services to collect data on existing forest road networks, but the bids received were considered far too expensive (for example, developing a mobile road mapping application—without data collection itself—was quoted at US\$75,000). Later, the tender was canceled. RS issued the bid for project-financed equipment for the nursery in Trebinje. RS received only one bid at a very high cost. The bid had to be reissued, and the equipment was purchased in the second attempt. The bid to procure a wood chipping machine (intended for revenue enhancement and clearing high-fire-risk debris) did not receive adequate bids during two bidding rounds. The procurement was successful only in the third round of bidding. Both the PIUs had difficulties in finding local contractors for small-volume works, particularly for construction/reconstruction of remote feeder roads and other civil works as well as labor-intensive forestry work such as thinning. While some unsuccessful biddings were dealing with new types of activities, more detailed mapping of potential suppliers and service providers would have helped in avoiding these delays.

C. BANK PERFORMANCE

Quality at Entry

106. **In the context of a unique policy and institutional framework in the country, the World Bank rightly adopted a ‘no-regrets’ approach by focusing on technical issues, which would have to be addressed irrespective of policy and legal environment.** The World Bank managed to secure funding from the GEF and continued to remain engaged in Bosnia’s forestry sector, which is very important. The project was well-aligned with the World Bank’s key strategy documents at the time of appraisal. The World Bank rightly selected important and relevant activities for the project through consultative, participatory processes. The project components and activities responded to the needs of both entities and the PDO. The project appropriately selected all the relevant stakeholders to work with. Risks and mitigation measures were adequately identified. However, the project left some areas for improvement. First, while the FMIS component had strong rationale to be included in the project, conditions for implementation readiness did not appear to have been fully in place. Identification of such issues during design would have avoided implementation challenges. Second, systematic follow-up for the demonstration component appears to have been thought through less adequately. Third, the Results Framework was not clear, and some key concepts lacked definitions. During the supervision mission in March 2015, the World Bank team had to prepare a separate guidance note offering interpretation guidance to the PIUs on the indicators. This helped improve the Results Framework reporting, even if some issues still remained unclear (see paragraph 90 on page 28). While this reflects the World Bank’s responsiveness, it also indicates the World Bank’s recognition that the Results Framework and indicators by themselves were unclear. Fourth, the economic analysis had methodological shortcomings.



Quality of Supervision

107. **The World Bank provided regular implementation support throughout the project implementation.** The task team regularly identified implementation bottlenecks and made sincere efforts to resolve them. The World Bank teams were properly staffed to ensure sound technical supervision. The World Bank organized implementation support missions every six months and provided sound technical support summarized in detailed AMs. The World Bank staff responsible for procurement, FM, and safeguards were based in the World Bank Country Office, which offered opportunities for the client to interact frequently, which was appreciated by both the PIUs. When the TTL was changed, the transition arrangement remained smooth. From the start, the World Bank's implementation support strategy focused on development impact. The World Bank remained proactive in terms of exploring options to meet the long-term financing requirements of the sector. Complementary to the project, the World Bank brought in additional resources and conducted two Advisory Services and Analytics. The World Bank's Country Management Unit also provided strong support to the project, especially toward the end. However, the World Bank could have seized the MTR opportunity to make the Result Framework clearer and adjust some of the project activities, for example, redesigning the FMIS component.

108. **The World Bank supervision happened through biannual missions and active engagement by the country office-based staff.** The implementation support missions prepared detailed AMs that were shared with the clients. These documents provided candid and detailed assessments on the project. Particularly toward the end of the project, the World Bank team and Country Management Unit clearly raised their concerns about the increasing implementation delays in FBiH and their potential impact on the achievement of the PDO.

Justification of Overall Rating of Bank Performance

109. **The overall rating of the World Bank performance is Moderately Satisfactory.** All project management issues were resolved efficiently during implementation and supervision. The main exception was not using the MTR stage as an opportunity to address the identified shortcoming in the M&E design and some project activities. Regarding the quality at entry, as discussed previously in the respective sections, there was some room for improvement in terms of project design and Results Framework.

D. RISK TO DEVELOPMENT OUTCOME

110. **A potential risk to development outcomes might arise from lack of enough financial resources.** One of the reasons for not carrying out sustainable forest management practices on a regular basis is the lack of adequate financial resources. To ensure sustainability, both the PIUs involved the authorities responsible for field activities. Demonstration activities were identified based on forest management plans and implemented with cofinancing from local forest management bodies. For example, in reforestation/afforestation, CFMC or RS Šume responsible for that site supported site preparation and after-planting care.

111. **Additional investment could contribute to ensuring the sustainability of project outcomes.** The major outcome of this project is improved capacity for SFLM. Increased capacity together with adequate financial resources could result in better forest management, and the huge potential of the country's forest resources could be harnessed. This would be particularly important with changing climate; forests



are vulnerable to impacts (for example, increased fire risk and pests) from climate change, and addressing these new pressures would require additional investments in forest protection. The World Bank is currently in discussions with the entity and state authorities regarding a follow-up investment finance project as agreed in the CPF 2015–20. This operation could provide financing that would allow expanding the lessons learned from the SFLMP and the use of the improved capacity. The possible new operation would benefit greatly from the outcomes from the SFLMP.

V. LESSONS AND RECOMMENDATIONS

112. **Lesson 1: A project that involves pilots and/or demonstration requires more careful planning than a regular project.** Lessons learned need to be analyzed and disseminated. Pilot or demonstration projects should be planned in a way that allows detailed analysis of the results achieved. Comparing results from the project and non-project sites can provide useful insights for replication and policy formulation. While positive impacts of the project can be assumed using a benefits-transfer approach, site-specific quantification of several variables can be highly convincing. The pilot project should strive for better measurement of outcomes and impacts and communicate the results to the wider group of relevant stakeholders.

113. **Recommendation.** When a project intends to demonstrate something, the project design should include impact monitoring and provide opportunities for people to come, see, learn, and replicate. A counterfactual needs to be identified and assessed to demonstrate development benefits. It is also essential that demonstration activities are identified early enough to allow adequate time for innovation and analysis; if the activities are selected too late in the project period, there is more emphasis on technical feasibility to complete the activity on time rather than on innovativeness.

114. **Lesson 2: Cost and complexities in investing in information systems and new technology are easily underestimated.** In FBiH, the work on FMIS suffered from delays due to insufficient funds and the underestimation of the task at hand. Similarly, development of an application for *in situ* data collection for forest roads was unsuccessful. In both cases, the original costs estimated were inadequate to procure competitive information technology companies to do the work.

115. **Recommendation.** When a project involves investments related to the use and introduction of new, and even disruptive technology, one needs to ensure that details of the task are fully understood and accounted for in the project design. Involving relevant experts from early on can help prevent some potential issues later on during implementation. Generally, the required preparations go well beyond the technical solutions and need to include assessing the role and use of information in the target agencies' decision-making processes.

116. **Lesson 3: The MTR is a critical milestone and should be used to address issues that were not known or expected at the time of appraisal. This opportunity should be used to redirect project components as needed.** Some implementation challenges became known only during the early phases of the project. In FBiH, the FMIS was not functioning as well as it was assumed during project preparation, and in RS, there was a preference to address FMIS development outside the project framework. In FBiH, the uniquely decentralized administrative structure caused unexpected delays, for example, in the preparation of the forest roads master plan. In addition, the shortcomings of the Results Framework had



become apparent. These challenges were known by the time of the MTR, and corrective actions could have been taken to address these issues. Instead, it was decided that no changes to the project approach were needed.

117. **Recommendation.** The MTR should take a critical look at the project, and teams should use this opportunity to redirect implementation as needed. This is a particularly important junction in multifaceted projects like the SFLMP where many technical details could not be foreseen at appraisal.

118. **Lesson 4: Community engagement is essential for sustainable and inclusive forest management.** Local communities are the key stakeholders and direct or indirect beneficiaries of the World Bank investments in the forest sector. In the SFLMP, community members were contracted in various demonstration forest management activities. They were also involved in the clearing of illegal dumpsites. However, there were less attempts to engage them in wider sector development issues and in building lasting community partnerships. This was to some extent a missed opportunity to build local constituency to support sustainable forest management in the project areas.

119. **Recommendation.** A project should engage with forest-affiliated communities early, already at the design stage, to learn and understand their priorities and have them involved in project activities not only as recruited labor, but also as interested and involved stakeholders. Ideally, this should lead to collaboration between communities and forest authorities that lasts well beyond the project itself.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: PDO

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Land area where sustainable land mgt. practices were adopted as a result of proj	Hectare(Ha)	0.00 08-Nov-2013	3000.00 31-May-2019		3525.00 22-May-2019

Comments (achievements against targets):

The target was met (118%).

This indicator covers all land areas where investments in improved management were made. This includes investments in re/afforestation; restoration of non-forest land (e.g., pasture or grassland); any lands intended for protection of forest services; any lands available for enhanced production of non-timber forest products; and any productive lands benefiting from enhanced or improved fire management or protection.



A.2 Intermediate Results Indicators

Component: Enhanced Planning and Monitoring for SFLM

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IO 1.1 Forest Area Certified (million ha)	Hectare(Ha)	1.65 08-Nov-2013	1.85 31-May-2019		1.87 22-May-2019

Comments (achievements against targets):

The target was 100% met.

Forest certification gives independent third-party verification of sustainable forest management and this potentially improves market access by Bosnian producers particularly to environmentally sensitive European markets. Certification also requires that forest management units apply modern forest and land management practices consistently.

The project supported full certification in Bosnia-Prodinje Canton and annual audit in a number of other cantons.

The area certified above reflects the total area certified in the country; certification in Central Bosnia Canton (122,000 ha) was financed by resources outside the project.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IO 1.3 Key climate change mitigation and adaptation indicators included in FMIS (carbon stock, area lost to fire, area under insect/pest attack)	Text	0 08-Nov-2013	3 31-May-2019		3 22-May-2019
<p>Comments (achievements against targets):</p> <p>Both entities collect and report data on carbon stock, area lost to fire, area under insect/pest attack. This would indicate 100% achievement of the target. However, this cannot be entirely attributed to the project as development in RS was conducted with in-house resources by RS Sume not using project funds. In Federation, the data is reported and publicly available, even if the FMIS has not been fully completed and a sector-level FMIS is not fully functional. Sustainable forest management requires good information on the forest resource and its condition. Modern information management systems are a prerequisite for efficiency, transparency and effectiveness in resource management. In FBiH, the development of the main FMIS system is still ongoing and the climate change mitigation and adaptation indicators are reported online in annual reports outside FMIS. In RS, FMIS development is financed by the RS Sume's other resources and fire and pest/disease information is also provided online in Annual Reports.</p>					
Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Govt institutions provided w/ capacity buildg to improve mgt of forest resources	Number	0.00 08-Nov-2013	13.00 31-May-2019		21.00 22-May-2019
<p>Comments (achievements against targets):</p>					



The target was exceeded (162%).

Many institutions in both entities did participate in the project activities; some received equipment (e.g. for fire management, nurseries) while others were supported in their core functions (e.g. support in thinning, reforestation or other improved forest management practices). The institutions that received capacity building include: in RS – RS Sume and MAFW; in FBiH – MAWF; Federal Forest Institute and Forest Sector; Forest Faculty; 9 CFMC; 5 municipalities; firefighting municipal department. The number of institutions reached exceeded the target by 60%; this was caused by the high number of municipalities and Cantonal Forest Management Companies in the FBiH that participated.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IO 1.2 Road Access Strategic Plan Completed	Text	0 08-Nov-2013	2 31-May-2019		1 22-May-2019
<p>Comments (achievements against targets): The target was achieved only partially (50%).</p> <p>Forest roads master plans provide a solid basis for future investments in forest management infrastructure. The plans help to identify the most urgent forest road rehabilitation projects (to improve both environmental and economic performance and help meet forest certification requirements). They also instigate the adoption of best practice forest road rehabilitation guidelines to minimize environmental impacts, as part of the government's expected efforts to rehabilitate the forest road network in both entities. In RS good progress was made and a high-quality master plan prepared. In FBiH there were delays and at project closure, preparatory work towards the master plan had been conducted, but it was not finalized. The Ministry has plans to complete the Plan after the project with other resources.</p>					

Component: Demonstration and Replication of SFLM Techniques in Vulnerable Areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IO 2.2 Area under enhanced	Hectare(Ha)	0.00	2000.00		2484.00



production on state lands		08-Nov-2013	31-May-2019		22-May-2019
<p>Comments (achievements against targets): The target was exceeded (124%).</p> <p>The area includes public production forestlands that benefited from demonstration investments from the project; this includes area that were reforested, rehabilitated, where thinning operations etc. were conducted. Forests in Bosnia and Herzegovina are mostly (80%) publicly owned and the project did not operate on private lands. This allowed focusing on working with public forest management agencies (RS Sumo and Cantonal Forest Management Companies) and demonstrating good and improved management practices to the agencies that manage the largest forest areas in the country. Includes investments in reforested or afforested land intended for eventual production (i.e., excludes conservation forest or protective buffers); any lands intended for protection of forest services; any lands available for enhanced production of non-timber forest products; any productive lands benefiting from enhanced or improved fire management or protection.</p>					
Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area restored or re/afforested	Hectare(Ha)	0.00 08-Nov-2013	1000.00 31-May-2019		1030.00 22-May-2019
Area re/afforested	Hectare(Ha)	0.00 08-Nov-2013	1000.00 31-May-2019		934.00 22-May-2019
<p>Comments (achievements against targets):</p>					



The target was met (103%).

This includes lands that were reforested; afforested; or restored non-forest land (e.g., pasture or grassland). The indicator below is a subset of this.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IO 2.3 Demonstration subprojects completed relating to innovative SFLM methods	Text	0 08-Nov-2013	28 31-May-2019		38 22-May-2019

Comments (achievements against targets):

The target was exceeded (136%).

The project financed a large number and variety of demonstration projects on SFLM. These included such activities thinning, reforestation, rehabilitation of burnt lands to name a few. These demonstrations form a good basis for future replication in other, comparable sites. The indicator value (RS: 12; FBiH 26) depends on the definition of “sub-project”. In RS all work was done on lands managed by RS Sume and, for example, all thinning is counted as one project, even if done on several noncontiguous individual sites. The number of individual activity sites is thus higher.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IO 2.4 Demonstration subprojects completed relating to fire control	Text	0 08-Nov-2013	22 31-May-2019		43 22-May-2019
<p>Comments (achievements against targets): The target was exceeded (195%).</p> <p>The activities included investments in fire-fighting equipment, rehabilitation of fire roads and community awareness raising. The large number of subprojects compared to the target indicates that the forest management companies in charge of the activities opted for a larger number of small targeted interventions rather than single large operations.</p>					



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: To build capacity of forestry sector stakeholders for sustainable forest land management	
Outcome Indicator	1. No PDO-level indicator has been provided for this outcome in the PAD.
Intermediate Results Indicators	<ol style="list-style-type: none"> IO 1.1 Forest Area Certified (million ha) IO 1.2 Road Access Strategic Plan Completed (number) IO 1.3 Key climate change mitigation and adaptation indicators included in FMIS (carbon stock, area lost to fire, area under insect/pest attack) (number) IO 1.4 Govt institutions provided w/ capacity building to improve mgt of forest resources (Core Indicator) [number]
<p>Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)</p> <p>Component 1. Enhanced Planning and Monitoring for SFLM</p>	<ol style="list-style-type: none"> 1.867 million ha forest FSC certified in BiH (1,116,505 ha recertified in RS and 750,595 ha certified in FBiH). One strategic forest road master plan in RS. Two databases of over 5,000 roads in RS and of 4,586 roads in FBiH (FBiH database includes 2,906 forest truck roads and 1,680 public forest roads). Updated FMIS with capacity to monitor carbon and forest losses to fires and pests. 21 government institutions provided with capacity-building trainings. These included three institutions from RS (RS Sume, MAFW, and Forest Inspection) and 18 from FBiH (MAWF - Federal Forest Institute and Forest Sector - 2; CFMCs - 9; Firefighting municipality department - 1; Forestry Faculty Sarajevo; Local Community - 5; and municipalities). Equipment purchased in RS: 10 computers and 30 GPS devices, 2 digital laser distomats, optical distomat, and communication equipment; protective field gears (jacket winter/summer - 13; trousers winter/summer - 13; winter/summer shoes - 13; trouser belt - 4; vest - 2; cap - 4; and shirt - 4). <p>In FBiH: 12 laptops, 12 desktops, 1 color printer, 2 dictaphones, a projector with stand and screen, 2 external hard disks, 73 mobile devices, 2 digital calipers and hunting cameras, 1 server, 1 field vehicle, 1 firefighting truck, 285 firefighting backpacks and high-pressure pumps, wood-chopping machine, motor cutter, clearing saws, and chain saws.</p>



Objective/Outcome 2: To demonstrate approaches for sustainable forest land management	
Outcome Indicators	<ol style="list-style-type: none"> 1. Land area where sustainable land mgt. practices were adopted as a result of project
Intermediate Results Indicators	<ol style="list-style-type: none"> 1. IO 2.1(a) Area restored or re/afforested (Core Indicator) [ha] 2. IO 2.1(b) Area re/afforested (Core Indicator) [ha] 3. IO 2.2 Area under enhanced production on state lands [ha] 4. IO 2.3 Demonstration subprojects completed relating to innovative SFLM methods [number] 5. IO 2.4 Demonstration subprojects completed relating to fire control [number]
<p>Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)</p> <p>Component 2. Demonstration and Replication of SFLM Techniques in Vulnerable Areas</p>	<ol style="list-style-type: none"> 1. 933.5 ha planted (560 ha planted in 5 cantons in FBiH; 373.5 ha in mostly unfavorable site conditions in RS). 2. In RS, thinning in 491.44 ha and coppice treatment in 150.81 ha (total 642.25 ha). In FBiH, thinning in 511 ha and coppice treatment in 261 ha. In FBiH, 1842 ha of area under enhanced production on state lands includes thinning, coppice, afforestation, reforestation, protection of forest services and fire management. 3. Tourism facilities constructed: FBiH has constructed 4 canopies (one with sanitation facilities), 5 hiking and 2 walking paths, and a football playground in Central Bosnia Canton. Similarly, in Kresovo municipality, 4 canopies and 2 lakes/reservoirs (Lake Vaganj and Torine) have been constructed. 4. In RS, hunters cottage in special hunting area 'Kamenica' and an Eco-visitors center Mosor - Kupres have been established. 5. RS has rehabilitated 26.7 km of firefighting access roads in 14 sections of 4 regions, and FBiH has rehabilitated 22.14 km. 6. Equipment with state-of-the-art technology for a new Mediterranean nursery in Trebinje, automation system with sensors for temperature and moisture, and irrigation boom, and for an existing nursery in Doboj Nursery Production Systems (batch mixer with belt, dibbler flexi filler, precision seeder, tray covering unit - roller conveyer, automatic seeder for oak, manual seeder for broad-leaved species, growing tray - Type 1, Type 2, and Type 3; and irrigation system (holding area irrigation boom 28x100 m and growing frames). 7. 70 game repellents installed in three hunting grounds in RS to improve wildlife and traffic safety. 8. Cleaning of dumping sites in 12 micro-locations.



The World Bank

Sustainable Forest and Landscape Management Project (P129961)

**ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION****A. TASK TEAM MEMBERS**

Name	Role
Preparation	
Nathalie Weier Johnson	TTL(s)
Nikola Kerleta	Procurement Specialist(s)
Lamija Marijanovic	FM Specialist
Sohaila Wali	Team Member
Josephine A. Kida	Team Member
Linh Van Nguyen	Team Member
Esma Kreso Beslagic	Social Specialist
Sandra Kdolsky	Team Member
Sandra Kdolsky	Social Specialist
Gabriela Grinsteins	Team Member
Supervision/ICR	
Tuukka Castren, Mirjana Atijas Karahasanovic	TTL(s)
Rajesh Koirala	ICR Main Contributor
Sidy Diop	Procurement Specialist(s)
Lamija Marijanovic	FM Specialist
Linh Van Nguyen	Team Member
Samra Bajramovic	Team Member
Vera Dugandzic	Social Specialist
Esma Kreso Beslagic	Environmental Specialist
Gabriela Grinsteins	Team Member

**B. STAFF TIME AND COST**

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY13	3.975	70,136.52
FY14	13.200	81,260.90
FY15	0	0.00
Total	17.18	151,397.42
Supervision/ICR		
FY14	9.125	47,439.05
FY15	12.537	73,306.58
FY16	13.268	61,694.65
FY17	21.007	116,803.38
FY18	25.307	265,150.14
FY19	25.268	119,504.94
FY20	15.775	74,351.69
Total	122.29	758,250.43



ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US\$, millions)	Actual at Project Closing (US\$, millions)	Percentage of Approval (US\$, millions)
Enhanced Planning and Monitoring for SFLM	1.070	0.813	79
Demonstration and Replication of SFLM Techniques in Vulnerable Areas	4.230	4.307	106
Project Management	0.276	0.240	90
Total	5.576	5.360	96



ANNEX 4. EFFICIENCY ANALYSIS

1. The financial and economic analyses were based on identifying and quantifying the incremental impacts of Component 2 of the SFLMP. The economic analysis was redone in the ICR because, as alluded in the Efficiency section, the original analysis in the PAD contained deficiencies making the results inaccurate.
 - (a) The analysis in the PAD estimated financial and economic (carbon) benefits assuming that all 3,000 ha of forests would provide similar benefits as reforested/afforested areas (1,000 ha), although 2,000 ha of forests already existed and were brought under improved forest management through project-supported thinning and conversion from low forests to high forests. As a result, the actual incremental impacts due to the SFLMP are, in effect, smaller in terms of impacts on the potential wood flows and carbon sequestration.
 - (b) The financial IRR calculation in the PAD was based on estimating the average wood price by using average export price of exported forest products in roundwood equivalent (United Nations Economic Commission for Europe [UNECE]/FAO statistics from 2009) without making any adjustments to derive the price at stumpage and without acknowledging production for the local market (this is generally lower quality and unit value). It is unclear why using only export prices was selected: both detailed harvesting and sales data and corresponding price data at roadside and also at stumpage would have been available for all key assortments (including fuelwood) in 2013 when the original analysis was made. The adopted approach resulted in a serious overestimation (roughly 100 percent) of the average price of wood in the analysis.
 - (c) Carbon sequestration services were erroneously estimated due to adopting a wrong base scenario (see item (a) above). The EX-ACT calculation was based on 3,000 ha of incremental production from afforestation/reforestation instead of 1,000 ha. The analysis also double counted benefits from wood production and carbon sequestration by assuming maximum wood production while also securing maximum carbon sequestration.
 - (d) The analysis overestimated commercial harvesting volumes. The PAD analysis assumed 100 percent harvesting/sales of the total volume, when commercial harvesting volumes are usually around 85 percent of the total volumes (confirmed also through interviews of forestry staff in both entities).
2. The investments costs included all the costs related to Component 2, including demonstration costs. These amounted to an average of US\$846,000 per year over five years.
3. The incremental quantifiable benefit stream comprises the following main elements affecting financial and economic performance:
 - (a) Improved wood supply and higher quality of wood due to an estimated 1,122 ha increase in forested area and thinning (1,893 ha) and converting low forests to more productive high forests (412 ha)



- (b) Improved carbon sequestration services due to reforestation/afforestation and improved management of existing forests (2,305 ha)
- (c) Higher average prices for logs due to value in-growth in thinned areas

Valuing Wood Production Benefits

4. The incremental value of wood production due to project support was estimated at around US\$19.3 million.

5. Average roundwood price was estimated at US\$49.89. This estimate was derived through calculating a weighted average of unit wood prices at the forest by 11 main assortments. Wood prices and harvested and sold wood volumes by assortment for coniferous and broad-leaved trees (in 2017) were obtained from government statistical units in both entities and cross-checked with 2018 and 2019 price lists by an assortment provided by the sampled forest management companies. In thinned areas, the improved quality of logs and related value in-growth (logs moving from Class I to Class II, from Class II to Class I, and from small wood to Class III logs) was estimated by assuming a 20 percent increase in value. This is a conservative estimate; the review of international research on similar type of forests also provided higher estimates.

6. The total harvestable wood volume from reforested and afforested areas was adjusted down by 15 percent based on information provided in the interviews and international experience.

7. The benefit from forest conversion was calculated as a difference between average low forest yield of 3 m³/ha/year and high forest yield of 7.5 m³/ha/year;¹⁷ this amounted to 4 m³/ha/year. Since it takes time for the yields to improve, they were not valued annually, but the accumulated volume increase was valued at the end of the analysis period.

Valuing Carbon-related Benefits

8. The total project net carbon effects due to increased carbon sequestration over the analysis period of 30 years (5 years + 25 years) translated to around US\$2.7 million. This a conservative estimate because no carbon benefits were assumed from thinned forests and reduced carbon emissions due to reduced forest fires. The carbon value is reduced because the main objective of sustainable forest management is wood production, and a lot of harvested wood is burned or utilized in forest products which emit carbon over a relatively short life cycle (like paper).

9. Improved carbon sequestration services due to reforestation/afforestation and improved management of existing forests were estimated using the following rationale and assumptions:

- (a) The pricing of carbon was based on the World Bank Guidance Note on 'Shadow price of carbon in economic analysis' from 2017.

¹⁷ The average yield estimates for coniferous and broad-leaved forests by low (coppice) forest and high forest were obtained from a 2015 FAO study 'The Forest Sector in Bosnia and Herzegovina: Preparation of IPARD Forest and Fisheries Sector Reviews in Bosnia and Herzegovina' and interviews of senior government experts at both entities during the ICR mission in June 2019.



- (b) In the estimation of the project impact on carbon balance, the original EX-ACT appraisal was made use of, but the model was adjusted so that the carbon benefits were calculated over 1,000 ha instead of 3,000 ha as was done in the PAD. This gave an estimate of 17,200 tCO₂e per year over 25 years (lagged by 5 years). It was assumed that about 50 percent of this would store carbon in harvested wood products, mainly mining props and sawnwood processed, for example, into wooden furniture and construction wood and joinery.

10. Estimating benefits related to carbon from improved forest management is not easy, and research on this topic is still limited. Thinning can have highly variable effect on carbon stocks due to differences in species (for example, beech versus spruce versus mixed forests), thinning intensity, timing of thinning/stand age, and site quality as well as the use of harvested thinnings. Based on literature review, the overall impact of thinning on the carbon balance is assumed to be neutral. After thinning, there's an initial decline in carbon stocks, but in the long-term, improved growth of the remaining stand will often balance the impact on carbon sequestration. In some cases, the impact on long-term carbon stock may be positive due to higher basal area growth, and in other cases, the impact may be negative. Therefore, the economic analysis did not include benefits or costs from thinning in terms of carbon sequestration services.

11. However, research findings concerning beech, spruce, and mixed forest in Europe are uniform in concluding that thinning results in higher revenue flows and profitability as long as there is a market for small wood and thinnings are properly timed. Estimates of a net increase in stand merchantable volume increment compared to unthinned stands vary generally from 20 percent to 30 percent.



ANNEX 5. BROADER SECTORAL ISSUES AND POTENTIAL FOLLOW-UP ACTIONS¹⁸

1. The objective of this section is to go beyond the scope of the SFLMP and look at issues that are preventing the competitiveness of Bosnia's forest and recommend some measures for potential follow-up in the World Bank's future engagement in the forest sector in Bosnia and Herzegovina.

Policy and Institutional Issues

2. **The absence of forest policies at the state level (BiH) and absence of a forest law in FBiH contribute to an unsettled operating environment and prevent large-scale strategic planning.** Due to the decentralized administrative structure, the State of BiH does not have any authority over the forest resources. Therefore, state-level forestry policies, strategy, or legislation do not exist. However, as a potential candidate country to EU accession and with international obligations such as the NDC, it would be essential to have a state-level policy framework that harmonizes entity-level forest legislation and reflects national-level priorities and obligations. Similarly, FBiH does not have a law on forests, and it devolves its management responsibilities to cantons. Ownership of the public forests remains with FBiH. The cantons transfer these rights to CFMCs (one in each canton), which were established in compliance with the Law on Forests from 2002.

3. **Due to an unsettled policy framework, different levels of institutions in FBiH lack clarity on their roles, responsibilities, and mandates on forest management.** This creates a fragmented operating environment and makes achieving economies of scale more difficult. On a technical level, institutions and staff responsible for managing forests do not have sufficient, up-to-date experience, knowledge, and skill of international best practices and lack the technology on forest management. Management approaches that have been successful elsewhere, such as community participation and public-private partnership, are almost nonexistent. Most equipment or machines required for efficient management of forests are either obsolete or completely absent. In addition, the forestry sector does not get sufficient capital investment to undertake comprehensive management interventions.

4. **Lack of regular national forest inventories.** Having up-to-date information on the quality and quantity of resources is essential for policy planning, objective setting for strategic management, and resource extraction. Forest inventory should cover not only timber but also non-timber, wildlife, and ecosystem services of the forest, including water and carbon. BiH does not have a regular system of national forest inventories: the first state forest inventory was done in 1964–1968 and the second one in 2006–2009. Results from this second inventory have not been publicly disclosed; so, the information from the 1960s is still in use. Current inventory information would provide a solid basis for strategic planning.

Potential Follow-up Actions

- (a) Continue to engage in the forestry sector, facilitate discussions among entities and cantons regarding the needs for the higher-level policy framework, and provide necessary support.

¹⁸ This section has been added, as asked by the Country Management Unit, to outline the current issues in the sector and potential measures to address them.



Research and development and skills development create a critical knowledge mass that supports the development of the industry.

- (b) Provide support to ensure the publicly owned forest enterprises (RS Sume and the cantonal forest enterprises in FBiH) are efficiently managed and market oriented. This may require interventions in management systems, corporate governance, regulations, and business practices.
- (c) Conduct the third national forest inventory at the state level. It has been over 10 years since the second national forest inventory. It would be crucial to have current information on resource status and the trend of resource aggregation or degradation to strategize forest management and plan for forest-based industries and value addition.

Private Sector

5. **Underdeveloped private sector.** Private sector involvement so far has been limited to small-scale harvesting contractors, sawmills and furniture industries. There are some large foreign investors in the wood and furniture sector such as Cotta Collection (Liechtenstein), FEN (Germany), and Napco (Netherlands) (Deloitte 2019), but a lot more would be needed to contribute to and benefit from each stage of the value addition cycle. The public sector should create an enabling environment for the private sector to be actively engaged in forest-based industries, timber processing, and value addition of timber and NTFPs.

6. **Private forests cover some 20 percent of the forest area and have fragmented ownership.** While poorly stocked, they could be a source, for example, for small-diameter wood (including for energy) and rural income. However, the private forest owners receive limited government support on technical forest management, owners' organization, and extension service.

Potential Follow-up Actions

- (a) Create an enabling environment for the private sector to invest in the wood harvesting and processing industries. This would be based on a comprehensive mapping on the competitiveness and business climate (including access to finance) of the wood processing industry. This would lead to a national development program (both policy reforms and public investments) in support of the sector. Ultimately, investments in production facilities need to come from the private sector, but these could be facilitated by domestic and international agencies (for example, International Finance Corporation)
- (b) Market information services and promotional activities would support particularly small and emerging producers in growing and establishing themselves in the European markets. They would also help brand BiH as a major source for sustainably produced climate-smart wood products.

Technical Issues

7. **Forests in BiH are underutilized from a production forestry perspective.** With proper policies and enabling investment, the contribution of the sector to the national economy, exports, and job creation



could be increased. Some of the key operational/technical issues that would need to be addressed include the following:

- (a) **Inaccessibility.** An estimated 420,000 ha, which is 13 percent of the total forest area, is in the landmine area. This makes an estimated 81 million m³ of growing stock inaccessible (World Bank 2011). In some areas, the share is even higher. The remaining forest areas are also difficult to access due to the insufficient forest road network. The forest road network in BiH is well below the European averages. This is a major constraint to effectively implement silvicultural treatments, prevent and control fire, harvest trees, and transport logs.
- (b) **Renewability of forest resources not reflected in management practices.** In BiH, the forest management approach is largely conservation-focused, close-to-nature management. Such an approach is good for objectives such as aesthetics, wildlife, biological diversity, carbon storage, and the protection of soil and water quality. However, with appropriate management planning, these can be combined with more intensive production forestry. In BiH, there is a lack of comprehensive, systematic management, including timely carrying out of silvicultural practices, harvesting, and regeneration. Large areas are essentially intact and have seen little wide-scale commercial exploitation beyond low levels of industrial and subsistence logging.
- (c) **Wood economy.** Efficiency in the use of fuelwood and other wood biomass along the value chain remains low, and a lot of woody biomass remains unutilized. These could be raw materials for particle boards, pulp and paper, bioenergy, and other forms of energy. Regulatory changes and efficient wood markets would incentivize operators to use wood more efficiently. In addition, use and markets for NTFPs need development.

Potential Follow-up Actions

8. Addressing the issues identified above would require investments and long-term engagement. This could happen through the following:

- (a) **Support on capacity development and application of modern technology.** Use of modern technologies and mechanization would make the industry competitive and address the labor shortage for the challenging forestry activities in rural areas.
- (b) **Forest road network.** Extending the forest road network is an essential task in improving forest management and realizing the potential contribution from forests to the national economy. Improving the road network and accessibility improves the capacity to manage forest fires and efficiency in wood extraction and silvicultural operations in general. The opening of forests can also bring additional opportunities for tourism services and recreational use. As a result of the SFLMP, RS has a strategic forest road master plan ready to be implemented, whereas FBiH is in the process of completing it.
- (c) **Production-oriented sustainable forest management.** This could involve identifying forest areas suitable for production forest and carrying out intensive silvicultural treatment. Although the primary objective of production forest is to produce the best quality timber, other management objectives can also be integrated, such as biodiversity conservation,



watershed protection, and carbon sequestration. Forest restoration and rehabilitation can be carried out using both protective measures (for example, protection from grazing, fire, and erosion control) and active measures such as assisted natural regeneration and tree planting.

- (d) **Bioenergy production.** In BiH, the most widespread use of woody biomass is in the form of firewood for heating and cooking, usually on open fires or in simple cookstoves. Modern technologies would allow processing forest biomass into energy-efficient products. Improved bioenergy production facilities could use forest-based biomass that currently often goes waste, for example, forest residues to produce pellets for residential and institutional energy use.



ANNEX 6. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

1. The World Bank shared the ICR with the governments on November 5, 2019, requesting any comments by November 15, 2019. An unofficial courtesy translation was provided on November 20 and comments invited by November 22.
2. The World Bank team presented key findings of the ICR in a workshop in Banja Luka on November 19, 2019. The workshop participants included key government officials, SFLMP PIUs, private sector, civil society and academia from both entities. The clients broadly endorsed the report at the workshop.
3. On November 20, 2019, RS MAFMW provided following comments on the ICR:

“We would like to inform You that we do not have specific comments (objections) on Implementation completion and results report but bearing in mind results of SFLM project in RS (based on previous reports aid memoires...) we would appreciate visibility of project results in RS as we discussed during the meetings and workshop.”
4. In FBiH, the World Bank met with Ministry of Agriculture, Water Management and Forestry and PIU officials on November 21, 2019 and discussed the ICR. The meeting participants congratulated the ICR team for a well written document. The PIU Director said, “The ICR report reflects correct and fair representation of the situation under the project.” The Director added, “Everything discussed during the ICR mission has been realistically presented in the report”. No written comments were received by November 22.



ANNEX 7. SUPPORTING DOCUMENTS

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