Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 21-Oct-2020 | Report No: PIDC30337

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Brazil	P174619		Reducing flood risks and improving living conditions in Ribeirao Isidoro Basin, Belo Horizonte (P174619)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
LATIN AMERICA AND CARIBBEAN	Mar 25, 2021	Jun 15, 2021	Water
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	City of Belo Horizonte	Municipal Secretariat of Works and Infrastructure (SMOBI)	

Proposed Development Objective(s)

To reduce flood risks and improve the living conditions in selected areas of Ribeirão Isidoro water basin in Belo Horizonte.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	168.00
Total Financing	134.40
of which IBRD/IDA	134.40
Financing Gap	33.60

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	134.40

Environmental and Social Risk Classification	Concept Review Decision

High	Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **The COVID-19 pandemic has exposed Brazil to unprecedented social and economic challenges.** Following the 2015/16 recession, the country had not yet recovered, and had limited fiscal policy space. The pandemic and the multidimensional policy response to it have resulted into a sharp decline of external demand, have affected domestic demand and have constrained supply. As a result, Brazil's GDP is projected to decline in 2020, followed by rebound in 2021 and 2022. To protect the most vulnerable people from the impacts of the COVID-19, the Federal Government of Brazil (GoB) has put forward a large, timely, targeted and time bound fiscal package focused on social assistance. The cost of this package in 2020 is estimated at BRL 780.4 billion (US$ 148.1 billion), or 11.1 percent of GDP, of which BRL 25 billion (US$4.73 billion) in transfers to partially compensate municipalities for tax revenue losses due to the recession.

2. **Restoring fiscal sustainability is the most urgent economic challenge for Brazil.** To address unsustainable debt dynamics the GoB adopted a constitutional amendment to limit federal primary expenditure growth to inflation until 2026. Implementing this fiscal adjustment requires alleviating the rigidities affecting public spending and revenue earmarking mechanisms, which turn mandatory over 90 percent of the GoB's primary spending. A constitutional reform of the pension system was approved by the Congress in 2019 and a constitutional reform to control the wage bill of the civil service was proposed in September of 2020.

3. **The large fiscal disequilibrium also affects subnational governments, in terms of revenue shortfalls, rigid current expenditures (mainly, personnel and pensions) and lack of access to capital markets.** Brazilian municipalities started 2020 in an already fragile fiscal situation prior to the COVID-19 pandemic, with revenues slowly recovering from the low levels reached during the 2015–16 economic crisis. In real terms, primary revenues (BRL 666 billion) had just restored in 2018 the 2014 level (BRL 621 billion). Investments decreased between 2014 and 2017, and started to recover in 2018, but ended 2019 (BRL 42 billion, in real terms) below the level reached in 2010 (BRL 57 billion). On the other hand, recurrent expenditures have quickly risen as a result of pressing wage bills and public pensions. As a result, only 13 out of the 26 states' capitals were considered creditworthy to request federal guarantees for external borrowing.

4. **Brazil needs to accelerate its productivity growth and infrastructure development to boost long-term growth.** Low total factor productivity (TFP) growth between 1996 and 2015 has allowed the per capita income of Brazilians to rise by just 0.7 percent per year since the mid-1990s. This corresponds to one tenth of the rate in China and only one half of the average in OECD countries. Also, Brazil has one of the lowest investment levels in infrastructure (2.1 percent of GDP on average between 2000 and 2013) when compared to its peers, resulting in a deterioration of the infrastructure stock that creates acute bottlenecks for production. With limited fiscal space and a dwindling demographic bonus, accelerating productivity growth remains key to sustain long-term growth. To this end, reforms should focus on boosting market competition, open the economy to external trade that could reduce inputs' and technologies' prices and simplification of the tax system. Also, higher levels of investment in infrastructure are needed to ensure an adequate stock of infrastructure capital, remove bottlenecks for production, increase resilience

to climate change and expand access to social services. This calls for improving planning capacity at the Federal Government level, improving the regulatory environment and leveraging private resources to finance investments. While investments in urban infrastructure and services are still crucial to improve the productivity of Brazilian cities and boost long-term economic growth, as private investment is expected to remain weak and fiscal constraints have restricted the availability of credit, there are significant needs for long-term financing of infrastructure.

5. **The municipality of Belo Horizonte (BH) presents solid social, economic and fiscal positions, but its dependency on the service sector makes it more susceptible to the COVID-19 impacts.** BH is the fourth richest municipality in Brazil with 1.35 percent participation of the national GDP (IBGE Municipalities GDP, 2017). Services is the main economic sector and represented 86.2 percent of the municipal gross value added in 2017 (industry was responsible for another 13.8 percent). BH's annual CPI inflation accumulated 2.0 percent in July 2020. Prior to the pandemic, unemployment rate and the participation rate were 12.8 and 68.1 percent, respectively. In 2018, poverty at the US$ 1.90 (PPP) line reached 20.5 percent. While the Municipality of BH has one of the highest Human Development Indexes (HDIs) in the country at 0.810, it displays significant disparities within its districts – such as the ones targeted by the proposed Project in the North and Northeast of the city – ranging from 0.6 to 0.7 in 2010 (Refer to Annex 1 / Figure 2 for a map showing BH's HDIs). Between 2016 and 2017, BH saw a significant increase in its vulnerable population (15.3 percent). In 2018, close to 30 percent of the population had an average nominal wage equal to half the minimum wage and the city had 8.4 percent of its population (212,000 people) living in poverty or extreme poverty. Currently, BH is considered creditworthy by the GoB to access federal guarantees; it is also the fourth state's capital with less rigid expenditures: the expenditures with wages, pensions, debt services and other current expenditures amounted only 47.2 percent of the total expenditures in 2019. This was possible because the expenditures with salaries and pensions in 2019 were of only 47.8 percent of the net current revenues (the third lowest among the states' capitals). This flexibility in the expenditures is especially important as it allows the Municipal Government to adjust its budget to accommodate the reduction of the tax revenues due to the COVID-19.

Sectoral and Institutional Context

6. **The Metropolitan Region of Belo Horizonte (MRBH) encompassing 34 municipalities with an overall population of 5.9 million is the third metropolitan area in Brazil.** The city of BH is the political and administrative capital of the State of Minas Gerais, and also the economic nucleus of the MRBH, with 2.5 million inhabitants and an area of 331 km2. The city has experienced a large economic and population growth in the past 10 years. Its population is growing at 5.4 percent annually since 2010, and has been accompanied by unplanned territorial expansion and an increase in informal settlements (Refer to Annex 1 / Figure 1 for a map showing BH's location within Brazil and within MRBH).

7. **In the process of uncontrolled urbanization, streams like the Nado and Vilarinho have been partially obstructed and encroached changing the natural drainage and ecosystem functions of the system in many ways.** From the 1960s, with the arrival of the automobile industry in the country, this process intensified and led to urban reform favoring widening of roads, opening of expressways, avenues, among others. Urban water courses were seen as obstacles to the regular development of the city and were used for sewage and solid waste disposal. Overall, they had no landscape or economic value to the city. The approach to urban drainage consisted on the canalization and tunneling of the city's main rivers – out of the 700 km of water courses in the capital, a total of 208 km has been intervened of which 45 km are open channels and 165 km of tunnels.

8. **BH is confronting unprecedented urban development and water management-related challenges.** They include: rapid and exclusionary urbanization process; high housing cost relative to income, which drives the low-income population to occupy low-lying flood plains and hillsides; the rising frequency and intensity of climate-related events,

such as landslides and floods; the scarcity of land resources; and the overall difficult task of providing adequate housing, services, and infrastructure in informal areas (Refer to Annex 1 / Figure 3 for a map showing informal settlements).

9. **Flood risks in BH are increasing as a result of climate change, uncontrolled urbanization and insufficient drainage capacity.** Large part of the city is built on hills, and urbanization with its consequential impermeabilization process has reduced the infiltration capacity of the area. Rain cannot be absorbed by the underground. Therefore, rain leads directly to surface run-off causing high peak discharges to the drainage system in the lower areas. The original flood areas of the streams have been occupied and, in many cases, the natural drainage system has been covered by buildings and roads, further reducing their discharge capacity. The combination of impermeabilization, reduced drainage capacity and more intense storms leads to frequent flooding of large parts of the city. Rapid and uncontrolled informal urban expansion and insufficient drainage in combination with the topography and geology also result in an increased risk of landslides. This is the case for many of the locations where uncontrolled urbanization takes place and which are occupied by the poor and vulnerable.

10. **In January 2020, the city had to cope with a prolonged period of rain with a total of 935 mm, half of the average annual precipitation, and almost three times as high as the average amount of rain for that month.** A peak in precipitation occurred on Friday, January 24, when the city was struck by 171.8 mm rains in 24 hours. This was the highest measured amount of rain during the 110 years of continuous recorded data. That day a storm delivered 70 mm of rain in 30 minutes, which is an event that has a return period of once every thousand years. This led to the decision of the Minas Gerais Government to issue on January 27 a state of emergency in BH and other 100 municipalities impacted by the torrential rains (Refer to Annex 1 / Figure 4 for pictures from the January 2020 flood events in BH).

11. **These storms have led to high impact on assets and people with significant economic damages.** Minas Gerais Civil Defense reported 14 people casualties in the MRBH, including in BH and the municipalities of Ibirité and Betim. Most of these were the result of landslides. Close to 6,767 people were evacuated while close to 3,390 were left homeless. Roads turned to wild rivers, reducing the mobility in and around the city dramatically. Buildings were destroyed by floods and landslides, including a city hospital. These torrential rains and their consequential flooding and landslides have emphasized the need to increase the city's resilience and invest in structural and non-structural measures to mitigate the effects of these natural events. To reduce flood risks the city has already built large reservoirs, like the Liege reservoir in the Vilarinho basin, to temporarily retain water reducing peak flows. Additional interventions are under construction to reduce the probability of floods to a return period of 10 years (Refer to Annex 1 / Figure 5 for a map showing constructed, under construction and planned water reservoirs in BH).

12. **Devastating floods have occurred during recent years in the Ribeirão Isidoro basin in the Northern part of BH, where the Nado and Vilarinho watersheds drain major parts of the Venda Nova and Norte administrative regions.** These administrative regions are densely occupied in an area where the geography is highly undulating. Venda Nova and Norte are also extremely important in the territorial planning of BH, especially because they are strategically located between the downtown area of the city and the Northern municipalities of MRBH, where many people live. They are therefore crossed by two of the city's main mass public transport systems (BRT Move and Metrô). In the East of the basin lies the Izidora region, where several new low income and informal settlements are flourishing. Venda Nova, Norte and Izidora are all areas to be targeted by the Project (Refer to Annex 1 / Figure 6 for a map showing the Ribeirão Isidoro basin, the administrative regions of Venda Nova and Norte, and the Izidora region).

13. **Approximately 20 percent of BH's population live in informal settlements (currently 300), which occupy an area of**

24.6 km2, equivalent to 7.4 percent of the municipality's entire territory. The Izidora region occupies an area of approximately 9.5 km2 and is recognized as being the "last frontier" of the city for urban expansion. It is considered highly important and sensitive from both urban and environmental perspectives, with 280 water springs and 64 streams, including the Macacos Stream (Córrego dos Macacos), part of Rio das Velhas Basin, and main water source for the city. The informal occupation of the Izidora region started in 2013 and saw rapid progress, which was facilitated by organized social movements. Despite the city government's effort to enforce zoning and land use regulations, the rapid expansion of Izidora is threatening to jeopardize the city's capacity to safeguard the multiple sensitive ecological systems including water springs and a stretch of rain forest. Such uncontrolled expansion, if not appropriately managed, may also lead to the municipality's inability to provide adequate solutions to the vulnerable population already living in the area in extreme poverty, precarious and/or at risk housing conditions, and lacking infrastructure and public services, such as water, sanitation, electricity, solid waste collection, and accessibility. If no proper interventions are included in the design to detain, retain or drain rainwater, these will also suffer from floods and landslides. According to the Climate Change Vulnerability Study of BH, the Northern, Northeastern and Eastern districts of the city will become more vulnerable to floods and landslides. Future climate trends show an increase of 32% in the relative variation to climate exposure of events associated with intense rain. This will result in an increase of the number of neighborhoods with high vulnerability to 60% (331/486 neighborhoods). The meteorological models simulated for 2030 indicate that in general, there will be an increase of flooding in the city, which tend to be more intense, with an increase of concentrated rain and higher impacts. This will put heavy burden on the approximately 4,900 low-income families living in four consolidated low income settlements in the Izidora region: Helena Greco, Rosa Leão, Esperança and Vitória. (Refer to Annex 1 / Figure 7 for a map locating the city's low income and informal settlements, and Figure 8 for a map locating the "Izidora" Project targeted area).

14. **BH has been at the frontier of innovation and upgrading of urban infrastructure and services.** Over the last 14 years, the municipality has implemented an ambitious program ("Vila Viva"), having completed integrated upgrading interventions in 12 favelas, which benefited approximately 138,000 people and led to fundamental transformation of the disadvantaged communities. The municipality has also adopted consistent policies and investments in infrastructure, having prioritized the integrated urban water management agenda. Now, the municipal Government seeks to follow up on its ambitious plan to upgrade selected informal settlements in the North region and stop uncontrolled expansion.

15. **The 2004 Sanitation Plan of Belo Horizonte, still valid to date, has adopted a multicriteria analysis (MCA) including sanitation, epidemiological and environmental-related aspects to prioritize interventions.** The Plan includes a diagnostic of actions and services in the areas of water supply, sanitation, drainage and solid waste management, based on which key annual investment demands to be financed by the Municipal Sanitation Fund (Fundo Muncipal de Saneamento, FMS) are identified and prioritized. In relation to flood risk reduction, the MCA identified Nado and Vilarinho sub basins to be part of the top 10 priority basins in Belo Horizonte.

16. **The BH's comprehensive Drainage Master Plan ("Plano Diretor de Drenagem") was approved in 1996 and is in its second phase of implementation since 2009.** The Plan is based on modern principles and combines green and grey infrastructure and multi-functional land use. It also integrates different sectors to optimize impacts of interventions. In line with the planning instruments and guidelines. The municipality has been focusing on implementing sector programs, such as the Belo Horizonte Program for Environmental Recovery (Programa de Recuperação Ambiental de Belo Horizonte – DRENURBS) (launched in 2004), targeted at investments in civil works, environmental and social management, as well as overall institutional strengthening for risk mitigation. The second phase of DRENURBS (2013-2020) focused on institutional development and prevention type of activities, including the development of a hydrometeorological network, early warning systems, and integrated system for management of floods, and studies

for flood reduction and mitigation in the main risk areas of Ribeirão Isidoro, Ribeirão do Onça, and Ribeirão Arrudas basins.

17. **The city has also recently approved the Urban Development Master Plan (Plano Diretor) following an extensive consultation process with technical specialists, civil society and the private sector.** The Plano Diretor has adopted progressive and innovative policies and instruments to manage sustainable urban development, including significant use of land-based financing instruments, as well as environmentally considering and inclusionary zoning instruments; and has given special attention to increasing open areas, promoting infiltration and decreasing surface runoff, in alignment with infrastructure sector specific guidelines, such as the ones in the city's resilience-oriented Drainage Master Plan.

18. **Over the years, the WB has developed a close partnership with BH. The city was to be part of the original Brazil Adaptable Lending Program (APL), which envisaged the financing of upgrading in two favelas within the municipality of BH with an integrated urban water management approach.** With the availability of GoB's PAC funding, the Municipal Government decided to use PAC for the investments and partnered with the Bank on a DPL (Inclusive Urban Development **Policy** Loan – P126749), which was approved in 2013. The DPL supported policies to promote integrated and sustainable urban development and reduce social vulnerability through innovative approaches to urban planning, environmentally sustainable development, social inclusion and participation, and sustainable governance. The recently approved US$ 80 million loan to finance the "Improving Mobility and Urban Inclusion in the Amazonas Corridor Project" (P169134) will support investments in a new BRT corridor (Amazonas) and the upgrading of the informal settlement Cabana do Pai Tomás.

19. **Following the previous and ongoing engagements, and in order to ensure the synergies and in turn achieve sustainable and amplified results, the Municipality has requested support to the Bank for a multipurpose operation that combines flood risk reduction interventions in the watersheds of the Nado and Vilarinho streams with urban upgrading activities in the Izidora region.** The Project provides unique opportunities to combine urban upgrading with reduction of flood risks. On one hand, the watersheds of Nado and Vilarinho present the challenge of finding sufficient space to detain, retain and discharge increasing amounts of rain in already consolidated areas. On the other, in the downstream Izidora region, the challenge is to assure that flood risk management and environmental preservation are fully integrated in new urban expansion and settlement areas. Environmental preservation and use of green infrastructure are also likely to contribute to carbon sequestration, reduction of heat islands and improving air quality.

Relationship to CPF

20. **The proposed Project includes interventions that correspond to some of the top priorities for Bank engagement, addressing poverty, climate change adaptation (and mitigation) and institutional capacity; as well as fostering innovation**.

- *Project's fit with the twin goals*: The Project will directly benefit the poor who live in precarious informal settlements. Flooding in the targeted areas also disproportionally affect the poor while also cause significant economic loss.
- *Innovation*: The Project is cross sectoral integrating interventions on flood risk reduction and urban upgrading to increase the city's resilience. The city has made significant steps in aligning activities while implementing green interventions to increase resilience. Global knowledge will help including additional green infrastructure, further increasing robustness and flexibility to cope with challenges brought by climate change.

- *Replicability and scalability*: The engagement with a highly capable city will give the WB opportunity to develop an evolved approach to urban interventions that fully integrates environmental considerations, climate change concerns, and water management. This approach can be calibrated with international experiences, and can inform new projects in Brazil and other countries in the region.
- *Climate considerations*: The basins addressed are sensitive to climate change (see Annex 1 / Figure 3). More extreme weather events will lead to more flooding and landslides unless proper interventions are carried out. The interventions planned will reduce flood probability to a return period of 1:50 and the development of the Izidora region will take into consideration climate change in the design of the multiple interventions. This will lead to increased resilience of the people living in these urban areas. Climate and geophysical hazards (floods and landslides) are considered in the design of the interventions to assure their structural integrity, longevity and overall effectiveness of the investments. As preparation proceeds, measures need to be considered for quality enhancement. These include, but are not limited to: updating climate change scenario's, addressing potential for additional measures and concretizing green interventions in the micro drainage system.
- *Citizen Engagement*: The Project will rely on participatory channels for planning and overseeing its interventions. It will support the implementation of a social work plan that has a focus on (a) the creation, capacity building and monitoring of a Reference Group of community volunteers, and (b) providing information about the works and their implementation progress through meetings and other means of communication with the local community. The Project will also put in place a Grievance Redress Mechanism (GRM). Indicator(s) able to capture feedback from citizens will be defined during preparation. Some options being considered are: (a) citizens satisfaction with the institutionalized channels for citizen engagement and collaboration on planning and execution of Project interventions (disaggregated by specific groups, e.g. female, vulnerable population directly affected population), (b) citizens and/or communities involved in planning, implementation and evaluation of development programs, and (c) grievances responded and/or resolved within the stipulated service standards for response times.
- *Gender*: The Environmental and Social Impact Assessment (ESIA) will take in consideration gender aspects to measure gender-based gaps on two main dimensions – "participation in community based decision-making processes" and "land / house ownership" – as well as on how these factors contribute to women's agency. The Project has an enormous potential to contribute to overcome gaps in having access of men and women to ownership rights as the Borrower's regulatory framework on social housing gives priority to handle titles to women. The ESIA will also consider patterns of access to sanitation and income gaps between households who have men and women as the main provider as well as rates of gender-based-violence and will propose measures to address the most relevant issues.

21. **The proposed Project is fully aligned with the World Bank Group's FY18-FY23 Country Partnership Framework (CPF) for Brazil** (Report #113529-BR), discussed by the Executive Directors on July 13, 2017. It fits within Focus Area 3, *Inclusive and Sustainable Development* and it contributes to Objective 3.2 (*To provide more inclusive and sustainable urban services*), by addressing vulnerability and exposure of communities and public assets to environmental degradation, natural hazards and climate change, and by promoting access to quality and green infrastructure to poor living in informal settlements.

C. Proposed Development Objective(s)

To reduce flood risks and improve the living conditions in selected areas of Ribeirão Isidoro water basin in Belo Horizonte.

Key Results (From PCN)

22. The main results envisaged by the Project are:

- Reduced exposure and vulnerability of the population and assets to flood events up to a return period of 1:50 years in the Vilarinho and Nado sub-basins (Norte and Venda Nova regions);
- Improved urban living conditions of the poor in selected precarious settlements located North of Belo Horizonte (in the Izidora region);
- City's strengthened capacity to promote participatory territorial planning and implementation of urban upgrading; and
- City's strengthened capacity to adopt climate-smart and sustainable practices in integrated urban water management and urban development.

23. Achievement of the Project's results will be measured through the following PDO-level indicators:

- Reduced flood probability (1:50) through the implementation of the Project's structural and non-structural interventions, as designed;
- People provided with improved urban living conditions (WB CRI); and
- Proportion of beneficiaries satisfied with the Project, of which female.

24. A Theory of Change for the Project has been prepared and is presented in Annex 2. It articulates and links the context-specific development challenges faced by BH, the proposed Project inputs, and the expected outputs and outcomes, to be tracked and measured through PDO and intermediate-level indicators. Higher level impacts accruing from the Project are also included.

D. Concept Description

25. The proposed Project focuses on:
- Optimizing the drainage system of the Ribeirão Isidoro basin, by carrying out macro and micro drainage interventions and non-structural measures to reduce the impacts of runoff, safely manage storms with return periods of 25 (phase 1) and 50 years (phase 2) considering climate-exacerbated effects;
- Controlling the expansion of informal settlements towards environmentally protected and sensitive areas in the Izidora region;
- Improving the quality of life of the residents of selected low income and informal settlements in the Izidora region, through integrated investments in risk reduction, infrastructure and services; and
- Strengthening the institutional capacity of the municipality of BH to address climate change, promote citizen engagement, and participatory and inclusionary territorial planning.

26. The Project is comprised of four components.

Component 1 – Flood Risk Reduction in the Ribeirão do Isidoro Basin (US$79.41 million of which US$63.54 million IBRD)

27. This involves the preparation of technical designs and the implementation of works to reduce the probability of floods to a 50-year return period. The structural interventions include updating and expansion of existing network, underground reservoirs and surface reservoirs, combined with linear urban parks, promoting green interventions to increase infiltration and retention and promote the multifunctional use of areas allowing more space for water during

high intensity storms.

28. The works include the construction of four new reservoirs and enlargement of an existing one. This requires the acquisition of five plots of land (total area is approximately 42,500 m2) and the resettlement of up to 40 families. These Project-affected families will be resettled in housing units built by the Project and/or receive cash compensation for lost assets.

Component 2 – Urban Upgrading of Selected Precarious Settlements in the Izidora Region (US$80.19 million of which US$63.22 million IBRD)

29. The proposed activities within this component target four consolidated low income settlements in the Izidora Region: Helena Greco, Rosa Leão, Esperança and Vitória. These are located in the Northeast part of the city, which has been identified as a hotspot for increased vulnerability to climate change by 20301. They aim to contain the advance of informal urban sprawl over environmentally sensitive, at-risk and poorly serviced neighborhoods, as well as improve the precarious housing conditions that prevail among the inhabitants of the area.

30. The component finances integrated investments in infrastructure and services, among which public facilities and amenities, rehabilitation and/or construction of roads, water supply and sanitation systems, electrification and public street lighting, implementation of urban parks, and construction of 680 resettlement housing units. Up to 980 families (including a few local businesses) will be affected by these interventions and resettled by the Project.

31. This component will particularly seek sustainable and resilient technologies, strategies and design features with expected mitigation co-benefits: nature-based solutions, renewable energy (solar energy), water neutral development (detain, retain, discharge), water reuse, electric transport, among others. The design and implementation model shall also be one allowing for simultaneous planning and action, so that results can be seen in the short, medium and long term.

Component 3 – Institutional Strengthening (US$2.52 million, all of which IBRD)

32. This component involves technical assistance activities and aims to improve and strengthen the institutional capacity of the BH municipality to: (i) develop and enforce the territorial planning of the Izidora region, anchoring it in broad community engagement and participatory processes; and (ii) address climate change, especially by generating and internalizing knowledge and innovation on clean and efficient building and nature-based solutions for integrated urban water management and disaster risk management.

33. Knowledge gained from the implementation of this component would feed the other two components and be replicated in other territories in the municipality. The themes and topics to be addressed by the technical studies include, among others: (i) inclusionary urban planning, land-based and land-based financing instruments; (ii) structural and non-structural solutions to mitigate flood and landslide risks that would complement the investments from Components 1 and 2; (iii) innovative and community-led strategies to support operation, maintenance and management of environmentally protected areas; (iv) alternative mechanisms and options for co-financing affordable housing programs; (v) technological innovations, green and sustainable considerations in affordable housing and urban upgrading: solutions for water and energy efficiency; solutions for renewable energy; alternative

[1] *Análise de Vulnerabilidade às Mudanças Climáticas do Município de Belo Horizonte*, 2016
https://www.kas.de/c/document_library/get_file?uuid=81e6462d-a9af-ae09-9817-b797afbf41ad&groupId=252038

solutions for the treatment of domestic wastewater and sewage; etc.

Component 4 – Project Management (US$5.88 million of which US$5.12 million IBRD)

34. This Component focuses on providing overall implementation support to the Project's Management and Executing Units (PMU and PEU), in technical, environmental, fiduciary, works supervision, M&E, and communications-related areas. It will also involve eligible investments in training and Project operational costs.

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

Summary of Screening of Environmental and Social Risks and Impacts

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APPROVAL

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