



1. Project Data

Project ID P143844	Project Name Drina Flood Protection Project
Country Bosnia and Herzegovina	Practice Area(Lead) Water

L/C/TF Number(s) IDA-54440	Closing Date (Original) 31-Dec-2019	Total Project Cost (USD) 18,963,854.37
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Bank Approval Date 16-May-2014	Closing Date (Actual) 31-Dec-2020
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	IBRD/IDA (USD)	Grants (USD)
Original Commitment	24,000,000.00	0.00
Revised Commitment	22,269,181.60	0.00
Actual	18,963,854.37	0.00

Prepared by Hassan Wally	Reviewed by Ihsan Kaler Hurcan	ICR Review Coordinator Ramachandra Jammi	Group IEGSD (Unit 4)
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2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO) of the Drina Flood Protection Project (DFPP) as articulated in the Project Appraisal Document (paragraph 18) was identical to the one stated in the International Development Association (IDA) Financing Agreement (FA, page 5) and aimed to:

"provide increased protection from flood events to agricultural and commercial interests and communities in the project area."



The project beneficiaries were the populations along the Bosnia and Herzegovina (BiH) side of the 346-km long Drina River, specifically in and around the towns of Bijeljina in the Republika of Srpska (RS) and Goražde in Federation of Bosnia and Herzegovina (FBiH) of BiH. An estimated 175,000 people live within the main municipalities along the river of which an estimated 20,000 suffered direct economic losses from recurring floods.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

No

c. Will a split evaluation be undertaken?

Yes

d. Components

The PDO was supported by the following two components:

1. Flood protection works and support for Bijeljina area (appraisal cost US\$17.60 million, of which US\$13.80 million IDA contribution; actual cost US\$10.08 million, all IDA contribution). This component would fund the civil engineering works and related investments for the flood protection in the Bijeljina area, in the downstream flat plains near the confluence with the Sava River. The bulk of the works would consist mostly of earth moving, dike construction and/or re-construction, and limited riverbank shaping work (culverts, rip-rap cover, parapets, gabion placement, etc.). The dike would protect the Bijeljina town and the Janja and Amajlije, as well as other smaller, settlements, on the Lower Drina left bank. The construction would also protect against the added risks from climate change and variability. The alignment of the new dike would be on the land parallel to the river and based on an optimization depending on the distance to the river. The dike would comprise three sections with a total length of 33.36 km, of which the middle part (from Glogovac pumping station [Dasnica] to the road towards the Pavlovica bridge) was considered the priority and to have the highest readiness. The dike would be 16 km long and about 2-3 m in height. The upstream section, from the Glogovac pumping station to Janja, would be the second phase. The downstream portion, from the road to the Pavlovica bridge to Balatun, would be the third phase. The funding would also provide for the effective implementation of the social safeguards and environmental measures identified in the Environmental and Social Assessment and accompanying documents.

This component would also support the Agriculture Project Coordination Unit (APCU) at RS Ministry of Agriculture, Forestry and Water Management (MoAFW) to facilitate project implementation.

2. Flood protection works and support for Goražde area (appraisal cost: US\$10.67 million, of which US\$10.20 million IDA contribution; actual cost: US\$10.23 million, all IDA contribution). This component would fund the civil engineering works and related investments for the flood protection in four clusters of works in the Bosnia Podrinje Canton (around Goražde), in the Middle Drina. The project would cover works, equipment, minor land acquisition, the building of similar protective structures for roads, bridges and other infrastructure along the river, and earth moving, dike construction and/or re-construction. Works were envisaged along the Drina main stem (in, and near Goražde town center, and upstream and downstream of the center) as well as on the Podhranjanski potok and Praca torrents near the settlements of



Praca and Hrenovica, in the Municipalities of Gorazde, Pale-Praca and Foca-Ustikolina, respectively. The construction would also protect against the added risks from climate change and variability. Funding would also provide for the effective implementation of the social safeguards and environmental measures identified in the Environmental and Social Assessment and accompanying documents.

This component would support the Project Implementation Unit (PIU) at FBiH Ministry of Agriculture, Water Management and Forestry (MoAWF) to facilitate project implementation.

Revised Components.

Component 1. The originally planned dike comprising three sections spanning over a 33.4 km river stretch was canceled at the first restructuring in June 2019 due to the lack of agreement with citizens from the settlements of Janja, Popovi, and Amajlije on the proposed dike alignment. As an alternative solution to the dike, the project decided to reinforce the degraded sections of the existing embankment of Drina at 11 locations with a cumulative length of 8.4 km. This investment enabled the protection of highest priority area (section 2) without major land acquisitions, though the extent of protected area was reduced. In addition, embankment rehabilitation and riverbed consolidation of the Janja River for a total length of 1.8 km, which was included in the original work package, remained as a sub-component.

Component 2. After the completion of first phase sub-components in Pale-Praca and Foca-Ustikolina and the design studies for seven subcomponent works in Gorazde and Foca-Ustikolina, the FBiH decided to prioritize the construction of the Drina River embankment in Gorazde. Five sub-projects in Gorazde and one in Foca-Ustikolina were canceled due to lack of funds to cover the cost overrun.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost. The total project cost was estimated to be US\$28.27 million. This was revised downwards to US\$26.53 million after the first restructuring. Actual cost according to the ICR Data Sheet (page 2) was US\$20.31 million or about 71% of the appraisal estimate. The ICR did not explain why the actual costs were 29% lower than the appraisal estimate. The World Bank project team stated that this difference was caused by the cancelled subprojects at the first restructuring and the works that were not implemented under the first component.

Financing. The project was financed through an IDA Credit worth US\$24.00 million. At the first restructuring, US\$1.72 million IDA credit were cancelled. The actual disbursed amount was US\$18.96 million or 79% of the total financing. The ICR did not explain why the actual disbursed amount were 21% lower than the total expected financing, but, as the project team explained, this was attributable to the cancelled subprojects and the works that were not implemented.

Borrower Contribution. The borrower was expected to provide US\$4.27 million in counterpart funding for land acquisition and selected other preparatory activities. The actual amount of counterpart funding was US\$1.35 million or about 32% of the expected amount at appraisal. The lower borrower contribution than expected was because of the lower land acquisition requirement due to the cancellation of the dike under the first component.

Dates. The project was approved on May 16, 2014 and became effective one year later on May 21, 2015. The delay in effectiveness was attributed to the multilayered administrative level (state and entity levels) in



BiH (ICR, paragraph 50) combined with significant floods in 2014 that focused the government efforts on rehabilitation of the damages caused by the floods (Restructuring Paper, paragraph 2). The Mid-Term Review was conducted on November 16, 2017 about two and half years into implementation. This was in line with PAD expectation that "a Mid-term Review (MTR) mission will be fielded in 2017 (PAD, paragraph 4, page 43)." The project was expected to close on December 31, 2019, but the original closing date was one year later on December 31, 2020. According to the ICR (paragraph 21) "the extension of the project closing date for 12 months is ascribed to the cumulative delays of works both in the RS and FBiH." The project was restructured twice, both level 2, as follows:

1. On June 19, 2019, when the amount disbursed was US\$7.95 million, in order to change the Results Framework (see section 9.b M&E Implementation), change components and cost, cancel US\$1.72 million IDA credit, and to reallocate between disbursement categories.
2. On December 3, 2019, when the amount disbursed was US\$9.81 million, in order to extend the closing date by 12 months as stated above.

This Review is in agreement with the ICR (paragraph 18) that "the TOC was not substantially altered by the restructurings during implementation." The first restructuring reduced the scale of the project. The cancellation of planned dike in Bijeljina as described in the ICR (paragraph 19) was for unforeseen reasons. However, "the cancellation of six sub-projects in the FBiH resulted from cost overrun after the design study was completed in September 2018 (ICR, paragraph 20)." The extension of the project by twelve months was logical given the delays and to allow enough time to complete activities.

3. Relevance of Objectives

Rationale

Relevance to Government Strategies. At appraisal the PDO was in line with Government priorities for the management of the Drina river basin. The Strategic Framework for BiH (2015), prepared to set out the medium-term planning, defined sustainable growth as one of its five pillars for the growth of BiH. The pillar specifically included Priority Area V.3.2. 'improving environmental management and development of environmental infrastructure while increasing resilience to climate change,' which set forth the enhancement of resilience against the disasters that were exacerbated by climate change.

At project completion, the PDO continued to be in line with the Government priorities as reflected in the national development plan 'Economic Reform Program of BiH 2020–2022'. The program prioritizes sustainable and integrated river basin management and capacity development of responsible ministries under its sub-objective 'improving the competitiveness of agriculture, forestry, and water management'.

Relevance to Bank Assistance Strategies. At appraisal, the PDO was in line with Bank's overall objectives for poverty alleviation and fostering shared prosperity as the benefits from reduced flood risk would accrue directly to all those affected by flooding, but also to those that avoided investing in the project areas due to the risk posed by recurring floods. That, said, it is worth noting that the project did not include activities that would directly contribute to poverty alleviation. The PDO was also in line with the Bank's



Country Partnership Strategy for BiH (CPS, FY2012-15). It would contribute to the key objectives under the CPS to promote: (i) competitiveness; (ii) social inclusion; and (iii) environmental sustainability, including for improved water resource management. One of the specific CPS outcomes was “better flood preparedness and management along the Drina River Basin.” The project would also enhance the hydraulic capacity of the riverbed, thereby contributing to increasing the environmental sustainability of hydropower production, and thus assist BiH’s efforts towards energy security in the light of climate change impacts.

At completion, the PDO continued to be in line with the Bank’s Country Partnership Framework (CPF) for BiH (FY2016–FY20). The CPF had flood management as a core element of Focus Area 3 ‘Building Resilience to Natural Shocks’, which emphasized BiH’s vulnerability to natural shocks such as floods, heat waves, and forest fires as well as the impact of disasters in derailing the country’s development path. Also, the CPF Objective 3b ‘Build resilience to floods’ emphasized flood disaster management with following results indicators: indicator 1: People in flood affected/prone areas benefiting from goods received and infrastructure rehabilitated with projects’ support, Indicator 2: Strengthened capacity in water resources management, including flood management, forecasting and warning, in Drina and Sava River basins.

Previous Sector Experience. Several studies and plans exist that analyze water management and flood protection, including the 1964 Drina Master Plan, the 1972 Sava Study, and, more recently, the more generic International Commission for the Protection of the Danube River (ICPDR) Danube River Basin Management Plan (2004) and the Sava River Basin Management Plan (2013). The DRB is also benefiting from the Bank’s West Balkans Regional Flood and Drought Initiative, a non-lending TA program, which has led to a Rapid Trans-boundary Diagnostic Scan and Analysis (2012) based on basin-wide data collection and cross-sectoral dialogue, and a Framework for Flood Management on the Drina River (2012) that reviewed parameters for flood management for BiH. Other relevant Bank-financed projects include: West Balkans Drina River Basin Management Project (P145048), BiH Floods Emergency Recovery Project (P151157), the Irrigation Development Project (P115954), and Sava and Drina Rivers Corridors Integrated Development Program (P168862).

The statement of objectives was clear and focused and reflected adequate ambition with regards to the Bank’s experience. The PDO was also in line with the Government and Bank priorities as explained above. Lastly, given the nature of the Drina river basin, protection of agricultural and commercial interests and communities from flood events and building resilience will continue to be relevant objectives in the future.

Therefore, Relevance of Objectives is rated High.

Rating

High

4. Achievement of Objectives (Efficacy)



OBJECTIVE 1

Objective

To provide increased protection from flood events to agricultural interests in the project area.

Rationale

Theory of Change (ToC). The overall objective of increased protection from flood risks in agricultural and commercial (urban/semi-urban) areas would be realized by the construction of embankments and associated infrastructures in the Bijeljina area, RS, and in Gorazde area, FBiH. Construction activities included: rehabilitation of existing flood protection infrastructure and new construction of flood dikes. The expected outcomes included the protection of beneficiaries in urban and semi-urban areas from floods and the protection of agricultural lands from floods. Anticipated long-term outcomes were defined as follows: (a) improved flood resilience in the target area, and (b) enhanced long-term investments for economic development in the areas previously exposed to flood risks.

The ToC included two key assumptions that underpinned the achievement of the stated objective: 1. "Flood protection infrastructures are maintained properly", and 2. "That the local administrations effectively enforce land use regulation and restrict illegal construction of residential and commercial facilities in the areas that are not protected by the embankments (ICR, paragraph 5)." However, the implementation experience demonstrated that another key assumption was overlooked. This assumption was ensuring that local stakeholders approved the construction of the new infrastructure in their areas. This proved critical and resulted in changing the scale of the project due to lack of agreement with local stakeholders.

Overall, the ToC reflected activities that were linked to the PDO in a valid causal chain. However, the key assumptions were deficient as explained above.

Outputs

The outputs below were reported by the ICR (Annex 1) unless referenced otherwise.

- The project reinforced erosive banks of the Drina at 8 locations, out of originally planned 11, over a 16 km section between Janja confluence and Bijeljina-Badovinci bridge (ICR, paragraph 31).
- The project rehabilitated the embankment and consolidation of unstable riverbed of the Janja River over a 1.8 km section up from its confluence to the Drina (ICR, paragraph 27).
- The project rehabilitated the embankment and consolidated the unstable riverbed of the Praca River for a 3.4 km section in Hrenovica settlement in Pale-Praca (ICR, paragraph 31).
- 10.9 km of river embankments were rehabilitated and improved in RS (original target: 33.40 km, revised target: 12 km, target not achieved).
- 18 km of river embankments/dikes were rehabilitated and improved in FBiH (original target 32 km, revised target: 18, target achieved).

Outcome

3,136 ha of rural/agricultural lands were protected from floods in project locations according to the 2010 baseline against an original target of 8,500 ha (PDO outcome indicator #2) (37% achievement rate). The agricultural and rural land around the rehabilitated embankment at eight locations on the left bank of the Drina achieved 1-in-100-year level protection through the project. The lowland plain around Bijeljina, which includes the most developed agricultural area in the RS, suffered from recurrent floods that affected the



region almost every two years. Since the works in Bijeljina were completed in December 2020, the direct project benefit was yet to be observed. According to the ICR (paragraph 33) “the damages and losses from the agricultural sector in the Bijeljina area are expected to be reduced significantly.”

The project fell short of achieving its outcome target. Therefore, the efficacy of achieving this objective is rated Modest.

Rating

Modest

OBJECTIVE 1 REVISION 1

Revised Objective

To provide increased protection from flood events to agricultural interests in the project area.

Revised Rationale

Theory of Change (ToC). The same ToC applies. There was no revision of the PDO, only the outcome target of the second outcome indicator was revised down to 3,200 ha compared to an original target of 8,500 ha.

Outputs

The project was expected to construct a 33.4 km long continuous dike designed to withstand a high-water frequency of 1-in- 100-year level (5,600 m³ per second). However, protests by the local landowners resulted in scaling to down the activity to 12 km, and as a result, the target values of protected agricultural/rural land in Bijeljina were reduced by 5,272 ha (ICR, paragraph 35). Also, the cancellation of five sub-projects in Gorazde in the FBiH reduced the protected agricultural/rural land by 28 ha.

Outcome

The same as above. The only difference is that the project achieved 98% of the revised target for the second outcome indicator (3,136 ha against a revised target of 3,200 ha).

Overall, the efficacy of achieving the revised objective is rated Substantial. This rating reflects the achievement of 98% of the target for the second outcome indicator. It is plausible to assume that through the supported infrastructure improvements, the project would achieve increased protection from flood events to **agricultural interests** in the project area.

Revised Rating

Substantial



OBJECTIVE 2

Objective

To provide increased protection from flood events to commercial interests and communities in the project area.

Rationale

Theory of Change. Same as above.

Outputs

- 10.9 km of river embankments were rehabilitated and improved in RS (original target: 33.40 km, revised target: 12 km, target not achieved).
- 18 km of river embankments/dikes were rehabilitated and improved in FBiH (original target 32 km, revised target: 18, target achieved).
- Project-supported works included: the construction of a dike on the left and right bank of the Drina River for a 2 km section from the Gorazde city center to downstream, rehabilitation of the embankment and consolidation of unstable riverbed of the Praca River for a 3.2 km section in Praca settlement in Pale-Praca, and rehabilitation of the embankment and consolidation of unstable riverbed of the Janja River over a 1.8 km section up from its confluence to the Drina.

Outcome

Flood protections in semi-urban/urban areas and rural areas were mutually intertwined because many of the flood dikes in rural areas also benefit semi-urban/urban areas and vice versa (ICR, paragraph25). The ICR did not clearly differentiate between increased flood protection to commercial interests and protection to communities.

The project's civil works achieved flood protection that withstand a high-water frequency of 1-in- 100-year level (4,080 m³ per second at Gorazde). Before the project, Gorazde municipality, located in the middle reach of Drina, was subject to bank erosion and overtopping with recurring floods almost every two years. Similarly, the Pale-Praca area, located in the upstream of a left tributary of the Drina, also suffered from the negative impact of floods almost every two years due to the torrents that merged in its upstream.

By project completion, 119.6 ha of semi-urban and urban areas (40 ha in RS + 79.6 ha in FBiH) were protected from floods in project locations using the 2010 baseline against an original target of 54 ha (PDO outcome indicator #1, target substantially achieved). This was largely achieved through the project-financed civil works in Gorazde and Pale-Praca in the FBiH and Janja in the RS.

The ICR (paragraph 29) noted that while a moderate flood was observed in the city of Gorazde in February 2021 and the water level almost reached the designed high-water level with some overflows, no major damage was reported. Also, since 2017, there has been no major inundation or infrastructure damages in Pale-Praca, which suffered from the negative impact of floods almost every two years, where the project-financed infrastructure was completed at an earlier stage.

Incomplete works included auxiliary facilities such as recreational parks and landscaping of construction sites and horticultural parks in Gorazde municipality. According to the ICR (paragraph 30) these "had no



substantial impacts in terms of flood protection, and they are to be completed by Gorazde municipality at its own expense."

Efficacy of achieving this objective is rated Substantial. The project achieved its outcome targets and the evidence provided in the ICR pointed to increased flood protection to commercial interests and communities in Gorazde and Pale-Parca as a result of the project investments.

Rating
Substantial

OVERALL EFFICACY

Rationale

Overall, the Efficacy was rated Modest. The project achieved mixed results, while it substantially achieved its target for the first outcome indicator, it only achieved 37% of the original outcome target for the second indicator. Some minor activities were not implemented.

Overall Efficacy Rating
Modest

Primary Reason
Low achievement

OVERALL EFFICACY REVISION 1

Overall Efficacy Revision 1 Rationale

Overall Efficacy is rated Substantial. The project substantially achieved its target for the first outcome indicator and achieved 98% of the revised target for the second outcome indicator. Also, the evidence provided in the ICR point to increased flood protection in Gorazde and Pale-Praca where no major flood damage was reported.

Overall Efficacy Revision 1 Rating

Substantial

5. Efficiency

Economic Analysis

ex ante



- The overall economic assessment showed that the aggregate project investments had an Economic Rate of Return (ERR) of 23.6%. The ERR for the proposed investments for Component 1 in Bijeljina area was 29.9%. For the sites in the Component 2 Goražde areas the ERR averaged about 12.7%.
- The project investments would reduce the frequency and cost of related flooding events. The economic analysis was carried out for a 20-year period (2015–2034) with a cost-benefit analysis comparing scenarios with and without the project.
- Avoided damages were calculated in the model as the difference between damages caused in the existing situation vulnerable to frequent floods (without the proposed project) and the project scenario in which no damages would occur up to a certain magnitude of the river flows and flood events. As flood events occur to different degrees and frequency, the calculation considered the probability of occurrence of different flood intensities and the related damages caused by floods weighted by the respective probability in both scenarios.
- Farm models combining typical cropping patterns were also prepared, representing farms in the project areas.
- Assumptions: no significant price distortions were considered for the economic analysis. Taxes were deducted from prices, and unskilled labor costs were corrected using 0.7 as conversion factor (CF). The average price for damages in houses was estimated based on the average property value of 1,000 KM/m². In the case of industrial/business assets the damage was estimated at 30% of the costs of the building taking into account irreversible damages to the industrial equipment.
- The economic analysis was limited because the actual data was insufficient to show whether the structures built under the project would prevent floods as expected at the time of appraisal. It is also very difficult to quantify the economic benefits because such data are generally not available. The ICR (p.35) also acknowledges this: "Most of these benefits are difficult to measure as necessary data for doing it properly are not available."

ex post

- The overall economic assessment in the ICR showed that the aggregate project investments had an ERR of 17.6% compared to 23.6% at appraisal. The ERR for the investments for Component 1 in the Bijeljina area was estimated at 27.6%. For sites in the Gorazde areas the average ERR was about 15.4%. The site in Pale Praca had a low estimated ERR of 4.3%. The ICR (Annex 6, paragraph 21) explained that this site was included in the project at the request of the Government "because it is one of the poorest areas in Bosnia and as such needed to be supported for reducing development disparities among regions."
- The ex post analysis used the same model at appraisal, with a difference in partial inclusion of other benefits (avoided traffic disruption, recreation benefits, and tourism development, for Gorazde area) which were not included at the appraisal stage. The ERR without these benefits was 15.7%.
- The lower ERR at completion was due to the unrealized benefits in the Bijeljina area due to the cancellation of sub-projects (ICR, paragraph 42). According to the ICR (paragraph 42) economic efficiency was not significantly affected by implementation delays and cost overruns. An economic analysis was not conducted at restructuring despite that the project scale was reduced.
- At 17.6%, the ERR at completion favorably compares to other Bank financed projects with comparable activities such as the Odra River Basin Flood Protection (P086768) in Poland, which had an ERR of 15.1% and the Jakarta Urgent Flood Mitigation Project (P111034) which had an ERR of 16%.
- The sensitivity analysis suggested that even at 10% and 20% down scenarios, the overall efficiency remains substantial with an ERR 15.6% at 10% down scenario, and an ERR of 13.3% at 20% down scenario. Both scenarios were higher than the 6% discount rate.



- Overall, the economic analysis was robust and provided a solid basis for assessing the project efficiency.

Administrative and Institutional Efficiency

Project effectiveness took 12 months due to the 2014 floods and the political change in BiH in April 2015 (ICR, paragraph 50). The project closed 12 months later than expected. This delay was to accommodate different implementation-related delays. The implementation of works in Gorazde and Bijeljina was delayed significantly due to the scope change (ICR, paragraph 41). To minimize the institutional complexity of BiH, implementation arrangements were such that independent institutional structures for implementation were prepared for respective entities, the RS and FBiH. There were also procurement related delays of about six months in RS. The PIUs benefited from low staff turnover where "the Director of the FBiH PIU had no turnover through the project life, and the Director of the RS APCU had only one turnover (ICR, paragraph 41)."

Efficiency is rated Substantial despite delays and cost overruns. At 17.6%, the ex post ERR was well above the discount rate at 6%. The ex post ERR also compared favorably with other Bank-financed project with comparable activities as mentioned above.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	23.60	100.00 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	17.60	100.00 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Pre-Restructuring. Relevance of Objectives was rated High. Overall Efficacy was rated Modest. The project achieved mixed results, while it substantially achieved its target for the first outcome indicator, it only achieved 37% of the original outcome target for the second indicator. There were also some minor uncompleted activities. Efficiency was rated Substantial despite delays and cost overruns. At 17.6%, the ex post ERR was well above the discount rate at 6%. The ex post ERR also compared favorably with other Bank-financed project with comparable activities.



Based on the assigned ratings for the three criteria (Relevance of Objectives, Efficacy and Efficiency), the Outcome is rated Moderately Unsatisfactory.

Post Restructuring. Relevance of Objectives was rated High. Overall Efficacy was rated Substantial. The project substantially achieved its target for the first outcome indicator and achieved 98% of the revised target for the second outcome indicator. Also, the evidence provided in the ICR point to increased flood protection in Gorazde and Pale-Praca where no major flood damage was reported. Efficiency was rated Substantial despite delays and cost overruns. At 17.6%, the ex post ERR was well above the discount rate at 6%. The ex post ERR also compared favorably with other Bank-financed project with comparable activities.

Based on the assigned ratings for the three criteria (Relevance of Objectives, Efficacy and Efficiency), the Outcome is rated Satisfactory.

Split Rating

The project disbursement before the restructuring was only 40% in over 4 years of operation, whereas the remaining 60% was disbursed over the 1.5-year period after restructuring.

	Pre-Restructuring	Post Restructuring
Relevance of Objectives	High	High
Efficacy	Modest	Substantial
To provide increased protection from flood events to agricultural interests in the project area.	Modest	Substantial
To provide increased protection from flood events to commercial interests and communities in the project area.	Substantial	Substantial
Efficiency	Substantial	Substantial
Disbursement	US\$7.95 million	US\$11.15 million
Numerical value of the outcome ratings	MU (3)	S (5)
Weighted value of the outcome rating	41.6%	58.4%
Overall Outcome rating	$3*0.416 + 5*0.584 = 4.2$ (MS)	

Based on the above-mentioned split rating, the Outcome is rated Moderately Satisfactory

- a. **Outcome Rating**
Moderately Satisfactory

7. Risk to Development Outcome

1. The risk related to the lack of maintenance of the infrastructures constructed/rehabilitated through the project. Strengthening the technical capacity of relevant agencies and institutions would have a positive impact on maintenance of infrastructure. The critical factor would be adequate budget allocation to support



maintenance. The technical capacity of the relevant ministries and agencies was strengthened through other Bank-financed projects, namely, the West Balkans Drina River Basin Management Project (P145048) and BiH Floods Emergency Recovery Project (P151157). Support was expected to continue through the Bank-financed Sava and Drina Rivers Corridors Integrated Development Program (SDIP)(P168862), which encompasses a bundle of investments and technical assistance to improve flood protection and enhance transboundary water cooperation in the region. Lastly, realization of project outcome will be further ensured through effective use of flood early warning system supported through the West Balkans Drina River Basin Management Project and Sava Flood Forecasting and Warning System Project.

2. The risk related to the intensification of flood disasters due to climate change. Climate change could result in unprecedented floods. Such severe events could negatively impact the hydraulic infrastructure and possibly result in higher water levels that could breach the dikes and levees in the project area and result in flood damage. Scientific research based on the Coupled Model Inter-comparison Project, indicates a slight decrease of annual precipitation in 2040–2059. The model also predicts increasingly variable precipitation patterns as well as increased frequency and intensity of extreme events in the region, which puts BiH in the third rank in terms of vulnerability to intense rain and prolonged rainfall (ICR, paragraph 82). The investments under SIDP will address part of the increased flood risks caused by climate change. At the same time, "BiH needs continued efforts in updating flood risk analysis in consideration of climate change impact and implementing both hard and soft measures based on the identified risk (ICR, paragraph 82)."

8. Assessment of Bank Performance

a. Quality-at-Entry

The Drina Flood Protection Project was proposed following the Bank's preceding support and the Country Partnership Strategy for BiH. The project objective was in line with the Government priorities and with Bank strategies (see section 3). The project's concept was formulated through a study 'Framework for Flood Management on the Drina River, Bosnia-Herzegovina (2012)' prepared as part of the 'West Balkan Regional Initiative on Flood and Drought Management' supported by the Bank. A project pre-feasibility study 'Protection of Semberija and Janja in the Bijeljina Region against Flooding of the River Drina (2014)' provided more details and updated the information (ICR, paragraph 48). However, the 2012 study had outdated cost estimates that the project pre-feasibility did not update. The pre-feasibility study also did not reflect the socioeconomic changes in the project area. These two issues undermined the project design because during implementation the project faced cost overruns and resistance from the local population who did not approve the project-financed works in their area. This situation was exacerbated by deferring the detailed designs for the suggested works to implementation.

The project design benefitted from the lessons and experience of the Bank's earlier operations, namely the Neretva and Trebisnjica River Basin Management Project (P084608) and the Irrigation Development Project (P115954). The implementation arrangements featured an independent institutional structure for implementation for the respective entities, the RS and FBiH. This arrangement minimized the implementation delays arising from institutional and administrative complexity of BiH (ICR, paragraph 49). According to the ICR (paragraph 75) "the assessment of risks through the Operational Risk Assessment (ORAF) was mostly adequate, including the risk of complicated governance structure of BiH." However, the social and environment risk (rated Modest in the ORAF) was underestimated. The mitigation measure raised in the ORAF (to prepare individual resettlement plans in compliance with OP/BP 4.12) was not



sufficient to prevent the local protest against the project-supported investments. M&E design was deficient in terms of comprehensively assessing the PDO, but the RF included relevant indicators to track the progress of the project (see section 9 for more details).

Overall, Quality at Entry is rated Moderately Unsatisfactory. This rating reflects significant design shortcomings due to the lack of detailed designs at the start of implementation, and inaccurate cost estimates. This contributed to implementation delays and cancellation of sub-projects. Also, underestimating the risk related to the social and environment undermined the project and resulted in cancelling activities due to the objection of the local population.

Quality-at-Entry Rating Moderately Unsatisfactory

b. Quality of supervision

According to the ICR (paragraph 77) regular supervision missions were conducted every six months. To ensure smooth implementation by the PIUs, the Bank held ad hoc meetings with the client to address unexpected situations, such as the grievance case in the RS in 2018. While the project was overseen by a total of three task team leaders (TTL), many of the specialists were retained in the task team throughout the project life. This, combined with a sufficient transition period during TTL change, ensured "seamless and consistent implementation support (ICR, paragraph 77)." The Bank team oversaw the project restructuring to address the cost overrun in the BiH and grievance case in the RS. The team also provided support on fiduciary and safeguard issues during project implementation to ensure compliance with World Bank policies.

To enhance readiness, the Bank used the 12 months gap between approval and effectiveness to provide trainings to the PIU on financial management, procurement, and environmental and social safeguards (ICR, paragraph 76).

The Bank team also prepared and implemented two related projects, the West Balkans Drina River Basin Management Project (P145048) and BiH Floods Emergency Recovery Project (P151157). These three projects complemented each other and supported different stages of disaster management cycle (recovery, planning, and investment). According to the ICR (paragraph 56) "this programmatic approach enabled strengthening the disaster risk reduction capacity of the client in line with the United Nations Disaster Risk Reduction (UNDRR) Sendai Framework for Disaster Risk Reduction 2015– 2030." However, the project team could have put more effort to demonstrate the impact of the project intervention.

Overall, Quality of Supervision is rated Satisfactory. While the project experienced implementation delays, these were mostly beyond the control of the Bank team. The Bank team oversaw this project which had serious Quality at Entry issues and guided the project through the complex BiH institutional set-up towards a successful achievement of its revised outcomes.

On balance, Bank performance is rated Moderately Satisfactory.



Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

At the time of appraisal, the PAD did not require a theory of change (TOC). Nonetheless, the ICR included an ex post ToC that was based on the Project Development Objective (PDO) and the results indicators in the PAD. The ToC outlined the relation between the project inputs, outputs and expected outcomes in a valid causal chain (see section 4). The PDO was to be assessed through two key outcome level indicators:

1. Semi-urban and urban area protected from floods in project locations (2010) baseline (target: 54 ha).
2. Rural/Agricultural land protected from floods in project locations (2010) baseline (target: 8,500 ha).

These two indicators were directly linked to the PDO, had a clear baseline and were measurable. However, they do not capture the project outcomes of "increased protection from floods." This can only be assessed by comparing the flood patterns before and after the project's intervention. The two indicators defined as PDO level indicators are output level indicators measuring the area that were covered by infrastructure built or rehabilitated under the project. They do not assess how effective this infrastructure will be in preventing floods.

The RF also included four intermediate outcome indicators, two of which were core Bank indicators relating to direct project beneficiaries and female beneficiaries. The other two intermediate indicators were quantitative measuring the physical infrastructure supported by the project. These indicators were relevant, measurable, and directly linked to the stated activities. The project beneficiaries (target: 20,000) were determined based on estimates by the local municipality in FBiH upon request of the PIU and based on the feasibility study of the Drina dike in RS (ICR, paragraph 59).

The ICR (paragraph 57) correctly pointed out a discrepancy in the PAD with regards to PDO outcome indicators. The PAD (paragraph 20) stated that "the proposed PDO indicators are: (i) Land area prone to floods in each location (hectares urban/rural); and (ii) number of beneficiaries who have reduced exposure to the vagaries of floods." However, the RF reflected only the areas protected as the two outcome level indicators as explained above.

M&E design could have benefitted from providing information about past floods and the increase in the river level and compared it to river level increases after the project's intervention. This would have provided a better assessment of the outcome of the project's intervention rather than just measuring the area the project protected. A thorough analysis of the February 2021 flood in comparison to previous floods could have been invaluable to demonstrate the impact of the project.



Overall, the M&E design was not adequate to capture the project's impact on increasing protection against floods, but it was adequate to assess the outcome of the project in "reducing flood risk."

b. M&E Implementation

According to the ICR (paragraph 60) "at project entry, the progress reports of both the PIUs lacked standardized reporting parameters that ensure equal application of the same standards, methods, and definitions in project monitoring." This situation was remedied by 2017 after both PIUs received support from the Bank to establish a uniform standardized M&E table.

After establishing standardization of the M&E table, semiannual progress reports and M&E tables were submitted regularly by both PIUs. The standardized M&E reports helped the Bank to identify incorrect reporting by the PIUs where expected results of ongoing civil works were reported as achieved results (ICR, paragraph 60).

Revision of PDO indicators. The end target values of the PDO outcome indicator for rural land was reduced at the first restructuring in June 2019 (original target: 8,500 ha, revised target: 3,200) due to the cancellation of civil works. However, there was no change in the target values for the urban/semi-urban protected areas despite the identification of additional sub-projects by the time of restructuring (ICR, paragraph 14 and footnote#4).

c. M&E Utilization

According to the ICR (paragraph 61) "the original results indicators were used by the project management team and decision-makers to monitor progress closely and make adequate changes to the project design during the restructuring." Also, monitoring progress continued after the 2019 restructuring until project completion.

Quality of M&E is rated Substantial. M&E design was adequate to assess the outcome of the project in "reducing flood risk", implementation had shortcomings that were addressed, and utilization was adequate.

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

The Project was categorized as an environmental Category B project triggering OP/BP 4.01 Environmental Assessment. The works envisaged under the project included construction, rehabilitation and modernization



of the drainage and flood protection infrastructure at selected sites along the Drina and tributaries – specifically in Bijeljina (in RS), Gorazde, Foca-Ustikolina and Pale-Praca (the latter three in FBiH). Standard environmentally sound practices would be implemented to ensure minimal disturbances (dust, noise, leaks, spills, machinery use, working hours, and safety on site) to the surrounding areas, flora, fauna, and the population.

The project included construction and civil works of dike systems that involve land acquisition; therefore, OP/BP 4.12 on Involuntary Resettlement was triggered. The project also triggered OP 7.50 Projects on International Waterways as the Drina is an international waterway and a tributary of the Sava and by extension the Danube Rivers. Two Environmental and Social Impact Assessments (ESIAs), one for the FBiH and one for RS, were prepared and disclosed to the public for consultation during the project preparation period. Also, site-specific Environmental and Social Management Plans (ESMPs) were prepared for all six subprojects/construction sites, five for the FBiH and one for the RS, for rehabilitation and improvement of flood protection. Additional ESMPs were prepared for eight locations of erosive river embankments of the Drina after restructuring.

While the project did not trigger OP/BP 4.11 on Physical and Cultural Resources, a contractor for the civil works in Gorazde encountered one unmarked historical grave during excavation of right bank of the Drina. This matter was handled by the FBiH Ministry of Culture and Institute for the Protection of Monuments (ICR, paragraph 69).

Compliance with Environmental Safeguards. According to the ICR (paragraph 63) "no serious environmental concerns pertaining to the project were reported throughout the project period." Both PIUs had a dedicated environmental and social specialist who oversaw all aspects of environmental and social management.

Compliance with social safeguards. According to the ICR (paragraph 65) "the land acquisition and other social safeguard processes were implemented in compliance with the World Bank rules." Grievance redress mechanisms were available in line with the ESMF at both the RS and FBiH for complaints related to project design and land acquisitions.

The ICR highlighted a number of incidents relating to social safeguards during project implementation:

1. The land acquisition for a 1.8 km long sub-section of the Janja River in the RS was completed by the local municipality in 2016 without preparation of the RAP document. This noncompliance case was addressed, and the RAP document was prepared retroactively, confirming that the land acquisition of 27,610 m² and physical resettlement of one household was carried out in line with the national legislation and the World Bank's safeguard policy.
2. In Pale-Praca, FBiH, one landowner filed a legal dispute against the local municipality in 2016 as he found the offered land price unacceptable.
3. In March 2018, 2,206 residents submitted a petition opposing the alignment of the proposed river dike in Bijeljina. Public consultation meetings with the landowners were held eight times after the submission of petition, but no agreement was reached, resulting in substantial change of sub-project components in the RS.



4. A landowner claimed compensation of land parcel (100 m²) on the left bank of the Drina River, which was affected during construction. The owner filed a case in court against the city of Gorazde. According to the ICR (paragraph 71), the city pledged to respect the court decision regarding the compensation amount.

5. In 2020, the local community of Gorazde raised concerns against the flood protection concrete wall, 300 m in length and 2.5 m in height, built in the downstream of the city center. In response the city and the PIU engaged the local community in consultations to revise the design. However, a final approval of the revised design is yet to be issued by the city.

The ICR did not report an explicit statement of compliance for any of the stated safeguard policies but stated that "the overall safeguard rating at project closure was Moderately Satisfactory (ICR, paragraph 72)."

b. Fiduciary Compliance

Financial Management (FM). According to the ICR (paragraph 73) "the financial management arrangements at both implementing units included acceptable accounting, budgeting, organization and staffing, internal controls, counterpart funding, audit, and financial reporting practices." Quarterly unaudited interim financial reports were submitted regularly to the Bank and were found acceptable. The auditor's opinions of the project financial statements for FY19 were unqualified (clean). The ICR did not report the status of the final audit reports for the project.

Procurement. The PIUs had good experience with the Bank's procurement requirements as both PIUs previously implemented four Bank-financed projects. In the early stage of implementation, procurement plans were not updated regularly, but this was remedied after guidance from the Bank. According to the ICR (paragraph 75) "the procurement and contracting procedures and processes followed for the project were of acceptable quality, reliability, timeliness, and transparency." There were no identified noncompliance issues nor there was evidence of corrupt practices (ICR, paragraph 75). The June 2020 post-review concluded that both PIUs were in compliance with Bank's guidelines and rules for procurement activities.

c. Unintended impacts (Positive or Negative)

None.

d. Other

None.



11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons

The ICR included six lessons. The following three are emphasized with some adaptation of language:

- 1. To ensure timely implementation, project readiness must be assessed and ensured as much as possible before effectiveness.** The project entered effectiveness without technical and operational readiness for infrastructure design, which caused substantial delays and subsequent restructuring during implementation. The project was hastily prepared under budgetary limitation of both the RS and FBiH that lacked resources to implement design studies on its own and optimistic assumptions that the civil works identified by past studies would not require substantial adjustment in design. The operational timeline set out during preparation also underestimated the time required for the procurement and implementation of engineering design studies, associated environmental and social studies, and mandatory safeguard processes.
- 2. Proactive and participatory engagement with citizens is key to successful land acquisition and project implementation.** Public hearings need to be conducted as often as possible until the project and local stakeholders reach full understanding and agreement. Every possible measure, including roundtable workshops, participatory consultation approaches, and use of visualization tools (videos and computer graphics of as-built infrastructures), needs to be employed to facilitate public understanding. The project experience suggests that compliance with the Bank procedures was not necessarily sufficient in engaging local stakeholders. Local landowners were opposed to the dike alignment in Bijeljina despite the disclosure and consultation process in compliance with World Bank safeguard procedures. Interviews with the PIU and World Bank team indicated a lack of interest among the project beneficiaries during the consultation process despite the PIU's efforts in publicizing the project through various channels (such as TV, radio, and newspaper).
- 3. Continuous maintenance efforts with due consideration of climate change impact are important to ensure sustained project benefit and should be built into the design of floods management projects.** The continued fulfillment of project benefit requires periodic maintenance of the infrastructure constructed/rehabilitated. In the long run, the infrastructure may also need reinforcement or expansion considering the threats of growing intensity and frequency of heavy rains due to climate change. The project recognizes maintenance of public infrastructure as the



responsibility of local municipalities, and establishment of effective maintenance mechanisms was not embedded in the project's scope. Inclusion of such mechanisms, including integration of climate adaptation measures, would bolster the sustainability of investments. Use of community engagement is also an effective approach to ensure long-term maintenance and management of infrastructures as well as to raise disaster awareness among public citizens.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

Quality of Evidence. M&E design was adequate, but there were some minor implementation shortcomings. Overall, the M&E system provided reliable data to assess implementation progress and the achievement of reducing flood risk.

Quality of Analysis. The ICR provided clear linking between evidence and findings and used the evidence base to serve the arguments under the different sections, in particular the discussion on outcomes.

Lessons. Lessons reflected the project experience and were based on evidence and analysis.

Results Orientation. The ICR included a comprehensive discussion on the achievement of the PDO. It provided a well-balanced discussion between reporting on the achievement of outcomes in relation to the indicators and what the project actually achieved on the ground.

Internal Consistency. Various parts of the ICR were internally consistent and logically linked and integrated.

Consistency with guidelines. The ICR successfully used the available data to justify the assigned outcome rating. Discussion of outcomes was comprehensive, and the efficiency analysis was robust.

Conciseness. The ICR provided comprehensive coverage of the implementation experience and candidly reported on shortcomings. There was enough clarity in the report's messaging. However, the outputs in Annex lacked the expected end targets and the reporting on safeguards did not include an explicit statement on compliance with the Bank's safeguard policies. The ICR reported different restructuring dates (paragraph 13 compared to the ICR data sheet). Finally, the ICR did not clearly explain the reason(s) that the actual costs were 29% lower than the appraisal estimate.

Overall, the Quality of the ICR is rated Substantial despite some minor shortcomings.

a. Quality of ICR Rating Substantial

