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**United Nations Development Programme**

**Project Document**

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| --- | --- | --- | --- | --- |
| **Project title:** Enhancing climate resilience of the Urban Landscapes and Communities in Thimphu-Paro region of Bhutan (ECRUL) | | | | |
| **Country(ies):** Bhutan | **Implementing Partner (GEF Executing Entity):** Ministry of Infrastructure and Transport (MoIT) | | | **Execution Modality***:* National Implementation Modality (NIM) |
| **Contributing Outcome (UNSDCF/CPD, RPD, GPD)***:* Outcome 4: Bhutan’s communities and the economy are more resilient to climate change induced disasters and biodiversity loss as well as economic recovery (Output 4.1 Inclusive risk informed systems and capacities in place to enable people to benefit from conservation and sustainable management of natural resource and reduced environmental and health risks. Output 4.2 National policies and programmes foster food self-sufficiency, innovative financing an inclusive business environment and improved livelihoods through climate change resilient value chains and nature-based solutions) | | | | |
| **UNDP Social and Environmental Screening Category:** Moderate | | | **UNDP Gender Marker:** 2 | |
| **Quantum Award ID:** *not required at submission stage. This must be created after CEO endorsement*/Approval. | | | **Quantum Project ID:** *This must be created after CEO Endorsement/Approval. It can only be approved after Prodoc Signature.* | |
| **UNDP PIMS ID number:** | | | **GEF Project ID number:** 11109 | |
| **LPAC meeting date:** *this date must be before the expected CEO endorsement date* | | | | |
| **Last possible date to submit to GEF:** | | | | |
| **Latest possible CEO endorsement date:** | | | | |
| **Project duration in months:** 72 | | | | |
| **Planned start date**: January 2025 | | | **Planned completion date: December 2030** | |
| **Expected date of Mid-Term Review (MTR) submission to the GEF:** August 2027 | | | **Expected date of Terminal evaluation (TE) submission to the GEF:** July 2030 | |
| **Expected Operational Closure Date:** *June 2030* | | | **Expected Financial Closure Date: *December 2030*** | |
| **Brief project description:** Bhutan is highly vulnerable to climate change and climate induced hazards. The project seeks to address the impact of riverine (fluvial) and surface water (pluvial) flooding, cyclonic events, and water stress on the residents of Thimphu and Paro. These two cities face climate change-induced alterations in weather patterns, increased frequency and intensity of climate-induced hazards, leading to severe weather events. Despite being a high per capita water availability, Bhutan faces a paradoxical situation with drinking water due to declining rainfall. The existing water infrastructure is inadequate, limited climate proofing exposing to disaster. The issue of water availability is further exacerbated by increasing urban population, rapid urbanization and climate change. The terrain in these two regions also suffers from increasing landslides, flooding and forest fire risks. There's an urgent need for nature-based solutions, resilient urban planning, and infrastructure development to mitigate these issues.  The project will benefit 146,298 (Thimphu Male: 58,996 Female: 55,555; Paro Male: 12,091 Female: 19,656) people in the Thimphu-Paro region, by managing 600 hectares of watershed and springshed land, developing water retention systems, and upgrading early warning systems. It aims to build over 200 climate-resilient structures and train over 200 stakeholders and community members. The project prioritizes gender-responsive urban planning through the development of local adaptation plans and empowers communities through participatory planning and fostering entrepreneurship, especially among women and youth. It also encourages private sector involvement through training, green financing, and public-private partnerships. By raising climate awareness and changing behaviours, the project will contribute to increased resilience of Thimphu and Paro. | | | | |
| **Financing Plan** | | | | |
| GEF Trust Fund grant | | | USD 19,673,000 (LDCF) | |
| UNDP TRAC resources[[1]](#footnote-2) | | | USD 75,000 | |
| Confirmed cash co-financing to be administered by UNDP | | | USD | |
| 1. **Total Budget administered by UNDP** | | | **USD 19,748,000** | |
|  | | | | |
| 1. **Total confirmed co-financing to this project not administered by UNDP** | | | **USD** | |
| 1. **Grand-Total Project Financing (1)+(2)** | | | **USD** | |
| **Signatures:** | | | | |
| **Signature: Secretary, Ministry of Finance** | | **Agreed by Government Development Coordination Authority** | | **Date/Month/Year:** *within 6 months of GEF CEO endorsement* |
| **Signature:** *Secretary, Minsitry of Infrastructure and Transport* | | **Agreed by Implementing Partner** | | **Date/Month/Year:** *within 6 months of GEF CEO endorsement* |
| **Signature: Resident Representative, UNDP Bhutan** | | **Agreed by UNDP** | | **Date/Month/Year:** *within 6 months of GEF CEO endorsement* |

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***Abbreviations***

|  |  |
| --- | --- |
| ACREWAS | UNDP/GEF’s “Advancing Climate Resilience of the Water Sector in Bhutan” project |
| ADB | Asian Development Bank |
| APAN | Asia-Pacific Climate Change Adaptation Forum |
| APN | Asia Pacific Network for Global Change Research |
| APRSAF | Sentinel-Asia initiative of the Asia-Pacific Regional Space Agency Forum |
| CDMS | Centralized hydro-met Data Management System |
| CSO | Civil Society Organisation |
| DRR | Disaster Risk Reduction |
| EbA | Ecosystem Based Adaptation |
| EAROPH | Eastern Regional Organization for Planning & Human Settlements |
| EWS | Early Warning System |
| FSP | Full Sized Project |
| FYP | Five Year Plan |
| GAAP | Gender Assessment and Action Plan |
| GCoM | Global Covenant of Mayors |
| GEF | Global Environment Facility |
| GEFSEC | Global Environment Facility Secretariat |
| GIS | Geographical Information Systems |
| ICT | Information and communication technology |
| IoT | Internet of Things |
| ISOCARP | International Society of City and Regional Planners |
| JICA | Japan International Cooperation Agency |
| KAP | Knowledge, Attitude, and Practice |
| MoAL | Ministry of Agriculture and Livestock |
| MCR | Making Cities Resilient |
| MLD | Million litres per day |
| MOF | Ministry of Finance |
| MoIT | Ministry of Infrastructure and Transport |
| MTR | Mid-term Review |
| MUSD | Million US Dollars |
| NbS | Nature Based Solutions |
| NCHM | National Center for Hydrology and Meteorology |
| NGO | Non-governmental Organisation |
| NIM | National Implementation Modality |
| RAP | UNDP Regional Asia-Pacific |
| PES | Payment for Ecosystem Services |
| PIF | Project Identification Form |
| PIR | GEF Project Implementation Report |
| POPP | Programme and Operations Policies and Procedures |
| PPG | Project Preparation Grant |
| PPP | Public Private Partnership |
| PwD | Persons with Disability |
| RGoB | Royal Government of Bhutan |
| SCADA | Supervisory Control and Data Acquisition |
| SESP | Social and Environmental Screening Procedure |
| SEP | Stakeholder Engagement Plans |
| STAP | GEF Scientific Technical Advisory Panel |
| SDG | Sustainable Development Goal |
| TE | Terminal Evaluation |
| TVET | Technical and Vocational Education and Training |
|  |  |

**Development Challenge**

**Background Context**

Bhutan is a small landlocked country in the Eastern Himalayas, occupying 38,394 km2 between China in the north and India in the south, east, and west. High snow-capped peaks and alpine pastures occupy the north, and the mid-ranges are covered with temperate forests in deep, north-to-south valleys and hills created by fast-flowing rivers. The southern foothills comprise alluvial plains with broad river valleys and sub-tropical forests. About half of Bhutan's rugged terrain has slopes greater than 50%, and ≈52.45% of its land area is over 2,600 meters above mean sea level. The country, with its fragile mountainous ecosystems, is part of a global biodiversity hotspot. Bhutan is among the least populated countries in mainland Asia, with a population of 727,145 (47.7% ♀ 52.3 ♂) and a population growth rate of 1.3%. Meadows cover 2.51% , shrubs, 9.74% and 5.35% of Bhutan is under snow and glaciers. 51.44% of the total area is protected. Only 2.75% or 112,556.2 hectares constitute cultivated agricultural land. In recent years, Bhutan has been experiencing rapid urbanization growth. As of 2022, 43.69% of Bhutan's population lives in urban areas[[2]](#footnote-3). Bhutan's urbanization growth rate was the highest among South Asian countries[[3]](#footnote-4). Climate change is influencing Bhutan's trend of urbanization by negatively impacting its water resources, agriculture, and natural environment.

Bhutan's growing cities need improved climate resilience. Urbanisation, particularly rapid growth in Thimphu (holding 40% of the national urban population) and Paro, is straining resources and infrastructure. [[4]](#footnote-5) Bhutan's urban centres are unevenly distributed, with recent rapid growth in Thimphu and Paro and a growing trend as people migrate from rural to urban areas, causing land pressure and unplanned suburban development. These river valley cities already face inherent flood risks, water stress and climate change is amplifying threats like landslides, forest fires, and extreme weather events such as the too much and too little water issue. Projections of climate models suggest a significant increase in droughts, floods, and heatwaves, leading to urban flooding, landslides, and forest fires. [[5]](#footnote-6)

To adapt and thrive, Bhutan’s cities need a two-pronged approach. First, a coordinated and inclusive planning process for resilient urban development is crucial. This involves collaboration between municipalities, national agencies, and the private sector. Second, enhancing technical capacity and overall awareness among citizens is essential. Municipalities, relevant agencies, the private sector, as well as urban communities and individuals, all need expertise to plan and build resilient infrastructure by using nature-based approaches and climate informed decision making. By taking these steps, Bhutan can strategically build urban resilience and ensure its cities can flourish in the face of climate challenges.

The country urgently needs to initiate this process. Otherwise, because of climate change, the resulting temperature and precipitation change can cause more intense urban flooding, landslides, drought and forest fires. In the long run, this will affect Thimphu and Paro's economy/livelihood activities, landscape, and population with women and other vulnerable groups experiencing disproportionate impact. As the impacts of climate change worsen, the cost of responding to these challenges will also increase. The cost of inaction of not integrating nature-based solutions will lead to severe damages to infrastructure due to extreme weather events as evident from the climate projection. Therefore, investing in resilience now can help to mitigate these costs in the future.

**Problem Statement**

Despite being water-abundant, Bhutan faces a paradoxical situation with drinking and sanitation water shortage in some areas, including the cities of Thimphu and Paro, due to uneven distribution, seasonal variations, and water quality issues. Distribution issues and seasonal variations are exacerbated by climate change, increasing urban population and rapid urbanization. In addition, the existing water infrastructure is inadequate, and has limited capacity to incorporate nature-based solution. . The terrain in these two regions also faces increasing urban flash floods, landslides and forest fire risks with intense impact on women and other vulnerable population. There is an urgent need for nature-based solutions, resilient urban planning, and infrastructure development to mitigate these issues.

**Climate Change – current situation and historical trends**

Bhutan is the 38th most vulnerable country and the 62nd most ready country for climate change impacts, according to the ND-GAIN Index[[6]](#footnote-7). Bhutan has experienced temperature increases since the 1960s and observations show temperature increases, with minimum temperatures increasing faster than maximum temperatures[[7]](#footnote-8). The mean annual temperature in Bhutan has increased by 0.8 degrees Celsius. Similarly, seasonal temperature has also increased, with the highest increase of 1.3 degrees during winter[[8]](#footnote-9).

Flooding is considered the most significant climate-related hazard faced by Bhutan, with most of the country's infrastructure located along drainage basins due to limited space for settlement, which are highly vulnerable to heavy monsoon rains and glacial lake outbursts. For instance, in 2016, flooding impacted the Phuentsholing -Thimphu highway in several locations. The Kamji Bridge along the Phuentsholing -Thimphu highway partially collapsed due to flooding. The national highway linking Thimphu and Paro airport is considered one of the most critical roads in Bhutan, serving as the primary route for transporting essential goods such as raw materials, fuel, medical supplies, and manufactured products[[9]](#footnote-10). Thimphu's residents experienced food and fuel shortages during this flood. This flood event also had a significant economic impact, causing a 0.36% reduction in Bhutan's gross domestic product[[10]](#footnote-11). Cyclone Aila in May 2009 led to severe flash floods across the country, particularly around Thimphu. It resulted in the loss of twelve lives and caused property damage worth USD 17 million[[11]](#footnote-12). Cyclone Aila also led to severe flooding and property loss in Paro, threatening its international airport operations. Due to Cyclone Aila, Paro recorded the highest rainfall of 107.4 mm/day in 2009[[12]](#footnote-13). Additionally, during heavy rain in the Thimphu, sewer overflow onto Norzin Lam and other Thimphu roads has become common.[[13]](#footnote-14). Several major flood incidents have occurred near Thimphu and Paro, especially flash floods during the monsoon season. In 2000, a flood shut down the Thimphu highway for a month and altered the paths of the Toorsa and Dhotikhola[[14]](#footnote-15).

**Future projections**

Future climate projections indicate a significant temperature increase. For instance, the CCKP models show that during 2040-2059, the average daily temperature of Bhutan is estimated to increase by 2.2°C under RCP 8.5. Such temperature increases will lead to heat waves and urban island effects in the Thimphu and Paro regions. As cities like Thimphu and Paro grow, new roads and buildings will displace trees, ponds, and soil. Temperature increase could exacerbate the effects of heat waves, leading to even higher temperatures in these urban areas. The current median probability of a heat wave in Bhutan is around 2%. By the 2090s, this is projected to increase dramatically, with the probability rising to approximately 20% under RCP4.5 and RCP6.0 and as high as 36% under RCP8.5[[15]](#footnote-16). Overall, the existing climate models show a trend of consistent warming that varies by emissions scenario (See technical annex 22)[[16]](#footnote-17).

Along with existing high-resolution climate projections, lower-resolution national projections indicate similar maximum temperature increases (See annex 22). Using the lower-resolution projection data from the National Institute for Environmental Studies (NIES), Japan, the project team studied the 1km\*1km projection of Bhutan and found a similar temperature increase. The national level projection shows that Maximum temperature and Minimum temperature are likely to increase across Bhutan under all scenarios and all timescales. Maximum temperature increases more in the central and northern parts of Bhutan, and both Thimphu and Paro are part of the Central region of Bhutan.

The increase in maximum temperature in Paro and Thimphu project area ranges from around 1.24 °C under the near-term best-case scenario (SSP126) to around 2.12 °C under the medium-term (2041-2060) worst-case scenario (SSP370). Among the project areas, Kawang, district in the north of Thimphu, is expected to witness the highest maximum temperature increase of 2.12°C during 2041- 2060 under SSP 370. The lower-resolution projection of different project areas is provided in climate rationale annex.

Like maximum temperature, precipitation is likely to increase across Bhutan under all scenarios and all timescales (See Annex 22 for further details). In terms of annual precipitation ratio deviation, deviation of a specific year's total rainfall from the long-term average, deviation in the Paro and Thimphu project area ranges from around 2.5% under the near-term best-case scenario (SSP126) to around 7.5% under the medium-term (2041-2060) worst-case scenario (SSP370).

**Implications**

Bhutan is already experiencing the adverse effects of climate change. Rising temperatures threaten water supplies by drying up springs and reducing recharge capacity. Projections show accelerated snowmelt will disrupt river flow patterns, further impacting water availability. Climate change will disproportionately harm the most vulnerable – including women, children, youth, persons with disabilities, and those living in poverty.[[17]](#footnote-18)

Changes in seasonal precipitation are expected, with longer dry spells in January and December. This will exacerbate water scarcity and increase the risk of forest fires. Droughts, higher temperatures, and dry conditions create an ideal environment for devastating wildfires.[[18]](#footnote-19) [[19]](#footnote-20)

By the year 2050, it’s expected that Bhutan’s Gross Domestic Product (GDP) might drop by 1.4 percent due to the average economic harm caused by climate change effects[[20]](#footnote-21). Water is one of Bhutan's most abundant resources and is critical in supporting tourism, renewable energy, construction and manufacturing industry, forestry and agriculture. Both Thimphu and Paro are located in the river basin, which depends primarily on glacier melt, snow, and seasonal rainfall. High precipitation seasonality is already causing riverine (fluvial) flooding in Bhutan. Projected increases in the number of days with very heavy precipitation could further increase the risk of flooding and impact runoff, erosion, and river discharge rates. The CCKP model ensemble projects a 10% -15 % increase in the volume of water falling during a 5-day extreme rainfall episode by the 2050s[[21]](#footnote-22). Rising temperatures can also impact water resources by accelerating the rate of snowmelt. As temperature and precipitation increase snowmelt will likely begin earlier. Thus, peak river discharge may also occur earlier[[22]](#footnote-23). This snowmelt can lead to seasonal water scarcity in both Thimphu and Paro and the decreasing amount of snowfall adversely affects water recharge.

In future, the impact of climate change will be severe on Bhutan's urban infrastructure. According to the World Bank's Climate Risk Country Profile for Bhutan, the impacts on infrastructure could grow significantly in the second half of the 21st century. The impact of flooding on human health and livelihoods is expected to grow and could be 4% of GDP by the 2030s[[23]](#footnote-24). Ultimately, this will also affect Bhutan's economic progress, and Thimphu and Paro are its major economic hubs. Thimphu, the administrative and commercial capital of the country, contributes about 45% of Bhutan's GDP. Almost 46% of the total business enterprises in Bhutan are located in Thimphu[[24]](#footnote-25). On the other hand, Paro is a crucial area considering the increasing role of its international airport and tourism sector.

**Water shortages**

Despite being one of the most water-abundant countries in the region, with an estimated water availability of 109,000 m³ per capita per year, Bhutan faces a paradoxical situation regarding drinking water[[25]](#footnote-26). Statistically, in about 50% of the urban areas, water supply is not continuous, ranging from 6 to 12 hours of availability daily.[[26]](#footnote-27) Often, locals have to rely on nearby streams, groundwater, and other local water sources as alternatives to cope with this scarcity. Existing reservoirs and water infrastructure cannot store excess water during heavy rainfall, leading to wastage. Traditionally, Thimphu's water schemes were designed based on a small valley basis, drawing laterally from the main Wang Chhu River. A similar approach has been adopted for Paro. While this approach has been cost-effective, balancing local water demand with supply is becoming a growing challenge. A demand analysis conducted by the Japan International Cooperation Agency (JICA) predicts a potential shortfall of up to 10 million litres per day (MLD) in the central and northern parts of Thimphu in the coming decade if the current pace of urban development persists. [[27]](#footnote-28)

Water scarcity can have significant economic consequences for the residents of the Thimphu and Paro regions, including increased costs for water supply. The National Integrated Water Resources Management Plan[[28]](#footnote-29) highlights the threat of climate change to the drinking water supply. Therefore, it's crucial to have strategies for managing water resources, including introduction of water conservation strategies and building resilience of infrastructure.

**Flooding**

Bhutan's water management infrastructure, such as levees and drainage systems, is becoming increasingly stressed under extreme rainfall events, leading to frequent overflows. The current infrastructure was not designed to handle increased volume of water caused by extreme rainfall events and temperature increases. As a result, the infrastructure is becoming overloaded, leading to flooding, erosion, and damage to public infrastructure, but also to businesses, such as street vendors[[29]](#footnote-30).

**Landslides**

Intense rainfall cause landslides, especially in sloping and rugged terrain areas. For instance, Thimphu, which is nestled in the eastern Himalayas, is characterized by rugged terrain due to high peaks and steep slopes of the Himalayas. The combination of heavy rainfall and mountainous terrain increases the risk of landslides, which frequently cause damage to roads, water supply, electricity supply or other infrastructure systems and assets. The country needs to invest in nature-based solutions to minimize the impact of erratic rainfall events and mitigate landslide risks.

**Non-climate drivers**

Several non-climate drivers exacerbate vulnerabilities and hinder adaptation efforts. These include:

**Rapid Urbanisation**: Bhutan's urban population is growing rapidly, putting a strain on infrastructure, resources, and social services. This rapid growth leads to unplanned settlements, inadequate housing, and increased competition for resources like water and sanitation.

**Economic Development**: Economic development can bring prosperity but also introduce challenges. Increased economic activity generates more waste, strain local resources, and lead to social inequalities.

**Governance and Institutional Capacity**: Effective governance and strong institutions are crucial for implementing climate adaptation strategies and addressing other urban challenges. The project acknowledges the importance of strong local governance structures, capacity building for local stakeholders, and collaboration between different government agencies.

**Social Equity and Inclusion**: Marginalized groups, such as women, the elderly, and people with disabilities, are often disproportionately impacted by both climate change and other urban challenges. The project recognises the importance of social inclusion and ensuring the participation of these groups in decision-making processes.

By acknowledging these non-climate drivers alongside climate risks, the project a more comprehensive approach to building urban resilience in Thimphu and Paro. This ensures that the region is not only prepared for climate change but also adaptable to other social, economic, and environmental challenges.

**National Strategies and Plans**

To address the climate challenges the Kingdom of Bhutan has developed strategies and plans. The proposed project aligns with these including international commitments, particularly those concerned with climate change, water resource management, disaster risk reduction and the built environment. A summary is presented below with a detailed description in the technical analyses report (Annex 25: Policies and Program Baseline Situational Analysis), including local and regional level plans.

National plans contributing to international conventions:

* **Climate Change Policy of the Kingdom of Bhutan (2020)** aims to enable a climate-resilient and carbon neutral development. It sets four major objectives of pursuing carbon-neutral development, building resilience to climate change, ensuring adequate technology, capacity building for implementation of the policy, and establishing an effective and coordinated action to address climate change. It set the basis for the creation of Bhutan’s NDCs and NAPs.
* **Bhutan’s National Adaptation Plan (2023)** The project is aligned with the following sectoral objectives of the NAP: Water (improving natural capacity for infiltration and reducing water runoff, institutional capacity for water management), human settlements (strengthening institutional and policy environment to enable climate resilient planning and implementation), climate services and DRR (real-time monitoring and forecasting of water flows).
* **Long Term Low GHG emission and Climate Resilience Development (2023)** has the following objectives: 2) Enhancing disaster preparedness and response; 3) Integration of environmental management measures in development activities that pose significant risks of land degradation; 4) Promote environmentally friendly and climate-resilient roads and infrastructure; 7) Ensure green, sustainable settlements; 17) Institutionalize and implement integrated water resource management; 20) Prevent damage from flood disasters.
* The project will contribute directly to the achievement of **Sustainable Development Goal (SDG) 13 Climate Action, SDG 11- Sustainable Cities and communities**. It will also contribute substantially and indirectly to SDG 9 (Industry, Innovation and Infrastructure) and 17 (Partnerships for the Goals).

Other relevant national plans include:

* **Bhutan’s Water Act (2011)** aims to ensure that the water resources of Bhutan are protected, conserved and managed in an economically efficient and environmentally sustainable manner and to establish suitable institutions for this task. It also includes measures in case of water emergencies such as droughts and floods.
* **National Integrated Water Resources Management Plan (2016)** establishes the framework and priorities for the implementation of integrated water resources management (IWRM) in Bhutan. The Plan is based on a baseline analysis and future climate change scenarios. In this baseline analysis, the plan identifies the districts of Thimphu and Paro’s sub-basins as areas susceptible to monsoon flooding. The Plan establishes the principles and mechanisms under which agencies involved in the water sector, together with river basin stakeholders, can coordinate their respective plans and activities, as well as collectively monitor progress toward attainment of Bhutan's IWRM objectives.
* **Bhutan Water Vision (2025)** as one of the goals to achieve safe water supply with 100% coverage in urban areas, and identifies flood control and management as a priority.
* **National Disaster Management Strategy (2016)** is specifically concerning the implementation of priority action 2 - strengthening risk governance system and priority action 4 - strengthening disaster management capabilities. This strategy contributes to the national implementation of the Sendai Framework for Disaster Risk Reduction 2015- 2030.
* **National Human Settlement Strategy (2017)** is led by the Ministry of Infrastructure and Transport and recognises rapid urbanization of settlements in urban and peri-urban areas, and the pressure they pose on the environment. As one of its main actions, disaster mitigation measures will be implemented through the development guidelines in disaster risk-prone areas and capacity building and training for disaster preparedness.
* **Gender Equality Policy (2020)**
* **Economic Development Policy (2016)**

**Baseline Analysis and Initiatives**

The Royal Government of Bhutan, the Paro and Thimphu districts, and the Thimphu thromde (administrative division) have started to make strategic efforts to protect cities against hazards such as flooding and landslides. Bhutan’s National Adaptation Plan (NAP) (2023-2038) projects a need for 204.9 M USD for adapting to water-related impacts of climate change across rural and urban areas, with the bulk of this budget allocated to agricultural uses and water security. The same plan includes proposed initiatives related to climate-proofing critical infrastructure and settlements against floods and landslides, and for implementing green infrastructure to enhance urban resilience to climate change. Plans are included in the NAP for the implementation of Thimphu's Green Infrastructure Master Plan by 2030, which is a part of the Thimphu Structure Plan.

The Royal Government of Bhutan’s (RGoB) 12th Five Year Plan (FYP) allocated significant resources for achievement of the National Key Result Areas, of which areas “6 - Carbon Neutral, Climate and Disaster Resilient Development Enhanced”, “7 - Quality of Education & Skills Improved”, “9 - Infrastructure, Communication & Public Service Delivery Improved” and “15 - Safety and Sustainability of Human Settlements Improved” are related to this project. The 12th FYP concluded in 2023, and the 13th FYP is under development[[30]](#footnote-31), with climate-proofing infrastructure identified as one of the key priorities. Moreover, there are ongoing national government initiatives such as National Spatial Data Infrastructure, led by the National Land Commission, aimed at centralising GIS data and coordinating with relevant ministries, which is designed to improve climate change planning.

At the local level, there is also recognition of rapid urbanization in cities and the risk for climate change to exacerbate existing hazards like flooding and landslides. Namely, Thimphu Integrated Stormwater Management Plan (2021-2030) directly addresses this issue through 4 programmes, which are climate-resilient stormwater infrastructure, emergency response and recovery, strengthening institutional coordination, and stakeholder capacity building. This amounts to 24.56 M USD for implementation of various activities by the end of 2030. While the Paro Valley Development Plan, and the Paro and Thimphu Regional Strategy identify green infrastructure areas and outline design provisions, they lack specifics on funding sources and amounts. Urban unemployment rates in Bhutan are high[[31]](#footnote-32), particularly among individuals under 25 years old, with women facing higher rates than men, also as evidenced by survey and focus group data from Thimphu and Paro collected during the project. The Thimphu and Paro Regional Strategy targets employment growth in these urban centres, aiming to create 7,000 and 62,100 jobs in Paro and Thimphu, respectively.

The national government is currently in the process of establishing a green financing system, which will incorporate innovative financing solutions for nature-based approaches. The Royal Monetary Authority is spearheading the development of Bhutan's green financing roadmap and taxonomy, while the Ministry of Finance is exploring diverse financing options including domestic financing, green bonds, and sovereign bonds. Additionally, the establishment of new national entities for climate finance, like the Bhutan Climate Fund and Climate Adaptation Fund, is being considered. Since 2016, Bhutan is implementing BIOFIN, introducing four biodiversity finance solutions to protect and restore nature, bridge resource gaps, and stimulate economic growth. Within the UNDP/GEF Advancing Climate Resilience of the Water Sector in Bhutan (ACREWAS) project, Bhutan is piloting a payment for ecosystem services (PES) scheme as part of water and rural development efforts.

Government and donor initiatives are currently in progress to incorporate climate change education into the existing education system. The Royal University of Bhutan actively updates its study programmes every one to two years, with a specific focus on integrating modules related to climate change and urban resilience. The College of Science and Technology includes environmental science, sustainability, and disaster management in the curricula of Civil Engineering and Architecture programmes, while the Water Resource Engineering programme currently incorporates 30% climate change-related content. The College of Natural Resources offers various study programmes in environmental and climate science. Fostering collaboration between the College of Natural Resources and the College of Science and Technology is crucial to ensure interdisciplinary education. Moreover, the World Bank's "Strengthening Risk Information for Disaster Resilience in Bhutan" project includes an education and capacity building component for stakeholders in the construction and built environment sectors, laying the groundwork for continuous learning within the industry.

International donors have also started to invest in climate-proofing Bhutan’s urban areas against water-related risks. The UNEP's multi-country GEF-funded program "Building Climate Resilience of Urban Systems through Ecosystem-based Adaptation in the Asia-Pacific" has facilitated regional knowledge exchange and supported the restoration and stabilization of a 1.5 km stretch along the Thimphu river. Similarly, ADB’s 2022 project “Water Flagship Program support project” amounting to 22 MUSD (including national government and JICA co-financing) aims to strengthen water security in the Thimphu until 2030. More importantly, this project invests in the integration of SCADA ((Supervisory Control and Data Acquisition) and smart devices to monitor hydrological information. Finally, the World Bank’s project “Strengthening Risk Information for Disaster Resilience in Bhutan” will invest 3.51 M USD until 2025 too establishing multi-hazard risk decision-making systems and strengthening hydrometeorological services delivery. This project also invested 300,000 USD in capacity building for built environment and construction stakeholders in Bhutan to enhance knowledge and lay the foundations for mainstreaming resilient and green infrastructure.

**Gaps related to the baseline efforts**

Although there is a clear strategic emphasis on safeguarding Bhutan's urban regions from floods and landslides and adopting nature-based climate adaptation approaches, these efforts are relatively recent and still evolving. Previous investments by the RGoB in safeguarding riverbanks and urban planning to mitigate landslides and floods have not explicitly addressed the impacts of climate change and the heightened flood risk during the monsoon season.

Several projects address aspects of climate resilience in Bhutan, but with limitations. Examples include ACREWAS's focus on rural water management, UNEP's pilot river restoration, and disaster risk initiatives by JICA and the World Bank. The ECRUL project seeks to bridge these gaps, scaling up efforts in urban areas with a focus on disaster preparedness, integrated planning, and Nature-based Solutions (NbS).

**Barriers**

**Inadequate planning, design, decision making and monitoring that are gender responsive, inclusive and climate-risk informed**

The current approaches and strategies of urban planning and development are not effective in addressing the complex challenges of climate change. The design, decision-making processes, and monitoring efforts are not comprehensively informed by climate-risk considerations and vulnerabilities, resulting in increased exposure to risks and potential threat to the community. Moreover, planning and design of urban spaces and services are majorly gender neutral and does not take into account the specific needs and priorities based on gender, (dis)abilities, economic status and age. Therefore, the inclusive and holistic approach to urban planning and development is inadequate in view of limited risk-informed planning, design, decision making and monitoring.

**Limited technical capacity on climate resilient urban planning and governance**

The agencies and institutions responsible for urban planning, development and governance has limitations of the necessary expertise and institutional capacity to effectively address climate resilience challenges. The planners, engineers and other relevant professionals involved in urban planning and development has limited technical skills and capabilities to understand assess the impact and integrate climate resilience into urban planning, design and development process. They also lack adequate understanding and capacities to identify and integrate specific needs of women, persons with disabilities and other vulnerable groups in urban design, planning and development. This has resulted in inadequate response to climate induced hazards and vulnerabilities limiting the ability to adapt to the climate related disruptions.

**Lack of financing solutions for public authorities, investors, and communities to invest in resilient infrastructure and livelihoods**

The conventional sources of government budgets are insufficient to meet the growing demand for resilient infrastructure and livelihoods. Due to the absence of financial instruments/mechanism in government agencies and private sectors, there remains the challenge to secure, mobilize, and allocate necessary funds for investments in resilience-building initiatives. Due to the lack of innovative financing solutions, the public institutions, investors and communities struggle to access funding and resources to implement resilience-building measures and scaling-up public and private investment in green infrastructure, disaster preparedness programs, ecosystem restoration projects, and livelihood diversification initiatives.

**Absence of technologies, services, and products necessary for contextual climate resilient urban development**

There is a lack of innovative tools, techniques and technological solutions that are tailored to the specific context and challenges faced by the Thimphu-Paro region in dealing with the climate change impacts. Climate-resilient urban development involves integrating climate considerations into urban planning, design, and management processes to enhance the ability of cities to adapt to climate-related risks. The absence of local expertise, services, awareness on green infrastructure and digital solutions needed to support climate-resilient urban development are hampering the implementation of resilience-building initiatives.

**Inadequate climate resilient urban infrastructure and solutions to prevent flooding, and conserve and enhance water sources**

The current state of urban infrastructure is not well-prepared to withstand and adapt to the impacts of climate change. The existing infrastructure systems are susceptible to failure, damage, and disruption due to their exposure to extreme weather events and other climate induced hazards. The built environment and physical assets including drainage systems, water supply networks, and buildings are not designed and constructed to withstand the evolving climate conditions. Flooding poses a significant risk for Thimphu and Paro urban areas. The existing infrastructure lacks sufficient flood protection measures in the river basins and the urban drainage systems/stormwater management facilities. This hampers the effective mitigation of flood risks and the protection of communities during heavy and incessant rainfall events.

**Limited understanding and familiarity with urban climate adaptation solutions**

There is lack of proper comprehension and awareness about the concepts, principles and implications of climate change resilience and adaptation in urban contexts. The planners, engineers and decision makers responsible for urban planning and development have limited understanding of potential risks and vulnerabilities that cities face due to climate change, as well as the range of adaptation tools and measures such as nature-based solutions that can be implemented to address these challenges. The stakeholders and communities are not acquainted with specific climate adaptation solutions and best practices that can help cities become more resilient to climate change. By increasing the understanding and familiarity with adaptation solutions, cities can better prepare for the challenges of climate change and build more resilient and sustainable urban environments.

**Low level of awareness, ownership, and responsibility over the public realm**

The communities in general have limited awareness about the benefits of public infrastructure and spaces for social interaction, recreation, and environmental quality. There is a limited understanding of their role in fostering community well-being, resulting in a lack of responsibility, stewardship and pride in public assets. The low level of ownership over the public infrastructure, and low awareness of the role of private infrastructure in the resilience of public infrastructure leads to indifference and minimal participation in maintaining and improving these public goods and services.

**Strategy**

**Theory of Change**

The objective of this project is to strengthen the management of climate risks, and reduce the vulnerability of urban landscapes and communities to the impacts of climate change in Thimphu-Paro. This will be achieved through an integrated approach to improve coordination, capacities, policies and tools of central and municipal governments for gender and climate-responsive urban planning and design. The focus is on building climate resilient nature-based infrastructure, enhancing disaster preparedness and response, and strengthening adaptive capacity of local community households and businesses through tailored training and awareness raising.

The project directly contributes to UNSDCF outcome 3 and UNDP CPD outcome 2: “By 2028, Bhutan’s environment remains sustainably managed, and its people are more resilient to disaster risks and climate change”

The project is comprised of three complementary components which will directly benefit 146,298 residents (accounting for 46% of the urban population) in the Thimphu and Paro region (75,211 men/71,087 women), manage 600 hectares of urban area through nature-based solutions to address climate induced risk and stresses to water resources and water management infrastructure. Additionally, the project aims to improve capacity of local government, national agencies, CSOs and private sector to improve resilient urban planning and infrastructure development as well as enhance adaptative capacities of vulnerable communities. It will facilitate the development of long-term climate risk mitigation through geospatial, climate data modelling, and gender-disaggregated data collection and management Enterprises and markets will be developed around climate resilient technologies and solutions and green jobs promoted.

The root causes of the problem stem from climate change induced hazards combined with Bhutan’s unique topographical characteristics of high elevations and rugged terrain. This has and will continue to result in climate induced floods and landslides due to increased temperatures causing glacier melt compounded by intense rainfall, especially during the monsoon season. The impact of these hazards is exacerbated by the steep terrain, concretization of urban areas leading to clogging of drainage and sewerage system resulting in higher surface water run-off in these urban areas. Streams and rivers swell and carry debris from both the surrounding forests and urban waste, straining the city’s limited infrastructure to manage runoff. Consequently, these events damage assets and livelihoods, with women and other vulnerable groups experiencing a disproportionate burden.

The climate change problems include extreme heat leading to reduced water availability as a result of drying water sources, catchment degradation and reduced water recharge capacities impeding sustainable access to potable water and reduced water retention for ecosystems. The changes in precipitation patterns and extreme rain patterns/events damage urban infrastructure, create water shortages, reduce water quality, ,resulting in economic losses, and increased risk to human life and safety.

To address the barriers identified in the previous section, the project will develop targeted institutional and local capacity building on climate hazards, and adaptive urban planning, gender, new technologies to incorporate data analytics, NbS and innovative financial mechanisms. This knowledge will be applied to develop technologically risk-informed, and gender responsive urban planning. The project will address inter-agency and multi-sectoral collaboration needs to strengthen and increase coherence of national and local policies for climate resilient planning, including water and stormwater management, adaptation initiatives and Early Warning System (EWS).

The project strategy includes utilizing green infrastructure and NbS to address climate hazards, which is an initiative that is aligned with Bhutan’s national strategies, GEF focal area outcomes, and LDCF objectives. The Innovative financing solutions such as Public-Private Partnership (PPP), Payment for Environmental Services (PES), NbS incubators and incentives for community-based entrepreneurs’ investment in NbS, will ensure sustainability. PPP and PES schemes will be implemented for NbS with the goal to replicate and scale up to ensure their financial sustainability.

**These strategies are based on extensive consultations and assessments outlined below:**

1. Policy & Programme Analysis: Conduct a baseline analysis of policies and programs to assess the integration of climate change adaptation into urban planning systems, building codes, and capacities. (See Annex 25: Policies and Programme Baseline Situational Analysis)
2. Private Sector Engagement: Engage with the private and financial sectors to identify barriers and opportunities for their involvement, focusing on green job creation. (See Annex 12: Gender Analysis, Annex 8: Stakeholder Engagement Plan)
3. Climate Projections and Vulnerability Assessment: Generate national and local climate projections and conduct vulnerability analyses of the urban system. (See Annex 22: Landscape profile and situation analysis)
4. Nature-based Solutions Evaluation: Evaluate Nature-based Solutions (NbS) for mountainous cities, considering the Thimphu and Paro region's landscape and water flow. (See Annex 24: Assessment of NbS solutions)
5. Stakeholder-Driven Assessments: Conduct comprehensive assessments aligned with the Stakeholder Engagement Plan (Annex 8) and Gender Assessment and Action Plan (Annex 12), ensuring UNDP and GEF compliance.
6. Community Consultations: Engage in thorough consultations with communities and stakeholders at all levels (as outlined in Annex 8: Stakeholder Engagement Plan) to validate strategies, technical assessments, and inform site selection.
7. Partnership Building: Collaborate with the private sector, CSOs, and NGOs to shape a strategic framework for broader partnerships. (See Annex 8: Stakeholder Engagement Plan)
8. Collaboration with Project Preparation Grant Team: Maintain continuous engagement with the project preparation grant team, including national and local stakeholders, UNDP CO, UNDP BRH, and consultants.

**The Theory of Change for the project is summarised as follows:**

The Theory of Change for the project is that IF an integrated approach of improved coordination, capacities and tools combined with strategic tangible interventions in key sectors are provided THEN the households, businesses and local government entities in the Thimphu-Paro region will become more resilient to climate-induced urban risks BECAUSE the urban areas are better able to adapt to climate change and mitigate climate-induced climate risks in the future. The diagram of the Theory of Change is given on the next page.

**Assumptions in the Theory of Change**

Government Assumptions

* Sustained government commitment to policy change, institutional support, and project stability.
* Government facilitation of inclusive stakeholder participation in urban resilience planning.

General Assumptions

* Access to reliable climate data and tools for infrastructure design.
* High-quality construction and maintenance of physical interventions.
* Community awareness and support for infrastructure preservation.
* Knowledge transfer and institutionalization of resilience practices.
* Equitable project access and benefits for women, youth, persons with disabilities, and other vulnerable groups.
* Community responsiveness to climate resilience initiatives.
* Interest in resilience innovation from entrepreneurs and vulnerable groups.
* Willingness of other municipalities to participate in program exchange and replication.
* Financial sector recognition of the value of investing in climate resilience.

Absence of local technologies, services and products necessary for climate resilient urban development

Poor climate resilience of existing urban infrastructure, including inadequate solutions to prevent flooding and conserve and enhance water sources

**Component 3: Knowledge management, gender-responsive monitoring and evaluation**

Output 3.1: Knowledge and communication products and platforms developed to analyze and disseminate best practices and project lessons

Output 3.2: Project progress and results are effectively tracked and managed through monitoring and evaluation

**Component 1: Climate risk-informed, coordinated and inclusive planning and governance for resilient urban development.**

Output 1.1: Inter-agency mandates and functions harmonized, and institutional coordination mechanisms established and made functional to facilitate policy coherence for climate-resilient urban planning and development

Output 1.2: Climate and geospatial information systems established with trained urban planners to promote risk informed urban planning

Output 1.3: Climate-resilient and gender-responsive adaptation plans prepared for Thimphu and Paro with active citizen participation and added emphasis on climate resilient entrepreneurship

Output 1.4: Educational and training programmes introduced in colleges and technical schools for skilling and reskilling and upskilling of planning professionals and workforce

Output 1.5: Innovative financing solutions for public and private sector to invest in climate-resilient projects, technologies and services

**Component 2: Build Resilience through gender-responsive climate adaptive approaches.**

Output 2.1: Climate-proofing features for the key sections of the water and stormwater management systems introduced to ensure flood risk management, safe and uninterrupted water supply and business continuity in critical urban areas

Output 2.2: Ecosystem and nature-based solutions developed and implemented to adapt to floods, heat-island effect, and landslide and to enrich water sources, natural streams and catchments for improved infiltration, restoration and recharge.

Output 2.3: Measures to increase climate resilience of buildings and design of urban spaces introduced

Output 2.4: Ancillary rainfall threshold-based flood EWS developed on critical tributaries and integrated with the existing centralized hydro-met data management system (CDMS) of NCHM

Project knowledge is managed, and project results are monitored and evaluated to foster learning, adaptive management, sustainability, and replication.

Institutional coordination, stakeholder engagement and climate adaptation capacity strengthened for inclusive and climate-resilient urban planning and development.

Climate risk management measures designed and implemented for water management systems and urban infrastructure.

RESULTS

Terrain related challenges and limited space for urban expansion

Increased frequency and intensity of floods and landslides

Increased frequency and intensity of extreme rain events

Increased temperatures with drier winters and worsening monsoon seasons

CLIMATE CHANGE AND ROOT CAUSES

**Enhanced resilience of Urban landscape and communities to the impacts of climate change in Thimphu-Paro region**

Limited understanding and familiarity with urban climate adaptation solutions

Inadequate approach to urban planning and development with limited gender-differentiated and climate risk-informed planning, design, decision making and monitoring systems

Deficient technical capacity on climate resilient urban planning and governance

Lack of financing solutions for public authorities, investors and communities to invest in resilient infrastructure and livelihoods

Low level of awareness, ownership and responsibility over the public realm

BARRIERS

Rapid uncontrolled urbanization

Frequent climate hazard events causing damage to assets and livelihoods, with vulnerable groups experiencing a disproportionate burden

Decline in water supply duration, volumes and quality

Inadequate capacity of drainage systems for urban runoff

PROBLEMS

Nascent level of urban resilience practices, technologies and investments

## Alignment with GEF Focal Area Strategy

|  |  |
| --- | --- |
| **LDCF climate change strategy objectives** | **Alignment** |
| Objective 1: Reduce Vulnerability and Increase Resilience through Innovation and Technology Transfer for Climate Change Adaptation | The project's innovation and experimentation interventions and technology transfer are demonstrated through the adoption of various technologies: climate information GIS systems (Output 1.2), SCADA systems for real-time water flow monitoring (Output 2.1), and online tools for informing green building design (Output 2.3). Additionally, IoT is employed to monitor water flows and establish smart nature-based public spaces (Output 2.2), experimentation and implementation of nature-based solutions (Output 2.1, 2.2 and 2.3). |
| Objective 2: Mainstream climate change adaptation and resilience for systemic impact | The project will enhance the resilience of the urban population of Thimphu and Paro by strengthening institutional capacities and establishing the necessary frameworks, policies, capacities and collaborative mechanisms to adapt and build resilience to climate induced challenges in a coordinated and effective manner (Output 1.1). It will upgrade the knowledge of both established and aspiring planning and engineering professionals and technicians, foster the development of urban resilience plans and related studies across different governance levels (Output 1.4). Additionally, it will facilitate the replication of successful initiatives to other thromdes in Bhutan (Output 3.1). |
| Objective 3: Foster enabling conditions for effective and integrated climate change adaptation | The project will support alignment of relevant national and local policies and strategies for resilient, gender responsive urban planning (Output 1.1); strengthen capacity for climate adaptive urban planning practices (Output 1.4) including integration of requisite climate technologies and nature-based solutions (Output 2.1, 2.2. 2.3 and 2.4). Additionally, it provides an array of support mechanisms to stimulate entrepreneurial participation, green skills, innovation, and investment in climate resilience initiatives (Output 1.3 and 1.5). |
| **GEF Focal Area Outcomes** | **Alignment** |
| CCA 1.1 Technologies and innovative solutions piloted or deployed to reduce climate-related risks and/or enhance resilience | The project will deploy digital solutions such as GIS, SCADA, and IoT to offer analytical tools, assisting informed climate-resilient urban planning and design (Output 1.2, 2.1 and 2.2). By harnessing predictive analytics and modelling, decision-makers can anticipate potential climate challenges and implement proactive risk mitigation strategies, such as with the development of forecasting model for Paro and Thimphu river basic including tributaries (Output 2.4).  Furthermore, the project will pilot and showcase the effectiveness of nature-based solutions in adapting to localized climate risks (Output 2.1, 2.2 and 2.3). |
| CCA 1.2 Innovative financial instruments and investment models enabled or introduced to enhance climate resilience | The project will pilot innovative financing models such as PES and PPP schemes for urban resilience (Output 1.5). Additionally, it will provide training to government and financial institutions and private sectors on integrating climate risk into their budgets and loan portfolios, as well as steer policy development for green financing instruments, and training on climate stress testing and Environmental and Social Risk Management (ESRM) for financial institutions (Output 1.5). |
| CCA 2.1 Strengthened cross-sectoral mechanisms to mainstream climate adaptation and resilience | The project will involve several ministries and agencies in implementation of components and activities, facilitating a cross-sectoral approach to urban resilience (whole Component 1 and 2). Training programs will be developed jointly by two colleges, with participation open to a diverse range of experts and technicians (Output 1.4). Notably, local adaptation plans for Thimphu and Paro underscore the involvement of stakeholders from various backgrounds (Output 1.3). The Stakeholder Engagement Plan (SEP) ensures inclusive participation and access to project benefits, particularly for women, youth and vulnerable groups. A multi-sector Technical Advisory Consultative Committee (TACC) will advise the PMU and PSC on stakeholder sector issues and integrate project insights into sector policies, especially in climate change adaptation for agriculture, forestry, and natural resources management. |
| CCA 2.2 Adaptation considerations mainstreamed into investments | The project aims to incorporate adaptation considerations into both public and private investments, focusing primarily on physical interventions such as enhancing the water supply system and managing stormwater (Output 2.1), interventions along riverbanks and streams (Output 2.2), as well as improvements to buildings and public spaces (Output 2.3). Throughout the implementation and beyond project completion, urban plans and studies will be embedding enhanced climate resilience requirements (Output 1.1, 1.2 and 1.4). |
| CCA 2.3. Institutional and human capacities strengthened to identify and implement adaptation measures | The project will strengthen national and local institutional capacities by providing essential technology and training for effective utilization, promoting inclusive and risk-informed urban planning. Customized training programs for technicians and workers, as well as college courses on urban resilience, will be implemented (Output 1.4). Furthermore, the project will raise awareness and facilitate effective communication on the impacts of climate change on water resources, assets, and livelihoods, while documenting and sharing valuable insights, best practices, and lessons learned (Output 3.1). |
| CCA 3.1: Climate resilient planning enabled by stronger climate information decision-support services, and other relevant analysis, as a support to NAP process and /or enabling activities in response to COP guidance | The project aligns with Bhutan’s NAP strategic adaptation objectives by implementing informed decision making for resilient urban planning and address climate change impacts through digital technologies, particularly in water management and climate-smart cities. The project enhances GIS systems, integrates climate risk maps (Output 1.2), and utilizes IoT-based sensors and SCADA system (Output 2.1) for water supply and as well as the EWS for tributary streams (Output 2.4). The NAP’s focus on disaster risk reduction corresponds with the project's use of digital tools for real-time monitoring and forecasting. |
| CCA 3.2: Increased ability of country to access and/or manage climate finance or other relevant, largescale, programmatic investment, as a support to NAP process and/or for enabling activities in response to COP guidance | The project contributes to deployment of innovative public and private financing mechanisms, which will also strengthen entrepreneurs’ investment interest for climate resilience (Output 1.5). The entrepreneurship support activities (Output 1.3), ensure that aspiring entrepreneurs have the requisite skills and knowledge to navigate climate finance opportunities effectively. Additionally, enhancing the capacity of financial institutions in green finance, especially related to appraisal of NbS and adaptation projects (Output 1.5), supports improved access to and management of climate finance, in alignment with Bhutan’s NAP. |
| CCA 3.3: Institutional and human capacities strengthened to identify and implement adaptation measures, as a support to NAP process and/or for enabling activities in response to COP guidance | The project activities align with several key NAP enabling activities, overall contributing to strengthening its long-term climate resilience. Institutional and human capacity building will be carried out through training of users of GIS, IoT, and SCADA systems, urban planning and engineering education and training in technical schools and colleges (Output 1.4). Furthermore, the development of strategy and operative framework for inter-agency coordination and policy coherence for urban resilience, (Output 1.1) aligns with NAP priority of reviewing relevant policies and legislation to ensure coherent climate action. Climate change awareness raising, knowledge sharing partnership building contributes to the overall objectives of the NAP process (Output 3.1). |

## Effectiveness and efficiency

An economic Cost-Benefit Analysis of the project is done as part of the feasibility study (Annex 28: *Socio-economic Analysis of NbS*). The economic feasibility of the project is assessed through three key indicators: Economic Net Present Value (**ENPV**), Internal Rate of Return (**IRR**), and Benefit-Cost ratio (**B/C**). A discount rate of 6% is used, and a sensitivity analysis using a 10% discount rate is conducted.

The economic cost-benefit analysis is estimated for two scenarios:

1. Without investment in nature-based solutions (NbS). This represents project intervention under a business-as-usual (BAU) scenario with no incremental investment in climate adaptation measures
2. Investment in nature-based solutions infrastructure. This accounts for all the additional incremental costs and benefits of the project to make it climate-resilient.

Beyond evaluating the economic and financial viability of the project, this analysis also addresses the following questions:

* What are the project’s socio-economic benefits and opportunity costs for urban communities in the Thimphu-Paro regions?
* What additional financial benefits do nature-based solutions add to the overall economy?
* To what extent can nature-based solutions address the infrastructure gap and contribute to the climate adaptation fund in the urban areas of Thimphu-Paro?

The intervention incorporates diverse nature-based solutions, necessitating the use of multiple valuation methods. Additionally, there is a lack of a robust economic model to assess the feasibility of nature-based investment in Bhutan. Therefore, the analysis employs various economic models and valuation techniques, drawing on regional and international best practices, and prior research and contextualizing it to Bhutan’s unique local attributes. Models used include avoided damages cost, vulnerability function, travel cost estimates, contingent valuation, benefits transfer, replacement cost, and value for statistical life (VSL).

The costs and benefits of components 1 and 3 are mutually complementary, reinforcing their impact and significantly contributing to the achievement of output 2. Conducting separate cost-benefit analyses for components 1 and 3 is not feasible. Nevertheless, key activities from outputs 1 and 3 are incorporated into the economic analysis conducted for component 2 to assess the overall project's economic impact and aid decision-making.

Considering the project’s public-good nature and the emphasis on the cost-effectiveness of providing climate-adaptation goods and services to a larger population over an extended period, a separate financial analysis is not deemed pertinent to assess the project’s feasibility. Nevertheless, the key elements of the financial aspects are integrated into the economic analysis. The economic and financial benefits of the PES scheme are also captured in the analysis. This analysis doesn’t foresee difficulties in implementing the PES scheme in the project areas.

This analysis identifies two primary benefits associated with investing in nature-based solutions. Firstly, the climate risk-reduction benefits encompass a decrease in flood risk (protection of livelihoods, saved property damage, and the value of a statistical life), cost savings from property repair and replacement, adaptation costs saved, and reduced maintenance costs due to climate events. The benefit of avoided damages from the project is determined by employing the statistical distribution of (socio-economic) losses or damages from hazard events, utilizing either the direct market value or replacement cost. Secondly, the co-benefits include augmented revenue from tourism and recreation, biodiversity enhancement, improved human health, enhanced water quality, carbon sequestration, and property value (hedonic pricing). Due to the analysis scope, data constraints, and a lack of suitable valuation methods, the valuation of most of the co-benefits is not considered in this analysis. Consequently, benefits, including the ENPV and EIRR estimates in this analysis, are considered conservative, favoring the lower bound and being underestimated.

The findings of the economic cost-benefit analysis are presented in two ways: firstly, through statistical representation, involving the computation of key economic indicators as numerical values whenever feasible; secondly, in probabilistic terms, where the likelihood of the realization of any value within its range is considered for non-quantifiable elements. However, probabilities against key economic indicators are later tested for their sensitivity.

The project's overall cost amounts to USD 69.424 million, with 74% funded by the Royal RGoB as Co-financing, and the remaining 26% is sourced from the GEF. Output 2, identified as the project’s key activity, is allocated approximately 59.3% of the total project cost, and Output 1 is allocated 25.8% of the budget. Notably, more than half of the budget allocated from the government and GEF is directed towards Output 2, accounting for 57.62% and 64.27% of the total funding from government Co-financing and GEF funding, respectively.

The economic analysis indicates that investing in nature-based solutions yields a positive ENPV of USD 376.74 and an EIRR of 28%, confirming the project’s economic viability. The estimated cost-benefit ratio is greater than one, indicating that the nature-based investment is expected to generate incremental economic value. Conversely, counterfactual investing or investing without nature-based solutions results in a negative ENPV of USD (49.22) and a cost-benefit ratio below one, demonstrating the un-viability of the investment.

The economic analysis indicates that choosing not to invest in nature-based solutions will incur higher incremental opportunity costs than benefits for the urban communities of Thimphu-Paro and the Government of Bhutan. The main financial opportunity cost of forgoing investment in nature-based solutions is the climate adaptation cost to the community, amounting to approximately USD 8.89 million annually. Conversely, investing in nature-based solutions yields positive financial, economic, and social returns for the urban communities in the Thimphu-Paro regions and the government of Bhutan overall. Compared to the counterfactual investment scenario, the overall operational and maintenance costs of nature-based solution interventions will be lower by USD 3.89 million per year while providing additional benefits for at least 20 years. In sum, investing in nature-based solutions could save the government of Bhutan approximately $12.78 million annually, along with other co-benefits, thereby significantly contributing to bridging the development funding gap.

Sensitivity analysis was conducted to test the robustness of the economic analysis against different climate scenarios and various uncertainties. These uncertainties include a 10% increase in project cost, a 10% reduction in profit, a one-year delay in project implementation, and the most extreme case involving a 20% increase in project cost and a 50% reduction in estimated benefits. The proposed intervention with nature-based solutions investment provides positive economic value and a favorable internal rate of return against all foreseeable sources of climate risk. According to the estimates, even in the most extreme scenario, where costs surge by 20%, and benefits decline by 50%, the ENPV remains positive at USD 117.11, with an IRR of 14%, underscoring the project's feasibility. Furthermore, a robustness check using a higher discount rate of 10% reveals that the project's economic and financial performance is still viable, providing a positive NPV with an IRR in all cases exceeding or equal to the threshold of 10%.

**Conclusion and recommendation** – Based on the above economic and financial analysis, the following recommendations are made:

* Intervention with an investment in nature-based solutions yields a positive ENPV, with an IRR surpassing 6% and 10%, affirming the project's economic viability for investment. Conversely, without investing in nature-based solutions, the intervention results in a negative ENPV, indicating the unfeasibility of the project.
* Despite fiscal constraints, the RGoB commits USD 51.47 million (about 74% of the total project cost) for co-financing, demonstrating dedication to the project, urban cities, climate resilience, and the socio-economic well-being of the urban population through nature-based investment. However, due to budgetary limits, the RGoB has limited capacity to increase its contribution.
* Catalytic capital of US$ 18,048,624 from the GEF is crucial to bridge Bhutan’s resource gap, enabling the project to withstand climate events and develop climate-resilient urban spaces in the Thimphu-Paro region to navigate climate-related challenges.
* Without GEF's financing, Bhutan misses a crucial opportunity to invest in greening its most climate-vulnerable city, affecting the well-being and sustainability of vulnerable communities.
* GEF is the most viable financial instrument to close Bhutan's existing investment gap. The grant of USD 18,048,624 from GEF will act as a catalytic capital and attract co-financing from the Royal Government of Bhutan.

**Results and Partnerships**

**Expected Results**

The objective of the project is to strengthen the management of climate risks, and reduce the vulnerability of urban landscapes and communities to the impacts of climate change in Thimphu-Paro. The project will directly enhance the climate resilience of 146,298 people in urban landscapes and the adaptive capacities of the population of Thimphu and Paro region by strengthening climate risk management and supporting adaptation interventions for enhanced resilience of urban areas in Bhutan. The project will address various climate related challenges, including riverine and surface water flooding, water stress, landslides, forest fires, cyclonic events and others, by effectively managing 600 hectares of watershed and springshed land, enhancing river corridors through urban forestry techniques, developing retention ponds, rain gardens, and urban wetlands, as well as rehabilitation of stormwater drainage networks in Thimphu and Paro. Furthermore, the project will demonstrate inclusive and climate resilient building technology in Thimphu, propose revised green building standards and design tools. Based on the future climate projections and barriers, the project will guide enhanced disaster preparedness, knowledge, capacity and competency skills across communities and businesses, benefiting 200 people, for the two major cities of Thimphu and Paro.

The project seeks to advance climate risk informed urban planning through three complementary Outcomes

* Outcome 1: Institutional coordination, stakeholder engagement and climate adaptation capacity strengthened for inclusive and-resilient urban planning and development;
* Outcome 2: Climate risk management measures designed and implemented for water management systems and urban infrastructure; and
* Outcome 3: Project knowledge is managed, and project results are monitored and evaluated to foster learning, adaptive management, sustainability and replication.

**Component 1: Climate risk-informed, coordinated and inclusive planning and governance for resilient urban development**

**Outcome 1: Institutional coordination, stakeholder engagement and climate adaptation capacity strengthened for inclusive and resilient urban planning and development**

***Total budget: GEF-LDCF:******$ 4,490,000; Co-financing: $ 13,400,000)***

**Baseline scenario**

Current institutional frameworks hinder effective urban resilience planning due to misaligned mandates and top-down approaches. While there's potential for decentralisation, urban planning is often ad hoc and lacks digital tool integration. Traditional knowledge exists, but NbS are underutilized in favour of grey infrastructure. Despite climate change education efforts, students and professionals lack exposure to NbS and inclusive climate-informed decision-making. Limited market initiatives, budget constraints, and capacity gaps in both public and private sectors further impede NbS adoption.

**With LDCF financed intervention**

The project envisions a transformative shift from the currently fragmented approach to urban design and climate resilience to an inclusive and institutionally integrated model. To propel Bhutan from ad-hoc to proactive urban planning, the initiative underscores the importance of incorporating climate and geospatial information, harnessing technology, and gender-disaggregated data to assess and prioritize informed decision-making for adaptation planning. This will be facilitated by enhancing current technology as well as equipping new systems for GIS, EWS, and SCADA. Recognizing the pivotal role of data analytics, the project intends to guide urban planning strategies with informed decision-making and planning processes. The project will generate climate data information accessibility across sectors for the utilization in future urban-wide planning decisions, promoting innovation, and ensuring a proactive approach for risk-informed project formulation and execution in a coordinated manner. This forward-thinking approach contributes to planning and innovation to adapt to evolving climate challenges, ultimately converging into coherent and consolidated national and local adaptation efforts.

By establishing clear roles and responsibilities, the project fosters collaboration between national and local levels as well as across sectors, thereby eliminating silos, and supporting policy coherence and increased accountability. The project aims to broaden the scope of adaptation discussions from the national level to encompass local levels, aligning with decentralization and urbanization efforts. This includes advocating for the development of municipal climate change plans and empowering cities and urban communities through a multi-level governance approach, ultimately seeking to rebalance power dynamics. The initiative is structured to integrate inclusive, innovative, participative, climate-responsive considerations into urban planning policies, creating a unified framework. A key aspect of project design is the prioritization of gender-responsive and inclusive adaptation, universal access to infrastructure and services, training, and participation and addressing the distinct vulnerabilities of different groups in the face of climate change.

The project places a strong emphasis on collaborative design and comprehensive community engagement, employing consultative processes to engage local communities, including women, youth, elderly, persons with disabilities, in accordance with relevant guidelines such as the SEP and GAAP. This participatory approach, complemented by training in climate adaptive urban planning, aims to introduce and institutionalize climate adaptation capacity including NbS knowledge. These initiatives are used as a method to adapt to challenges such as the heat island effect, floods, landslides, and water stress. The overarching goal is to shift the focus of both the public and private sectors away from traditional "grey" solutions and instead incentivize the adoption of more environmentally favourable NbS.

To ensure sustainability, the project will establish financial mechanisms to incentivize the public and private sector’s exploration of modalities for, and participation in, gender responsive climate resilient construction technology. The project is anticipated to act as a catalyst for public and private engagement in creating business models and offering services on green, gender responsive, and resilient construction interventions to promote market development for green and climate resilient technologies. The project will develop localized strategies for involvement of investors and entrepreneurs to implement NbS. Activities such as upskilling of NbS entrepreneurship competencies, enhancing the NbS accelerator program and strengthening localized support mechanisms for scaling up entrepreneurship in NbS and adaptation practices will be utilized to create thriving markets and ecosystems.

This outcome will support the following: 1) Streamlining inter-agency mandates and functions, and aligning relevant national and local policies and strategies to integrate urban resilience, 2) Establishing an information system with downscaled climate risk and hazard data, 3) Developing an inclusive and gender-responsive adaptation plans addressing socio-economic dimension of climate change impacts such as livelihoods, entrepreneurship and economy, 4) Implementing educational and training programmes tailored to different age groups and professional levels, incorporating urban resilience principles, 5) Promoting existing and piloting innovative financing solutions for both public and private sectors to invest in climate resilience. These outputs are anticipated to address institutional, regulatory, technical, and financial obstacles related to the initiation and implementation of urban resilience practices, in particular NbS.

***Inter-Agency and Multi-Sectoral Collaboration - Coherent Policy Development and Governance***

The project will conduct a gap analysis screening for the existence and functionality of Bhutan’s national and local urban planning arrangements, roles, and responsibilities in the context of gender responsiveness and climate resilient urban planning development. Applying these findings in a participatory manner, a strategy and operative framework will be developed for inter-agency roles and responsibilities to be harmonized, strengthened governance structures among different levels of government, and coordination mechanisms established to facilitate policy coherence for climate resilient urban planning.

***Output 1.1: Inter-agency mandates and functions harmonized, and institutional coordination mechanisms established and made functional to facilitate policy coherence for climate-resilient urban planning and development***

***Key results***

* Improved inter-agency coordination and policy coherence for climate-resilient urban development

This output will address the need for improved coordination and streamlined mandates among institutions engaged in climate-resilient urban planning and development. Several pre-identified bottlenecks include vertical and horizontal integration for structural plans execution, data exchange and alignment of policies for urban resilience. As the strategy and operative framework will be developed in collaboration with various stakeholders, further issues are expected to be identified and addressed.

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| # | Activity / Sub-activity | Year |
| **1.1.1** | **Developing strategy and operative framework for inter-agency coordination and policy coherence, in participatory manner. This framework will enhance policy coherence among various sectors involved in urban land use and development, as well as address existing coordination gaps.** | **1-2** |
| 1.1.1.1 | Assessment of existing national, district and municipal institutional arrangements, mandates and functions in the context of gender-responsive and climate-resilient urban development. This will be followed by: a) a review of how these arrangements are functioning and b) an analysis of gaps, inconsistencies, and overlaps, all in view of gender-responsive and climate resilient urban development, c) validation of findings with institutions. | 1-2 |
| 1.1.1.2 | Development of Strategy and Operational Framework for streamlined inter-agency coordination and improved policy coherence, in participatory manner | 1-2 |
| 1.1.1.3 | Validation of findings and Sensitisation workshops for officials working in urban planning and development, and related sectors | 1-2 |

***Output 1.2: Climate and geospatial information systems established with trained urban planners to promote risk informed urban planning***

***Key results***

* Enhanced GIS system with downscaled vulnerability and climate risk data
* GIS officers and users trained

Under this output, the project will support the design and implementation of comprehensive climate and geospatial information system generating sex-disaggregated data, to be made accessible to relevant agencies for informed decision-making. An analysis of the current GIS system will be conducted to identify necessary upgrades. Furthermore, the project will identify downscaled climate-related information gaps and produce required maps. Additionally, an operation and management manual for the GIS system will be created, and capacity building and user training will be conducted for climate-resilient, gender-responsive urban planning and design.

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| # | Activity / Sub-activity | Year |
| **1.2.1** | **Assessment of existing GIS systems / identification of gaps in the current management of relevant data, especially relating to downscaled vulnerability data and climate impacts and hazard maps.** | **1-2** |
| 1.2.1.1 | Analysis of existing GIS system (usage, datasets), including identification of climate and vulnerability related information gaps | 1-2 |
| 1.2.1.2 | Assessment of current hardware and software functionalities with the identification of necessary upgrades | 1 |
| **1.2.2** | **Enhancement and integration of multi-dimensional climate and geospatial information system and provision of other computerized tools to ensure consistent and reliable single data source supporting gender-responsive and climate-resilient urban planning.** | **1-3** |
| 1.2.2.1 | Customisation or enhancement the existing systems for hosting the products (maps, charts, information etc) of the this project | 1-3 |
| 1.2.2.2 | Procurement and installation of hardware and software for multi-dimensional climate GIS system | 1-3 |
| 1.2.2.3 | Data Analysis for producing maps and information:  1) through internal data collection and GIS assessments  2) through procurement (if needed) | 1-3 |
| **1.2.3** | **Develop operation and management manual for the GIS system, with established protocols, procedures, and troubleshooting guidelines. Carry out training for GIS officers and other professionals to be using GIS for climate and urban resilience purpose.** | **1-4** |
| 1.2.3.1 | Development of operation and management manual for GIS system | 1-3 |
| 1.2.3.2 | Implementation of capacity building for GIS Officers and other professionals working in the application of GIS in Climate and Urban Resilience | 1-4 |
| 1.2.3.3 | Capacity building of the relevant officials on the application of GIS for water supply systems in Thimphu and Paro | 1 |

***Output 1.3: Climate-resilient and gender-responsive adaptation plans prepared for Thimphu and Paro with active citizen participation and added emphasis on climate resilient entrepreneurship***

***Key results***

* Gender-responsive adaptation plans for Thimphu and Paro developed
* Localised entrepreneurship support mechanisms deployed
* Entrepreneurs participating in implementation of adaptation actions
* New NbS initiatives launched via NbS accelerator programme
* Community level NbS plans prepared

Within this output, the project will support Thimphu and Paro municipalities to develop and implement detailed climate-resilient, gender-responsive adaptation plans. These plans will rely on robust gender analysis and risk assessments, underpinned by data from the climate and geospatial information systems established in Output 1.2. The plans will encompass a wide array of actions, spanning physical interventions, improved practices, policy development, and capacity building. Additionally, as the project adopts a multi-level governance approach, communities will be empowered to develop their own NbS plans, with a specific emphasis on the role of women, youth, and vulnerable populations.

This output will also include a strategy to catalyse entrepreneurship in urban resilience within the respective jurisdictions with particular attention to engaging women, youth and other vulnerable groups as equal partners in climate adaptation. Private sector entities will be brought in as potential investors and suppliers, revolving around the critical issues of urban biodiversity and water conservation, nature-based solution development and maintenance. The NbS accelerator programme will source ideas, offer tailored mentorship and provide opportunities to develop products or pilot urban NbS across the city. Localised support mechanisms will be introduced to foster entrepreneurship in NbS and adaptation practices in Thimphu and Paro, offering training, awards, , and networking. Overall, this output will examine the collaborative role of the private sector, youth, civil society, women’s groups, and media in shaping local entrepreneurial ecosystems. The activities will also contribute to the project's knowledge management efforts, particularly in terms of replication potential.

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| **#** | **Activity / Sub-activity** | **Year** |
| **1.3.1** | **Development of RVA and gender assessment as a basis for plans.** | **1-2** |
| 1.3.1.1 | Development of RVA and gender assessment as a basis for plans | 1-2 |
| 1.3.1.2 | Development of gender-responsive adaptation plans for Thimphu and Paro, in participatory manner | 1-2 |
| **1.3.2** | **Develop community NbS plans** | **1-4** |
| 1.3.2.1 | Gender inclusive community development plans for NbS | 1-4 |
| 1.3.2.2 | Capacity building of relevant officers on climate change risk impacts on all vulnerable communities with inclusion of gender in NbS | 1 |
| **1.3.3** | **Support activities to stimulate entrepreneurship (including Social entrepreneurship such as women, youth, vulnerable group) in nature-based solutions, specifically in the context of implementation of gender-responsive adaptation plans for Thimphu and Paro.** | **1-4** |
| 1.3.3.1 | Development of localised strategy for involvement of private sector (investment and entrepreneurs) in implementation of NbS and other adaptation actions. | 1-2 |
| 1.3.3.2 | Upskilling of NbS entrepreneurship competencies for relevant officials | 1 |
| 1.3.3.3 | Enhancing NbS accelerator programme targeting community initiatives, youth, women, vulnerable populations, etc (including decision making opportunities) | 1-3 |
| 1.3.3.4 | Strengthening localised support mechanisms for scaling-up entrepreneurship in NbS and adaptation practices for Thimphu and Paro | 1-3 |

***Output 1.4: Educational and training programmes introduced in colleges and technical schools for skilling, reskilling and upskilling of planning professionals and workforce***

***Key results***

* Courses for students, planning and engineering professionals, technicians and construction workers developed, tested and evaluated
* Training and educational courses institutionalised
* 200 persons trained on climate resilience

This output seeks to mainstream climate resilience through educational and training programs aimed at experienced and aspiring urban planning professionals, engineers, technicians, and construction workers and investments. At the start, an analysis of past and ongoing educational and training programs will be conducted to identify areas for integration of content related to urban resilience. Building on the identified needs and gaps, and in collaboration with educational institutions within the country and abroad, the project will develop content to embed into existing or new modules, courses, or programmes. By leveraging synergies and lessons learned from past and ongoing HR capacity development projects in Bhutan, the project will adopt a range of teaching and learning modalities that will promote an inclusive learning environment.

The programs will be delivered at different educational levels, including universities, TVET institutes and specialised adult education courses, and will involve planners, O&M technicians, architects, engineers, construction workers and a wider range of resilience-related professionals. Established urban planning professionals, architects and engineers, water and drainage/sanitation inspectors both within the public and private sectors inclusive of financial institutions, will undergo training in resilient urban planning, infrastructure design, and construction, as well in utilisation of various software and tools. Furthermore, existing vocational training programmes will be directed towards sustainable, resilient, and gender-friendly construction technology.

Efforts will be made to establish enduring partnerships with educational institutions, especially those in the Thimphu-Paro region, to institutionalize climate resilience capacity development initiatives beyond the project's duration. The institutional program implementation is vital for fostering long-term capacity enhancement in Bhutan.

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| **#** | **Activity / Sub-activity** | **Year** |
| **1.4.1** | **Train key partners as Trainers (ToT programme) to review existing educational and training programmes, including the capacity of providers, in the universities, training institutes, CSOs, government, and private sector, from a climate adaptation and an inclusivity perspective.** | **1-3** |
| 1.4.1.1 | Review of existing educational and training programmes and training capacity of training service providers in the government, civil society organizations and private sector, from a gender and climate adaptation perspective | 1-3 |
| **1.4.2** | **Design educational and training courses, including training content and modalities, and strengthen the capacity of relevant officials from learning institutions to host training programmes. The awareness of the problems that communities inclusive of youths (students), women and service providers like water and sanitation inspectors encounter will inform the systemic nature of the training materials.** | **1-5** |
| 1.4.2.1 | Assessment of existing course and Development of courses based on the needs assessment | 1-5 |
| 1.4.2.2 | Strengthening the Capacity of relevant officials from learning institutions to be hosting training programs, including training of trainers | 1-5 |
| 1.4.2.3 | Implementation of courses in training institutes and colleges | 1-5 |
| **1.4.3** | **Implement training programmes for planning and engineering professionals, technicians, water and drainage/sanitation inspectors and construction workers on: 1) climate resilient urban planning and design utilising NbS, 2) climate resilient green building technology, 3) operation and maintenance of water and wastewater system, 4) EWS modelling and weather data downscaling and their integration into the existing flood forecasting system, 5) assessment of climate resilient loan proposals for the financial institution, civil engineers are the financial institutions, loan appraisal officers and credit managers** | **1-6** |
| 1.4.3.1 | Capacity building for relevant officials in the planning and designing of nature-based stormwater and flood risk management | 1-5 |
| 1.4.3.2 | Conduct training and capacity development of officials of DoW and stakeholders on climate smart water resources management | 1-3 |
| 1.4.3.3 | Conduct training and capacity building of urban planners, landscape architects and engineers on urban planning and development using NBS | 1-4 |
| 1.4.3.4 | Capacity building of the relevant officials on the planning, design and construction climate resilient water and wastewater infrastructures. | 1 |
| 1.4.3.5 | Capacity building of the technicians and site engineers on the Operation & Maintenance of Water and waste water system | 3 |
| 1.4.3.6 | Capacity building on climate resilient green building technology for professionals (engineers and architects) and awareness for green building tool and standard | 1, 4 |
| 1.4.3.7 | Training on the Forecast based EWS modeling and its integration into the existing flood forecasting system. | 1-2 |
| 1.4.3.8 | Training on weather (wrf) data downscaling and assimilation into flood forecasting system (EWS) | 1 |
| **1.4.4** | **Evaluate implemented educational and training programmes, and assess options for their institutionalisation to deliver permanent human capacity enhancement.** | **1-2** |
| 1.4.4.1 | Evaluation of implemented programes (tracer survey, attendance and performance, participants feedback, etc.) | 1-2 |
| 1.4.4.2 | Assessment of options for permanent integration of training programes in selected institutions | 1 |

***Output 1.5: Innovative financing solutions for public and private sector to invest in climate-resilient projects, technologies, and services***

***Key results***

* Climate change risks and measures integrated in fiscal planning
* Enhanced access to green financing for the private sector
* Strengthened capacity of financial institutions to absorb green financing
* PES and PPP schemes applied in the context of urban NbS

This output will introduce and experiment with innovative mechanisms for both public and private sector financing for climate-resilient projects and technologies in the Thimphu-Paro region. Existing public and private mechanisms will be mapped and evaluated, while new mechanisms for the private sector will be proposed. A special focus will be placed on the demonstration of PES and PPP mechanisms, i.e. their applicability to NbS in an urban context.

Additionally, amidst the establishment of the green financing system, the project will provide technical assistance to financial institutions, including the training of their staff. Furthermore, an assessment of the water tariff system in Paro and Thimphu will be conducted.

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| **#** | **Activity / Sub-activity** | **Year** |
| **1.5.1** | **Assessment and demonstration of mechanisms to strengthen private sector engagement for NbS and urban resilience projects. Development of Climate Prosperity Plan (CPP) to strategize climate change-related (NbS and Urban Resilience) innovative financing mechanisms. Weather Forecast into Macro-economic and other projections for Climate Adaptation in the fiscal projection.** | **1-3** |
| 1.5.1.1 | Assessment and demonstration of mechanisms to strengthen Private Sector engagement for NbS and Urban Resilience projects | 2-3 |
| 1.5.1.2 | Weather Forecast into Macro-economic and other projections for Climate Adaptation in the fiscal projection | 2-3 |
| 1.5.1.3 | Development of and capacitation on Climate Prosperity Plan (CPP) to strategize climate change-related (NbS and Urban Resilience) innovative financing mechanisms | 1-2 |
| **1.5.2** | **Support to development of robust incentives system, through assessment and development of policy supporting incentive system for green financing for financial institutions. Development and implementation of training package on Climate Stress Testing, NbS financing and investment, ESRM for financial institutions.** | **1-5** |
| 1.5.2.1 | Assessment and development of policy supporting incentive system for green financing for financial institutions | 1-5 |
| 1.5.2.2 | Development and implementation of training package on Climate Stress Testing, NbS financing, Environmental and Social Risk Management (ESRM) for financial institutions | 2 |
| **1.5.3** | **Develop the existing PES and PPP initiatives, specifically considering their application for the NbS / urban-resilience projects. Assessment on water tariff system in Paro and Thimphu to ensure financial sustainability and allocating a portion of tariffs collected from water users to NbS investments for improved water management** | **1-5** |
| 1.5.3.1 | Support implementation of NbS interventions for urban resilience under the enhanced PES scheme | 1-4 |
| 1.5.3.2 | Support assessment and implementation of NbS interventions for urban resilience under Green Taxonomy and Sustainable Financing Framework exploring the PPP model | 2-3 |
| 1.5.3.3 | Assessment on water tariff system in Paro and Thimphu | 4-5 |

**Component 2: Build Resilience through gender-responsive climate adaptive approaches**

**Outcome 2: Climate risk management measures designed and implemented for water management systems and urban infrastructure**

**Total budget GEF-LDCF: $ 11,599,000; Co-financing: $ 29,600,000**

**Baseline scenario**

The current situation in the Thimphu-Paro urban region demonstrates a reliance on conventional grey infrastructure for urban planning and hazard mitigation. While some efforts exist to address climate change, there is a lack of widespread adoption of Nature-based Solutions (NbS) and Ecosystem-based Adaptation (EbA). This results in vulnerability to floods, water scarcity, landslides, and other climate-related risks. Existing early warning systems have limited coverage, and climate-informed decision-making often lacks data-driven analytics. Furthermore, financing for green resilience projects is not developed, and entrepreneurship in this sector requires additional support, particularly for women, youth, and vulnerable populations.

**With LDCF financed intervention**

Part of the project strategy involves a comprehensive approach to address climate hazards and accommodate rapid urban growth by prioritizing green solutions over conventional grey approaches. This is achieved through the strategic implementation of NbS to mitigate and adapt to various risks. The project includes a NbS accelerator program, strategically designed to target community initiatives, youth, women, and vulnerable populations, thereby fortifying overall resilience.

In the realm of water and stormwater management systems, climate-proofing features are introduced in key sections to ensure effective flood risk management, a secure and uninterrupted water supply, and continuity of critical urban activities. The project also aims to enhance stormwater management by incorporating NbS and EbA solutions. This involves rehabilitating stormwater drains for increased capacity, implementing secondary drainage for proper management, upgrading the stormwater drainage network, and implementing urban forestry as adaptive measures to protect river corridors and prevent landslides. The creation of fire lines for forest fire control, retention ponds for flood and dry season resiliency, NbS watershed interventions, and overall flood risk management contribute to a holistic approach. Additionally, the project emphasizes the promotion of green resilience in buildings, ensuring a sustainable and adaptive urban infrastructure**.**

***Innovative Financing***

The project will identify, design, and implement innovative financing solutions, including both fiscal and non-fiscal incentives to promote private sector investment in commercially viable green, gender responsive and climate resilient projects, technologies and services. The private sector will be involved ensuring the sustainability of the project interventions through PPP for long term financing and sustainable project management and utilizing PES as an innovative financing mechanism for urban resilience initiatives.

Simultaneously, the project will incentivize, and support community-based entrepreneurs engaged in nature-based, small-scale income generation and livelihood diversification activities. In the area of water management, the project will assess and enhance the tariff collection system by leveraging innovative applications of ICT and IoT. Additionally, the project aims to catalyse entrepreneurship in green and resilient construction for urban resilience with particular attention on engaging women, youth, and other vulnerable groups, ensuring inclusive participation in the economic aspects.

***Innovative technologies and Data Analytics***

The project harnesses cutting-edge technologies of GIS, IoT and SCADA, to produce data analytics to inform risk-based gender responsive decision-making in urban planning. This technological integration and trainings enhance the precision and effectiveness of decision processes. Concurrently, the project prioritizes community safety through the establishment of early warning systems specifically designed for climate-related hazards, ensuring timely responses and proactive measures. The technology and training manuals developed will be utilitarian for replication and scalability in future projects.

This outcome will support climate proofing of water and stormwater management systems and implement NbS to adapt to the impacts of climate change such as floods, heat island effects, landslides and forest fires. The ecosystem and NbS will also be implemented to enrich water sources, catchments and natural streams through improved infiltration and recharge. Through this outcome, measures will be introduced to increase the resilience of buildings and urban spaces through the demonstration of inclusive and climate resilient building technology. Furthermore, this outcome will expand on the coverage of early warning stations (EWS) through the development of ancillary rainfall threshold-based EWS on critical tributaries of Thimphu and Paro river basins, and integrate with the existing centralized hydro-met data management system of National Centre for Hydrology and Meteorology (NCHM). The outputs under the outcome are expected to build resilience to the impacts of climate change in the Thimphu-Paro urban region as elaborated below.

***Output 2.1: Climate-proofing features for the key sections of the water and stormwater management systems introduced to ensure flood risk management, safe and uninterrupted water supply and business continuity in critical urban areas***

***Key results***

* Developed Integrated stormwater management plan for Paro
* 3 380 meters of drainage system climate proofed
* Assessment of existing treatment plants and implementation of remedial measures
* Installation of SCADA system for 2 water supply systems
* Implementation of interventions to ensure uninterrupted safe drinking water supply

This output will address flood risks due to stormwater runoff in the urban areas (urban flooding) in accordance with the Water Services Master Plan, and ensure safe and uninterrupted water supply through effective storage and efficient conveyance and distribution of water in the critical urban areas of Thimphu and Paro. These will be enabled through climate proofing of infrastructure including the implementation of NbS and ecosystem based adaptation (EbA) measures.

In Paro, detailed technical assessment and intervention of the existing stormwater management system will be conducted, integrated storm water management plan (ISWMP) will be prepared, and the interventions will be implemented as per the plan. In Thimphu, the existing ISWMP will be implemented. The implementation of the IWSMPs and interventions are expected to enhance the capacity of primary and secondary drainage systems to allow peak flows through climate proofing of the infrastructure and providing climate resilient features and NbS to reduce flood risks. Additional flood safety measures such as daylighting and plantation alongside the existing natural streams running through the city core and the drainage systems will be provided under this output.

To address the impacts of climate change in water supply system in the critical urban areas of Thimphu and Paro , this output seeks to climate proof existing water supply infrastructure and digitize the water supply network through SCADA systems for real-time monitoring, data storage, and remotely control the water flow.

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| **#** | **Activity / Sub-activity** | **Year** |
| **2.1.1** | **Technical assessment and intervention of the existing stormwater management system and future needs for Paro Municipality.** | **1-4** |
| 2.1.1.1 | Development of the inventory of the existing stormwater Drainage Network | 1-2 |
| 2.1.1.2 | Preparation of Integrated Stormwater Management Plan (ISWMP) | 1-2 |
| 2.1.1.3 | Implementing NbS integrated storm water interventions in Paro Municipality | 3-4 |
| **2.1.2** | **Implementation of Water Services Master Plan by improving the stormwater management system and introduction of NbS and EbA solutions to reduce urban flooding.** | **1-4** |
| 2.1.2.1 | Rehabilitation of the Primary Storm water drains for capacity enhancement and integration of NbS | 1-3 |
| 2.1.2.2 | Rehabilitation of secondary storm water drainages (Connecting drains) for proper management of surface runoff and waste water | 2-4 |
| 2.1.2.3 | Lateral Drainage system demonstrated for partial diversion of stormwater from the primary drainage system to reduce urban flood in low-lying areas | 3-4 |
| 2.1.2.4 | Rehabilitation of stormwater drainage networks in Debsi LAP | 1-2 |
| 2.1.2.5 | Demonstrate flood safety measures along the primary stormwater drainage system and stream in Thimphu | 1-3 |
| **2.1.3** | **Improve water supply management through the establishment of SCADA systems and implementation of interventions to ensure uninterrupted safe drinking water supply.** | **1-4** |
| 2.1.3.1 | Digitization of water supply system in Thimphu and Paro municipality | 2-3 |
| 2.1.3.2 | Installation of Sensors and SCADA system for water supply system | 3-4 |
| 2.1.3.3 | Promote climate risk informed planning of water supply through the assessment of existing treatment plants and implementation of remedial measure for Paro and Thimphu Thromde | 1-2 |
| 2.1.3.4 | Ensure uninterrupted safe water supply through appropriate interventions to combat climate change in Thimphu and Paro Municipalities | 2-4 |

***Output 2.2: Ecosystem and NbS developed and implemented to adapt to floods, heat-island effect, and landslide and to enrich water sources, natural streams and catchments for improved infiltration, restoration and recharge***

***Key results***

* 30 062m of river corridors and 39 781 m of streams enhanced to adapt to floods
* Retention pond in Paro developed ot maintain water level for flood resiliency and secure water during the dry season
* Developed Dzongkhag Integrated Water Resources Master Plan for Paro and Thimphu
* 809 hectares of watershed/springshed restored
* 85.32 hectares of urban forests created
* 500 m of landslides stabilised
* 930 m of street trees in Thimphu and 35 ha of street trees in Paro implemented

Under this output, Wang Chu and Paro river corridor will be enhanced to manage the floodplain and restore riparian buffer, while fostering ecological restoration and improving biodiversity. It will develop urban forests and enhance urban greenery to promote the preservation of natural environment and ecological health. Furthermore, with Thimphu and Paro prone to fires hazards especially during dry season, fire breaks (fire lines) will be created at strategic locations within the city and along the municipal boundary. These interventions are also expected to reduce heat-island effect and increase carbon sequestration.

To protect and restore water sources of Thimphu and Paro municipality, assessment of degraded areas will be carried out, and catchments, water sources and natural streams will be rehabilitated through nature-based watershed/springshed revival interventions to improve infiltration and recharge. This output will also implement climate resilient flood management measures with hybrid infrastructure and NbS along the critical areas of Pa-chu and Wang Chu embankments to protect public infrastructure and vulnerable communities. The activities under this output include:

|  |  |  |
| --- | --- | --- |
| # | **Activity** | Year |
| **2.2.1** | **Development of urban forestry/greening to reduce urban heat island effect, flooding, and enhance carbon sequestration.** | **1-6** |
| 2.2.1.1 | Enhancement of Wangchhu River Corridor to adapt to floods and landslide through urban forestry | 1-6 |
| 2.2.1.2 | Creation of fireline to control forest fire along Thimphu and Paro Municipal Boundary | 1-6 |
| **2.2.2** | **Rehabilitation and protection of water sources, natural streams, and catchments for improved filtration, recharge, and restoration.** | **1-6** |
| 2.2.2.1 | Development and implementation of a retention pond at Jangsa water supply source to maintain water level for flood resiliency & dry season | 2-5 |
| 2.2.2.2 | Assess degraded or critical watersheds/springshed in Thimphu and Paro | 2-3 |
| 2.2.2.3 | Design and implement of nature-based watershed/springshed revival interventions in the above watersheds/springsheds | 1-6 |
| 2.2.2.4 | Develop Dzongkhag Integrated Water Resources Master Plan for Paro and Thimphu | 2-3 |
| **2.2.3** | **Flood risk management to protect public infrastructure and vulnerable communities using ecosystem/NbS.** | **2-6** |
| 2.2.3.1 | Implementation of climate-resilient flood management safety measures for Paro | 2-6 |
| 2.2.3.2 | Implementation of climate-resilient flood management safety measures for Thimphu | 2-3 |

***Output 2.3: Measures to increase climate resilience of buildings and design of urban spaces introduced***

***Key results***

* Enhanced green building standards
* Online green building tool developed
* 6 climate resilience solutions integrated into public buildings

This output will focus on the introduction of green and climate resilient construction technology in buildings and urban spaces. Towards this, a comprehensive green building standards will be developed that will take in account sustainable construction practices. Assessment methodologies and best practices frameworks will be developed to enable green building certification. . Additionally, digital tools including a green building software system will be developed for architects, engineers, builders, private entities, and stakeholders in the construction industry to incorporate green building elements into their building projects including the surrounding spaces. This also includes enhancing integration of urban greening adjacent to roads, walkways, and open urban spaces.

Furthermore, this output will demonstrate green and inclusive design and technologies through the construction of new climate-resilient/adaptive buildings as well as retrofitting existing public buildings in Thimphu and Paro. These buildings will serve as a functional testbed and guide to encourage public adoption of technologies to withstand and adapt to the impacts of climate change such as the extreme weather conditions and urban floods.

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| --- | --- | --- |
| **#** | **Activity / Sub-activity** | **Year** |
| **2.3.1** | **Promotion of green climate-resilient buildings through green building tools and standards.** | **1-4** |
| 2.3.1.1 | Develop Green Building standard and incorporation in the revised Bhutan Building Code | 1-4 |
| 2.3.1.2 | Develop green building tools | 2-4 |
| **2.3.2** | **Introduction and promotion of climate resilient construction technology in buildings and urban space.** | **1-6** |
| 2.3.2.1 | Demonstrate inclusive and climate resilient building technology in Thimphu | 1-6 |
| 2.3.2.2 | Retrofitting of an existing public building with inclusive and climate resilient technology in Paro | 1-6 |

***Output 2.4: Ancillary rainfall threshold-based flood EWS developed on critical tributaries and integrated with the existing centralized hydro-met data management system (CDMS) of NCHM***

***Key results***

* 4 short / long stream gauging stations and 5 weather and climate monitoring stations installed
* Developed flood forecasting model for Paro and Thimphu river basin including tributaries
* Integrated down scaled weather forecasting data (Wrf) for the flood forecasting model of EWS
* Developed Flood Warning dissemination platform [web based] for EWS
* Stakeholders sensitised on the flood risk and management

Flash floods from the tributaries of Paro and Thimphu river basins result in a very short lead time endangering the community and infrastructure. To enhance the effectiveness of emergency preparedness, response, and overall risk reduction, the flood early warning system (FEWS) based on the flood forecast will be developed. The downscaled weather forecasting data will be integrated with the flood forecasting model of the early warning system (EWS) and the central hydro-met data management system (CDMS) of the National Centre for Hydrology and Meteorology (NCHM). The existing web-based platform will also be enhanced to disseminate flood warning. New weather and climate monitoring stations within the urban areas and in higher altitude of Thimphu and Paro will be established, the existing critical hydromet stations will be rehabilitated and the short- and long-term stream gauging stations will be set up in the critical tributaries of the Paro and Thimphu river basins. These stations will provide weather parameters, input data, and crucial information on the hydrological response, status of the streams for operating flood forecasting system for real-time data assimilation and the model calibration and validation.

Furthermore, standard operating procedures (SOPs) for operation, maintenance, and information dissemination protocol for EWS specific to the Thimphu-Paro urban region will be developed, guided by the basic principles and concepts of flood warning procedures including the logical steps to be followed by all the concerned hydromet staff responsible for monitoring, detection and issuance of flood warning. The stakeholders and vulnerable communities will also be sensitized on flood risk management and EWS to enhance community resiliency.

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| **#** | **Activity / Sub-activity** | **Year** |
| **2.4.1** | **Develop forecast based flood EWS in flood-prone areas in the tributaries of the Thimchhu and Pachhu river basin.** | **3-4** |
| 2.4.1.1 | Develop flood forecasting model for Paro and Thimphu river basin including tributaries | 3-4 |
| 2.4.1.2 | Integration of down scaled weather forecasting data (Wrf) to the flood forecasting model of EWS | 4 |
| 2.4.1.3 | Development of Flood Warning dissemination platform (web based) for EWS | 3-4 |
| **2.4.2** | **Enhance hydrometeorological monitoring stations in Pachhu and Thimchhu basin.** | **1-3** |
| 2.4.2.1 | Establishment of short-long term stream gauging stations with ambient water quality monitoring sensors | 1-3 |
| 2.4.2.2 | Establishment of Weather and climate monitoring station in high altitude and Urban areas | 1-3 |
| 2.4.2.3 | Rehabilitation of critical hydro met stations in Paro and Thimphu | 2-3 |
| **2.4.3** | **Develop Standard Operations and Maintenance manual of EWS, and train staff and relevant community members.** | **5-6** |
| 2.4.3.1 | Develop Standard Operating Procedure (SOP) for operation, maintenance and information dissemination protocol for the EWS | 5 |
| 2.4.3.2 | Sensitization on the flood risk and management to relevant stakeholders through participatory approach to enhance resiliency against flood risk | 5-6 |

**Component 3: Knowledge management and M&E**

**Outcome 3: Project knowledge is managed, and project results are monitored and evaluated to foster learning, adaptive management, sustainability and replication**

**Total budget GEF-LDCF:** **$ 763,000; Co-financing: $ 5,300,000**

**Baseline scenario**

Currently, institutional knowledge on climate resilience is hampered by limited transfer mechanisms and the impact of staff turnover. Project sustainability often suffers from a reliance on traditional funding models, lacking innovative financing strategies to ensure long-term impact. Additionally, climate resilience efforts tend to be isolated projects rather than being systematically integrated into Bhutan's broader development plans. This lack of alignment, limited stakeholder involvement, and insufficient capacity-building hinder the creation of lasting solutions. Finally, there's a need for robust monitoring and evaluation systems to track progress and inform adaptable strategies.

**With LDCF financed intervention**

To address challenges related to institutional knowledge, arising from inadequate knowledge transfer and high staff turnover rates, the project emphasizes strengthening institutional knowledge management. Furthermore, it recognizes that project implementation and long-term sustainability extend beyond securing adequate funding. The incorporation of innovative financing solutions in partnership with the financial institutions, such as PES, PPP, NbS incubators, and entrepreneurial incentives, is crucial. This strategic adoption of diverse financial mechanisms goes beyond the limitations of isolated climate resilience projects, paving the way for a systematic and sustainable approach to building resilience against the multifaceted impacts of climate change.

To ensure the project's longevity and avoid a one-off endeavour, its strategic framework will be aligned with Bhutan's long-term climate resilience strategies, delineating specific goals, objectives, and actionable items. A broad spectrum of stakeholders, including government agencies, local communities, civil society organizations, academia and the private sector, will be actively engaged in both the planning and implementation processes. The integration of climate resilience considerations into existing policies, plans, and programmes across various sectors is imperative, accompanied by capacity-building initiatives to empower stakeholders to effectively address resilience challenges. The project will establish mechanisms for continuous monitoring and evaluation to track progress and make necessary adjustments over time.

***Output 3.1: Knowledge and communication products and platforms developed to analyze and disseminate best practices and project lessons***

***Key results***

* Communication and dissemination strategy developed
* 20 gender-friendly knowledge products developed and disseminated
* Publications on key project outcomes developed and distributed
* Over 120 000 people informed about nature-based solutions

This output will develop and implement a gender-responsive communication plan and strategy for dissemination of project related information, which will identify the key target groups and outline the approach tailored towards each of these individual groups. The project will establish separate website, which will be linked to existing climate associated platforms, such as the virtual Bhutan Climate Platform that is being supported by the NAP Readiness Project, as well as public social media accounts for timely dissemination of information.

Knowledge management materials, will be produced to disseminate project success stories, case studies, and lessons learned, illustrating the theory of change. Some initial ideas include a project documentary, documentation of traditional knowledge for urban resilience, green resilient building initiatives, videos addressing gender and climate change nexus, general information on NbS, and springshed revival and management efforts.. These materials will be inclusive, taking into consideration varying levels of education, language, and access to social media and other communication platforms. With the academic sector, the project will produce research and publications on climate and urban resilience, as well as publications on key project outputs, including: 1) catalogue of NbS for mountainous cities, 2) strategy for engaging entrepreneurs and community initiatives in local adaptation planning, and 3) NbS accelerator programme.

To facilitate the scale-up and replication of project results, an exchange program for officials from other thromdes of Bhutan will be developed, along with sharing of best practices and lessons learned to enable the development of their action plans. Additionally, the project will organise its own events and facilitate participation in international and regional events focusing on climate-resilient urban development, as well as coordinate study visits and exchange programs. . Knowledge, Attitude, and Practice (KAP) surveys will be conducted to assess the understanding of Thimphu and Paro urban communities and stakeholders regarding climate change causes and impacts, as well as to evaluate transformation of climate change adaptation capacity at various levels.

|  |  |  |
| --- | --- | --- |
| **#** | **Activity / Sub-activity** | **Year** |
| **3.1.1** | **Develop gender-responsive communication plan and creation of social media accounts and website.** | **1** |
| 3.1.1.1 | Development of gender-responsive communication plan and strategy for dissemination of project information through communication channels | 1 |
| 3.1.1.2 | Establishment of website, linkage to existing climate associated platforms and opening social media accounts for the timely information sharing | 1 |
| 3.1.2 | **Produce communication materials, including videos, brochures, flyers, and posters, highlighting project success and impact stories, case studies and lessons learned that illustrate the theory of change. Produce research articles and publications focusing on climate and urban resilience, as well as booklets on some of the key project outputs.** | 1-6 |
| 3.1.2.1 | Prepare videos / brochures / flyers / poster and other communication materials on project success stories, case study, progress, lessons learnt and impact stories describing the theory of change. | 1-6 |
| 3.1.2.2 | Publication of books / research / articles on climate / urban resilience | 2-6 |
| 3.1.2.3 | Publication on key project outputs | 5-6 |
| **3.1.3** | **Exchange programme for public and private sector representatives from other thromdes, and support to replicate localised action plans.** | **4-6** |
| 3.1.3.1 | Support to exchange programme for public and private sector from other thromdes and development of localised replication action plans | 4-6 |
| **3.1.4** | **Organise and attend international and regional conferences, seminars, trade EXPOs on climate resilient urban development. Organise study visits and exchange programmes for university staff, students, TVET trainers and component managers.** | **1-6** |
| 3.1.4.1 | Study visit and exchange programs for staff and students, TVET Trainers and component managers | 1-6 |
| 3.1.4.2 | Organise and attend international and regional conferences, seminars, trade EXPOs on climate resilient urban development | 1-6 |
| **3.1.5** | **Carry out Knowledge, Attitude and Practice surveys.** | **1-6** |
| 3.1.5.1 | Carrying out regular knowledge, attitude and practice surveys | 1-6 |

***Output 3.2: Project progress and results are effectively tracked and managed through monitoring and evaluation***

The activities of this output are described under the M&E section below.

**Partnerships**

The project adopts a collaborative model involving government, universities, NGOs, CSOs, communities, financial institution and businesses to serve as an innovative framework for navigating towards a climate-resilient future. Key project partners include several ministries and central government agencies, Thimphu and Paro municipalities, private sector, NGOs and CSOs as well as urban communities. A detailed overview of these issues stakeholders is given in the Stakeholder Engagement Plan (Annex 8). The Ministry of Infrastructure and Transport is the focal executing agency of the project that is mandated to carry out spatial and urban planning, and development of physical infrastructures which this project intends to support. Other crucial ministries involved are the Ministry of Natural Resources and Environment that oversees climate and environmental policy, and the Ministry of Home Affairs, which manages disaster risk reduction efforts. Additionally, the Ministry of Finance supervises the implementation of innovative financing mechanisms, the Ministry of Industry, Commerce, and Employment, and the Ministry of Education and Skills Development are respectively responsible for the country's economic and educational development. Each ministry takes the lead on specific project outputs or activities within its respective domain.

The municipalities in the Thimphu-Paro region assume critical roles in formulating local adaptation plans, engaging stakeholders, including local entrepreneurs and communities, and overseeing development of climate-resilient interventions for the benefit of their citizens. The National Centre for Hydrology and Meteorology contributes by integrating Early Warning Systems into hydrological databases. Academic institutions including the College of Science and Technology, and College of Natural Resources are pivotal in embedding urban resilience content into their present and forthcoming programmes in collaboration with other educational institutions within the country and abroad.

Private enterprises involved in planning, design, or construction, along with aspiring social entrepreneurs and community-led initiatives, are essential to drive development of green, resilient, gender-friendly market landscape. NGOs, CSOs, and vulnerable groups, including women, youth, elderly or Persons with Disability , play central roles in developing physical interventions, but also in overall gender and inclusivity mainstreaming across project activities. Finally, financial institutions, under the guidance of the Royal Monetary Authority, are instrumental in addressing the financing needs of emerging public or private investors in climate resilient projects or technologies.

The following table summarises ongoing initiatives and projects of other stakeholders that are relevant to the ECRUL project. These projects address similar development challenges and their work provides a basis for achieving the results of the ECRUL project. The ECRUL project will collaborate and explore synergies with these initiatives, benefiting from them, and/or adding to their effectiveness by bringing in crucial elements of climate change adaptation. A summary of linkages between the projects and ECRUL follows the table.

Table *3*: Relevant projects which could act as baselines for additional climate change interventions or partnerships which could improve efficacy and efficiencies of proposed activities. Note that some of the projects are under review.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Project/Initiative Title | Funding Agency | Implementing Entity | Duration | Grant (mill US$) | Focal areas/ Relevance | Type of Partnership |
| 1 | Advancing Climate Resilience of the Water Sector in Bhutan | GEF | UNDP | 2023 to 2028 | 34.06 | Watershed restoration, climate-proof water infrastructure, private sector engagement | Collaboration  Knowledge sharing |
| The project has the objective to ensure sustainable water management at a basin level through improving institutional and financial capacity to adapt to water demand and supply mismatch, as well as ecosystem-based activities to restore watersheds and their hydrological regulation. Component 1 of ACREWAS project is introducing PES scheme for watershed management, which will be applied in ECRUL project, within Output 1.5. The Ministry of Infrastructure and Transport will leverage their implementation knowledge and apply it in the urban areas. | | | | | | | |
| 2 | Strengthening Risk Information for Disaster Resilience | - | WB | 2021-2025 | 3.51 | Disaster risk reduction, Hydromet and agromet services | Collaboration |
| Component A of the above project will establish a multi hazard risk assessment for hazards such as earthquakes, floods, and landslides. The web-based application is expected to have a GIS based decision support system that determines potential impact and empowers policymakers, operational users of Incident Response System, sectoral users and community members with necessary early warning information for decision making during all phases of disaster management. ECRUL’s Output 1.2 will ensure that urban planners and other practitioners implement climate risk-informed planning through the development of best practices for GIS and geospatial data. ECRUL will evaluate how to integrate this existing decision-making system developed by the World Bank project, specifically applied to landslides and flooding in Thimphu and Paro. Additionally, climate risk and hazard maps and data obtained through the World Bank project will be reviewed prior the development of downscaled analyses for Thimphu and Paro. | | | | | | | |
| 3 | Green and Resilient Affordable Housing Sector Project | - | ADB | 2021-2028 | 31 | Green buildings, Affordable housing, Building codes | Collaboration  Potential joint sites / interventions |
| Component 1 of this project will build 1,000 climate-resilient housing units, focusing on earthquakes and fire safety features. Output 2.3 of ECRUL project might use same affordable housing objects to introduce measures to increase the resilience of buildings to flooding and climate hazards. Furthermore, outputs from the ECRUL project, such as incorporating NbS into building design, complements ADB's Output 1 and 2 aimed at revising current building codes. | | | | | | | |
| 4 | Water flagship Program support Project in Bhutan | - | ADB | 2022-2030 | 6 | Water supply system, Digital water management | Collaboration  Knowledge sharing |
| This project will develop climate-resilient water infrastructure and establish digital water management systems through its Outputs 1 and 2. ECRUL’s Output 2.1 will climate-proof features of water and stormwater management systems to ensure flood-risk management, safe and uninterrupted water supply and business continuity in critical urban areas, including digitisation of some parts of the water supply systems of Thimphu and Paro. | | | | | | | |
| 5 | Technical cooperation programme for capacity enhancement of meteorological observation, forecasting and flood warning for disaster preparedness and response in Thimphu and Paro Basins | - | JICA | 2020-2024 | N/A | Disaster risk reduction, EWS | Collaboration  Knowledge sharing |
| Output 2.4 of ECRUL project will develop threshold-based flood Early Warning systems on critical tributaries and integrate this data with existing hydrological centralised management system of the National Centre for Hydrology and Meteorology (NCHM). The project will use the information from the piloted basins and integrate the produced EWS for threshold-based flooding with the GLOF and rainstorm EWS. | | | | | | | |
| 6 | Bhutan Human Capital Recovery and Resilience Program | - | WB | 2022-2025 | 43.01 | Education, Human capital development | Collaboration |
| Output 1.4 of ECRUL project is aimed at implementing training programmes in colleges and technical schools for planning professionals. These programmes will include topics such as climate-resilient planning and disaster risk recovery. ECRUL will coordinate with the above project in relation to entrepreneurship development, skilling of the construction workforce for green and resilient building and the institutionalization of knowledge. | | | | | | | |
| 7 | Adaptation to Climate Induced Water Stresses through Integrated Landscape Management in Bhutan | AF | BTFEC | 2023-2028 | 9.9 | Climate-proof water infrastructure, Climate-smart agriculture | Collaboration |
| Although the ECRUL project is focused solely on the urbanised areas of Thimphu and Paro, collaboration on sharing experiences between Component 4 of the above project - *Improved local governance for effective CCA mainstreaming with focus on water management at the grassroots* and Output 1.3 of ECRUL project will be established because of their mutual focus on the grassroots and community level governance. | | | | | | | |
| 8 | Regional Project on Building Climate Resilience of Urban System through Ecosystem based Adaptation in the Asia- Pacific | GEF | UNEP | 2017-2025 | 6 | Capacities for use of climate information and early warnings. Participatory adaptation and mitigation measures for water infrastructure | Collaboration |
| ECRUL project will use the lessons learned from the restoration of part of the Thimphu river and the slope treatment at Zilukha (as well as any other potential interventions to be implemented) to steer the activities in the Output 2.2. | | | | | | | |

**Resources**

To achieve the expected results, the project will establish a Project Management Unit (PMU) responsible for supervision of all project activities. This PMU will be supplemented by external consultants, both national and international, providing specialized expertise in various areas. Furthermore, the PMU will have three-tier support by UNDP staff from the Country Office (CO), Regional Office (RO), and Headquarters (HQ). The project will also depend on various external companies to provide a diverse range of services, goods or works, including trainings, workshops, technical consultancy particularly for design, construction and supervision for NbS and other urban resilience physical interventions. In addition, cultivation of partnerships with project stakeholders and international organizations will be necessary for the successful execution of project goals, as they provide additional pool of expertise.

**Risks**

The project has a comprehensive risk management framework supported by risk assessments provided in Annex 5: UNDP Social and Environmental Screening Procedure, and Annex 6: UNDP Risk Register. Risks that threaten the achievements of project results: are summarised below. The overall risk rating is judged to be moderate.

Table 4: Risks that threaten the achievements of results and mitigation measures.

| **Description** | **Type** | **Mitigation measures** | **Risk owner** |
| --- | --- | --- | --- |
| Risk 1: Extreme weather events during the implementation of the project may lead to extended project duration and cost overrun. | Social and Environmental | To address the risk of project delays and cost increases from extreme weather events, the project will conduct risk assessments, early forecasting and developing contingency plans, in case of such events. The implementation team will carefully plan the timeline, with built-in buffers. | MoIT |
| Risk 2: Slow economic recovery may reduce government and partners capacity to co-finance the project. | Financial/  Regulatory | To mitigate the risk of reduced co-financing due to slow economic recovery, the project will explore alternative funding sources such as international grants or private sector partnerships. Additionally, maintaining regular and open communication with government and partners to reassess financial capabilities and adjust funding commitments accordingly can help mitigate the impact of economic uncertainties. | MoF |
| Risk 3: Price escalation due to inflation may exceed budgeted costs, affecting project achievements. | Financial/ operational | To mitigate the risk of price escalation due to inflation, the PMU will be preparing thorough cost estimations inclusive of inflation, which will be regularly updated. As another option, the PMU can negotiate fixed-price contracts with suppliers and contractors to lock in costs. Regular monitoring of market trends and adjusting budget allocations accordingly can help mitigate the impact of price fluctuations. | PMU/MoF |
| Risk 4: Underdeveloped private sector, and weak value and supply chains may hinder adoption and success of private sector engagements. | Regulatory | To mitigate the risk of underdeveloped private sector, and weak value and supply chains hindering the success of private sector engagements, the project will utilize Government Executive Order no. C-2/2024/6, which calls for actionable recommendations to address existing regulatory barriers. Through discussions among relevant departments and completion of consultation meetings, this process will streamline the regulatory framework, fostering a conducive environment for private sector involvement. | MoICE |
| Risk 5:  Slow buy-in and adoption of innovative solutions and technical skills by project stakeholders. | Organizational / Market risk | To address the risk of slow buy-in and adoption of innovative solutions and technical skills by project stakeholders, the project will prioritize early engagement to enhance stakeholder understanding.  Additionally, extensive promotion of the solutions and skills through various communication channels will be conducted. Moreover, capacity-building and training programmes will be organized for the project stakeholders. | MoIT |
| Risk 6:  Limited capacity of local institutions may hinder  Implementation of some activities. | Institutional | To address the risk of limited capacity of local institutions hindering implementation, the project will provide early on capacity-building programmes such as training, workshops, and seminars to enhance their skills and knowledge. Fostering close partnerships between local institutions and the PMU will further strengthen their capacity and ensure successful implementation of some activities, e.g. they will collaborate during the planning, design, implementation and evaluation of project’s physical interventions. | RUB, MoESD, MoICE |
| Risk 7:  Inadequate stakeholder participation resulting in ineffective or unsustainable project outcomes. | Organizational | To mitigate the risk of inadequate stakeholder participation and ensure effective project outcomes, the project will prioritize early engagement of relevant stakeholders and foster inclusive involvement throughout the project cycle. Furthermore, utilizing websites, social and paper media, along with collaborating with CSOs to reach communities and vulnerable groups, will enhance civic participation. | PMU |
| Risk 8  Staff turn-over/attrition in the implementing agencies may hamper project execution. | Organizational | To mitigate the risk of staff turnover/attrition in the implementing agencies impacting project execution, the project will implement succession planning of human resources within the PMU and the RCSC. Knowledge transfer within the PMU and sharing implementation responsibilities with other stakeholders will ensure continuity and effective management of project activities, in the face of potential staff turnover. | PMU |

**Summary of the SESP**

The project prioritizes a human rights-based approach (HRBA) throughout its design and implementation. Inclusive engagement of vulnerable groups, such as women, the elderly, individuals with disabilities, and the urban poor, is emphasized in the project's Stakeholder Engagement Plan (SEP), Gender Action Plan (GAP) and Grievance Redress Mechanism (GRM). The project aims to empower these groups in city planning decisions and will provide technical assistance for gender-sensitive adaptation plans, entrepreneurship training, and the development of inclusive Nature-based Solutions (NbS) plans.

To enhance long-term sustainability and resilience, the project focuses on strengthening institutional capacity and technology. This includes developing strategic frameworks, climate risk-informed urban planning through GIS, climate-smart construction, resilient water supply systems, and nature-based solutions (NbS) for flood control, heat adaptation, and water security. Training programs, knowledge sharing initiatives, and the exploration of innovative financing mechanisms will further embed these measures into practice.

The project aims for strong accountability to stakeholders through a clear Stakeholder Engagement Plan, communication channels, feedback mechanisms, and free, prior, informed consent procedures. Project governance will be overseen by a multi-stakeholder Project Board and a Technical Advisory Committee for guidance. Robust monitoring and evaluation (M&E) systems including a Stakeholder Response Mechanism (SRM) and a Grievance Redress Mechanism (GRM) will ensure ongoing engagement, address concerns, and enhance transparency.

Overall, the project directly targets the improvement of climate resilience and adaptation in urban areas. By addressing risks and vulnerabilities faced by women and marginalized groups, it promotes the principles of HRBA, gender equality, and social inclusion alongside technical climate solutions.

The risk assessments for these and other factors are given in Annex 5: UNDP Social and Environmental Screening Procedure.

**Stakeholder Engagement**

A detailed analysis of project stakeholders, resources and time for the engagement of different groups is given in Annex 8 Stakeholder Engagement Plan. Below is a brief overview of stakeholder groups and engagement modalities:

* **Group 1** stakeholders are primary stakeholders directly affected by the project and its decisions or actions. They actively contribute to project implementation and serve as key partners. These stakeholders are ministries and central agencies, dzongkhags and thromdes, educational and learning institutions, entrepreneurs, construction contractors and financial institutions, CSOs and communities. Certain stakeholders from this group will take the lead in managing specific project outputs or activities (with involvement from multiple ministries to promote a cross-sectoral approach). Others will directly participate in and benefit from these activities.
* **Group 2** stakeholders comprise the general public, including vulnerable populations such as women, the persons with disabilities and their families, youth, LGBT+ community , and those with potential underlying medical/health? conditions. While their influence on the project may be moderate, prioritizing their needs contributes to a more inclusive and equitable outcome, essential for long-term success. Ensuring that project information reaches them and taking into consideration their interests and perspectives is crucial, as they are the ultimate beneficiaries.

In addition to the project’s communications activities, engagement with these stakeholders will be facilitated through established interest groups such as NGOs and CSOs, as well as local government leaders at various administrative levels. Community and citizen engagement, particularly with women and other vulnerable groups, will be heightened during the implementation of physical interventions in Component 2.

* **Group 3** stakeholders will be engaged in relevant discussions and contribute to shaping the overall project strategy. This group includes a variety of central institutions and agencies, national CSOs and NGOs, and international organizations. They will mainly be engaged through targeted consultations (depending on their area of interest or expertise), as well as be regularly invited to project’s bi-annual events.
* **Group 4** stakeholders do not directly engage in project activities, but have considerable influence over its overall implementation. This groups includes entrepreneurs and any other suppliers of goods, services, and works, which can also be researchers, CSOs, state owned companies.

These stakeholders may pose challenges to project execution, such as a shortage of experienced bidders or firms in specific service areas, especially when introducing innovative solutions. Thus, the aim is to inform potential bidders early on and enable them to prepare offers by partnering with foreign companies or adapting their products. Engaging this group proactively will ensure they are informed about the project's objectives and opportunities, which will lead to the development of a strong pool of potential suppliers or implementers.

All stakeholder engagements followed the UNDP criteria for free, prior and informed consent (FPIC). Also, the project will set up a robust GRM at different levels, which will be reviewed at the start of implementation. Additionally, the UNDP’s Stakeholder Response Mechanism (SRM) will serve stakeholders as a supplemental means of redress for concerns that have not been resolved through the project-level GRM (Annex 11: Grievance Redress Mechanism).

**South-south and triangular cooperation**

Aligned with the UN System-Wide Strategy on South-South and Triangular Cooperation for Sustainable Development, the project aims to foster knowledge exchange among stakeholders to showcase key achievements, share lessons learned, and promote replication in diverse contexts. In addition, to bring the voice of Bhutan to global and regional fora, the project will explore opportunities for meaningful participation in specific events where UNDP could support engagement with the global development discourse on urban resilience. The project will provide regional cooperation opportunities with countries implementing initiatives on urban resilience in geopolitical, social and environmental contexts relevant to the proposed project in Bhutan. Some of the following platforms and networks could be used for this purpose:

* Bhutan is a founding member of the International Centre for Integrated Mountain Development (ICIMOD), which is working to make the Hindu Kush Himalaya region greener, more inclusive and climate resilient. Bhutan’s Ministry of Agriculture and Livestock (MoAL) is the designated nodal agency, and could facilitate knowledge exchange, particularly in relation to Action Area C Transforming livelihoods and economies, as this project aims to stimulate green jobs development.
* The Global Adaptation Network, overseeing events like the Asia-Pacific Climate Change Adaptation Forum (APAN), can serve to share the knowledge, especially since this platform is focusing on themes such as Mountainous Regions and Urban Areas and Infrastructure. This project will gather substantial expertise in the application of nature-based solutions for urban areas situated in challenging terrain.
* The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Joint Working Group on Environment and Climate Change finalized the Concept Note in October 2023 in BIMSTEC Areas of Cooperation and Plan of Action on Environment and Climate Change, which provides additional venue to cooperate with neighbouring countries on adaptation issues.
* The Making Cities Resilient 2030 platform, is assisting cities in assessing resilience and accelerating local DRR strategy development. A training-of-trainers on urban resilience for Nepali and Bhutanese officials occurred in May 2023 as part of this initiative. Continuation of this training should be explored, considering its potential synergies with project’s training activities.
* The Global Covenant of Mayors (GCoM) is the world's largest alliance for city climate leadership, comprising over 12,500 cities and local governments. Through its Regional/National Covenants, GCoM convenes stakeholders to accelerate climate action at local, national, and regional levels. Thimphu and Paro could join this valuable network which providing a framework tailored to support cities in their climate action planning, monitoring and reporting.
* Also, the International Society of City and Regional Planners (ISOCARP) is a global society uniting urban and regional planners to jointly pursue the vision of the SDGs and the New Urban Agenda. ISOCARP’s annual World Congress brings together political leaders, researchers, and practitioners to exchange ideas and insights, which could be of particular relevance for Bhutan given its current urbanisation endeavours. Additionally, their Young Professionals Programme offers ambitious planning professionals a platform to work and share experiences in diverse environments.

**Gender equality and Women’s Empowerment**

A comprehensive Gender Analysis and Action Plan (Annex 10) has been developed for the project. The analysis includes secondary review and findings from field studies from the project districts.

Key findings are summarized here:

* Women generally handle caregiving and household tasks, with a trend towards shared responsibilities in urban areas.
* Women make smaller household decisions, while men control major purchases and finances. However, single women become primary decision-makers.
* Women are underrepresented in leadership positions (e.g., village heads, worksite supervisors).
* Women attend community meetings more frequently due to childcare responsibilities.
* Understanding of climate change is limited, often based on perceived weather changes. Information primarily comes from weather forecasts. Literate individuals, especially youth, demonstrate greater awareness.
* Plumbing and water system maintenance are male-dominated, especially in rural areas where travel and physical work are required.
* Women may manage urban water tanks.
* Single mothers carry substantial burdens, limiting their ability to participate in training and income-generating activities.
* Men possess stronger economic networks and awareness of opportunities.
* Cultural biases exist, with women perceived as less capable in certain skilled tasks. This hinders their participation.

**Gender mainstreaming in project**

The project aims to mainstream gender considerations into all phases of its work, from planning to evaluation. The Gender Action Plan (GAP) will promote women's participation in decision-making, transform harmful gender norms, reduce women's unpaid care burden, and increase their access to resources. The project will cater to the diverse needs of men, women, those with different gender identities, and other vulnerable groups, striving for equality across all ages and areas. Guided by national policies and UNDP/GEF principles, the project will avoid exacerbating inequalities, utilize inclusive and gender-sensitive communication, enforce zero-tolerance for gender-based violence, and rigorously monitor and evaluate its impact on gender equality. Resources will be dedicated to empowering women and enhancing their leadership within local organizations, institutions, and project activities.

**Project governance**

The Project Management Unit (PMU) will include a full-time Gender Focal Point (GFP) or an as-needed consultant. This individual, along with MoIT officials, will drive gender mainstreaming across all project phases.

The GFP Key Responsibilities include:

* Integrate gender considerations throughout the project cycle to address inequalities and empower women.
* Oversee Gender Action Plan (GAP) implementation.
* Facilitate women's participation in planning, decision-making, and establish minimum representation targets.
* Collaborate with the PMU to raise awareness on gender equality and inclusion.
* Create an accessible environment for women and vulnerable groups, including potential childcare arrangements for meetings.
* Establish a transparent grievance redressal mechanism for gender-based violence, ensuring awareness among beneficiaries.
* Partner with national gender equality organizations.
* Ensure gender-friendly and universally accessible project facilities and technologies.

**Knowledge products**

Key knowledge products, developed in collaboration with the academic sector, will comprise: 1) Catalogue of NbS tailored for mountainous cities, 2) Strategy aimed at involving entrepreneurs and community initiatives in local adaptation planning, and 3) NbS accelerator program. These publications will be disseminated nationally and internationally to promote innovation in urban resilience.

Other knowledge management materials, presented in brochure, video, flyer, or poster formats, will encompass: 1) project documentary, 2) documentation of traditional knowledge for urban resilience, 3) initiatives advocating green resilient building, 4) video clips tackling gender and climate change, 5) general information on NbS, springshed revival and management efforts, and 6) success stories showcasing NbS entrepreneurs.

**Innovativeness, Sustainability and Potential for Scaling Up**

**Innovativeness**

The project will test and adapt practices innovative to urban context in Bhutan to reduce the vulnerability of urban landscapes and communities to the impacts of climate change in Thimphu-Paro region, particularly through:

* On the strategic approach level - integration of improved coordination, capacities, and tools with tangible NbS interventions, which are opposed to traditional engineered solutions, per se innovative as they harness nature, are cost-effective and multi-functional, simultaneously provide environmental, social and economic benefits.
* Adoption of digital technologies and design practices including climate data GIS system, IoT for water level monitoring and EWS, IoT for smart NbS infrastructure, green roofs and walls, permeable pavements and rain gardens, showcasing engineering advancements while being adjusted to local conditions.
* Introduction of local level adaptation planning by: 1) supporting local governments, namely Thimphu Thromde and Paro Dzongkhag, to develop and implement detailed climate-resilient, gender-responsive adaptation plans based on sound gender and climate analysis based on information from enhanced GIS system, 2) supporting urban communities and neighbourhoods to develop gender-inclusive community NbS plans.
* Implementation of NbS accelerator programme, to empower youth, local communities, vulnerable groups, and entrepreneurs to innovate and pilot their ideas. Catalysing entrepreneurship for urban resilience with a focus on engaging women and vulnerable groups.
* Piloting PES and PPP for urban NbS, leveraging ongoing financing reforms like fiscal decentralization, introduction of green financing and PPP policies to develop tailor-made financing solutions.
* Collaborating with universities and research departments to incorporate training programmes and develop core knowledge products.

**Sustainability**

The project's sustainability is contingent on successful ownership of its activities by national and local government agencies, local communities and the active engagement with the private sector. In addition, the project will invest in NsBs in urban areas to manage climate-induced risks and stresses on water resources, which are designed to provide universal access with minimal O&M for extended periods. Its focus on institutional coordination and policy coherence across the sectors relevant to gender-responsive and resilient urban planning and infrastructure development, will have an impact on existing or future urban plans, strategies and projects. It will additionally enhance the capacity of agencies to generate climate risk information (through GIS system) to underpin development of adaptation actions, including climate-resilient urban planning. The broadening of the financial mechanisms to support investments in NbS and establishing market for NbS solution providers are additional strategies to ensure sustainability of project interventions. Other elements of the sustainability strategy are as follows:

* The project will enhance the involvement of national and local authorities, as well as local communities, in urban resilience planning and project implementation to ensure ownership of the strategy and activities. Additionally, it will promote policy coherence across various sectors and provide localized climate risk data to be embedded into future planning cycles. Staff working in the public and private sector will be trained, and the knowledge material produced will be retained in digital repository and made available for new staff joining the service. Awareness and sensitisation will be undertaken to facilitate representation of women and vulnerable groups in decision making.
* Programmes on climate-resilient urban planning and design will be established in various educational and vocational training institutions, targeting students and established professionals working in urban planning and other related fields. These programmes will be institutionalised to ensure long-term capacity enhancement and continuation of HR development.
* Private sector engagement in development of local NbS markets will be stimulated through various project activities, producing a lasting change within the companies that are engaged, and supporting them to adapt and supply services that enhance resilience. The sustainability of entrepreneurial interventions and the role of the private sector in the project will be ensured by involvement of private sector, including social entrepreneurs and community initiatives, into adaptation plans for Thimphu and Paro. Additionally, private sector will be involvement in the supply of services, products, technologies necessary for NbS planning, design, construction, and O&M. Local communities engagement fosters a sense of ownership, community pride, and social cohesion, contributing to the overall success and sustainability of these solutions.
* National and local governments' budgets will be leveraged to create fiscal space for investment in urban resilience, along with financial institution's raising appetite for green investment. The project will provide support for development and piloting of new financing mechanisms, particularly focusing on the private sector involvement, including PPP and PES schemes in the context of urban NbS.
* Investments in NbS provide immediate responses, but also long-term benefits, to urban challenges. Local authorities, and in some cases local communities or the private sector investors and concessionaries will be in charge for O&M, which is considered low cost if compared to traditional grey infrastructure options. Additional financing mechanisms will be explored, supported and tested, in view of covering both investment and O&M costs.
* A comprehensive technical, social and environmental evaluation of the sites and users will be made ahead of project implementation. This will ensure that any negative impacts of the project are identified and addressed well in advance and will therefore directly contribute to the acceptance and longevity of project interventions.
* All construction activities will utilise local species and materials where possible and employ local manpower. This will enhance local capacities and skills for subsequent upkeep and O&M. This will also bring down the costs of O&M operations and provide an incentive to communities.

**Potential for scaling up**

As positive impacts become evident, there is a strong potential to replicate and expand the project outputs across different urban settings, fostering a scalable model for urban-resilient and liveable cities. The project has the potential not only to address immediate urban challenges of Thimphu-Paro region, but also to contribute to a broader global movement towards nature-centric urban development.

In Bhutan, the potential for scaling is multi-fold, primarily within: a) the remaining urban areas of Thimphu and Paro, b) other 3 A class thromdes and 10 B class thromdes in Bhutan, c) Mindfulness City[[32]](#footnote-33), a new city which aims to become a model of growth and innovation rooted in Bhutanese landscape and culture, as well as integrate nature into design. In addition to the NbS solutions for addressing climate challenges being the ‘’key product’’ of the project, there is an opportunity to replicate local a) gender-responsive and inclusive adaptation plans, b) strategies for involving entrepreneurs and NbS accelerators, c) various educational and training programmes as well as community engagement activities, d) piloted innovative financing mechanisms.

**Digital solutions**

Despite recognizing the pivotal role of digital technology in reshaping economies and societies in the 21st century, Bhutan is behind in digital development. In response to that, the draft 13th Five-Year Plan places a high priority on digital transformation.

Following The Kingdom of Bhutan’s Digital Eco-System Mapping and Digital Economy Development Strategy commissioned by the United Nations which aims to leverage digitization and technology to accelerate attainment of the development priorities, the project aims to enhance the experiences of beneficiaries and partners by deploying a range of digital solutions. The project builds up a range of digital tools into planning, infrastructure systems, entrepreneurship and participatory processes, to effectively address climate change. Also, it incorporates digital tools and technologies into the development of smart, green, and public spaces, ensuring a holistic and technologically advanced approach to urban and climate adaptation planning, as follows:

* Enhancing the GIS system for climate-resilient planning, by development and integration of downscaled climate risk and hazard maps into existing spatial data system. This comprehensive mapping approach allows to understand current and future exposure to main climate risks and hazards, which aids in informing and formulating future climate-resilient strategies, plans and projects within the urban areas.
* Employing SCADA system for digitisation of water supply system and IoT-based sensors for monitoring of water levels in existing water supply systems, to pinpoint problematic areas and their linkage with climate change impacts. This will allow for the identification of problematic areas susceptible to climate change impacts, enabling targeted responses to potential issues.
* Expanding EWS to cover critical tributary streams, by involving the integration of IoT-based sensors, data analytics, and forecast modelling tools. By incorporating these digital enhancements, the EWS ensures a proactive approach by providing timely alerts and information on changing climate conditions.
* Integration of smart solutions in some of the NbS sites for improved O&M and user experience. Such technologies include smart watering, IoT-based sensors for soil, air quality or biodiversity monitoring, and Wi-Fi connectivity, with aim to create contemporary, more connected public spaces.
* Development of digital tool for green building design to assist architects and developers in evaluating sustainability options during the building design stage. Using advanced simulations, these tools analyse factors such as energy and resource savings, as well as building resilience, to aid in informed decision-making.
* Originate digital start-ups via the NbS accelerator program, enabling the creation of data-driven tools for planning and implementing NbS, such as green cadastre, biodiversity mapping, or AI based online educational games for children.
* Mainstream the use of citizen engagement tool, already spearheaded by the UNDP.

The above will additionally be supplemented by training, aiming to bring in various users, and thus bridge the digital divide, as one of the pressing digital challenges. The project also envisions making some of the data publicly available, potentially contributing to future climate-informed decision making or development of innovative citizen-led digital tools. Also, a digital archive or central repository will be established to store all training materials and resources from past projects. This archive will be accessible to new employees in the public sector, aiming to address the challenge of frequent staff turnover.

***Communication strategy***

A comprehensive communication strategy and plan has been devised for the project. This plan will include communication aspects to addressing negative gender stereotypes and prejudices, increase gender awareness at all levels, increase awareness on the project and mobilize institutions and community involved in project implementation. This plan will ensure that training and awareness materials are inclusive and accessible to diverse audiences, tailored to local contexts, and effectively implemented to engage individuals, institutions, and communities, thereby increasing awareness and building capacities.

The plan will also support documenting success stories of women participating in project activities including capacity building programmes to serve as role model and encourage other women, particularly in rural areas. role encouraging rural women to take initiative. The project through the plan will actively advocate for the recruitment of women trainers to enhance capacity development efforts, and their participation in project activities

Quantifiable indicators will be established to monitor the project's gender-related impacts and prompt interventions as necessary to mitigate unintended consequences for gender equality and women’s empowerment. Proactive measures will be implemented to ensure women's access to and management of essential resources, assets, and information, enabling them to adapt to climate change's impacts on their livelihoods and food security.

Besides community level capacity building programmes on climate adaptation and role of women in climate action, the plan will also support gender prospective building for men and boys, fostering appreciation for women's . These programs will be gradually expanded throughout the project's duration with support from the NCWC.

Consultations with marginalized groups, such as women, women-headed households, disadvantaged households, unemployed youths, individuals with disabilities, and other underlying medical conditions., will be prioritized during throughout the project to document the project’s impact.

***Monitoring***

The project will monitor and evaluate gender differentiated impacts of projects, document gender equality results through regular monitoring, surveys and impact evaluation. Gender responsive indicators, collection and use of sex-disaggregated information and human centric stories will be used Project officials will receive training on collecting and managing such data, gender responsive monitoring and evaluation and planning, and stakeholder engagement.

The monitoring strategy will include tracking social and environmental safeguards, including gender impacts. Focal persons, preferably women holding office in local governments, and community groups will be identified at each project site. These focal persons will undergo training in recording and reporting on specific indicators and events, ensuring accurate documentation and reporting. Additionally, these indicators will be aligned with the Gender Action Plan (GAP) to monitor project progress effectively.

The project monitoring framework will utilize gender-specific metrics to identify differences and inequalities between women and men. Wherever possible, data will be segmented by gender and to detect any disparities in the distribution of project benefits or participation and for a comprehensive analysis. Alongside quantitative measures tracking trends and impacts, qualitative data will also be collected to provide insights into socio-cultural contexts, political alignments, and decision-making processes. Gender-related issues, including variations and biases in ownership, access, decision-making, and control over project benefits and outcomes, will be carefully examined and analyzed throughout the monitoring process.

**Project Management**

***Recommended Length: 1/2 – 2 pages***

***To be written by UNDP***

***Cost Efficiency and Effectiveness***

* *Identify how the strategy is expected to deliver maximum results with available resources, with reference to evidence on similar approaches in this country or similar contexts. Include measures based on good practices and lessons learned. Explain why the selected pathway is the most efficient and effective of available options. Possible approaches can include:*

1. *Using the theory of change analysis to explore different options to achieve the maximum results with available resources*
2. *Using a portfolio management approach to improve cost effectiveness and learning by leveraging activities and partnerships with other initiatives/projects*
3. *Through joint operations (e.g., monitoring or procurement) with other partners.*

***Project Management***

*Information on the location(s) where the project will be operationalized, the number and location of physical project offices, arrangements for dedicated or shared operations support, how the project will work with other projects, etc. In this section, also describe the audit arrangements, collaborative arrangements with related projects and UNDP Direct Country Office Support Services and direct project costing, if applicable.*

**Project Results Framework**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Contribution to the Sustainable Development Goal (s):** SDG 11- making cities and human settlements inclusive, safe, resilient and sustainable, and SDG 13- taking urgent action to combat climate change and its impacts. The cross-cutting SDGs are SDG 5 – Gender equality and women’s empowerment, SDG 15 –Biodiversity, forests, desertification and SDG 3 – Good health by a reduction in waterborne diseases. | | | | | | | |
| **Intended Outcome as stated in the UNSDCF/Country Programme Results and Resource Framework:**  *UNSDCF outcome 3 and UNDP CPD outcome 2: By 2028, Bhutan’s environment remains sustainably managed, and its people are more resilient to disaster risks and climate change* | | | | | | | |
| **Applicable Output(s) from the UNDP Strategic Plan:** *write in relevant SP IRRF Output(s) here (for ex. 1.1, 4.1, 4.2, 5.1, 5.2, etc.)* | | | | | | | |
| **Project title and Quantum Project Number:** | | | | | | | |
| **Objective and Outcome Indicators**  **(no more than a total of 20 indicators)** | | **Data Source** | **Baseline** | **Mid-term Target** | **End of Project Target** | **Data Collection Methods** | **Risks/Assumptions** |
| **Project Objective:** | *To strengthen the management of climate risks, and reduce the vulnerability of urban landscapes and communities to the impacts of climate change in Thimphu-Paro.* | | | | | | |
| **Mandatory** Indicator 1: # direct project beneficiaries disaggregated by gender (individual people) | *Population & Housing Census of Bhutan* | *0* | *Total: 25%*  *Male: 25%*  *Female: 25%* | *Total: 146,298*  *Male: 75,211*  *Female: 71,087* | *Population & Housing Census of Bhutan*  *Beneficiary Sample Survey* |  |
| **Mandatory** Indicator 2: # (a) Area of land managed for climate resilience (ha) | *DHS / DECC* | *0* | *150* | *809* | *Project maps*  *Site visits* |  |
| **Mandatory** Indicator 3: # Number of policies/plans/ frameworks/institutions for to strengthen climate adaptation | *DHS / DECC* | *0* | *2* | *3* | *Offical endorsement documents* |  |
| **Mandatory** Indicator 4: # Number of people trained or with awareness raised | *DHS / CST* | *0* | *40*  *Male: 50*  *Female: 50* | *200*  *Male: 100*  *Female: 100* | *Reporting on training and educational programmes implemented* |  |
| **Mandatory** indicator 5:# Number of private sector enterprises engaged in climate change adaptation and resilient actions | *PMU* | *0* | *1* | *2* | *Business*  *register* |  |
| **Project component 1** | *Climate risk-informed, coordinated, and inclusive planning and governance for resilient urban development* | | | | |  |  |
| **Project Outcome1** (Outcome 1: Institutional coordination, stakeholder engagement and climate adaptation capacity strengthened for inclusive and-resilient urban planning and development) | *Number of local gender-responsive adaptation plans developed* | *DHS* | *0* | *5* | *25* | *Plans endorsement* |  |
| *Number of stakeholder organisations to be involved (or become partners) in local gender-responsive adaptation plans development or implementation* | *-* | *0* | *25* | *25* | *Local adaptation plans for Thimphu and Paro* |  |
| **Outputs to achieve Outcome 1** | *Output 1.1: Inter-agency mandates and functions harmonized, and institutional coordination mechanisms established and made functional to facilitate policy coherence for climate-resilient urban planning and development*  *Output 1.2: Climate and geospatial information systems established with trained urban planners to promote risk informed urban planning*  *Output 1.3: Climate-resilient and gender-responsive adaptation plans prepared for Thimphu and Paro and added emphasis on climate resilient entrepreneurship, livelihoods and economy*  *Output 1.4: Educational and training programs introduced in colleges and technical schools for skilling, reskilling and upskilling of planning professionals and workforce*  *Output 1.5: Innovative financing solutions for public and private sector to invest in climate-resilient projects, technologies and services* | | | | |  |  |
| **Project component 2** | *Build Resilience through gender-responsive climate adaptive approaches* | | | | |  |  |
| **Outcome 2 (Outcome 2: Climate risk management measures designed and implemented for water management systems and urban infrastructure** | *Length of water corridors climate-proofed through NbS to protect people, assets and businesses:*  *a) km for riverside*  *b) km for streams*  *c) km for drainage* | *DHS* | *0* | 1. *30%* 2. *30%* 3. *30%* | 1. *30 062 m* 2. *39 781 m* 3. *3 880 m* | *Field visits* |  |
| *Area of land developed for climate adaptation*  *a) urban forests*  *b) urban public spaces*  *c) springsheds and watersheds* | *DHS / DOFPS / DOW* | *0* | *a) 12 ha*  *b) 5 ha  c) 150 ha* | *a) 82.32 ha b) 35 ha c) 809 ha* | *Site visits* |  |
| *Number of technologies for climate-risk informed decision-making:*   * 1. *digitized water supply systems*   2. *short / long stream gauging stations*   3. *weather and climate monitoring station* | *DHS / NCHM / DOW / DOID* | *Site visits* | 1. *0* 2. *2* 3. *2* | 1. *2* 2. *4* 3. *5* |  |  |
| *Number of climate-resilient technologies installed for buildings* | *DHS* | *0* | *2* | *6* | *Site visits* |  |
| **Outputs to achieve Outcome 2** | *Output 2.1: Climate-proofing features for the key sections of the water and stormwater management systems introduced to ensure flood risk management, safe and uninterrupted water supply and business continuity in critical urban areas*  *Output 2.2: Ecosystem and NbS developed and implemented to adapt to floods, heat-island effect, and landslide and to enrich water sources, natural streams and catchments for improved infiltration, restoration and recharge*  *Output 2.3: Measures to increase climate resilience of buildings and design of urban spaces introduced*  *Output 2.4: Ancillary rainfall threshold-based flood EWS developed on critical tributaries and integrated with the existing centralized hydro-met data management system (CDMS) of NCHM* | | | | |  |  |
| **Project component 3** | *Knowledge management, gender-responsive monitoring and evaluation* | | | | |  |  |
| **Outcome 3 (Outcome 3: Gender responsive knowledge and communication products developed and platforms instituted to analyze and disseminate best practices and project lesson)** | *Number of knowledge products including case studies, investment return analysis, stories, audio-visuals generated and disseminated* | *PMU* | *0* | *10* | *20* | *Project records / publication* |  |
| *Number of people sensitized and informed about NbS through ECRUL communication and dissemination activities* | *DHS* | *0* | *30 000* | *120000* | *Website and social media visitors, publications distributed, consultation meetings and workshops attendance, broadcasting service survey (for mainstream media)*  *KAP survey* |  |
| **Outputs to achieve Outcome 3** | *Output 3.1: Knowledge and communication products and platforms developed to analyze and disseminate best practices and project lessons*  *Output 3.2: Project progress and results are effectively tracked and managed through monitoring and evaluation* | | | | |  |  |

**Monitoring and Evaluation (M&E) Plan**

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](https://popp.undp.org) (including [guidance on GEF project revisions](https://popp.undp.org/_Layouts/15/POPPOpenDoc.aspx?ID=POPP-11-3439)) and [UNDP Evaluation Policy](http://web.undp.org/evaluation/policy.shtml). The UNDP Country Office is responsible for ensuring full compliance with all UNDP project M&E requirements including project monitoring, UNDP quality assurance, risk management, and evaluation requirements. The project results as outlined in the project results framework (RF) will be regularly monitored annually and evaluated periodically during project implementation to ensure that the project effectively achieves results outlined in the RF these results. In addition, supported by

Component 3: Knowledge Management and M&E, the project implementation monitoring and evaluation plan will be guided by the also facilitate learning and ensure knowledge management strategy for continuous learning, lessons and long-term sustainability is shared and widely disseminated to support the scaling up and replication of GEF investments project results.

Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the [GEF Monitoring Policy](https://www.thegef.org/sites/default/files/council-meeting-documents/GEF-C.56-03%2C%20Policy%20on%20Monitoring.pdf) and the [GEF Evaluation Policy](https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.ME_C56_02_GEF_Evaluation_Policy_May_2019_0.pdf) and other [relevant GEF policies](https://www.thegef.org/documents/policies-guidelines)[[33]](#footnote-34). The costed M&E plan and budget included below will guide the GEF-specific M&E activities to be undertaken for this project. The plan will be reviewed and updated regularly to ensure that project is adaptive and responsive to any emerging risks and challenges. Likewise, the GEF Operational Focal Point will ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools).

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed – including during the Project Inception Workshop - and will be detailed in the Inception Report.

**M&E oversight and monitoring responsibilities:**

**Project Manager:** The Project Manager is responsible for day-to-day project management and regular monitoring

of project results and risks, including social and environmental risks. The Project Manager will ensure that the project and its staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will regularly inform and update the Project Board, the UNDP Country Office and the UNDP-GEF Regional Technical Advisor of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

The Project Manager will develop and review the project work plans to support the efficient implementation of the project and to ensure that the standard UNDP GEF M&E requirements are fulfilled to the highest quality.

**Project Board:** The Project Board will provide timely oversight and take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews and provide strategic directions to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project’s final year, the Project Board will hold an end-of-project review to capture lessons learned from the project terminal review and discuss opportunities for scaling up of the project interventions.

**Project Implementing Partner:** The Implementing Partner is responsible for providing and sharing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E data are well integrated and is aligned with national systems for effective coordination and generation of evidence-based decision making.

**UNDP Country Office:** The UNDP Country Office will support the Project Manager and IP as needed, including through periodic supervision missions. The UNDP Country Office will initiate the independent mid-term evaluation and the independent terminal evaluation as well as in ensuring strong integration and compliance to social and environmental safeguards. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during design, implementation and closure is undertaken; the regular review and updating of the Quantum risk log.

The UNDP Country Office will support GEF staff (or their designate) during any missions undertaken in the country,

and support any ad-hoc checks or ex post evaluations that may be required by the GEF.

**UNDP-Global Environmental Finance Unit (UNDP-GEF):** Additional M&E and implementation oversight, quality

assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

**Minimum project monitoring and reporting requirements as required by the GEF:**

Inception Workshop and Report: A project inception workshop will be held within two months from the First disbursement date, with the aim to:

1. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
2. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
3. Review the results framework and monitoring plan.
4. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
5. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework (where relevant) and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.
6. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
7. Plan and schedule Project Board meetings and finalize the first-year annual work plan. Finalize the TOR of the Project Board.
8. Formally launch the Project.

GEF Project Implementation Report (PIR):

The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. UNDP will undertake quality assurance of the PIR before submission to the GEF. The PIR submitted to the GEF will be shared with the Project Board. UNDP will conduct a quality review of the PIR, and this quality review and feedback will be used to inform the preparation of the subsequent annual PIR.

LDCF Core Indicators:

The LDCF Core indicators included as Annex 15 will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to MTR and TE. The project team is responsible for updating the core indicators status. The updated monitoring data must be shared with MTR/TE consultants prior to required evaluation missions, so these can be used for subsequent ground truthing. The methodologies to be used in data collection have been defined by the GEF and are available on the [GEF](https://www.thegef.org/sites/default/files/documents/2022-09/Results_Framework_Guidelines_2022_06_30.pdf).

Independent Mid-term Review (MTR):

An independent mid-term review (MTR) will be completed by the mid-point of the project. The terms of reference, the MTR process and the final MTR report will follow the standard templates and MTR guidance for UNDP-supported GEF-financed projects available on the [UNDP Evaluation Resource Center](http://web.undp.org/evaluation/guidance.shtml#gef). The MTR will be submitted to the GEF by the mid-point of the project but no later than 48 months after CEO Endorsement.

Provisions must be taken to complete and submit the MTR within the submission deadline. Therefore, the MTR process will start no later than 8 months before the expected date of submission of the MTR.

The MTR will be ‘independent, impartial and rigorous’. The evaluator(s) that UNDP will hire to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be reviewed. Equally, the evaluators will not be engaged in other evaluations.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the MTR process. Additional quality assurance support available from BPPS/NCE will be sought.

The final MTR report will be publicly available in English and will be posted on the UNDP ERC by the MTR submission date included on cover page of this project document. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report’s submission to the GEF.

Terminal Evaluation (TE):

An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the standard templates and TE guidance for UNDP-supported GEF-financed projects available on the [UNDP Evaluation Resource Center](http://web.undp.org/evaluation/guidance.shtml#gef). TE will be submitted to the GEF no later than 6 months after the Completion Date. This is a hard deadline that, if not met, can only be extended through a formal extension request.

Provisions must be taken to complete and submit the TE within the submission deadline. Therefore, TE will start no later than 8 months before the expected date of submission of the TE (or 11 months prior to the estimated operational closure date).

The evaluation will be ‘independent, impartial and rigorous’. The evaluator(s) that UNDP will hire to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators will not be engaged in other evaluations.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support available from BPPS NCE will be sought.

The final TE report will be publicly available in English and posted on the UNDP ERC by the TE submission date included on cover page of this project document. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report submission to the GEF.

As per the GEF Terminal Evaluation requirements, for cancelled full-sized projects, Terminal Evaluations are required if the GEF grant expenditure exceeds more than US$ 2 million.

Final Report:

The project’s final GEF PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Agreement on intellectual property rights and use of the logo on the project’s deliverables and disclosure of information**:** To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed per relevant policies, notably the UNDP Disclosure Policy[[34]](#footnote-35) and the GEF policy on public involvement[[35]](#footnote-36).

In accordance with UNDP’s programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans**.**

**Monitoring Plan:** The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored by the Project Management Unit annually, and will be reported in the GEF PIR every year, and will be evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. Project risks, as outlined in the risk register, will be monitored quarterly.

| **Monitoring Activity** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Results Monitoring** | **Indicators** | **Targets** | **Description of indicators and targets** | **Frequency** | **Responsible for data collection** | **Means of verification** |
| **Track results progress** | **Project objective from the results framework** | **Indicator 1**  # direct project beneficiaries disaggregated by gender (individual people) | Mid-term Total:25% Male:25% Female:25%  End-term Total:146,298 Male:75,211 Female:71,087 | Population data from the population and housing census for beneficiaries within the project target area, supplemented by beneficiary sampling survey at mid-term and end-term | Mid-term and closure | National Office of Statistics; PMU | National statistics report  PMU report |
| **Indicator 2**   # (a) Area of land managed for climate resilience (ha) | Mid-term 150  End-term 600 | Land area that is under active management for climate resilience | Annual | DHS / DECC | Project maps, consultant verification, PMU site visit records |
| **Indicator 3**  # Number of policies/plans/ frameworks/institutions to strengthen climate adaptation | Mid-term 2  End-term 3 | Policies, plans and frameworks that have been developed through the support of the project | Annual | DHS / DECC | Official endorsement documents |
| **Indicator 4**  # Number of people trained or with awareness raised | Mid-term 40  End-term 200  50:50 gender split | Trainees benefitting from project activities | Annual | DHS / CST | PMU Reporting on training and educational programmes implemented |
| **Project Outcome 1** | **Indicator 5**  Number of urban plans embedding enhanced climate resilience requirements | Mid-term 5  End-term 25 | Urban plans that have clearly identifiable embedded climate resilience requirements | Annual | DHS | Plans endorsed  PMU records |
| **Indicator 6**  Number of local stakeholder organizations to be involved (or became partners) in implementation of local gender-responsive adaptation plans development | Mid-term 25  End-term 25 | Local organisations that are reflected in local adaptation plans | Annual | PMU | Local adaptation plans for Thimphu and Paro  PMU records |
| **Project Outcome 2** | **Indicator 7**  Length of water corridors climate-proofed through NbS to protect people, assets and businesses | Mid-term a) 30% b) 30% c) 30%  End-term a) 30,062 m b) 39,781 m c) 3,880 m | Climate proofed water corridors that incorporate NbS that increase resilience in the project area | Annual | DHS | Consultant / PMU reports from site visits |
| **Indicator 8**  Area of land developed for climate adaptation. | Mid-term a) 30% b) 30% c) 30%  End-term a) 85.32 ha b) X c) 809 ha | Count of distinct technologies  a) urban forests in ha  b) urban public spaces in ha  c) watersheds in ha | Annual | DHS / DOFPS / DOW | Consultant / PMU reports from site visits |
| **Indicator 9**  Number of technologies for climate-risk informed decision-making | Mid-term a) 0 b) 2 c) 2  End-term a) 2 b) 4 c) 5 | Count of distinct systems:   1. digitized water supply systems 2. short / long stream gauging stations 3. weather and climate monitoring station | Annual | DHS / NCHM / DOW / DOID | Consultant / PMU reports from site visits |
| **Indicator 10**  Number of climate-resilient technologies installed for buildings and surrounding public spaces | Mid-term 2  End-term 6 | Count of distinct technologies | Annual | DHS | Consultant / PMU reports from site visits |
| **Project Outcome 3** | **Indicator 11**  Number of gender-friendly knowledge products generated and disseminated | Mid-term 10  End-term 20 |  |  | PMU | Project records / publications |
| **Indicator 12**  Number of people informed about NbS through ECRUL communication and dissemination activities | Mid-term 30,000  End-term 120,000 |  |  | DHS | Website and social media visitors, publications distributed, consultation meetings and workshops attendance, broadcasting service survey (for mainstream media)  KAP survey |

| **Monitoring Activity** |  |  |  |
| --- | --- | --- | --- |
|  | **Frequency/Timeframe** | **Expected Action** | **Partners**  **(if joint)** |
| **Inception Workshop and Report** | Inception Workshop within 2 months of the First Disbursement | As per above description |  |
| **Track results progress (see above table for details)** | Annually and at mid-point and closure | Slower than expected progress will be addressed by project management. |  |
| **Monitor and Manage Risk** | Quarterly | Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken. |  |
| **Monitor**  ***•*** *Review of implementation of Gender Action Plan*  *• Review of implementation of Social and Environmental safeguards* | Annually |  |  |
| **Supervision Missions** | Annually |  |  |
| **Learning and Learning Missions** | As needed | Relevant lessons are captured by the project team and used to inform management decisions. |  |
| **Annual Project Quality Assurance** | Annually | Areas of strength and weakness will be reviewed by project management and used to inform decisions to improve project performance. |  |
| **Review and Make Course Corrections** | At least annually | Performance data, risks, lessons and quality will be discussed by the project board and used to make course corrections. |  |
| **Annual GEF Project Implementation Report (PIR)** | Annually typically between June-September | Mandatory contribution by Project Team, CO and RTA. Strengths and weaknesses will be reviewed by project management and used to inform decisions to improve project performance |  |
| **Project Review (Project Board)** | *At least once annualy* | Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified. |  |
|  |  |  |  |

**Evaluation Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Evaluation Title** | **Partners (if joint)** | **Related Strategic Plan Output** | **UNSDCF/CPD Outcome** | **Planned Completion Date** | **Key Evaluation Stakeholders** |
| Independent Mid-Term Review (MTR) | *N/A* | *Output 3.1: Institutional systems to manage multi-dimensional risks and shocks*  *strengthened at regional, national and sub-national levels*  *Output 4.1: 4.1 Natural resources protected and managed to enhance sustainable*  *productivity and livelihoods* | *UNSDCF Outcome-3 and UNDP CPD Outcome 2: By 2028, Bhutan’s environment remains sustainably managed, and its people are more resilient to disaster risks and climate change.* | within two months of submitting the 3rd PIR. | *MoF, MoIT, Paro Dzongkhag, Thimphu Thromdey* |
| Independent Terminal Evaluation (TE) | *N/A* | At least six months before  operational closure of the project | *MoF, MoIT, Paro Dzongkhag, Thimphu Thromdey* |

| **Monitoring and Evaluation Budget for project execution:** | |
| --- | --- |
| **GEF M&E requirements to be undertaken by Project Management Unit (PMU)** | **Indicative costs (US$)** |
| **Inception Workshop and Report** | 10,000 |
| **M&E required to report on progress made in reaching GEF core indicators and project results included in the project results framework** | 20,000 |
| **Preparation of the annual GEF Project Implementation Report (PIR)** | NA |
| **Monitoring of**   * Review of implementation of Gender Action Plan * Review of implementation of Social and Environmental safeguards | 193,000 |
| **Supervision missions** | *NA* |
| **Learning missions** | *NA* |
| **Independent Mid-term Review (MTR):** | 47, 500 |
| **Independent Terminal Evaluation (TE):** | 66,500 |
| **TOTAL indicative COST** | 337,000 |

**Governance and Management Arrangements**

**General roles and responsibilities in the project’s governance mechanism**

The project will be implemented according to the National Implementation Modality (NIM), agreed between the Royal Government of Bhutan (RGoB) and UNDP in line with Standard Basic Assistance Agreement (SBAA) . The project management aspects will be the responsibility of the national authority and it remain accountable to the UNDP Country Office (CO) for achievement of project outputs and results. UNDP CO in turn remains accountable for the use of resources to the UNDP Executive Board and the GEF.

Implementing Partner: The Implementing Partner (IP) for this project is the Ministry of Infrastructure and Transport (MoIT). Following Government protocols all reporting and requests to and from the MoIT to UNDP Country Office will be routed through the Ministry of Finance (MOF).

The Implementing Partner is the Entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

The Implementing Partner’s responsibilities include the following specific tasks, but not limited to:

* Project planning, coordination, management, monitoring, evaluation, and reporting. This includes providing all required information and data necessary for timely, comprehensive, and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner ensure that the project-level M&E is undertaken by responsible parties and entities identified for this project and .
* Risk management as outlined under the risk section in this Project Document is complied;
* Procurement of goods and services, including recruitment of human resources;
* Financial management, including preparation of annual workplan, budgeting, overseeing and reconciliation of financial expenditures against project budgets;
* Approving and signing the multiyear workplan;
* Approving and signing the combined delivery report at the end of the year; and,
* Signing the financial report or the funding authorisation and certificate of expenditures.

Responsible Parties: The Responsible Parties (RPs) are entities entrusted with the responsibility of implementing specific project components. The RPs for this project include Thimphu Dzongkhag, Thimphu Thromde, Paro Dzongkhag, Ministry of Industries, Commerce and Employment and Ministry of Home Affairs. The roles of the RPs are: The Project Management Unit will be housed under the **Ministry of Infrastructure and Transport (MoIT). MoIT will be responsible for** managing and overseeing all components of the project. The **Policy and Planning Division(PPD**) of the Ministry will be responsible for coordination of Component 1, which encompasses improved institutional mandates and policy coherence for climate-resilient urban planning, development of gender-responsive local adaptation plans, educational and training activities, entrepreneurship and financing for urban resilience.

**Department of Human Settlements (DHS)** of MoIT will be responsible for component 2 and 3. Component 2 entails activities related to climate-proofing of key sections of water and stormwater management system, development of ecosystems and NbS interventions, as well as the EWS for tributary streams. Component 3 covers knowledge management and communication, as well as monitoring and evaluation activities.

Project stakeholders and target groups: The project will have four groups of stakeholders, namely:

*Group 1 stakeholders* are primary stakeholders, who are to directly affected by the project and its decisions or actions. They actively contribute to project implementation and serve as key partners. These stakeholders are ministries and central agencies, central agencies, dzongkhags and thromdes, educational and learning institutions, entrepreneurs and financial institutions, CSOs and communities;

*Group 2* stakeholders, the ultimate beneficiaries, will be engaged to safeguard their interests and ensure their viewpoints are considered. This category encompasses the general public, local communities, and particularly vulnerable groups, including women, the disabled, youth, LGBT individuals, and those with any potential underlying conditions.

*Group 3 stakeholders* are unlikely to play a pivotal role in the project's implementation, but will be engaged in relevant discussions and contribute to shaping the overall project strategy. This group includes a variety of central institutions and agencies, national CSOs and NGOs, and international organizations

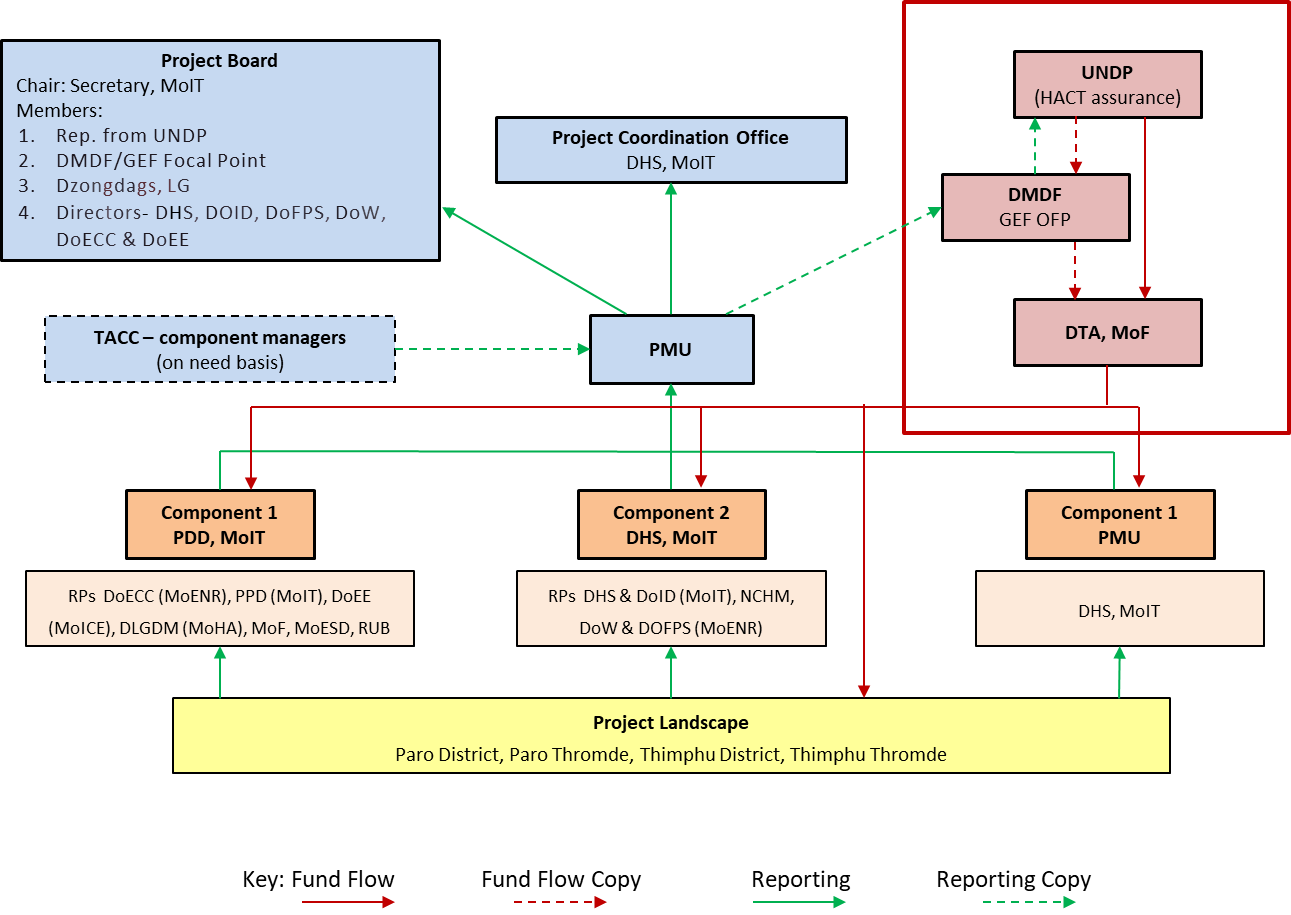
*Group 4* stakeholders do not directly engage in project activities, but have considerable influence over its overall implementation. This groups includes entrepreneurs and any other suppliers of goods, services, and works, primarily engaged to ensure an adequate pool of bidders.

UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes overseeing project execution undertaken by the Implementing Partner to ensure that the project is being carried out in accordance with UNDP and GEF policies and procedures and the standards and provisions outlined in the Delegation of Authority (DOA) letter for this project. The UNDP GEF Executive Coordinator, in consultation with UNDP Bureaus and the Implementing Partner, retains the right to revoke the project DOA, suspend or cancel this GEF project. UNDP is responsible for the Project Assurance function in the project governance structure and provide necessary oversights role including, but not be limited to the following:

* + Overseeing planning, budgeting and financial expenditures against project budgets,
  + Ensuring full compliance of UNDP’s HACT assurance.
  + Providing Country Office Support to NIM in line with UNDP’s rules and regulations, where required
  + Ensuring strict compliance to social and environmental safeguards are in place
  + The reporting to GEF is undertaken in line with the GEF requirements and procedures,
  + Ensuring the project’s evaluations (mid-term and final evaluations) are conducted on time and facilitate knowledge and learnings are integrated into the project implementation.
  + Conducting timely oversight and field supervisions

The UNDP Resident Representative assumes full responsibility and accountability for oversight and quality assurance of this Project and ensures its timely implementation in compliance with the GEF-specific requirements and UNDP’s POPP, its Financial Regulations and Rules and Internal Control Framework.

**Project Governance structure**

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**Second line of Defence**

* Regional Bureau oversees RR and Country Office compliance at portfolio level.
* BPPS NCE RTA oversees technical quality assurance and GEF compliance. BPPS NCE PTA oversees RTA functions.
* UNDP GEF Executive Coordinator and Regional Bureau Deputy Director can revoke DOA/cancel/suspend project or provide enhanced oversight.

The UNDP Resident Representative assumes full responsibility and accountability for oversight and quality assurance of this Project and ensures its timely implementation in compliance with the GEF-specific requirements and UNDP’s Programme and Operations Policies and Procedures (POPP), its Financial Regulations and Rules and Internal Control Framework. A representative of the UNDP Country Office will assume the assurance role and will present assurance findings to the Project Board, and therefore attends Project Board meetings as a non-voting member.

**Segregation of duties and firewalls vis-à-vis UNDP representation on the project board**

As noted in the [Minimum Fiduciary Standards for GEF Partner Agencies](https://www.thegef.org/sites/default/files/documents/gef_minimum_fiduciary_standards_partner_agencies_2019.pdf), in cases where a GEF Partner Agency (i.e. UNDP) carries out both implementation oversight and execution of a project, the GEF Partner Agency (i.e. UNDP) must separate its project implementation oversight and execution duties, and describe in the relevant project document a: 1) Satisfactory institutional arrangement for the separation of implementation oversight and executing functions in different departments of the GEF Partner Agency; and 2) Clear lines of responsibility, reporting and accountability within the GEF Partner Agency between the project implementation oversight and execution functions. In this project UNDP is only performing an implementation oversight role in the project vis-à-vis our role in the project board and in the project assurance function and therefore a full separation of project implementation oversight and execution duties has been assured.

**Roles and Responsibilities of the Project Organisation Structure**

1. **Project Board:** All UNDP projects will be governed by a multi-stakeholder committee established to review performance based on monitoring and evaluation, and implementation issues to ensure quality delivery of results. The Project Board (also called the Project Steering Committee) is the most senior, dedicated oversight body for a project. For this project, following the GAAP, it is recommended to have at least 30% of women in the Project Board.

The two main (mandatory) roles of the project board are as follows:

1. **High-level oversight of the execution of the project by the Implementing Partner** (as explained in the [“Provide Oversight”](https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Implement_Provide%20Oversight.docx&action=default) section of the POPP). This is the primary function of the project board and includes annual (and as-needed) assessments of any major risks to the project, and decisions/agreements on any management actions or remedial measures to address them effectively. The Project Board reviews evidence of project performance based on monitoring, evaluation and reporting, including progress reports, evaluations, risk logs and the combined delivery report. The Project Board is responsible for taking corrective action as needed to ensure the project achieves the desired results.
2. **Approval of strategic project execution decisions of the Implementing Partner** with a view to assess and manage risks, monitor and ensure the overall achievement of projected results and impacts and ensure long term sustainability of project execution decisions of the Implementing Partner(as explained in the [“Manage Change”](https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Implement_Manage%20Change.docx&action=default) section of the POPP).

**Requirements to serve on the Project Board**:

* Agree to the Terms of Reference of the Project Board and the rules on protocols, quorum and minuting.
* Meet annually; at least once.
* Disclose any conflict of interest in performing the functions of a Project Board member and take all measures to avoid any real or perceived conflicts of interest. This disclosure must be documented and kept on record by UNDP.
* Discharge the functions of the Project Board in accordance with UNDP policies and procedures.
* Ensure highest levels of transparency and ensure Project Board meeting minutes are recorded and shared with project stakeholders.

**Responsibilities of the Project Board**:

* Consensus decision making:
  + The project board provides overall guidance and direction to the project, ensuring it remains within any specified constraints, and providing overall oversight of the project implementation.
  + Review project performance based on monitoring, evaluation and reporting, including progress reports, risk logs and the combined delivery report;
  + The project board is responsible for making management decisions by consensus.
  + In order to ensure UNDP’s ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition.
  + In case consensus cannot be reached within the Board, the UNDP representative on the board will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed*.*
* Oversee project execution:
  + Agree on project manager’s tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the project manager’s tolerances are exceeded.
* Appraise annual work plans prepared by the Implementing Partner for the Project; review combined delivery reports prior to certification by the implementing partner.
* Address any high-level project issues as raised by the project manager and project assurance;
* Advise on major and minor amendments to the project within the parameters set by UNDP and the donor and refer such proposed major and minor amendments to the UNDP BPPS Nature, Climate and Energy Executive Coordinator (and the GEF, as required by GEF policies);
* Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily and according to plans.
* Track and monitor co-financed activities and realisation of co-financing amounts of this project.
* Approve the Inception Report, GEF annual project implementation reports, mid-term review and terminal evaluation reports.
* Ensure commitment of human resources to support project implementation, arbitrating any issues within the project.
* Risk Management:
  + Provide guidance on evolving or materialized project risks and agree on possible mitigation and management actions to address specific risks.
  + Review and update the project risk register and associated management plans based on the information prepared by the Implementing Partner. This includes risks that can be directly managed by this project, as well as contextual risks that may affect project delivery or continued UNDP compliance and reputation but are outside of the control of the project. For example, social and environmental risks associated with co-financed activities or activities taking place in the project’s area of influence that have implications for the project.
  + Address project-level grievances.
* Coordination:
  + Ensure coordination between various donor and government-funded projects and programmes.
  + Ensure coordination with various government agencies and their participation in project activities.

**Composition of the Project Board**: The composition of the Project Board must include individuals assigned to the following three roles. As noted above it is recommended that a minimum of 30% of Project Board members are women:

* **Project Executive**: This is an individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. In exceptional cases, two individuals from different entities can co-share this role and/or co-chair the Project Board. If the project executive co-chairs the project board with representatives of another category, it typically does so with a development partner representative.

The Project Executive is the **Secretary of the Ministry of Infrastructure and Transport and the Director of Ministry of Finance / GEF OFP**. The MoIT acts as the chair of the PSC and is responsible for the project supported by representative from other agencies. The Executive’s role is to ensure that the project is focused throughout its life cycle on achieving its objectives and delivering outputs that will contribute to higher-level outcomes. The executive has to ensure that the project gives value for money, ensuring a cost-conscious approach to the project, balancing the demands of beneficiary and supplier.

* **Beneficiary Representative**(s): Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realisation of project results from the perspective of project beneficiaries. The Beneficiary representatives are: Governors of Thimphu and Paro, the Mayor of Thimphu municipality and Presidents of civil society organizations, professional organizations or national authorities.
* **Development Partner(s):** Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner(s) is Resident Representative or Deputy Resident Representative of UNDP Bhutan.

**Project Assurance**: Project assurance is the responsibility of each project board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board (and Project Management Unit) by carrying out objective and independent project oversight and monitoring functions, including compliance with the risk management and social and environmental standards of UNDP. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. Project assurance is totally independent of project execution.

A designated representative of UNDP playing the project assurance role is expected to attend all board meetings and support board processes as a non-voting representative. While in certain cases UNDP’s project assurance role across the project may encompass activities happening at several levels (e.g. global, regional), at least one UNDP representative playing that function must, as part of their duties, specifically attend board meeting and provide board members with the documentation required to perform their duties. The UNDP representative playing the main project assurance function is the Resident Representative.

*Project Management – Execution of the Project*: The Project Manager (PM) is the senior most representative of the Project Management Unit (PMU) and is responsible for the overall day-to-day management of the project on behalf of the Implementing Partner, including the mobilization of all project inputs, supervision over project staff, responsible parties, consultants and sub-contractors. The project manager typically presents key deliverables and documents to the board for their review and approval, including progress reports, annual work plans, adjustments to tolerance levels and risk registers. A designated representative of the PMU is expected to attend all board meetings and support board processes as a non-voting representative. The primary PMU representative attending board meetings is the Secretary and Project Director.

*Direct Project Services as requested by the Government*: Following the standard practices, the project will organize quarterly and joint annual progress review(s) to explore measures that may be needed to accelerate the implementation by the partners. The review will include the Implementing Partner, Responsible Parties, and Ministry of Finance and UNDP. While the NIM modality will be default implementation arrangement, UNDP may, on the basis of the annual review findings and at the request of the government, require to, in compliance with LDCF[[36]](#footnote-37) and UNDP policies, provide implementation support ensure timely achievement of project results and financial delivery. Upon such a request, the estimated costs for such support services will be based on the UPL/LPL and agreed to in a standard agreement signed between the Implementation partner and UNDP.

**Financial Planning and Management**

To be completed by UNDP-CO

***Guidance to project developer****: please complete missing text below.*

***CEO endorsement template****: Align the technical content with Part C Confirmed Sources of Co-finance for the project by name and source.*

The total cost of the project is *USD 19,748,000 .* This is financed through a GEF *or LDCF* grant of *USD* **18,048,624** administered by UNDP, *USD 75,000* in cash/inkind co-financing to be administered by UNDP and additional support of USD *XXX* (include GEF grant administered by other GEF Agencies as relevant) UNDP, as the GEF Implementing Agency, is responsible for the oversight of the GEF resources and the cash co-financing transferred to UNDP bank account only.

**Co-financing**: The actual realization of project co-financing amounts will be monitored by the UNDP Country Office and the PMU on an annual basis in the GEF PIF and will be reported to the GEF during the *mid-term review* and terminal evaluation process as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Co-financing source** | **Co-financing type** | **Name of Co-financier** | **Investment Mobilized** | **Co-financing amount** |
| *(e.g. government, or NGO)* | *(e.g. In kind) as per GEF CEO endorsement template* |  | *(either Investment mobilized ar recurrent expenditures)* |  |
| … | … |  |  | … |
| ***Total*** |  |  |  |  |

**Budget Revision and Tolerance**: As per UNDP POPP, the project board may agree with the project manager on a tolerance level for each detailed plan under the overall multi-year workplan. The agreed tolerance should be written in the project document or approved project board meeting minutes. It should normally not exceed 10 percent of the agreed annual budget at the activity level, but within the overall approved multi-year workplan at the activity level. Within the agreed tolerances, the project manager can operate without intervention from the project board. Restrictions apply as follows:

Should the following deviations occur, the Project Manager/IP through UNDP Country Office will seek the approval of the BPPS/NCE-VF team to ensure accurate reporting to the GEF. It is **strongly encouraged** to maintain the expenditures within the approved budget at the budgetary account and at the component level:

1. Budget reallocations must prove that the suggested changes in the budget will not lead to material changes in the results to be achieved by the project. A strong justification is required and will be approved on an exceptional basis. Budget re-allocations among the components (including PMC) of the approved Total Budget and Work Plans (TBWP) that represent a value greater than 10% of the total GEF grant.
2. Introduction of new outputs/activities (i.e. budget items) that were not part of the agreed project document and TBWP that represent a value greater than 5% of the total GEF grant. The new budget items must be eligible as per the [GEF and UNDP policies](https://www.thegef.org/sites/default/files/documents/GEF_Guidelines_Project_Program_Cycle_Policy_20200731.pdf).
3. Project management cost (PMC): budget under PMC component is capped and cannot be increased.

Any expenditure incurred beyond the available GEF grant amount will be absorbed by non-GCF resources (e.g. RGoB cash co-financing)

UNDP is not in a position to increase the total budget above the amount approved by the donor, therefore any over-expenditure would have to be absorbed from non-GEF resources by the Implementing Partner (GEF Executing Entity)

**Project extensions:** The UNDP-BPPS-NCE team Executive Coordinator must approve all requests for extension of the Project Completion Date and for other milestone extensions with hard deadlines. All extensions impose additional time and cost burdens at all levels and the GEF project budget cannot be increased beyond its originally approved amount. A single extension may be granted on an exceptional basis and subject to the conditions and maximum durations set out in the UNDP POPP. The project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs shall be covered by non-GEF resources; the additional UNDP oversight costs during the extension period must be covered by non-GEF resources, in accordance with UNDP’s policy as set out in UNDP POPP.

For any extension request, UNDP CO and IP will consult and jointly present a clear plan indicating how and from which specific sources the additional oversight costs that will be incurred by UNDP will be covered during the extended period. The BPPS-NCE Executive Coordinator will consult the Regional Bureaux (RBX) and may reject the extension request if no (external co-financing by the IP or internal UNDP CO resources) can be identified.

All extension requests, along with all supporting documentation, shall be submitted by the IP to the UNDP CO in line with the requirements and within the deadlines set out in the UNDP SOPs and policies in UNDP POPP.

**Audit:** The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop. If the Implementing Partner is an UN Agency, the project will be audited according to that Agencies applicable audit policies.

**Transfer or disposal of assets**: In consultation with the Implementing Partner and other parties of the project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project, however **must be done before the operational closure date**. In all cases of transfer, a transfer document must be prepared and kept on file[[37]](#footnote-38). The transfer should be done before Project Management Unit complete their assignments.

**Completion Date:** The project completion date is the date of Project Document Signature plus project duration. This date can only be extended through a formal extension request. Prior to completion date, all UNDP-financed inputs must be provided and related activities for the Project completed. No activities, except for the final clearance of the Terminal Evaluation Report and the corresponding management response and the end-of-project review Project Board Meeting should take place after the Completion Date.

**Project Closure**: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. All costs incurred to close the project must be included in the project closure budget and reported as final project commitments presented to the Project Board during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

* **Operational Closure**: **Operational closure must happen within 9 months from project completion date.** Prior to operational closure, the Terminal Evaluation must have been submitted and the corresponding TE management response and the end-of-project review Project Board meeting must have been completed. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. Before Operational Closure, the project must have completed the transfer or disposal of any equipment that is still the property of UNDP.
* **Financial Closure:** **Financial closure must happen within 6 months of operational closure or after the date of cancellation.** The project will be financially closed when the following conditions have been met: a) the project is operationally completed or has been cancelled; b) the Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to BPPS/NCE for confirmation before the project will be financially closed in Quantum by the UNDP Country Office.

**Cancellation and Suspension:** All projects considering going through cancellation or suspension must follow UNDP and GEF requirements. Guidance can be found in the UNDP POPP ([SOPs for management actions of Vertical Fund projects escalated to the Executive Coordinator](https://popp.undp.org/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_SOPs%20for%20management%20actions_escalated_GEF_GCF_AF.docx) and [Guidance for GEF project revisions](https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Manage%20Change_UNDP%20GEF%20Guidance%20Note%20on%20Project%20Amendments%20for%20GEF%20projects.docx&action=default)).

**Refund to GEF:** Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the BPPS/NCE team Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GEF. Unspent project balance is not permitted to be transferred to any other projects.

**Total Budget and Work Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| **Total Budget and Work Plan** | | | |
| Quantum Business Unit | UNDP-XXX | | |
| Quantum Project ID: | 00XXXXXX | Quantum Project Title: | *As in Quantum* |
| Quantum Award ID: | XXXXXXX | Quantum Award Title: | *As in Quantum* |
| UNDP-GEF PIMS No. | XXXX | | |
| Implementing Partner | *MoIT* | | |

| **Quantum Outcome** | **Quantum Output** | **Quantum Activity** | **Quantum Responsible Party (UNDP, IP, or Responsible Party )** | **Quantum Fund ID** | **Quantum Donor ID** | **Quantum Budgetary Account Code** | **Quantum Budget Account Description** | **Amount Year 2025 (USD)** | **Amount Year 2026 (USD)** | **Amount Year 2027 (USD)** | **Amount Year 2028 (USD)** | **Amount Year 2029 (USD)** | **Amount Year 2030 (USD)** | **Total (USD)** | **See Budget Note: (reference as number, not as letter)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **(GEF Component)** | **(GEF Outcome)** | **(GEF Output)** |
| Component 1: Climate risk-informed, coordinated and inclusive planning and governance for resilient urban development | Outcome 1: Institutional coordination, stakeholder engagement and climate adaptation capacity strengthened for inclusive and climate-resilient urban planning and development. | Output 1.1: Inter-agency mandates and functions harmonized, and institutional coordination mechanisms established and made functional to facilitate policy coherence for climate-resilient urban planning and development | MoIT | 62160 | 10003 | 71300 | Local Consultants | $ 20,000 | $ 50,000 | $ - | $ - | $ - | $ - | $ 70,000 | 1 |
| 75700 | Training, Workshops and Confer | $ - | $ 10,000 | $ 20,000 | $ - | $ - | $ - | $ 30,000 | 2 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  |  |  |
| Total Output 1.1. | | | | | | $ 20,000 | $ 60,000 | $ 20,000 | $ - | $ - | $ - | $ 100,000 |  |
| Output 1.2: Climate and geospatial information systems established with trained urban planners to promote risk informed urban planning | MoIT | 62160 | 10003 | 72100 | Contractual Services-Companies | $ 10,000 | $ 20,000 | $ 10,000 | $ 10,000 | $ - | $ - | $ 50,000 | 3 |
| 72200 | Equipment and Furniture | $ 40,000 | $ 40,000 | $ 40,000 | $ - | $ - | $ - | $ 120,000 | 4 |
| 71300 | Local Consultants | $ 25,000 | $ - | $ - | $ - | $ - | $ - | $ 25,000 | 5 |
| 74200 | Audio Visual&Print Prod Costs | $ - | $ 30,000 | $ - | $ - | $ - | $ - | $ 30,000 | 6 |
| 75700 | Training, Workshops and Confer | $ 150,000 | $ 200,000 | $ 105,000 | $ 10,000 | $ 10,000 | $ - | $ 475,000 | 7 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  |  |  |
| Total Output 1.2 | | | | | | $ 225,000 | $ 290,000 | $ 155,000 | $ 20,000 | $ 10,000 | $ - | $ 700,000 |  |
| Output 1.3: Climate-resilient and gender-responsive adaptation plans prepared for Thimphu and Paro with active citizen participation and added emphasis on climate resilient entrepreneurship | MoIT | 62160 | 10003 | 72100 | Contractual Services-Companies | $ 50,000 | $ 10,000 | $ - | $ - | $ - | $ - | $ 60,000 | 8 |
| 72200 | Equipment and Furniture | $ 50,000 | $ 150,000 | $ 150,000 | $ 100,000 | $ 70,000 | $ - | $ 520,000 | 9 |
| 71300 | Local Consultants | $ 20,000 | $ - | $ - | $ - | $ - | $ - | $ 20,000 | 10 |
| 71600 | Travel | $ 40,000 | $ 35,000 | $ - | $ - | $ - | $ - | $ 75,000 | 11 |
| 75700 | Training, Workshops and Confer | $ 330,000 | $ 245,000 | $ 100,000 | $ 80,000 | $ 30,000 | $ - | $ 785,000 | 12 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  |  |  |
| Total Output 1.3 | | | | | | $ 490,000 | $ 440,000 | $ 250,000 | $ 180,000 | $ 100,000 | $ - | $ 1,460,000 |  |
| Output 1.4: Educational and training programmes introduced in colleges and technical schools for skilling, reskilling and upskilling of planning professionals and workforce | MoIT | 62160 | 10003 | 71300 | Local Consultants | $ 26,000 | $ 24,000 | $ 5,000 | $ 10,000 | $ 30,000 | $ - | $ 95,000 | 13 |
| 71200 | International Consultants | $ - | $ - | $ 8,000 | $ 11,000 | $ 6,000 | $ - | $ 25,000 | 14 |
| 72100 | Contractual Services-Companies | $ 10,000 | $ 10,000 | $ 20,000 | $ 20,000 | $ - | $ - | $ 60,000 | 15 |
| 72200 | Equipment and Furniture | $ - | $ 45,000 | $ 85,000 | $ 60,000 | $ 30,000 | $ - | $ 220,000 | 16 |
| 75700 | Training, Workshops and Confer | $ 436,000 | $ 324,000 | $ 247,000 | $ 239,000 | $ 84,000 | $ - | $ 1,330,000 | 17 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  | $ - |  |
| Total Output 1.4 | | | | | | $ 472,000 | $ 403,000 | $ 365,000 | $ 340,000 | $ 150,000 | $ - | $ 1,730,000 |  |
| Output 1.5: Innovative financing solutions for public and private sector to invest in climate-resilient projects, technologies, and services | MoIT | 62160 | 10003 | 71300 | Local Consultants | $ 10,000 | $ 58,000 | $ - | $ - | $ 30,000 | $ - | $ 98,000 | 18 |
| 72200 | Equipment and Furniture | $ - | $ 15,000 | $ 45,000 | $ - | $ - | $ - | $ 60,000 | 19 |
| 71600 | Travel | $ - | $ 15,000 | $ 35,000 | $ 20,000 | $ 10,000 | $ - | $ 80,000 | 20 |
| 75700 | Training, Workshops and Confer | $ - | $ 87,000 | $ 80,000 | $ 35,000 | $ 10,000 | $ 50,000 | $ 262,000 | 21 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  | $ - |  |
| Total Output 1.5 | | | | | | $ 10,000 | $ 175,000 | $ 160,000 | $ 55,000 | $ 50,000 | $ 50,000 | $ 500,000 |  |
| Total Component 1 | | | | | | | | $ 1,217,000 | $ 1,368,000 | $ 950,000 | $ 595,000 | $ 310,000 | $ 50,000 | $ 4,490,000 |  |
| Component 2: Build Resilience through gender-responsive climate adaptive approaches | Outcome 2: Climate risk management measures designed and implemented for water management systems and urban infrastructure | Output 2.1: Climate-proofing features for the key sections of the water and stormwater management systems introduced to ensure flood risk management, safe and uninterrupted water supply and business continuity in critical urban areas | MoIT | 62160 | 10003 | 71300 | Local Consultants | $ 30,000 | $ 45,000 | $ - | $ - | $ - | $ - | $ 75,000 | 22 |
| 71200 | International Consultants | $ 48,000 | $ 40,000 | $ - | $ - | $ - | $ - | $ 88,000 | 23 |
| 72100 | Contractual Services-Companies | $ - | $ 80,000 | $ - | $ - | $ - | $ - | $ 80,000 | 24 |
| 72200 | Equipment and Furniture | $ 225,000 | $ 1,445,600 | $ 1,877,000 | $ 1,032,500 | $ - | $ - | $ 4,580,100 | 25 |
| 71600 | Travel | $ 15,000 | $ 53,500 | $ 25,000 | $ - | $ - | $ - | $ 93,500 | 26 |
| 75700 | Training, Workshops and Confer | $ 3,000 | $ 7,900 | $ 4,000 | $ - | $ - | $ - | $ 14,900 | 27 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  |  |  |
| Total Output 2.1 | | | | | | $ 321,000 | $ 1,672,000 | $ 1,906,000 | $ 1,032,500 | $ - | $ - | $ 4,931,500 |  |
| Output 2.2: Ecosystem and NbS developed and implemented to adapt to floods, heat-island effect, and landslide and to enrich water sources, natural streams and catchments for improved infiltration, restoration and recharge | MoIT | 62160 | 10003 | 72100 | Contractual Services-Companies | $ 467,000 | $ 685,000 | $ 1,205,000 | $ 975,000 | $ 730,000 | $ 150,000 | $ 4,212,000 | 28 |
| 72200 | Equipment and Furniture | $ - | $ 212,000 | $ 15,000 | $ 15,000 | $ - | $ - | $ 242,000 | 29 |
| 72300 | Materials & Goods | $ - | $ - | $ 90,000 | $ 90,000 | $ - | $ - | $ 180,000 | 30 |
| 71600 | Travel | $ 3,000 | $ 38,000 | $ - | $ - | $ 105,000 | $ 60,000 | $ 206,000 | 31 |
| 75700 | Training, Workshops and Confer | $ 26,500 | $ 33,500 | $ 30,000 | $ - | $ - | $ - | $ 90,000 | 32 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  | $ - |  |
| Total Output 2.2 | | | | | | $ 496,500 | $ 968,500 | $ 1,340,000 | $ 1,080,000 | $ 835,000 | $ 210,000 | $ 4,930,000 |  |
| Output 2.3: Measures to increase climate resilience of buildings and design of urban spaces introduced | MoIT | 62160 | 10003 | 71300 | Local Consultants | $ - | $ 13,500 | $ - | $ - | $ - | $ - |  | 33 |
| 72100 | Contractual Services-Companies | $ 75,000 | $ 252,500 | $ 300,000 | $ 300,000 | $ - | $ - |  | 34 |
| 72200 | Equipment and Furniture | $ - | $ 24,000 | $ - | $ - | $ - | $ - |  | 35 |
| 75700 | Training, Workshops and Confer | $ 5,000 | $ 15,000 | $ 30,000 | $ - | $ - | $ - |  | 36 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  |  |  |
| Total Output 2.3 | | | | | | $ 80,000 | $ 305,000 | $ 330,000 | $ 300,000 | $ - | $ - | $ 1,015,000 |  |
| Output 2.4: Ancillary rainfall threshold-based flood EWS developed on critical tributaries and integrated with the existing centralized hydro-met data management system (CDMS) of NCHM | MoIT | 62160 | 10003 | 72100 | Contractual Services-Companies | $ 40,000 | $ 110,000 | $ 110,000 | $ - | $ - | $ - | $ 260,000 | 37 |
| 72200 | Equipment and Furniture | $ - | $ 250,000 | $ 125,000 | $ 30,000 | $ - | $ - | $ 405,000 | 38 |
| 71600 | Travel | $ 7,500 | $ 7,500 | $ - | $ - | $ - | $ - | $ 15,000 | 39 |
| 75700 | Training, Workshops and Confer | $ - | $ - | $ 6,000 | $ 15,000 | $ 5,000 | $ 4,000 | $ 30,000 | 40 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  | $ - |  |
| Total Output 2.4 | | | | | | $ 47,500 | $ 367,500 | $ 241,000 | $ 45,000 | $ 5,000 | $ 4,000 | $ 710,000 |  |
| Total Component 2 | | | | | | | | $ 945,000 | $ 3,313,000 | $ 3,817,000 | $ 2,457,500 | $ 840,000 | $ 214,000 | $ 11,586,500 |  |
| Component 3: Knowledge management and M&E | Outcome 3: Project knowledge is managed, and project results are monitored and evaluated to foster learning, adaptive management, sustainability and replication | Output 3.1: Knowledge and communication products and platforms developed to analyze and disseminate best practices and project lessons | MoIT | 62160 | 10003 | 72100 | Contractual Services-Companies | $ 32,500 | $ 50,000 | $ 30,000 | $ 30,000 | $ 30,000 | $ 17,500 | $ 190,000 | 41 |
| 71300 | Local Consultants | $ 20,000 | $ 20,000 | $ - | $ - | $ - | $ - | $ 40,000 | 42 |
| 72300 | Materials & Goods | $ 12,500 | $ 25,000 | $ 20,000 | $ 25,000 | $ 15,000 | $ 12,500 | $ 110,000 | 43 |
| 71600 | Travel | $ 20,500 | $ 24,000 | $ 24,000 | $ 24,000 | $ 24,000 | $ 16,500 | $ 133,000 | 44 |
| 74500 | Miscellaneous Expenses | $ 12,500 | $ 25,000 | $ 25,000 | $ 25,000 | $ 25,000 | $ 12,500 | $ 125,000 | 45 |
| Total Responsible Party MoIT | | | | |  |  |  |  |  |  | $ - |  |
| Total Output 3.1 | | | | | | $ 98,000 | $ 144,000 | $ 99,000 | $ 104,000 | $ 94,000 | $ 59,000 | $ 598,000 |  |
| Output 3.2: Project progress and results are effectively tracked and managed through monitoring and evaluation | MoIT | 62160 | 10003 | 71300 | Local Consultants | $- | $- | $17,500 | $- | $- | $22,000 | $39,500 | 46 |
| 71200 | International Consultants | $- | $- | $50,000 | $- | $- | $60,000 | $110,000 | 47 |
| 75700 | Training, Workshops and Confer | $35,000 | $25,000 | $37,500 | $25,000 | $25,000 | $40,000 | $187,500 | 48 |
| Total Responsible Party MoIT | | | | | $ 56,167 | $ 56,167 | $ 56,167 | $ 56,167 | $ 56,167 | $ 56,167 | $ 337,000 |  |
| Total Output 3.2 | | | | | | $ 56,167 | $ 56,167 | $ 56,167 | $ 56,167 | $ 56,167 | $ 56,167 | $ 337,000 |  |
| Total Component 3 | | | | | | | | $ 154,167 | $ 200,167 | $ 155,167 | $ 160,167 | $ 150,167 | $ 115,167 | $ 935,000 |  |
| Project Management Cost (PMC) | PMC | PMC | MoIT | 62160 | 10003 | 71300 | Local Consultants | $ 6,750 | $ 6,750 | $ 6,750 | $ 6,750 | $ 6,750 | $ 6,750 | $ 40,500 | 49 |
| 71600 | Travel | $ 15,000 | $ 15,000 | $ 15,000 | $ 15,000 | $ 15,000 | $ 15,000 | $ 90,000 | 50 |
| 72400 | Communic & Audio Visual Equip | $ 15,000 | $ - | $ - | $ - | $ - | $ - | $ 15,000 | 51 |
| 74200 | Audio Visual&Print Prod Costs | $ 7,500 | $ 7,500 | $ 7,500 | $ 7,500 | $ 7,500 | $ 7,500 | $ 45,000 | 52 |
| 72500 | Supplies | $ 3,000 | $ 3,000 | $ 3,000 | $ 3,000 | $ 3,000 | $ 3,000 | $ 18,000 | 53 |
| 72800 | Information Technology Equipmt | $ 16,000 | $ - | $ - | $ 8,000 | $ - | $ - | $ 24,000 | 54 |
| 75700 | Training, Workshops and Confer | $ 10,000 | $ 4,500 | $ 4,500 | $ 4,500 | $ 4,500 | $ 4,500 | $ 32,500 | 55 |
| Total Responsible Party MoIT | | | | | $ 150,500 | $ 114,000 | $ 122,000 | $ 114,000 | $ 114,000 | $ 112,958 | $ 727,458 |  |
| Project Management Cost (PMC) | PMC | PMC | UNDP | 62160 | 10003 | 74100 | Professional Services | $ 2,000 | $ 2,000 | $ 2,000 | $ 2,000 | $ 2,000 | $ 2,000 | $ 12,000 | 56 |
| 75700 | Training, Workshops and Confer | $ 20,000 | $ 20,000 | $ 20,000 | $ 20,000 | $ 20,000 | $ 20,000 | $ 120,000 | 57 |
| Total Responsible Party UNDP | | | | | $ 22,000 | $ 22,000 | $ 22,000 | $ 22,000 | $ 22,000 | $ 22,000 | $ 132,000 |  |
| Total Project Management Cost | | | | | | | | $ 172,500 | $ 136,000 | $ 144,000 | $ 136,000 | $ 136,000 | $ 134,958 | $ 859,458 |  |
| Total Project Grant | | | | | | | | $ 2,488,667 | $ 5,017,167 | $ 5,066,167 | $ 3,348,667 | $ 1,436,167 | $ 514,125 | $ 17,870,958 |  |

**Budget Notes**

| **Budget Note No.** | **Budget Note (Description)** |
| --- | --- |
| **1** | *Output 1.1, Activity 1.1.1: Assessment of existing national, district and municipal institutional arrangements, mandates and functions in the context of gender-responsive and climate-resilient urban development. This will be followed by: a) a review of how these arrangements are functioning and b) an analysis of gaps, inconsistencies, and overlaps, all in view of gender-responsive and climate resilient urban development, c) validation of findings with institutions. Item: Short term local consultant Calculation: unit cost USD 500 x 80 = USD 40000 Output 1.1, Activity 1.1.1: Development of Strategy and Operational Framework for streamlined inter-agency coordination and improved policy coherence, in participatory manner Item: Short term local consultant Calculation: unit cost USD 500 x 60 = USD 30000* |
| **2** | *Output 1.1, Activity 1.1.1: Validation of findings and Sensitization workshops for officials working in urban planning and development, and related sectors Item: Workshop and Training Calculation: unit cost USD 10000 x 3 = USD 30000* |
| **3** | Output 1.2, Activity 1.2.2: Customization or enhancement of the existing systems for hosting the products (maps, charts, information etc) of the project Item: Consulting company Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **4** | Output 1.2, Activity 1.2.2: Procurement and installation of hardware and software for multi-dimensional climate GIS system Item: Equipment and software support and training Calculation: unit cost USD 120000 x 1 = USD 120000 |
| **5** | Output 1.2, Activity 1.2.2: Data Analysis for producing maps and information:  1) through internal data collection and GIS assessments  2) through procurement (if needed) Item: Short term local consultant Calculation: unit cost USD 500 x 50 = USD 25000 |
| **6** | Output 1.2, Activity 1.2.3: Development of operation and management manual for GIS system Item: Procurement of services for Printing of manual Calculation: unit cost USD 30000 x 1 = USD 30000 |
| **7** | Output 1.2, Activity 1.2.1: Analysis of existing GIS system (usage, datasets), including identification of climate and vulnerability related information gaps Item: Workshops including facilitators Calculation: unit cost USD 10000 x 3 = USD 30000 Output 1.2, Activity 1.2.1: Assessment of current hardware and software functionalities with the identification of necessary upgrades Item: Workshops including facilitators Calculation: unit cost USD 10000 x 2 = USD 20000 Output 1.2, Activity 1.2.2: Data Analysis for producing maps and information:  1) through internal data collection and GIS assessments  2) through procurement (if needed) Item: Workshops and seminars Calculation: unit cost USD 25000 x 3 = USD 75000 Output 1.2, Activity 1.2.3: Development of operation and management manual for GIS system Item: Workshop, meetings and Seminars Calculation: unit cost USD 70000 x 1 = USD 70000 Output 1.2, Activity 1.2.3: Implementation of capacity building for GIS Officers and other professionals working in the application of GIS in Climate and Urban Resilience Item: Training - ex country Calculation: unit cost USD 200000 x 1 = USD 200000 Output 1.2, Activity 1.2.3: Implementation of capacity building for GIS Officers and other professionals working in the application of GIS in Climate and Urban Resilience Item: Training - in country Calculation: unit cost USD 10000 x 5 = USD 50000 Output 1.2, Activity 1.2.3: Capacity building of the relevant officials on the application of GIS for water supply systems in Thimphu and Paro Item: Workshops and training Calculation: unit cost USD 10000 x 3 = USD 30000 |
| **8** | Output 1.3, Activity 1.3.1: Development of RVA and gender assessment as a basis for plans Item: Hiring of Consulting firm to carry out gender assessment/analysis Calculation: unit cost USD 50000 x 1 = USD 50000 Output 1.3, Activity 1.3.2: Capacity building of relevant officers on climate change risk impacts on all vulnerable communities with inclusion of gender in NbS Item: Sensitization and awareness program to Vulnerable community Calculation: unit cost USD 10000 x 1 = USD 10000 |
| **9** | Output 1.3, Activity 1.3.3: Strengthening localised support mechanisms for scaling-up entrepreneurship in NbS and adaptation practices for Thimphu and Paro  Item: Equipment and furniture for support and business development services Calculation: unit cost USD 520000 x 1 = USD 520000 |
| **10** | Output 1.3, Activity 1.3.2: Gender inclusive community development plans for NbS to address gender barrier in decision-making through addressing child care burden. Item: Consultation meetings/workshops, trainings and seminars Calculation: unit cost USD 80000 x 1 = USD 80000 Output 1.3, Activity 1.3.3: Development of localised strategy for involvement of private sector (investment and entrepreneurs) in implementation of NbS and other adaptation actions. Item: Local consultant for the development of strategy for involvement of private sector Calculation: unit cost USD 500 x 40 = USD 20000 |
| **11** | Output 1.3, Activity 1.3.3: Upskilling of NbS entrepreneurship competencies for relevant officials Item: Travel Calculation: unit cost USD 75000 x 1 = USD 75000 |
| **12** | Output 1.3, Activity 1.3.1: Development of RVA and gender assessment as a basis for plans Item: Consultation meetings/ workshop  Calculation: unit cost USD 100000 x 1 = USD 100000 Output 1.3, Activity 1.3.1: Development of gender-responsive adaptation plans for Thimphu and Paro, in participatory manner Item: Hiring of Consulting firm to prepare the plan Calculation: unit cost USD 100000 x 1 = USD 100000 Output 1.3, Activity 1.3.1: Development of gender-responsive adaptation plans for Thimphu and Paro, in participatory manner Item: Consultation/workshop  Calculation: unit cost USD 100000 x 1 = USD 100000 Output 1.3, Activity 1.3.2: Capacity building of relevant officers on climate change risk impacts on all vulnerable communities with inclusion of gender in NbS Item: Training and workshop-In-country and stakeholder consultation Calculation: unit cost USD 20000 x 1 = USD 20000 Output 1.3, Activity 1.3.3: Development of localised strategy for involvement of private sector (investment and entrepreneurs) in implementation of NbS and other adaptation actions. Item: Workshops/meetings Calculation: unit cost USD 10000 x 1 = USD 10000 Output 1.3, Activity 1.3.3: Upskilling of NbS entrepreneurship competencies for relevant officials Item: Training for upskilling of NbS entrepreneurship Calculation: unit cost USD 75000 x 1 = USD 75000 Output 1.3, Activity 1.3.3: Enhancing NbS accelerator programme targeting community initiatives, youth, women, vulnerable populations, etc (including decision making opportunities) Item: Training on enhancing NbS for youth, women, vulnerable population Calculation: unit cost USD 150000 x 1 = USD 150000 Output 1.3, Activity 1.3.3: Enhancing NbS accelerator programme targeting community initiatives, youth, women, vulnerable populations, etc (including decision making opportunities) Item: Workshops, awareness programs and promotional events Calculation: unit cost USD 150000 x 1 = USD 150000 |
| **13** | Output 1.4, Activity 1.4.1: Review of existing educational and training programmes and training capacity of training service providers in the government, civil society organizations and private sector, from a gender and climate adaptation perspective Item: Local Consultant for review of existing educational and training programs Calculation: unit cost USD 500 x 50 = USD 25000 Output 1.4, Activity 1.4.4: Evaluation of implemented programmes (tracer survey, attendance and performance, participants feedback, etc.) Item: Local Consultant, for Evaluation of implemented programmes  Calculation: unit cost USD 500 x 60 = USD 30000 Output 1.4, Activity 1.4.4: Assessment of options for permanent integration of training programmes in selected institutions Item: Local consultant Assessment of options for permanent integration of training programmes in selected institutions Calculation: unit cost USD 500 x 40 = USD 20000 |
| **14** | Output 1.4, Activity 1.4.2: Assessment of existing course and Development of courses based on the needs assessment Item: International Consultant to review the changed and new modules, to review the master programme Calculation: unit cost USD 1000 x 25 = USD 25000 |
| **15** | Output 1.4, Activity 1.4.2: Implementation of courses in training institutes and colleges  Item: Contractual services- development of lab for urban climate resilience related modules Calculation: unit cost USD 30000 x 1 = USD 30000 |
| **16** | Output 1.4, Activity 1.4.2: Implementation of courses in training institutes and colleges  Item: Materials and goods (Equipment, furniture and procurement of study material to equip the programmes and computer software to deliver the modules.) Calculation: unit cost USD 15000 x 1 = USD 15000 Output 1.4, Activity 1.4.2: Implementation of courses in training institutes and colleges  Item: Procurement of the equipment and furniture for the lab Calculation: unit cost USD 205000 x 1 = USD 205000 |
| **17** | Output 1.4, Activity 1.4.1: Review of existing educational and training programmes and training capacity of training service providers in the government, civil society organizations and private sector, from a gender and climate adaptation perspective Item: Workshop and Training Calculation: unit cost USD 75000 x 1 = USD 75000 Output 1.4, Activity 1.4.2: Assessment of existing course and Development of courses based on the needs assessment Item: Trainings, workshops and travel for Need Assessment for New Programmes (for BE and PhD) to determine the need for new programmes  Calculation: unit cost USD 6000 x 1 = USD 6000 Output 1.4, Activity 1.4.2: Assessment of existing course and Development of courses based on the needs assessment Item: Training, workshops and travel for assessment and review of existing modules to incorporate climate/urban resilience component into existing modules Calculation: unit cost USD 48000 x 1 = USD 48000 Output 1.4, Activity 1.4.2: Assessment of existing course and Development of courses based on the needs assessment Item: Training, workshop and travel for the development of new modules as regular/elective modules, to develop and integrate new modules in the field of climate/urban resilience into existing programmes. Calculation: unit cost USD 40000 x 1 = USD 40000 Output 1.4, Activity 1.4.2: Assessment of existing course and Development of courses based on the needs assessment Item: Training, workshop and travel for the development programme for Master in Engineering by research to cater for topics related to climate/urban resilience. Calculation: unit cost USD 11000 x 1 = USD 11000 Output 1.4, Activity 1.4.2: Strengthening the Capacity of relevant officials from learning institutions to be hosting training programs, including training of trainers  Item: Training - Ex-country: professional training for building capacity of the staff at CST to offer the modules and train professionals on climate/urban resilience. Calculation: unit cost USD 168000 x 1 = USD 168000 Output 1.4, Activity 1.4.2: Strengthening the Capacity of relevant officials from learning institutions to be hosting training programs, including training of trainers  Item: Training - In-country training/Online training to build HR capacity of the staff at CST on climate/urban resilience though in-country training and online training Calculation: unit cost USD 32000 x 1 = USD 32000 Output 1.4, Activity 1.4.2: Strengthening the Capacity of relevant officials from learning institutions to be hosting training programs, including training of trainers  Item: Training, workshops and travel build the capacity of officials from governments, private, CSOs in the climate/urban resilience component Budget Line: Training and Workshops, travel Calculation: unit cost USD 50000 x 1 = USD 50000 Output 1.4, Activity 1.4.2: Implementation of courses in training institutes and colleges  Item: Training and Workshops/travel for lab related activities Calculation: unit cost USD 20000 x 1 = USD 20000 Output 1.4, Activity 1.4.3: Capacity building for relevant officials in the planning and designing of nature-based stormwater and flood risk management Item: Training and workshop - Ex-country Calculation: unit cost USD 40000 x 5 = USD 200000 Output 1.4, Activity 1.4.3: Conduct training and capacity development of officials of DoW and stakeholders on climate smart water resources management Item: Training and workshop - Ex-country Calculation: unit cost USD 50000 x 2 = USD 100000 Output 1.4, Activity 1.4.3: Conduct training and capacity building of urban planners, landscape architects and engineers on urban planning and development using NBS Item: Training and workshop - In-country Calculation: unit cost USD 20000 x 1 = USD 20000 Output 1.4, Activity 1.4.3: Conduct training and capacity building of urban planners, landscape architects and engineers on urban planning and development using NBS Item: Training and workshop- Ex-country Calculation: unit cost USD 200000 x 1 = USD 200000 Output 1.4, Activity 1.4.3: Conduct training and capacity building of urban planners, landscape architects and engineers on urban planning and development using NBS Item: Training and Workshops - Ex- Country Calculation: unit cost USD 60000 x 1 = USD 60000 Output 1.4, Activity 1.4.3: Capacity building of the relevant officials on the planning, design and construction climate resilient water and wastewater infrastructures. Item: Training and Workshops (Ex- Country) Calculation: unit cost USD 60000 x 1 = USD 60000 Output 1.4, Activity 1.4.3: Capacity building on climate resilient green building technology and awareness for green building tool and standard Item: Trainings/workshops and study visits - ex-country Calculation: unit cost USD 150000 x 1 = USD 150000 Output 1.4, Activity 1.4.3: Capacity building on climate resilient green building technology and awareness for green building tool and standard Item: In-country Training/workshop  Calculation: unit cost USD 50000 x 1 = USD 50000 Output 1.4, Activity 1.4.3: Training on the Forecast based EWS modelling and its integration into the existing flood forecasting system. Item: Ex-country- capacity building of relevant officials on hydrological model development, data assimilation and system integration Calculation: unit cost USD 25000 x 1 = USD 25000 Output 1.4, Activity 1.4.3: Training on weather (wrf) data downscaling and assimilation into flood forecasting system (EWS) Item: Ex-country- capacity building of relevant officials on weather data downscaling and integration into EWS Calculation: unit cost USD 15000 x 1 = USD 15000 |
| **18** | Output 1.5, Activity 1.5.1: Assessment and demonstration of mechanisms to strengthen Private Sector engagement for NbS and Urban Resilience projects Item: Local Consultant Calculation: unit cost USD 500 x 20 = USD 10000 Output 1.5, Activity 1.5.1: Weather Forecast into Macro-economic and other projections for Climate Adaptation in the fiscal projection Item: Local Consultant Calculation: unit cost USD 500 x 20 = USD 10000 Output 1.5, Activity 1.5.1: Development of and capacitation on Climate Prosperity Plan (CPP) to strategize climate change-related (NbS and Urban Resilience) innovative financing mechanisms Item: Local Consultant Calculation: unit cost USD 500 x 20 = USD 10000 Output 1.5, Activity 1.5.3: Support assessment and implementation of NbS interventions for urban resilience under Green Taxonomy and Sustainable Financing Framework exploring the PPP model Item: Local Consultant Calculation: unit cost USD 450 x 40 = USD 18000 Output 1.5, Activity 1.5.3: Implement NbS interventions for urban resilience under the enhanced PES scheme Item: Local consultant for review and update PES Framework Calculation: unit cost USD 500 x 40 = USD 20000 Output 1.5, Activity 1.5.3: Assessment on water tariff system in Paro and Thimphu Item: Local consultant - Feasibility study on water tariff  Calculation: unit cost USD 500 x 60 = USD 30000 |
| **19** | Output 1.5, Activity 1.5.1: Weather Forecast into Macro-economic and other projections for Climate Adaptation in the fiscal projection Item: Procurement/ Equipment  Calculation: unit cost USD 15000 x 1 = USD 15000 Output 1.5, Activity 1.5.1: Development of and capacitation on Climate Prosperity Plan (CPP) to strategize climate change-related (NbS and Urban Resilience) innovative financing mechanisms Item: Procurement/ Equipment  Calculation: unit cost USD 15000 x 1 = USD 15000 Output 1.5, Activity 1.5.3: Support assessment and implementation of NbS interventions for urban resilience under Green Taxonomy and Sustainable Financing Framework exploring the PPP model Item: Procurement/ Equipment  Calculation: unit cost USD 30000 x 1 = USD 30000 |
| **20** | Output 1.5, Activity 1.5.1: Weather Forecast into Macro-economic and other projections for Climate Adaptation in the fiscal projection Item: Travel- Training/workshop Calculation: unit cost USD 15000 x 1 = USD 15000 Output 1.5, Activity 1.5.1: Development of and capacitation on Climate Prosperity Plan (CPP) to strategize climate change-related (NbS and Urban Resilience) innovative financing mechanisms Item: Travel- Training/workshop Calculation: unit cost USD 15000 x 1 = USD 15000 Output 1.5, Activity 1.5.3: Implement NbS interventions for urban resilience under the enhanced PES scheme Item: Travel for Assessment of potential PES sites Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **21** | Output 1.5, Activity 1.5.1: Assessment and demonstration of mechanisms to strengthen Private Sector engagement for NbS and Urban Resilience projects Item: Travel- Training/Workshop Calculation: unit cost USD 10000 x 1 = USD 10000 Output 1.5, Activity 1.5.2: Assessment and development of policy supporting incentive system for green financing for financial institutions  Item: Meetings/Workshops Calculation: unit cost USD 50000 x 1 = USD 50000 Output 1.5, Activity 1.5.2: Development and implementation of training package on Climate Stress Testing, NbS financing, Environmental and Social Risk Management (ESRM) for financial institutions Item: Meetings/workshops Calculation: unit cost USD 50000 x 1 = USD 50000 Output 1.5, Activity 1.5.3: Support assessment and implementation of NbS interventions for urban resilience under Green Taxonomy and Sustainable Financing Framework exploring the PPP model Item: Travel- Training/workshop Calculation: unit cost USD 52000 x 1 = USD 52000 Output 1.5, Activity 1.5.3: Implement NbS interventions for urban resilience under the enhanced PES scheme Item: Training and workshops - Consultation meetings and training of stakeholders Calculation: unit cost USD 50000 x 1 = USD 50000 Output 1.5, Activity 1.5.3: Assessment on water tariff system in Paro and Thimphu Item: Training and workshops - consultations and assessment Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **22** | Output 2.1, Activity 2.1.1: Development of the inventory of the existing stormwater Drainage Network   Item 1: Hiring of local consultant, for inventory and assessment Calculation: unit cost USD 450 x 40 = USD 18000 Output 2.1, Activity 2.1.2: Demonstrate flood safety measures along the primary stormwater drainage system and stream in Thimphu  Item 1- Local Consultants for the Design for stormwater drainage systems  Calculation: unit cost USD 500 x 40 = USD 20000 Output 2.1, Activity 2.1.3: Digitization of water supply system in Thimphu and Paro municipality  Item 1: Local consultant (build data for the water distribution network for proper O&M)  Calculation: unit cost USD 500 x 20 = USD 10000 Output 2.1, Activity 2.1.3: Promote climate risk informed planning of water supply through the assessment of existing treatment plants and implementation of remedial measure for Paro and Thimphu Thromde  Item 1: Local consultant, for assessment of existing water supply networks and plants) Calculation: unit cost USD 500 x 40 = USD 20000 Output 2.1, Activity 2.1.3: Ensure uninterrupted safe water supply through appropriate interventions to combat climate change in Thimphu and Paro municipalities  Item 2: Local consultant Calculation: unit cost USD 500 x 40 = USD 20000 |
| **23** | Output 2.1, Activity 2.1.1: Preparation of Integrated Stormwater Management Plan (ISWMP)  Item 1: Hiring of International Consultant for preparation of ISWMP Calculation: unit cost USD 1000 x 40 = USD 40000 Output 2.1, Activity 2.1.3: Promote climate risk informed planning of water supply through the assessment of existing treatment plants and implementation of remedial measure for Paro and Thimphu Thromde  Item 1: International consultant assessment of existing water supply networks and plants.  Calculation: unit cost USD 1000 x 40 = USD 40000 |
| **24** | Output 2.1, Activity 2.1.1: Implementing NbS integrated storm water interventions in Paro Municipality  Item 1: Contractual services-companies, for implementation of Nbs integrated storm water interventions Calculation: unit cost USD 50000 x 1 = USD 50000 Output 2.1, Activity 2.1.2: Rehabilitation of the primary storm water drains for capacity enhancement and integration of NBS.  Item 2: Contractual services-companies, to rehabilitate pry. Stormwater drainage system/networks Calculation: unit cost USD 1195000 x 1 = USD 1195000 Output 2.1, Activity 2.1.2: Rehabilitation of the secondary storm water drainages (connecting drains) for proper management of surface runoff and waste water.  Item 2: Contractual services-companies, to rehabilitate secondary stormwater drainage system/networks Calculation: unit cost USD 1500000 x 1 = USD 1500000 Output 2.1, Activity 2.1.2: Lateral drainage system demonstrated for partial diversion of stormwater from the primary drainage system to reduce urban flood in low-lying areas.  Item 2: Contractual services-companies, for construction of lateral drainage system/networks Calculation: unit cost USD 464000 x 1 = USD 464000 Output 2.1, Activity 2.1.2: Rehabilitation of stormwater drainage networks in Debsi LAP  Item 2: Contractual services-companies, to stormwater drainage system/networks in Debsi LAP Calculation: unit cost USD 75600 x 1 = USD 75600 Output 2.1, Activity 2.1.2: Demonstrate flood safety measures along the primary stormwater drainage system and stream in Thimphu  item 2: National contractor (works) - for implementation of flood safety measures primary stormwater drainage system and streams in Thimphu Calculation: unit cost USD 280000 x 1 = USD 280000 Output 2.1, Activity 2.1.3: Installation of sensors and SCADA system for water supply system  Item 1: Contractual services - companies, for Installation of sensors and SCADA system Calculation: unit cost USD 80500 x 1 = USD 80500 Output 2.1, Activity 2.1.3: Ensure uninterrupted safe water supply through appropriate interventions to combat climate change in Thimphu and Paro municipalities  Item 1: Contractual services - companies, to construct climate resilient water supply infrastructure and NRW) Calculation: unit cost USD 935000 x 1 = USD 935000 |
| **25** | Output 2.1, Activity 2.1.1: Development of the inventory of the existing stormwater Drainage Network  Item 2: IT Equipment Calculation: unit cost USD 15000 x 1 = USD 15000 Output 2.1, Activity 2.1.3: Promote climate risk informed planning of water supply through the assessment of existing treatment plants and implementation of remedial measure for Paro and Thimphu Thromde  Item 4: Procurement of Equipment/ Furniture Calculation: unit cost USD 28500 x 1 = USD 28500 Output 2.1, Activity 2.1.3: Ensure uninterrupted safe water supply through appropriate interventions to combat climate change in Thimphu and Paro municipalities  Item 4: Procurement of Equipment/ Furniture Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **26** | Output 2.1, Activity 2.1.1: Preparation of Integrated Stormwater Management Plan (ISWMP)  Item 2: Travel (in-country) Calculation: unit cost USD 3000 x 1 = USD 3000 Output 2.1, Activity 2.1.2: Rehabilitation of stormwater drainage networks in Debsi LAP  Item 3: Travel (Post-construction Measurements/verifications)  Calculation: unit cost USD 2400 x 1 = USD 2400 Output 2.1, Activity 2.1.3: Digitization of water supply system in Thimphu and Paro municipality  Item 2: Travel Calculation: unit cost USD 1500 x 1 = USD 1500 Output 2.1, Activity 2.1.3: Installation of sensors and SCADA system for water supply system  Item 2: Travel Calculation: unit cost USD 1500 x 1 = USD 1500 Output 2.1, Activity 2.1.3: Promote climate risk informed planning of water supply through the assessment of existing treatment plants and implementation of remedial measure for Paro and Thimphu Thromde  Item 2: Travel Calculation: unit cost USD 1500 x 1 = USD 1500 Output 2.1, Activity 2.1.3: Ensure uninterrupted safe water supply through appropriate interventions to combat climate change in Thimphu and Paro municipalities  Item 3: Travel Calculation: unit cost USD 5000 x 1 = USD 5000 |
| **27** | Output 2.1, Activity 2.1.1: Preparation of Integrated Stormwater Management Plan (ISWMP)  Item 2: Workshop Calculation: unit cost USD 2000 x 2 = USD 4000 Output 2.1, Activity 2.1.2: Rehabilitation of the primary storm water drains for capacity enhancement and integration of NBS.  Item 1: Meetings and workshops for In-house survey and design, estimate and tendering works (for subactivity 2.1.2.1, 2.1.2.2 & 2.1.2.3) Calculation: unit cost USD 5000 x 1 = USD 5000 Output 2.1, Activity 2.1.2: Rehabilitation of stormwater drainage networks in Debsi LAP  Item 1: Meetings and workshops for In-house survey and design, estimate and tendering works Calculation: unit cost USD 2000 x 1 = USD 2000 Output 2.1, Activity 2.1.3: Digitization of water supply system in Thimphu and Paro municipality  Item 3: Training/ Workshop (Incountry) Calculation: unit cost USD 1500 x 1 = USD 1500 Output 2.1, Activity 2.1.3: Installation of sensors and SCADA system for water supply system  Item 3: Training/ Workshop Calculation: unit cost USD 15000 x 1 = USD 15000 Output 2.1, Activity 2.1.3: Promote climate risk informed planning of water supply through the assessment of existing treatment plants and implementation of remedial measure for Paro and Thimphu Thromde  Item 3: Training/ Workshop  Calculation: unit cost USD 10000 x 1 = USD 10000 Output 2.1, Activity 2.1.3: Ensure uninterrupted safe water supply through appropriate interventions to combat climate change in Thimphu and Paro municipalities  Item 5: Training/ workshop Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **28** | Output 2.2, Activity 2.2.1: Enhancement of Wangchhu River Corridor to adapt to floods and landslide through urban forestry  Item 1: International Consultancy firm for the Design of landscape with NBS and EBA solutions along Wangchhu River.  Calculation: unit cost USD 350000 x 1 = USD 350000 Output 2.2, Activity 2.2.1: Enhancement of Wangchhu River Corridor to adapt to floods and landslide through urban forestry  Item 3: Contractual services-companies, to implement the Design to enhance wangchu river corridor Calculation: unit cost USD 550000 x 1 = USD 550000 Output 2.2, Activity 2.2.1: Creation of fireline to control forest fire along Thimphu and Paro Municipal Boundary  Item 2: Contractual services-companies for Creation and maintenance of fireline in high fire prone and sensitive areas Calculation: unit cost USD 10000 x 1 = USD 10000 Output 2.2, Activity 2.2.2: Development and implementation of a retention pond at Jangsa water supply source to maintain water level for flood resiliency & dry season  Item 1: Local Consulting Firm for Survey and Designs  Calculation: unit cost USD 47000 x 1 = USD 47000 Output 2.2, Activity 2.2.2: Development and implementation of a retention pond at Jangsa water supply source to maintain water level for flood resiliency & dry season  Item 2: Contractual services-companies, for engagement in construction and procurement of goods and materials. Calculation: unit cost USD 445000 x 1 = USD 445000 Output 2.2, Activity 2.2.2: Design and implement of nature-based watershed/springshed revival interventions in the above watersheds/springsheds  Item 3: Contractual services-companies, for establishment of weather stations Calculation: unit cost USD 50000 x 1 = USD 50000 Output 2.2, Activity 2.2.2: Develop Dzongkhag Integrated Water Resources Master Plan for Paro and Thimphu  Item 3: Local consulting firm- Dzongkhag integrated water master plan development  Calculation: unit cost USD 35000 x 1 = USD 35000 Output 2.2, Activity 2.2.3: Implementation of climate-resilient flood management safety measures for Paro  "Item 1: Local consulting firm for detailed design and estimation of flood management safety measures based on the Flood Management Plan of Paro, 2020 Calculation: unit cost USD 50000 x 1 = USD 50000 Output 2.2, Activity 2.2.3: Implementation of climate-resilient flood management safety measures for Paro  Item 2: Contractual services-companies, for implementation of flood safety measures in Paro Calculation: unit cost USD 2134000 x 1 = USD 2134000 Output 2.2, Activity 2.2.3: Implementation of climate-resilient flood management safety measures for Paro  Item 3: Post-construction Measurements/verifications Calculation: unit cost USD 16000 x 1 = USD 16000 Output 2.2, Activity 2.2.3: Implementation of climate-resilient flood management safety measures for Thimphu  Item 1- Consulting firm to design the flood management safety measure along the Wangchhu river. Calculation: unit cost USD 50000 x 1 = USD 50000 Output 2.2, Activity 2.2.3: Implementation of climate-resilient flood management safety measures for Thimphu  Item 2- Contractual services-companies, to implement the flood safety measures in Thimphu Calculation: unit cost USD 475000 x 1 = USD 475000 |
| **29** | Output 2.2, Activity 2.2.1: Enhancement of Wangchhu River Corridor to adapt to floods and landslide through urban forestry  Item 4: Office Equipment (IT) and furniture  Calculation: unit cost USD 90000 x 1 = USD 90000 Output 2.2, Activity 2.2.1: Creation of fireline to control forest fire along Thimphu and Paro Municipal Boundary  Item 3: Procurement plants and equipment for fire suppression Calculation: unit cost USD 37000 x 1 = USD 37000 Output 2.2, Activity 2.2.2: Design and implement of nature-based watershed/springshed revival interventions in the above watersheds/springsheds  Item 2: Procurement of weather stations and flow probes Calculation: unit cost USD 5000 x 8 = USD 40000 Output 2.2, Activity 2.2.3: Implementation of climate-resilient flood management safety measures for Thimphu  Item 4: Equipment Calculation: unit cost USD 75000 x 1 = USD 75000 |
| **30** | Output 2.2, Activity 2.2.2: Design and implement of nature-based watershed/springshed revival interventions in the above watersheds/springsheds  Item 4: Materials & Goods for implementation of NbS Calculation: unit cost USD 180000 x 1 = USD 180000 |
| **31** | Output 2.2, Activity 2.2.1: Creation of fireline to control forest fire along Thimphu and Paro Municipal Boundary  Item 1: Travel for Consultation meeting and sites visits for selection of strategic sites and monitoring of work sites  Calculation: unit cost USD 3000 x 1 = USD 3000 Output 2.2, Activity 2.2.2: Development and implementation of a retention pond at Jangsa water supply source to maintain water level for flood resiliency & dry season  Item 3: Travel (Post-construction Measurements/verifications, Monitoring of sites  Calculation: unit cost USD 5000 x 1 = USD 5000 Output 2.2, Activity 2.2.2: Assess degraded or critical watersheds/springshed in Thimphu and Paro   Item 1: Travel for three watershed assessment  Calculation: unit cost USD 10000 x 3 = USD 30000 Output 2.2, Activity 2.2.2: Design and implement of nature-based watershed/springshed revival interventions in the above watersheds/springsheds  Item 5 : Travel - Ex country, Incountry for monitoring and evaluation of NbS measures that were implemented Calculation: unit cost USD 160000 x 1 = USD 160000 Output 2.2, Activity 2.2.2: Develop Dzongkhag Integrated Water Resources Master Plan for Paro and Thimphu  Item 1: Travel - For Water resource assessment  Calculation: unit cost USD 8000 x 1 = USD 8000 |
| **32** | Output 2.2, Activity 2.2.1: Enhancement of Wangchhu River Corridor to adapt to floods and landslide through urban forestry  Item 2: Workshop and stakeholder consultation Calculation: unit cost USD 10000 x 1 = USD 10000 Output 2.2, Activity 2.2.2: Development and implementation of a retention pond at Jangsa water supply source to maintain water level for flood resiliency & dry season  Item 2: Meeting/Workshops Calculation: unit cost USD 3000 x 1 = USD 3000 Output 2.2, Activity 2.2.2: Assess degraded or critical watersheds/springshed in Thimphu and Paro   Item 2: Consultation workshop with LGs and water users Calculation: unit cost USD 5000 x 6 = USD 30000 Output 2.2, Activity 2.2.2: Design and implement of nature-based watershed/springshed revival interventions in the above watersheds/springsheds  Item 1: Training and Workshops Calculation: unit cost USD 5000 x 4 = USD 20000 Output 2.2, Activity 2.2.2: Develop Dzongkhag Integrated Water Resources Master Plan for Paro and Thimphu  Item 2: Workshops/Meetings - Consultations with stakeholders Calculation: unit cost USD 9000 x 3 = USD 27000 |
| **33** | Output 2.3, Activity 2.3.1: Develop green building tools  Item 1: Local consultant for study of input / parameters for green building tool Calculation: unit cost USD 450 x 30 = USD 13500 |
| **34** | Output 2.3, Activity 2.3.1: Develop Green Building standard and incorporation in the revised Bhutan Building Code  Item 1: International consulting firm Calculation: unit cost USD 70000 x 1 = USD 70000 Output 2.3, Activity 2.3.1: Develop Green Building standard and incorporation in the revised Bhutan Building Code  Item 2: Procurement of international tools and documents etc for review and study  Calculation: unit cost USD 17500 x 1 = USD 17500 Output 2.3, Activity 2.3.1: Develop green building tools  Item 2: International consulting firm for development of tool/system Calculation: unit cost USD 70000 x 1 = USD 70000 Output 2.3, Activity 2.3.2: Demonstrate inclusive and climate resilient building technology in Thimphu  Item 1: International consulting firm for design of climate resilient building Calculation: unit cost USD 80000 x 1 = USD 80000 Output 2.3, Activity 2.3.2: Demonstrate inclusive and climate resilient building technology in Thimphu  Item 2: Contractual services-companies, to construct inclusive and climate resilient building for demonstration. Calculation: unit cost USD 400000 x 1 = USD 400000 Output 2.3, Activity 2.3.2: Retrofitting of an existing public building with inclusive and climate resilient technology in Paro  Item 1: International consulting firm for design Calculation: unit cost USD 20000 x 1 = USD 20000 Output 2.3, Activity 2.3.2: Retrofitting of an existing public building with inclusive and climate resilient technology in Paro  Item 2: Contractual services-companies, to retrofit an existing public building with inclusive and climate resilient technology in Paro for demonstration Calculation: unit cost USD 270000 x 1 = USD 270000 |
| **35** | Output 2.3, Activity 2.3.1: Develop green building tools  Item 3: procurement of Equipment Calculation: unit cost USD 24000 x 1 = USD 24000 |
| **36** | Output 2.3, Activity 2.3.1: Develop Green Building standard and incorporation in the revised Bhutan Building Code  Item 3: Stakeholder consultations, workshops, meetings Calculation: unit cost USD 20000 x 1 = USD 20000 Output 2.3, Activity 2.3.2: Demonstrate inclusive and climate resilient building technology in Thimphu  Item 3: Site visits, meetings etc for post-construction measurement and verification  Calculation: unit cost USD 20000 x 1 = USD 20000 Output 2.3, Activity 2.3.2: Retrofitting of an existing public building with inclusive and climate resilient technology in Paro  Item 3: Site visits, meetings, etc for post-construction measurement and verification  Calculation: unit cost USD 10000 x 1 = USD 10000 |
| **37** | Output 2.4, Activity 2.4.1: Develop flood forecasting model for Paro and Thimphu river basin including tributaries   Item 1: International Consultant to develop flood forecasting model Calculation: unit cost USD 1000 x 30 = USD 30000 Output 2.4, Activity 2.4.1: Development of Flood Warning dissemination platform [web based] for EWS  Item 1: International Consulting firm Calculation: unit cost USD 50000 x 1 = USD 50000 Output 2.4, Activity 2.4.2: Establishment of short-long term stream gauging stations with ambient water quality monitoring sensors   Item 2: Contractual services-Companies to establish short-long term stream gauging stations with ambient water quality monitoring sensors  Calculation: unit cost USD 60000 x 1 = USD 60000 Output 2.4, Activity 2.4.2: Establishment of Weather and climate monitoring station in high altitude and Urban areas   Item 2: Contractual services-Companies for establishment of Weather and climate monitoring station Calculation: unit cost USD 100000 x 1 = USD 100000 Output 2.4, Activity 2.4.2: Rehabilitation of critical hydro met stations in Paro and Thimphu   Item 1: Contractual services-Companies to rehabilitate critical hydromet stations Calculation: unit cost USD 20000 x 1 = USD 20000 |
| **38** | Output 2.4, Activity 2.4.1: Development of Flood Warning dissemination platform [web based] for EWS  Item 2: Procurement of Equipment/Furniture Calculation: unit cost USD 60000 x 1 = USD 60000 Output 2.4, Activity 2.4.2: Establishment of short-long term stream gauging stations with ambient water quality monitoring sensors   Item 3: Procurement of Equipment/furniture for station Calculation: unit cost USD 155000 x 1 = USD 155000 Output 2.4, Activity 2.4.2: Establishment of Weather and climate monitoring station in high altitude and Urban areas   Item 3: Procurement of Equipment Calculation: unit cost USD 170000 x 1 = USD 170000 Output 2.4, Activity 2.4.2: Rehabilitation of critical hydro met stations in Paro and Thimphu   Item 2: Procurement of Equipment Calculation: unit cost USD 20000 x 1 = USD 20000 |
| **39** | Output 2.4, Activity 2.4.2: Establishment of short-long term stream gauging stations with ambient water quality monitoring sensors   Item 1: Travel Calculation: unit cost USD 5000 x 1 = USD 5000 Output 2.4, Activity 2.4.2: Establishment of Weather and climate monitoring station in high altitude and Urban areas   Item 1: Travel Calculation: unit cost USD 10000 x 1 = USD 10000 |
| **40** | Output 2.4, Activity 2.4.1: Develop flood forecasting model for Paro and Thimphu river basin including tributaries   Item 2: Training/Workshops Calculation: unit cost USD 10000 x 1 = USD 10000 Output 2.4, Activity 2.4.1: Integration of down scaled weather forecasting data (Wrf) to the flood forecasting model of EWS  Item 1: Training/Workshops Calculation: unit cost USD 1000 x 1 = USD 1000 Output 2.4, Activity 2.4.1: Development of Flood Warning dissemination platform [web based] for EWS  Item 3: Training/Workshops Calculation: unit cost USD 10000 x 1 = USD 10000 Output 2.4, Activity 2.4.3: Develop Standard Operating Procedure (SOP) for operation, maintenance and information dissemination protocol for the EWS  Item 1: Training/Workshops - SOP Development Calculation: unit cost USD 1000 x 1 = USD 1000 Output 2.4, Activity 2.4.3: Sensitization on the flood risk and management to relevant stakeholders through participatory approach to enhance resiliency against flood risk  Item 1: Training/Workshops - Public Consultation Calculation: unit cost USD 8000 x 1 = USD 8000 |
| **41** | Output 3.1, Activity 3.1.1: Establishment of website, linkage to existing climate associated platforms and opening social media accounts for the timely information sharing  Item 1- Local IT consultancy Firms Calculation: unit cost USD 40000 x 1 = USD 40000 Output 3.1, Activity 3.1.2: Prepare videos / brochures/ flyers/poster and other communication materials on project success stories, case study, progress, lessons learnt and impact stories describing the theory of change.   Item 1- Contractual services for videographer and graphics designer.  Calculation: unit cost USD 75000 x 1 = USD 75000 Output 3.1, Activity 3.1.2: Prepare videos / brochures/ flyers/poster and other communication materials on project success stories, case study, progress, lessons learnt and impact stories describing the theory of change.   item 3: Local Printing firm Calculation: unit cost USD 50000 x 1 = USD 50000 Output 3.1, Activity 3.1.2: Prepare videos / brochures/ flyers/poster and other communication materials on project success stories, case study, progress, lessons learnt and impact stories describing the theory of change.   Item 2- Promotion of the project by broadcasting it in the national news Calculation: unit cost USD 25000 x 1 = USD 25000 |
| **42** | Output 3.1, Activity 3.1.1: Development of gender-responsive Communication Plan and Strategy for dissemination of project information through communication channels  Item 1-Hire Local Expert to prepare Plan and Strategy  Calculation: unit cost USD 40000 x 1 = USD 40000 |
| **43** | Output 3.1, Activity 3.1.2: Prepare videos / brochures/ flyers/poster and other communication materials on project success stories, case study, progress, lessons learnt and impact stories describing the theory of change.   item 3: Goods and materials Calculation: unit cost USD 50000 x 1 = USD 50000 Output 3.1, Activity 3.1.2: Publication of books/research/articles on Climate/Urban Resilience  Item 3: Materials and Good Calculation: unit cost USD 20000 x 1 = USD 20000 Output 3.1, Activity 3.1.4: Organise and attend international and regional conferences, seminars, trade EXPOs on climate resilient urban development   Item 4: Good and material Calculation: unit cost USD 25000 x 1 = USD 25000 Output 3.1, Activity 3.1.5: Carrying out regular knowledge, attitude and practice surveys   Item 2: Goods and Materials Calculation: unit cost USD 15000 x 1 = USD 15000 |
| **44** | Output 3.1, Activity 3.1.2: Publication of books/research/articles on Climate/Urban Resilience  item 4: Travel Calculation: unit cost USD 30000 x 1 = USD 30000 Output 3.1, Activity 3.1.3: Support to exchange programme for public and private sector from other thromdes and development of localised replication action plans   Item 1- Travelling allowances  Calculation: unit cost USD 28000 x 1 = USD 28000 Output 3.1, Activity 3.1.4: Study visit and exchange programs for staff and students, TVET Trainers and component managers  Item 1: Travel cost for visit by staff and student of CST to project site and other ideal sites Calculation: unit cost USD 25000 x 1 = USD 25000 Output 3.1, Activity 3.1.4: Organise and attend international and regional conferences, seminars, trade EXPOs on climate resilient urban development   Item 1- Travelling and Associated Fees Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **45** | Output 3.1, Activity 3.1.2: Publication on key project outputs  Item 1: Publishing of the article, books and research works in reputed journal publishers  Calculation: unit cost USD 50000 x 1 = USD 50000 Output 3.1, Activity 3.1.4: Organise and attend international and regional conferences, seminars, trade EXPOs on climate resilient urban development   Item 2- Logistics cost Calculation: unit cost USD 50000 x 1 = USD 50000 |
| **46** | Output 3.1, Activity 3.1.2: Publication of books/research/articles on Climate/Urban Resilience  Item 1: Attending and presenting the project output and articles in conferences and seminars- In Country and Ex-country  Calculation: unit cost USD 25000 x 1 = USD 25000 Output 3.1, Activity 3.1.2: Publication of books/research/articles on Climate/Urban Resilience  Item 2: Organising Urban/ Climate resilience International/national conference in country Calculation: unit cost USD 25000 x 1 = USD 25000 Output 3.1, Activity 3.1.4: Study visit and exchange programs for staff and students, TVET Trainers and component managers   Item 2: Exchange programme for CST staff and students- in country and ex country Calculation: unit cost USD 25000 x 1 = USD 25000 Output 3.1, Activity 3.1.4: Organise and attend international and regional conferences, seminars, trade EXPOs on climate resilient urban development   Item 3: Training and workshop -Ex Country Calculation: unit cost USD 50000 x 1 = USD 50000 Output 3.1, Activity 3.1.5: Carrying out regular knowledge, attitude and practice surveys   Item 1- HR for Survey  Calculation: unit cost USD 15000 x 1 = USD 15000 |
| **47** | Output 3.2, Activity 3.2.1: MTR & TE  Item: Local consultant to support MTR process. Calculation: unit cost USD 500 x 35 = USD 17500 Output 3.2, Activity 3.2.1: MTR & TE  Item: Local Consultant to support Terminal Evaluation process. Calculation: unit cost USD 500 x 44 = USD 22000 |
| **48** | Output 3.2, Activity 3.2.1: MTR & TE  Item: International Consultant to conduct independent Terminal Evaluation of GEF-financed and co-financed activities in line with UNDP/GEF requirements. Calculation: unit cost USD 1000 x 60 = USD 60000 Output 3.2, Activity 3.2.1: MTR & TE  Item: International consultant for independent Mid-term Review of GEF-financed and co-financed activities in line with UNDP/GEF requirements, and incorporate recommendations of MTR into revised project plans (management response) following PSC's approval). Calculation: unit cost USD 1000 x 50 = USD 50000 |
| **49** | Output 3.2, Activity 3.2.1: Gender safeguards  Item: Annual implementation review of Gender Action Plan Calculation: unit cost USD 2500 x 10 = USD 25000 Output 3.2, Activity 3.2.1: Project governance and monitoring  Item: Annual Planning and review workshop which includes plan preparation and monitoring of indicators in project results framework for adaptive management, annual lesson learning session among project stakeholders; Complete annual PIR and conduct mid-year review of annual work plan implementation status for adaptive management of project activities. Calculation: unit cost USD 3000 x 24 = USD 72000 Output 3.2, Activity 3.2.1: Indicator surveys  Item: Baseline Survey and assessment as necessary to update all indicators in the results framework at mid-term and end of project. Calculation: unit cost USD 10000 x 2 = USD 20000 Output 3.2, Activity 3.2.1: Technical advisory meetings  Item: Technical Advisory Committee meetings and sessions. Calculation: unit cost USD 1500 x 12 = USD 18000 Output 3.2, Activity 3.2.1: Social and environmental safeguards  Item: Annual implementation review of social and environment safeguards and GRM. Calculation: unit cost USD 2500 x 10 = USD 25000 Output 3.2, Activity 3.2.1: MTR & TE  Item: Field consultations and meetings related to MTR. Calculation: unit cost USD 2500 x 5 = USD 12500 Output 3.2, Activity 3.2.1: MTR & TE  Item: Field consultations and meetings related to Terminal Evaluation Calculation: unit cost USD 2500 x 6 = USD 15000 |
| **50** | Output NIM PMC, Activity PMC: PMC  Audiovisual equipment Calculation: unit cost USD 15000 x 1 = USD 15000 |
| **51** | Output NIM PMC, Activity PMC: PMC  Advertisements, notifications, announcements. Calculation: unit cost USD 7500 x 6 = USD 45000 |
| **52** | Output NIM PMC, Activity PMC: PMC  Stationary Calculation: unit cost USD 3000 x 6 = USD 18000 |
| **53** | Output NIM PMC, Activity PMC: PMC  IT equipment Calculation: unit cost USD 3000 x 8 = USD 24000 |
| **54** | Output NIM PMC, Activity PMC: PMC  Convene project inception workshop within first 60 days of the project to review, update and elaborate project plans and management arrangements. Calculation: unit cost USD 10000 x 1 = USD 10000 Output NIM PMC, Activity PMC: PMC  SC sessions Calculation: unit cost USD 4500 x 5 = USD 22500 |
| **55** | Output UNDP PMC, Activity PMC: Project Governance and monitoring Item: Conduct Annual NIM audit Calculation: unit cost USD 2000 x 6 = USD 12000 |
| **56** | Output UNDP PMC, Activity PMC: UNDP Project & KM support Item: Meetings, workshops, visit and communication Calculation: unit cost USD 20000 x 6 = USD 120000 |

**Legal Context**

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Royal Government of Bhutan and UNDP, signed on 14th July 1978. All references in the SBAA to “Executing Agency” shall be deemed to refer to “Implementing Partner.”

This project will be implemented by Ministry of Infrastructure and Transport (MoIT)(“Implementing Partner”) in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

**Risk Management**

1. Consistent with the Article III of the SBAA *[or the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:
2. Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being implemented;
3. Assume all risks and liabilities related to the Implementing Partner’s security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner’s obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the United Nations Security Council Consolidated Sanctions List, and that no UNDP funds received pursuant to the Project Document are used for money laundering activities. The United Nations Security Council Consolidated Sanctions List can be accessed via <https://www.un.org/securitycouncil/content/un-sc-consolidated-list> and [UNDP’s AML/CF policy](https://popp.undp.org/policy-page/anti-money-laundering-and-countering-financing-terrorism-policy)

1. The Implementing Partner acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the Implementing Partner, and each of its responsible parties, their respective sub-recipients and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.

(a) In the implementation of the activities under this Project Document, the Implementing Partner, and each of its sub-parties referred to above, shall comply with the standards of conduct set forth in the Secretary General’s Bulletin ST/SGB/2003/13 of 9 October 2003, concerning “Special measures for protection from sexual exploitation and sexual abuse” (“SEA”).

(b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, the Implementing Partner, and each of its sub-parties referred to above, shall not engage in any form of sexual harassment (“SH”). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment. SH may occur in the workplace or in connection with work. While typically involving a pattern of conduct, SH may take the form of a single incident. In assessing the reasonableness of expectations or perceptions, the perspective of the person who is the target of the conduct shall be considered.

1. a) In the performance of the activities under this Project Document, the Implementing Partner shall (with respect to its own activities), and shall require from its sub-parties referred to in paragraph 4 (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include: policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, the Implementing Partner will and will require that such sub-parties will take all appropriate measures to:
   1. Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;
   2. Offer employees and associated personnel training on prevention and response to SH and SEA, where the Implementing Partner and its sub-parties referred to in paragraph 4 have not put in place its own training regarding the prevention of SH and SEA, the Implementing Partner and its sub-parties may use the training material available at UNDP;
   3. Report and monitor allegations of SH and SEA of which the Implementing Partner and its sub-parties referred to in paragraph 4 have been informed or have otherwise become aware, and status thereof;
   4. Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and
   5. Promptly and confidentially, record and investigate any allegations credible enough to warrant an investigation of SH or SEA. The Implementing Partner shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties referred to in paragraph 4 with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the Implementing Partner shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.
2. The Implementing Partner shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the Implementing Partner, and each of its sub-parties referred to in paragraph 4, to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.
3. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-srm>).
4. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.
5. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.
6. The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds.
7. In the implementation of the activities under this Project Document, UNDP places reasonable reliance upon the Implementing Partner for it to apply its laws, regulations and processes, and applicable international laws regarding anti money laundering and countering the financing of terrorism, to ensure consistency with the principles of then in force the UNDP Anti-Money Laundering and Countering the Financing of Terrorism Policy.
8. The Implementing Partner will ensure that its financial management, anti-corruption, anti-fraud and anti-money laundering and countering the financing of terrorism policies are in place and enforced for all funding received from or through UNDP.
9. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a)UNDP Policy on Fraud and other Corrupt Practices and (b)UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.
10. In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes in accordance with UNDP’s regulations, rules, policies and procedures. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner’s (and its consultants’, responsible parties’, subcontractors’ and sub-recipients’) premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.
11. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP’s Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

1. UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud, corruption or other financial irregularity, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner’s obligations under this Project Document.

Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud, corruption or other financial irregularity, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

*Note:* The term “Project Document” as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

1. Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.
2. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.
3. The Implementing Partner shall ensure that all of its obligations set forth under this section entitled “Risk Management” are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled “Risk Management Standard Clauses” are included, mutatis mutandis, in all sub-contracts or sub-agreements entered into further to this Project Document.

**Mandatory Annexes**

***Guidance to the project developer:***

*Keep order. The following Annexes must be included within this Project Document and not as separate documents. They must be completed as part of the submission package to the GEF and included in the project document that is signed by the relevant parties:*

1. GEF Budget Template (available from BPPS NCE team)
2. GEF Execution Support Letter
3. Project Map and geospatial coordinates of the project area
4. Multiyear Workplan
5. Social and Environmental Screening Procedure (SESP), or justification of SESP exemption
6. UNDP Risk Register
7. Overview of technical consultancies/subcontracts
8. Stakeholder Engagement Plan
9. Environmental Social Management Framework (ESMF) or other SES frameworks/plans including the Project’s GRM, if required

*The following Annexes must be completed as part of the submission package to the GEF, but do not have to be included as part of the Project Document if this is more convenient (i.e. they can be annexed separately). These separate annexes must be included in the project document that is signed by the relevant parties:*

1. Gender Analysis and Gender Action Plan
2. Procurement Plan – for first year of implementation especially GEF focal area specific annexes (e.g. METT, GHG calculations, target landscape profile, feasibility study, other technical reports)
3. Additional agreements: such as cost sharing agreements, project cooperation agreements signed with NGOs (where the NGO is designated as the “executing entity”), letters of financial commitments etc..
4. Signed LOA between UNDP and IP requesting UNDP Support Services (if required on exceptional basis and authorized by the GEF)
5. GEF CEO Endorsement/Approval
6. On-Granting Provisions Applicable to the Implementing Partner
7. Terms of Reference for Project Board and Project Team

*The following Annexes can be prepared as separate documents. They must be completed as part of the submission package to the GEF and are entered line-by-line into the GEF Portal. These separate annexes do not need to be part of the project document that is signed by the relevant parties. The standard Project Board TOR can be found* [*here*](https://popp.undp.org/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_UNDP%20Terms%20of%20Reference_Project%20Boards.docx)***.***

1. GEF and/or LDCF/SCCF Core indicators (see template below)
2. GEF Taxonomy (see template below)

*The following Annexes must completed/prepared as separate documents. Most must be completed early in the PPG phase to help inform the design of the project. They must be made available to the LPAC members. They do not need to be submitted to the GEF and do not need to be part of the project document that is signed by the relevant parties.*

1. Results of the [Partners Capacity Assessment Tool (PCAT) and HACT Micro Assessment](https://popp.undp.org/SitePages/POPPSubject.aspx?SBJID=452&Menu=BusinessUnit&Beta=0) (*Please refer to the HACT policies for guidance on applicability and financial thresholds)*
2. UNDP Project Quality Assurance Report (to be completed in UNDP online corporate planning system)

**Annex 1: GEF Budget Template**

To be provided by MPSU after TBWP clearance.

– to be developed by UNDP - CO

**Annex 2: GEF execution support letter**

– to be secured by UNDP - CO

[Government Letterhead]

[Date]

To: Pradeep Kurukulasuriya,

UNDP

**Subject: Letter of Support to request GEF Agency Execution for [Title of Project/Program Proposal] [GEF ID#]**

1. In my capacity as GEF Operational Focal Point for [Country], I hereby request UNDP, the GEF implementing agency for the aforementioned project, to also carry out execution services for the above project/program, on an exceptional basis.

2. The execution services provided by UNDP are expected to include:[[38]](#footnote-39)

* [Function 1
* Function 2
* Function 3
* Etc.. ]

3. The execution services to be provided by [Country, ministry or other entity] are expected to include:[[39]](#footnote-40)

* [Function 1
* Function 2
* Function 3
* Etc.. ]

4. Execution activities, including those provided by UNDP will be described in detail in the GEF CEO Endorsement/Approval request and accompanying project/program documents, including the project/program budget.

Sincerely,

[Name of Operational Focal Point]

[Position/Title in Government]

**Annex 3: Project map and Geospatial Coordinates of project sites**

Any maps included in this project document must conform to maps accepted by the UN Geospatial Information Section (see <https://www.un.org/geospatial/mapsgeo>)

– to be developed by UNDP - CO

**Annex 4: Multi Year Work Plan**

| **Component / Outcome** |  | **Output and activities** | **Y1 Q1** | **Y1 Q2** | **Y1 Q3** | **Y1 Q4** | **Y2 Q1** | **Y2 Q2** | **Y2 Q3** | **Y2 Q4** | **Y3 Q1** | **Y3 Q2** | **Y3 Q3** | **Y3 Q4** | **Y4 Q1** | **Y4 Q2** | **Y4 Q3** | **Y4 Q4** | **Y5 Q1** | **Y5 Q2** | **Y5 Q3** | **Y5 Q4** | **Y6 Q1** | **Y6 Q2** | **Y6 Q3** | **Y6 Q4** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Component 1: Climate risk-informed, coordinated and inclusive planning and governance for resilient urban development  Outcome 1: Institutional coordination, stakeholder engagement and climate adaptation capacity strengthened for inclusive and climate-resilient urban planning and development. | 1.1 | Inter-agency mandates and functions harmonized, and institutional coordination mechanisms established and made functional to facilitate policy coherence for climate-resilient urban planning and development. | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1.1 | Developing strategy and operative framework for inter-agency coordination and policy coherence, in participatory manner. This framework will enhance policy coherence among various sectors involved in urban land use and development, as well as address existing coordination gaps. |  |  | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.2 | Climate and geospatial information systems established with trained urban planners to promote risk informed urban planning. | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.2.1 | Assessment of existing GIS systems and identification of gaps in the current management of relevant data, especially relating to downscaled climate impacts and hazard maps | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.2.2 | Enhancement and integration of multi-dimensional climate and geospatial information system and provision of other computerized tools to ensure consistent and reliable single data source supporting climate-resilient urban planning. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |
| 1.2.3 | Develop operation and management manual for the GIS system and carry out user training. This operation and management manual will establish protocols, procedures, and troubleshooting guidelines. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |
| 1.3 | Climate-resilient and gender-responsive adaptation plans prepared for Thimphu and Paro with active  citizen participation and added emphasis on climate resilient entrepreneurship. | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.3.1 | Prepare climate-resilient and gender-responsive adaptation plans for Thimphu and Paro. | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.3.2 | Develop community NbS plans |  |  | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 1.3.3 | Support activities to stimulate entrepreneurship (including Social entrepreneurship such as women, youth, vulnerable group) in nature-based solutions, specifically in the context of implementation of gender-responsive adaptation plans for Thimphu and Paro. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 1.4 | Educational and training programmes introduced in colleges and technical schools for skilling, reskilling and upskilling of planning professionals and workforce. | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.4.1 | Review of existing educational and training programs (technical training institutes, adults education, CSOs) and detailed needs assessment. | x | x | x | x | x | x | x |  |  | x | x | x |  |  | x | x | x | x | x | x |  |  |  |  |
| 1.4.2 | Designing and implementation of educational and training courses for students, including training content and modalities. |  |  | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |
| 1.4.3 | Implementation of training programs for professionals and workers. |  |  | x | x |  |  | x | x |  |  | x | x | x | x | x |  |  | x | x | x |  |  |  |  |
| 1.4.4 | Evaluation of implemented educational and training programmes and assessment of options for their institutionalisation, in view of capacity enhancement in the long-term. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.5 | Innovative financing solutions for public and private sector to invest in climate-resilient projects, technologies and services | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.5.1 | Assessment of existing public (fiscal and non-fiscal) and private mechanisms for NbS / urban-resilience projects. |  |  | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.5.2 | Support to development of robust incentives system, including public and private financing mechanisms. |  |  |  |  | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 1.5.3 | Develop the existing Payments for Ecosystem Services (PES) and PPP initiatives, specifically considering their application for the NbS / urban-resilience projects. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |
| Component 2: Build Resilience through gender-responsive climate adaptive approaches  Outcome 2: Climate risk management measures designed and implemented for water management systems and urban infrastructure | 2.1 | Climate-proofing features for the key sections of the water and stormwater management systems introduced to ensure flood risk management, safe and uninterrupted water supply and business continuity in critical urban areas. | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.1.1 | Technical assessment and intervention of the existing stormwater management system and future needs for Paro Municipality. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 2.1.2 | Implementation of Water Services Master Plan by improving the stormwater management system and introduction of NbS and EbA solutions to reduce urban flooding | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.1.3 | Improve water supply management through the establishment of SCADA (Supervisory Control and Data Acquisition) system and implementation of interventions to ensure uninterrupted safe drinking water supply | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 2.2 | Ecosystem and nature-based solutions developed and implemented to adapt to floods, heat-island effect, and landslide and to enrich water sources, natural streams and catchments for improved infiltration, restoration and recharge. | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.2.1 | Development of urban forestry/greening to reduce urban heat island effect, flooding & enhance carbon sequestration |  |  | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 2.2.2 | Ecosystem and nature-based solutions developed and implemented to adapt to floods, heat-island effect, and landslide and to enrich water sources, natural streams and catchments for improved infiltration, restoration and recharge. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 2.2.3 | Flood risk management to protect important public infrastructure and vulnerable communities using ecosystem/NbS | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 2.3 | Measures to increase climate resilience of buildings and design of urban spaces introduced. | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.3.1 | Promotion of green climate-resilient buildings through green building tools and standards. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 2.3.2 | Introduction and promotion of climate resilient construction technology in buildings and urban space. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 2.4 | Ancillary rainfall threshold-based flood EWS developed on critical tributaries and integrated with the existing hydrological centralized data-based mgt. system of NCHM. | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.4.1 | Develop forecast based flood Early Warning System (EWS) in flood-prone areas in the tributaries of the Thimchhu and Pachhu river basin. |  |  |  |  |  |  |  |  | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |
| 2.4.2 | Enhancement of hydrometeorological monitoring stations in Pachhu and Thimchhu basin. |  | x | x | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.4.3 | Development of Standard Operations and Maintenance manual of EWS, and training of staff and relevant community members. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x | x | x | x |  |  |  |
| Component 3: Knowledge management and M&E  Outcome 3: Project knowledge is managed, and project results are monitored and evaluated to foster learning, adaptive management, sustainability and replication | 3.1 | Knowledge and communication products and platforms developed to analyze and disseminate best practices and project lessons. | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.1.1 | Develop communication strategy and action plan from urban resilience project initiatives |  | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.1.2 | Produce communication, dissemination and knowledge management materials | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 3.1.3 | Support scale-up and replication of project activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.1.4 | Organisation and participation in events on urban resilience | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 3.1.5 | Knowledge, attitude and practice (KAP) surveys. |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  | x |
| 3.2 | Project progress and results are effectively tracked and managed through monitoring and evaluation | | | | | | | | | | | | | | | | | | | | | | | | |

**Annex 5: UNDP Social and Environmental Screening Procedure (SESP)**

Separate document, to be inserted here once finalised.

**Annex 6: UNDP Risk Register**

– to be finalized in collaboration with UNDP - CO

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Event/ Description** | **Cause** | **Impact(s)** | **Risk Category and Sub-category *(including Risk Appetite)*** | **Impact, Likelihood & Risk Level** | **Risk Valid From/To** | **Risk Owner**  **(*individual accountable for managing the risk*)** | **Risk Treatment / Management Measures** |
|  |  |  |  |  |  |  |  |  |
| 1 | Extreme weather events during the implementation of the project may lead to extended project duration and cost overrun. | Extreme weather, flash floods, landslides. | Disruption of construction work  Damages to works during their construction.  Injuries to personnel or potential life losses. | Social and Environmental | I-5  L- 3  Risk level: Substantial | Entire duration of the project (year 1 to year 6) | MoIT | To address the risk of project delays and cost increases from extreme weather events, the project will conduct risk assessments, early forecasting and developing contingency plans, in case of such events. The implementation team will carefully plan the timeline, with built-in buffers. |
| 2 | Slow economic recovery may reduce government and partners capacity to co-finance the project. | Decrease in GDP growth, currency devaluation or fluctuation, and other economic anomalies. | Reduced or lack of cash flow to implement activities.  Project delays or cancellation. | Financial / Regulatory | I-4  L-2  Risk level: Moderate | Entire duration of the project (year 1 to year 6) | MoF | To mitigate the risk of reduced co-financing due to slow economic recovery, the project will explore alternative funding sources such as international grants or private sector partnerships. Additionally, maintaining regular and open communication with government and partners to reassess financial capabilities and adjust funding commitments accordingly can help mitigate the impact of economic uncertainties. |
| 3 | Price escalation due to inflation may exceed budgeted costs, affecting project achievements. | Increased Inflation, currency devaluation. | Reduced or lack of cash flow to implement activities.  Project delays or cancellation. | Financial / Regulatory | I-4  L-3  Risk level: Substantial | Entire duration of the project (year 1 to year 6) | PMU/MoF | To mitigate the risk of price escalation due to inflation, the PMU will be preparing thorough cost estimations inclusive of inflation, which will be regularly updated. As another option, the PMU can negotiate fixed-price contracts with suppliers and contractors to lock in costs. Regular monitoring of market trends and adjusting budget allocations accordingly can help mitigate the impact of price fluctuations. |
| 4 | Underdeveloped private sector and weak value and supply chains may hinder adoption and success of private sector engagements. | Private sector’s low capacity, training and access to technological and financial tools. | Limited participation of the private sector, compromising the achievement of the project components. | Regulatory | I-3  L-2  Risk level: Moderate | Entire duration of the project (year 1 to year 6) | MoICE | To mitigate the risk of underdeveloped private sector and weak value and supply chains hindering the success of private sector engagements, the project will utilize Government Executive Order no. C-2/2024/6, which calls for actionable recommendations to address existing regulatory barriers. Through discussions among relevant departments and completion of consultation meetings, this process will streamline the regulatory framework, fostering a conducive environment for private sector involvement. |
| 5 | Slow buy-in and adoption of innovative solutions and technical skills by project stakeholders. | Lack of awareness, technical capacity and knowledge. | Reduced project impact.  Some of the project components end up being incomplete / or partially implemented. | Organizational / Market risk | I-2  L-3  Risk level: Low | Entire duration of the project (year 1 to year 6) | MoIT | To address the risk of slow buy-in and adoption of innovative solutions and technical skills by project stakeholders, the project will prioritize early engagement to enhance stakeholder understanding. |
| 6 | Limited capacity of local institutions may hinder  Implementation of some activities. | Lack of resources (economic, personnel) and skills in government and other national institutions. | Project’s impact is limited beyond the implementation phase.  NbS, SCADA, EWS and other systems implemented / enhanced as part of this project are not used or become non-effective after project completion. | Institutional | I-2  L-2  Risk level: Low | Entire duration of the project (year 1 to year 6) | RUB, MoESD, MoICE | Additionally, extensive promotion of the solutions and skills through various communication channels will be conducted. Moreover, capacity-building and training programmes will be organized for the project stakeholders. |
| 7 | Inadequate stakeholder participation resulting in ineffective or unsustainable project outcomes. | Politization of engagement activities.  Unequal power relations that limit civic participation. | Project activities do not reflect stakeholders’ and communities’ needs therefore the outputs do not attain effectively the intended outcomes. | Organizational | I-2  L-2  Risk level: Low | Entire duration of the project but with greater emphasis during the first two or three years of implementation | PMU | To address the risk of limited capacity of local institutions hindering implementation, the project will provide early on capacity-building programmes such as training, workshops, and seminars to enhance their skills and knowledge. Fostering close partnerships between local institutions and the PMU will further strengthen their capacity and ensure successful implementation of some activities, e.g. they will collaborate during the planning, design, implementation and evaluation of project’s physical interventions. |
| 8 | Staff turn-over/attrition in the implementing agencies may hamper project execution. | Lack of incentives (economic, training, etc) for staff to remain. | Loss of institutional knowledge.  More time spent training new staff.  Decisions may require revision. | Organizational | I-4  L-4  Risk level: Substantial | Entire duration of the project | PMU | To mitigate the risk of inadequate stakeholder participation and ensure effective project outcomes, the project will prioritize early engagement of relevant stakeholders and foster inclusive involvement throughout the project cycle. Furthermore, utilizing websites, social and paper media, along with collaborating with CSOs to reach communities and vulnerable groups, will enhance civic participation. |

**Annex 7: Overview of Technical Consultancies/Subcontracts**

| **Consultant** | **Time Input** | **Tasks, Inputs and Outputs** |
| --- | --- | --- |
| ***For Project Management*** | | |
| ***Local / National contracting*** | | |
| *Project Director (RGOB financed)* | *312 weeks/ over 6 years* | *The Director of Department of Human Settlement (DHS), Ministry of Infrastructure and Transport (MoIT), will function as the Project Director (PD). The PD will be responsible for operational direction, supervision and overall management of the project and also act as the member secretary to the Project Steering Committee (PSC).*  *Duties and Responsibilities*   * *Supervise and guide the focal officers in PMU;* * *Ensure that inputs from the RGoB, GEF, UNDP and other development partners to the project are forthcoming in a timely and effective manner, besides ensuring project complementarity and synergies;* * *Endorse annual work plans and budgets for review and approval by the Project Steering Committee (PSC);* * *Ensure the project is implemented in a coordinated manner and as per approved project design, work plans and budgets;* * *Oversee timely submission of technical and financial progress reports in accordance with the requirements specified in the Project Document;* * *Oversee the recruitment of project consultants, ensuring consultants recruited are technically competent for the tasks in question and the quality of consulting inputs is of the desired quality and in accordance with the approved ToRs;* * *Represent the project as the national focal point.* |
| *Project Coordinator*  *(RGOB financed)* |  | *The Project Coordinator, under the supervision and guidance of the PD, will be responsible to assist the Project Manager in the overall coordination of the project execution/implementation.*  *Duties and Responsibilities:*   * *Assist the Project Manager in day-to-day management of the project to coordinate and liaise with the government counterparts, responsible parties (RPs), project focal of collaborating agencies in terms of government correspondences and data sharing. Engage in the preparation of annual work plans and budgets, and review meetings;* * *Assist the project staff in the monitoring and evaluation of the project activities including GAP, SESP, SEP, data collection and preparation of progress reports;* * *Provide support for completion of assessments required by UNDP including spot checks and audits;* * *Facilitate and support the conduct of PSC and TACC meetings, consultation meetings/workshops, quarterly coordination and review meetings, and mid-term and terminal evaluations of the project.* |
| *Procurement Officer (RGOB financed)* |  | *Under the overall supervision and guidance of the Project Manager, the procurement officer will have the responsibility for bidding process and purchases.*  *Duties and responsibilities*   * *Prepare procurement plan in coordination with the Project Manager and ensure effective and acceptable methods of bidding/tendering process through the electronic government procurement (e-GP) system as per the procurement rules and regulations;* * *Coordinate and support the bidding process from the preparation of contract documents, formation of tender committees (bid opening and evaluation committees), floating of tenders, evaluation and award for goods and services including construction works;* * *Ensure effective management of goods and services, and maintain reports and records of all the procurement related activities;* * *Keep record of the all the procurement activities including assets for auditing and reporting purposes;* * *Coordinate with contractors, suppliers and implementing agencies to secure goods and services on time.* |
| *Project Accountant/ Finance officer*  *(RGOB financed)* | *312 weeks/ over 6 years* | *An accountant from the MoIT’s Division of Support Services will assume the role of the Project Accountant. Under the guidance and supervision of the Project Manager, the Project Accountant will have the following specific responsibilities:*  *Duties and Responsibilities*   * *Keep records of project funds and expenditures, and ensure all project-related financial documentation are prepared by project accountant and verified/vetted by the Finance Officer for financial prudence;* * *Review project expenditures and ensure that project funds are used in compliance with the Project Document and RGoB financial rules and procedures;* * *Validate and certify FACE (Funding Authorization and Certificate of Expenditure) forms before submission to UNDP;* * *Provide financial reports in coordination with the Project manager & Project officer, and provide necessary financial information as and when required for project management decisions;* * *Provide necessary financial information during project audit(s);* * *Review annual budgets and project expenditure reports, and notify the Project Manager if there are any discrepancies or issues;* * *Consolidate and validate financial progress reports submitted by the responsible parties for implementation of project activities;* * *Liaise and follow up with the responsible parties for implementation of project activities in matters related to project funds and financial progress reports.* |
| *Project Manager*  *(Project financed) – (Nu. 140,000 – Nu. 155,000 with increment of Nu. 3000 per year)*  *(USD 460 per week)* | *312 weeks/ over 6 years* | *The Project Manager (PM), under the overall supervision and guidance of the PD, will be responsible for the day-to-day management of the project, reporting to PD and the PSC.*  *Duties and Responsibilities*   * *Manage and coordinate the implementation of the project activities in accordance with the approved Project Document, annual work plans and budgets;* * *Coordinate, examine and verify annual work plans and budgets for onward submission to the PSC for perusal and approval;* * *Monitor project progress and oversee the preparation of technical and financial progress reports in accordance with the requirements of the Project Document and update Project Steering Committee accordingly;* * *Organize PSC meetings, Technical Advisory Consultative Committee (TACC) meetings, project review, planning and coordination meetings including the preparation and notification of agenda and circulation of documents necessary for these meetings at least two weeks in advance;* * *Ensure that the minutes of PSC meetings are produced and circulated within a week after such meetings are held;* * *Mobilization of all project inputs, supervision over project staff, consultants and sub-contractors.* * *Network with other relevant agencies and projects and establish linkages for learning and sharing experiences and developing synergies;* * *Keep track of and report on co-finance commitments and progress and present/report during the PSC, Project Implementation Reports (PIRs), review meetings and evaluations* * *Facilitate mid-term and terminal evaluations of the project;* * *Liaise with UNDP on project management matters, and commission regular joint monitoring;* * *Conduct monitoring of project sites to appraise project implementation and related issues in interaction with local project stakeholders.* * *Provide support for completion of assessments required by UNDP, spot checks and audits.* * *Manage requests for the provision of UNDP financial resources through funding advances, direct payments or reimbursement using the FACE form.* * *Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports.* * *Monitor progress, watch for plan deviations and make course corrections when needed within PSC/agreed tolerances to achieve results.* * *Ensure that changes are controlled and problems addressed.* * *Prepare and submit financial reports to UNDP on a quarterly basis.* * *Manage and monitor the project risks – including social and environmental risks - initially identified and submit new risks to the PSC for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log;* * *Capture lessons learned and best practices during project implementation* * *Prepare revisions to the multi-year workplan, as needed, as well as annual and quarterly plans if required.* * *Prepare the inception report no later than one month after the inception workshop.* * *Ensure that the indicators included in the project results framework are monitored and updated annually in advance of the GEF PIR submission deadline so that progress can be reported in the GEF PIR, and lead the preparation of the GEF PIR;* * *Assess major and minor amendments to the project within the parameters set by UNDP-GEF and accordingly update the PSC;* * *Monitor implementation plans including the gender action plan, stakeholder engagement plan, and any environmental and social management plans.* * *Monitor and track progress against the GEF Core indicators.* |
| *Project Technical Specialist*  *(Nu. 130,000 – Nu. 145,000 with increment of Nu. 3000 per year)*  *(USD 430 per week)* | *312 weeks/ over 6 years* | *Under the guidance and supervision of the Project Manager, the Project Technical specialist will carry out the following tasks:*  *Duties and Responsibilities*   * *Provide overall technical backstopping and management support to the Project Manager;* * *Oversee, review and guide designs, drawings, estimates and specifications for project activities and nature based solutions;* * *Provide technical support and inputs in the overall implementation of the project activities including the preparation of annual work and budget plans (AWBP), annual PIRs, quarterly progress reports and field monitoring reports;* * *Provide technical support and inputs in the preparation of preparation tender documents, evaluation for contract packages;* * *Draft ToRs for consultancy assignments;* * *Ensure quality assurances in the implementation of project activities approved in the AWP;* * *Bolster coordination among relevant technical agencies and stakeholders for the implementation of activities requiring systematic knowledge, and engineering services;* * *Support Mid Term and Terminal Evaluation exercises together with the M&E and Communication Officer;* * *Support the Gender and Safeguards experts to manage, monitor and report on environmental and gender risks;* * *Capture lessons learnt during project implementation and support the Communication Expert in preparing and knowledge products and sharing;* * *Provide management and administrative support to the Project Manager;* * *Keep track of and maintain a record of progress on co-financing expenditure in consultation with the co-financing entities;* * *Provide support in preparing annual work plans and budget in consultation with Responsible Parties and other implementing units.* |
| *Monitoring and Evaluation Officer*  *(Nu. 120,000 – Nu. 135,000 with increment of Nu. 3000 per year)*  *(USD 400 per week)* | *312 weeks/ over 6 years* | *Under the overall supervision and guidance of the Project Manager, the M&E Officer will have the responsibility for monitoring and evaluation of project activities.*  *Duties and Responsibilities*   * *Develop annual M&E plan for the project and project-specific M&E tools as necessary;* * *Monitor project progress, maintain progress data and information, participate and provide inputs in the production of progress reports ensuring that they meet the necessary Government, the UNDP Country Office and UNDP-GEF reporting requirements and standards including gender action plan (GAP), Social and Environment Safeguards, Stakeholder engagement plans (SEP);* * *Align the project’s M&E requirements with those of RGoB, and ensure that both RGoB and UNDP M&E requirements are effectively coordinated and addressed;* * *Oversee and ensure the implementation of the project’s M&E plan, including periodic appraisal of the Project’s Theory of Change and Results Framework with reference to actual and potential project progress and results;* * *Oversee/develop/coordinate the implementation of the stakeholder engagement plan;* * *Oversee and guide the design of surveys/ assessments commissioned for monitoring and evaluating project results;* * *Coordinate with consultants and closely observe the impact assessment works to ensure quality of findings.* * *Oversee and guide the design of surveys/ assessments commissioned for monitoring and evaluating project results;* * *Facilitate annual reviews of the project and produce analytical reports from these annual reviews, including learning and other knowledge management products;* * *Facilitate mid-term review and terminal evaluations of the project including management responses;* * *Liaise with stakeholders through project focal points, UNDP CO and responsible parties (RPs) for implementation of project activities in matters related to M&E and knowledge resources management;* * *Visit project sites to appraise project progress on the ground and validate written progress reports;* * *Support project site M&E and learning missions.* |
| *Knowledge Management and Communications Officer*  *(Nu. 120,000 – Nu. 135,000 with increment of Nu. 3000 per year)*  *(USD 400 per week)* | *312 weeks/ over 6 years* | *Under the overall supervision and guidance of the Project Manager, the KM & Communications Officer will have the responsibility for communications and maintenance and evolution of repositories of knowledge of the project activities.*  *Duties and Responsibilities*   * *Develop a project communications strategy and update it annually in consultation with project stakeholders and RPs and coordinate its implementation;* * *Facilitate knowledge generation by supporting the documentation of emerging good and best practices and lessons learnt;* * *Coordinate the implementation of knowledge management outputs in Component 3 of the project; and Maintenance and evolution of repositories of knowledge;* * *Coordinate and oversee the implementation of public awareness activities across all project components;* * *Facilitate learning and sharing of knowledge and experiences relevant to the project through organisation of events, workshops, seminars and conferences;* * *Support exchange programe for public and private sector from other thromdes and development of localised replication action plans;* * *Develop communication, dissemination and knowledge management materials (videos / brochures/ flyers/poster, publications), together with assigned project partners, to disseminate project activities and highlight project achievements to technical, but also wider audience;* * *Develop media and narrative content for the overall product;* * *Update the project websites and social media pages for wider communication and dissemination of the project events and activities;* * *Liaise with broadcast and print media to disseminate project events, success stories and activities of interest.* |
| ***For Technical Assistance*** | | |
| ***Outcome 3*** | | |
| ***Local / National contracting*** | | |
| *Local consultant – Knowledge, Attitude and Practice (KAP) Survey*  *Rate: $2250/week* | *15 weeks (35 days each in year 1, year 3 and year 6)* | *Duties and Responsibilities*   * *Design and conduct KAP surveys in the first year (baseline), 3rd year (mid-term) and 6th year (before terminal evaluation);* * *assess knowledge and views/perceptions of Thimphu and Paro urban communities and stakeholders regarding the causes of climate change and its impact on their settlement; and what changes they perceive from/through the project;* * *Assess if there have been changes in the capacity for climate change adaptation at the individual, community and organisational levels;* * *Capture the results and impacts of the project as measured by the results framework.* |
| *Local consultant – Gender expert*  *Rate: $2250/week* | *30 weeks over 5 years (year 1, 2, 3, 4, 5) (30 days in a year)* | *Duties and Responsibilities*   * *Monitor progress in implementation of the project Gender Action Plan ensuring that targets are fully met and the reporting requirements are fulfilled;* * *Oversee/develop/coordinate implementation of all gender-related work;* * *Review the Gender Action Plan annually, and update and revise corresponding management plans as necessary;* * *Work with the M&E officer and Safeguards Officer to ensure reporting, monitoring and evaluation fully address the gender issues of the project;* * *Train key staff of PMU, MoIT, Thimphu Thromde, Thimphu and Paro Dzongkhags, Responsible parties, CSOs, and private sector and other stakeholders on gender equality and integration of gender into project implementation plans including protocols to enable equal participation (especially women and youth) in Urban planning, design and development, and to collect gender-specific information. This will be done at the beginning of the project period.* * *Review implementation review of Gender Action Plan during the Mid Term review and terminal evaluation of the project and provide recommendations.* |
| *Local consultant –Social and Environmental Safeguards Expert*  *Rate: $2250/week* | *30 weeks over 5 years (year 1, 2, 3, 4, 5) 30 days in a year)* | *Duties and Responsibilities*   * *Monitor progress in development/implementation of the project SESP and SEP ensuring that UNDPs SES policy is fully met and the reporting requirements are fulfilled;* * *Oversee/develop/coordinate implementation of all safeguard related plans;* * *Ensure social and environmental grievances are managed effectively and transparently;* * *Review the SESP/ESMP and Stakeholder Engagement Plan (SEP) annually, and update and revise the corresponding risk log; mitigation/management plans as necessary;* * *Prepare site or activity specific ESIA based on identified sites or activities and establish baseline data;* * *Recommend mitigation measures summarised into a separate Environmental and Social Management Plan. The ESMP will include a set of avoidance, mitigation, monitoring, and institutional measures – as well as actions needed to implement these measures – to achieve the desired social and environmental sustainability outcomes. Complementing what has already been identified in the ProDoc, the ESMP will further identify project activities that cannot take place until the relevant mitigation measures are approved and put in place. The measures will be adopted and integrated into the project activities, monitoring and reporting framework and budget, and captured in a revised SESP for each project.* * *Ensure full disclosure with concerned stakeholders;* * *Ensure environmental and social risks are identified, avoided, mitigated and managed throughout project implementation;* * *Work with the Project Officer and M&E officer to ensure reporting, monitoring and evaluation fully address the safeguard issues of the project* |
| *Local consultant – Mid-term Review (MTR)*  *Rate: $2500/week (including travels)* | *6 weeks over 3 months in year 3* | *Duties and Responsibilities*   * *Support the Team Leader in reviewing Project Concept Note, Project Document, SESP, SEP, GAP, Project Inception Report, PIRs, Project Steering Commute meeting minutes, KAP survey report;* * *Participate in MTR inception workshop;* * *Assist the Team Leader in finalising the methodology of the MTR;* * *Conduct site visits in project areas and conduct local interviews in the field and hold meetings with project stakeholders, executing agencies, academia, local government and CSOs, etc;* * *Review of GEF-financed and co-financed activities in line with UNDP/GEF requirements, and incorporate recommendations of MTR into revised project plans (management response) following PSC's approval;* * *Assist in finalising and in producing the MTR report* |
| *Local consultant – Terminal Evaluation (TE)*  *Rate: $2500/week (including travels)* | *6 weeks over 3 months in year 6* | *Duties and Responsibilities*   * *Support the Team Leader in review of Project Concept Note, Project Document, SESP, SEP, GAP, Project Inception Report, PIRs, Project Steering Commute meeting minutes, KAP survey reports and MTR report* * *Participate in TE inception workshop;* * *Assist the Team Leader in finalising the methodology of the TE with support from the local consultant for TE* * *Conduct site visits in project areas and conduct local interviews in the field and hold meetings with project stakeholders, executing agencies, academia, local government and CSOs, etc.* * *Review of GEF-financed and co-financed activities in line with UNDP/GEF requirements* * *Assist in finalising and in producing the TE report.* |
| ***International / Regional and global contracting*** | | |
| *International consultant for MTR*  *Rate: $7000/week (including travels)* | *6 weeks / over 3 months in year 3* | *Duties and Responsibilities*   * *Review Project Concept Note, Project Document, SESP, SEP, GAP, Project Inception Report, PIRs, Project Steering Commute meeting minutes, KAP survey reports;* * *Participate in MTR inception workshop;* * *Finalise the methodology of the MTR with support from the local consultant for MTR;* * *Conduct site visits in project areas and conduct local interviews in the field and hold meetings with project stakeholders, executing agencies, academia, local government and CSOs, etc.;* * *Review of GEF-financed and co-financed activities in line with UNDP/GEF requirements, and incorporate recommendations of MTR into revised project plans (management response) following PSC's approval;* * *Finalise and in produce he MTR report.* |
| *International consultant for TE*  *Rate: $7000/week (including travels)* | *6 weeks / over 3 months in year 5* | *Duties and Responsibilities*   * *Review Project Concept Note, Project Document, SESP, SEP, GAP, Project Inception Report, PIRs, Project Steering Commute meeting minutes, KAP survey reports and MTR report;* * *Participate in TE inception workshop;* * *Finalise the methodology of the TE with support from the local consultant for TE;* * *Conduct site visits in project areas and conduct local interviews in the field and hold meetings with project stakeholders, executing agencies, academia, local government and CSOs, etc.;* * *Review of GEF-financed and co-financed activities in line with UNDP/GEF requirements;* * *Finalise and in produce he TE report.* |
| *International consultant, Safeguards Expert*  *Rate: $7000/week* | *10 weeks over 5 years (year 1, 2, 3, 4, 5)* | *Duties and Responsibilities*   * *Monitor and support to ensure that project activities are carried out in line with the GEF and UNDP safeguards including the ESMPs, SESP, SEP and GRM for the project during implementation of the project activities;* * *Conduct and facilitate outreach programs to train affected persons on the social benefits of the project;* * *Oversee community engagement in the project and collect data of any social and environmental impacts;* * *Draft reports on environment and social safeguards assessment in line with project reporting requirements;* * *Oversee/develop/coordinate revision of and implementation of all safeguard related plans;* * *Ensure social and environmental grievances are managed effectively and transparently;* * *Review the ESMP/SESP annually, and update and revise corresponding risk log; mitigation/management plans as necessary;* * *Prepare site or activity specific ESIA based on identified sites or activities and establish baseline data;* * *Recommend mitigation measures summarised into a separate ESMPs. The ESMP will include a set of avoidance, mitigation, monitoring, and institutional measures – as well as actions needed to implement these measures – to achieve the desired social and environmental sustainability outcomes. Complementing what has already been identified in the ProDoc, the ESMP will further identify project activities that cannot take place until the relevant mitigation measures are approved and put in place;* * *Ensure full disclosure with concerned key stakeholders;* * *Ensure environmental and social risks are identified, avoided, mitigated and managed throughout project implementation;* |

**Annex 8: Stakeholder Engagement Plan**

Separate document, to be inserted here once finalised.

**Annex 9: Environmental Social Management Framework (ESMF) and other SES frameworks/plans, if required**

*Not required*

**Annex 10: Indigenous People Planning Framework (IPPF)**

To be confirmed whether required or not.

**Annex 11: Grievance Redress Mechanism (GRM)**

Separate document, to be inserted here once finalised.

**Annex 12: Gender Analysis and Gender Action Plan**

Separate document.

**Annex 13: Procurement Plan**

– to be developed by UNDP - CO

**Annex 12: Additional agreements**: such as cost sharing agreements, project cooperation agreements signed with NGOs (where the NGO is designated as the “executing entity”), letters of financial commitments etc..

– to be developed by UNDP - CO

**Annex 13: Signed LOA between UNDP and IP requesting UNDP Support Services** (if required on exceptional basis and authorized by the GEF)

– to be developed by UNDP - CO

**Annex 14: GEF CEO Endorsement/Approval**

– to be developed by E Co. & UNDP – CO once other documents have been finalised

**Annex 15: On-Granting Provisions Applicable to the Implementing Partner**

On-granting clauses for non-UNDP Implementing Partners can be found [here](https://popp.undp.org/_Layouts/15/POPPOpenDoc.aspx?ID=POPP-11-3253).This applies in cases where on-granting is built into the design and to the extent that it complies with the [UNDP Policy on Low Value Grants (LVGs).](https://popp.undp.org/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Design_Grants%20Operational%20Guidance.docx)

– to be developed by UNDP - CO

**Annex 16: Terms of Reference for Project Board and Project Team**

The standard Project Board TOR can be found [here](https://popp.undp.org/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_UNDP%20Terms%20of%20Reference_Project%20Boards.docx)**.**

– to be developed by UNDP - CO

**Annex 17: GEF Core indicators**

– Excel tracking tool to be used once other documents have been finalized.

**Core indicators for the LDCF and SCCF (2022-2026)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Core Indicator** | **Total** | **Male** | **Female** | **% of for Women** |
| 1 | Number of direct beneficiaries | 146,298 | 75,211 | 71,087 | 45.59 |
| 2 | (a) Area of land managed for climate resilience (ha) | 600 |  |  |  |
|  | (b) Coastal or marine area managed for climate resilience (ha) | 0 |  |  |  |
| 3 | Total number of policies, plans, and frameworks that will mainstream climate resilience | 3 |  |  |  |
| 4 | Number of people trained or with awareness raised | 200 | 100 | 100 | 50 |
| 5 | Number of private sector enterprises engaged in climate change adaptation and resilience action | 2 |  |  |  |

**Core and Sub-Indicators for the LDCF and SCCF (2022-2026)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Core Indicators**  **(used at PIF, CER, MTR, TE stages)** | **Sub-Indicators**  **(to be used as relevant for each project at CER, MTR, TE stages)** | **Total** | **Male** | **Female** |
| 1. Number of direct beneficiaries (sex disaggregated) | 1.1 Number of direct beneficiaries from more resilient physical and natural assets (sex disaggregated) | 146,298 | 75,211 | 71,087 |
| 1.2 Number of direct beneficiaries with diversified and strengthened livelihoods and sources of income (sex disaggregated) | 146,298 | 75,211 | 71,087 |
| 1.3 Number of direct beneficiaries from the new or improved climate information services including early warning systems (sex disaggregated) | 146,298 | 75,211 | 71,087 |
| 1.4 Number of youth (15 to 24 years of age) benefiting from the project (sex disaggregated) |  |  |  |
| 1.5 Number of elderly (over 60 years of age) benefiting from the project (sex disaggregated) |  |  |  |
| 1.6 Increased income, or avoided decrease in income (per capita in $ across all relevant beneficiaries) |  |  |  |
| 2. (a) Area of land managed for climate resilience (hectares)  (b) Coastal and marine area managed for climate resilience (hectares) | 2.1 Hectares of agricultural land |  |  |  |
| 2.2 Hectares of urban landscape | 600 |  |  |
| 2.3 Hectares of rural landscape |  |  |  |
| 2.4 Hectares of forests | 130 |  |  |
| 2.5 Hectares of marine area |  |  |  |
| 2.6 Hectares of freshwater area |  |  |  |
| 2.7 Number of residential houses |  |  |  |
| 2.8 Number of public buildings |  |  |  |
| 2.9 Number of irrigation or water structures |  |  |  |
| 2.10 Number of fishery or aquaculture ponds or cages |  |  |  |
| 2.11 Number of ports or landing sites |  |  |  |
| 2.12 Km of road |  |  |  |
| 2.13 Km of riverbank | 69.8 |  |  |
| 2.14 Km of coast |  |  |  |
| 2.15 Km of stormwater drainage | 3.4 |  |  |
| 2.16 Number of new adaptation technologies supported |  |  |  |
| 3. Number of policies/plans/ frameworks/institutions for to strengthen climate adaptation | 3.1 Number of policies/plans developed and strengthened that will mainstream climate resilience (regional, national, sub-national) | 3 |  |  |
| 3.2 Number of systems and frameworks established for continuous monitoring, reporting and review of climate adaptation impacts |  |  |  |
| 3.3 Number of national climate policies and plans enabled, including national adaptation planning processes |  |  |  |
| 3.4 Number of institutional partnerships or coordination mechanisms established or strengthened |  |  |  |
| 3.5 Number of institutions with increased capacity to plan, implement, monitor, and report for climate adaptation |  |  |  |
| 3.6 Number of institutions with increased capacity to attract, and manage climate adaptation finance |  |  |  |
| 3.7 Number of local community organizations benefitting from and/or engaged in institution strengthening, partnerships, or financing |  |  |  |
| 3.8. Number of climate risk and vulnerability assessments conducted |  |  |  |
| 4. Number of people trained or with awareness raised (sex disaggregated) | 4.1 Number of people trained or made aware of climate change impacts and appropriate adaptation responses (sex disaggregated) at:  • National government (sex disaggregated)  • Local government (sex disaggregated)  • Local community organizations (sex disaggregated)  • Extension services (sex disaggregated)  • Hydromet and disaster risk management agencies (sex disaggregated)  • School children, university students, and teachers (sex disaggregated)  • Youth (15 to 24 years of age) | 200 | 100 | 100 |
| 5. Number of private sector enterprises engaged in climate change adaptation and resilience action | 5.1 Amount of investment mobilized (US$) from private sector sources |  |  |  |
| 5.2 Number of entrepreneurs supported for climate adaptation and resilience (sex disaggregated) | 2 |  |  |
| 5.3 Total financial value of lines of credit and/or investment funds |  |  |  |
| 5.4 Number of MSMEs incubated/accelerated with technical assistance, financial matchmaking, and/or direct financing |  |  |  |

**Meta-Information for the LDCF and SCCF (2022-2026)**

|  |  |  |
| --- | --- | --- |
| LDCF  LDCF Challenge Window  SCCF-A (Window A) on climate change adaptation  SCCF-B (Window B) on technology transfer  SCCF Challenge Window | | |
| This project involves at least one Small Island Developing State (SIDS) | | |
| This project involves at least one fragile and conflict affected state\* | | |
| This project will provide direct adaptation benefits to the private sector | | |
| This project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs) | | |
| This project will collaborate with activities being supported by other adaptation funds. If yes, please select below:  Green Climate Fund  Adaptation Fund  Pilot Program for Climate Resilience (PPCR) | | |
| This project has an urban focus | | |
| This project will directly engage local communities in project design and implementation | | |
| This project will support South-South knowledge exchange | | |
| This project covers the following sector(s) (the total should be 100%): | |  |
| Agriculture | **0** | **%** |
| Nature-based solutions | **20** | **%** |
| Climate information services | **20** | **%** |
| Coastal zone management | **0** | **%** |
| Water resources management | **20** | **%** |
| Disaster risk management | **30** | **%** |
| Other infrastructure | **0** | **%** |
| Tourism | **0** | **%** |
| Health | **0** | **%** |
| Other (please specify: ) | **10** | **%** |
| Total | **100** | **%** |
| This project targets the following climate change exacerbated/introduced challenges:  Sea level rise  Change in mean temperature  Increased climatic variability  Natural hazards  Land degradation  Coastal and/or coral reef degradation  Groundwater quality/quantity | | |

**Annex 18: GEF Taxonomy**

|  |  |  |  |
| --- | --- | --- | --- |
| **Level 1** | **Level 2** | **Level 3** | **Level 4** |
| **Influencing models** |  |  |  |
|  | **Transform policy and regulatory environments** |  |  |
|  | **Strengthen institutional capacity and decision-making** |  |  |
|  | **Convene multi-stakeholder alliances** |  |  |
|  | **Demonstrate innovative approaches** |  |  |
|  | **Deploy innovative financial instruments** |  |  |
| **Stakeholders** |  |  |  |
|  | **Indigenous Peoples** |  |  |
|  | **Private Sector** |  |  |
|  |  | Capital providers |  |
|  |  | Financial intermediaries and market facilitators |  |
|  |  | Large corporations |  |
|  |  | SMEs |  |
|  |  | Individuals/Entrepreneurs |  |
|  |  | Non-Grant Pilot |  |
|  |  | Project Reflow |  |
|  | **Beneficiaries** |  |  |
|  | **Local Communities** |  |  |
|  | **Civil Society** |  |  |
|  |  | Community Based Organization |  |
|  |  | Non-Governmental Organization |  |
|  |  | Academia |  |
|  |  | Trade Unions and Workers Unions |  |
|  | **Type of Engagement** |  |  |
|  |  | Information Dissemination |  |
|  |  | Partnership |  |
|  |  | Consultation |  |
|  |  | Participation |  |
|  | **Communications** |  |  |
|  |  | Awareness Raising |  |
|  |  | Education |  |
|  |  | Public Campaigns |  |
|  |  | Behavior Change |  |
| **Capacity, Knowledge and Research** |  |  |  |
|  | **Enabling Activities** |  |  |
|  | **Capacity Development** |  |  |
|  | **Knowledge Generation and Exchange** |  |  |
|  | **Targeted Research** |  |  |
|  | **Learning** |  |  |
|  |  | Theory of Change |  |
|  |  | Adaptive Management |  |
|  |  | Indicators to Measure Change |  |
|  | **Innovation** |  |  |
|  | **Knowledge and Learning** |  |  |
|  |  | Knowledge Management |  |
|  |  | Innovation |  |
|  |  | Capacity Development |  |
|  |  | Learning |  |
|  | **Stakeholder Engagement Plan** |  |  |
| **Gender Equality** |  |  |  |
|  | **Gender Mainstreaming** |  |  |
|  |  | Beneficiaries |  |
|  |  | Women groups |  |
|  |  | Sex-disaggregated indicators |  |
|  |  | Gender-sensitive indicators |  |
|  | **Gender results areas** |  |  |
|  |  | Access and control over natural resources |  |
|  |  | Participation and leadership |  |
|  |  | Access to benefits and services |  |
|  |  | Capacity development |  |
|  |  | Awareness raising |  |
|  |  | Knowledge generation |  |
| **Focal Areas/Theme** |  |  |  |
|  | **Integrated Programs** |  |  |
|  |  | Commodity Supply Chains (Good Growth Partnership) |  |
|  |  |  | Sustainable Commodities Production |
|  |  |  | Deforestation-free Sourcing |
|  |  |  | Financial Screening Tools |
|  |  |  | High Conservation Value Forests |
|  |  |  | High Carbon Stocks Forests |
|  |  |  | Soybean Supply Chain |
|  |  |  | Oil Palm Supply Chain |
|  |  |  | Beef Supply Chain |
|  |  |  | Smallholder Farmers |
|  |  |  | Adaptive Management |
|  |  | Food Security in Sub-Sahara Africa |  |
|  |  |  | Resilience (climate and shocks) |
|  |  |  | Sustainable Production Systems |
|  |  |  | Agroecosystems |
|  |  |  | Land and Soil Health |
|  |  |  | Diversified Farming |
|  |  |  | Integrated Land and Water Management |
|  |  |  | Smallholder Farming |
|  |  |  | Small and Medium Enterprises |
|  |  |  | Crop Genetic Diversity |
|  |  |  | Food Value Chains |
|  |  |  | Gender Dimensions |
|  |  |  | Multi-stakeholder Platforms |
|  |  | Food Systems, Land Use and Restoration |  |
|  |  |  | Sustainable Food Systems |
|  |  |  | Landscape Restoration |
|  |  |  | Sustainable Commodity Production |
|  |  |  | Comprehensive Land Use Planning |
|  |  |  | Integrated Landscapes |
|  |  |  | Food Value Chains |
|  |  |  | Deforestation-free Sourcing |
|  |  |  | Smallholder Farmers |
|  |  | Sustainable Cities |  |
|  |  |  | Integrated urban planning |
|  |  |  | Urban sustainability framework |
|  |  |  | Transport and Mobility |
|  |  |  | Buildings |
|  |  |  | Municipal waste management |
|  |  |  | Green space |
|  |  |  | Urban Biodiversity |
|  |  |  | Urban Food Systems |
|  |  |  | Energy efficiency |
|  |  |  | Municipal Financing |
|  |  |  | Global Platform for Sustainable Cities |
|  |  |  | Urban Resilience |
|  | **Biodiversity** |  |  |
|  |  | Protected Areas and Landscapes |  |
|  |  |  | Terrestrial Protected Areas |
|  |  |  | Coastal and Marine Protected Areas |
|  |  |  | Productive Landscapes |
|  |  |  | Productive Seascapes |
|  |  |  | Community Based Natural Resource Management |
|  |  | Mainstreaming |  |
|  |  |  | Extractive Industries (oil, gas, mining) |
|  |  |  | Forestry (Including HCVF and REDD+) |
|  |  |  | Tourism |
|  |  |  | Agriculture & agrobiodiversity |
|  |  |  | Fisheries |
|  |  |  | Infrastructure |
|  |  |  | Certification (National Standards) |
|  |  |  | Certification (International Standards) |
|  |  | Species |  |
|  |  |  | Illegal Wildlife Trade |
|  |  |  | Threatened Species |
|  |  |  | Wildlife for Sustainable Development |
|  |  |  | Crop Wild Relatives |
|  |  |  | Plant Genetic Resources |
|  |  |  | Animal Genetic Resources |
|  |  |  | Livestock Wild Relatives |
|  |  |  | Invasive Alien Species (IAS) |
|  |  | Biomes |  |
|  |  |  | Mangroves |
|  |  |  | Coral Reefs |
|  |  |  | Sea Grasses |
|  |  |  | Wetlands |
|  |  |  | Rivers |
|  |  |  | Lakes |
|  |  |  | Tropical Rain Forests |
|  |  |  | Tropical Dry Forests |
|  |  |  | Temperate Forests |
|  |  |  | Grasslands |
|  |  |  | Paramo |
|  |  |  | Desert |
|  |  | Financial and Accounting |  |
|  |  |  | Payment for Ecosystem Services |
|  |  |  | Natural Capital Assessment and Accounting |
|  |  |  | Conservation Trust Funds |
|  |  |  | Conservation Finance |
|  |  | Supplementary Protocol to the CBD |  |
|  |  |  | Biosafety |
|  |  |  | Access to Genetic Resources Benefit Sharing |
|  | **Forests** |  |  |
|  |  | Forest and Landscape Restoration |  |
|  |  |  | REDD/REDD+ |
|  |  | Forest |  |
|  |  |  | Amazon |
|  |  |  | Congo |
|  |  |  | Drylands |
|  | **Land Degradation** |  |  |
|  |  | Sustainable Land Management |  |
|  |  |  | Restoration and Rehabilitation of Degraded Lands |
|  |  |  | Ecosystem Approach |
|  |  |  | Integrated and Cross-sectoral approach |
|  |  |  | Community-Based NRM |
|  |  |  | Sustainable Livelihoods |
|  |  |  | Income Generating Activities |
|  |  |  | Sustainable Agriculture |
|  |  |  | Sustainable Pasture Management |
|  |  |  | Sustainable Forest/Woodland Management |
|  |  |  | Improved Soil and Water Management Techniques |
|  |  |  | Sustainable Fire Management |
|  |  |  | Drought Mitigation/Early Warning |
|  |  | Land Degradation Neutrality |  |
|  |  |  | Land Productivity |
|  |  |  | Land Cover and Land cover change |
|  |  |  | Carbon stocks above or below ground |
|  |  | Food Security |  |
|  | **International Waters** |  |  |
|  |  | Ship |  |
|  |  | Coastal |  |
|  |  | Freshwater |  |
|  |  |  | Aquifer |
|  |  |  | River Basin |
|  |  |  | Lake Basin |
|  |  | Learning |  |
|  |  | Fisheries |  |
|  |  | Persistent toxic substances |  |
|  |  | SIDS : Small Island Dev States |  |
|  |  | Targeted Research |  |
|  |  | Pollution |  |
|  |  |  | Persistent toxic substances |
|  |  |  | Plastics |
|  |  |  | Nutrient pollution from all sectors except wastewater |
|  |  |  | Nutrient pollution from Wastewater |
|  |  | Transboundary Diagnostic Analysis and Strategic Action Plan preparation |  |
|  |  | Strategic Action Plan Implementation |  |
|  |  | Areas Beyond National Jurisdiction |  |
|  |  | Large Marine Ecosystems |  |
|  |  | Private Sector |  |
|  |  | Aquaculture |  |
|  |  | Marine Protected Area |  |
|  |  | Biomes |  |
|  |  |  | Mangrove |
|  |  |  | Coral Reefs |
|  |  |  | Seagrasses |
|  |  |  | Polar Ecosystems |
|  |  |  | Constructed Wetlands |
|  | **Chemicals and Waste** |  |  |
|  |  | Mercury |  |
|  |  | Artisanal and Scale Gold Mining |  |
|  |  | Coal Fired Power Plants |  |
|  |  | Coal Fired Industrial Boilers |  |
|  |  | Cement |  |
|  |  | Non-Ferrous Metals Production |  |
|  |  | Ozone |  |
|  |  | Persistent Organic Pollutants |  |
|  |  | Unintentional Persistent Organic Pollutants |  |
|  |  | Sound Management of chemicals and Waste |  |
|  |  | Waste Management |  |
|  |  |  | Hazardous Waste Management |
|  |  |  | Industrial Waste |
|  |  |  | e-Waste |
|  |  | Emissions |  |
|  |  | Disposal |  |
|  |  | New Persistent Organic Pollutants |  |
|  |  | Polychlorinated Biphenyls |  |
|  |  | Plastics |  |
|  |  | Eco-Efficiency |  |
|  |  | Pesticides |  |
|  |  | DDT - Vector Management |  |
|  |  | DDT – Other |  |
|  |  | Industrial Emissions |  |
|  |  | Open Burning |  |
|  |  | Best Available Technology / Best Environmental Practices |  |
|  |  | Green Chemistry |  |
|  | **Climate Change** |  |  |
|  |  | **Climate Change Adaptation** |  |
|  |  |  | Climate Finance |
|  |  |  | Least Developed Countries |
|  |  |  | Small Island Developing States |
|  |  |  | Disaster Risk Management |
|  |  |  | Sea-level rise |
|  |  |  | Climate Resilience |
|  |  |  | Climate information |
|  |  |  | Ecosystem-based Adaptation |
|  |  |  | Adaptation Tech Transfer |
|  |  |  | National Adaptation Programme of Action |
|  |  |  | National Adaptation Plan |
|  |  |  | Mainstreaming Adaptation |
|  |  |  | Private Sector |
|  |  |  | Innovation |
|  |  |  | Complementarity |
|  |  |  | Community-based Adaptation |
|  |  |  | Livelihoods |
|  |  | **Climate Change Mitigation** |  |
|  |  |  | Agriculture, Forestry, and other Land Use |
|  |  |  | Energy Efficiency |
|  |  |  | Sustainable Urban Systems and Transport |
|  |  |  | Technology Transfer |
|  |  |  | Renewable Energy |
|  |  |  | Financing |
|  |  |  | Enabling Activities |
|  |  | **Technology Transfer** |  |
|  |  |  | Poznan Strategic Programme on Technology Transfer |
|  |  |  | Climate Technology Centre & Network (CTCN) |
|  |  |  | Endogenous technology |
|  |  |  | Technology Needs Assessment |
|  |  |  | Adaptation Tech Transfer |
|  |  | **United Nations Framework on Climate Change** | Nationally Determined Contribution |
|  |  |  |  |
|  | **Rio Markers** |  |  |
|  |  | Paris Agreement |  |
|  |  | Sustainable Development Goals |  |
|  |  | Climate Change Mitigation 0 |  |
|  |  | Climate Change Mitigation 1 |  |
|  |  | Climate Change Mitigation 2 |  |
|  |  | Climate Change Adaptation 0 |  |
|  |  | Climate Change Adaptation 1 |  |
|  |  | Climate Change Adaptation 2 |  |
|  |  |  |  |

**Annex 19: Results of the Partners Capacity Assessment Tool (PACT) and HACT Micro Assessment**

– to be developed by UNDP - CO

**Annex 20: UNDP Project Quality Assurance Report (to be completed in UNDP online corporate planning system)**

– to be developed by UNDP - CO

1. This is not a mandatory requirement. [↑](#footnote-ref-2)
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14. Meenawat, H., & Sovacool, B. K. (2011). Improving adaptive capacity and resilience in Bhutan. *Mitigation and adaptation strategies for global change*, *16*, 515-533. [↑](#footnote-ref-15)
15. World Bank Group. (2021). Bhutan Country Profile. Retrieved from <https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15874-WB_Bhutan%20Country%20Profile-WEB.pdf> and BHUTAN COUNTRY ENVIRONMENTAL ANALYSIS: Taking the Green Growth Agenda Forward, World Bank February 2024. [↑](#footnote-ref-16)
16. The main data source for the World Bank Group’s Climate Change Knowledge Portal (CCKP) is the Coupled Model Inter-comparison Project Phase 5 (CMIP5) models, which are utilized within the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), providing estimates of future temperature and precipitation. [↑](#footnote-ref-17)
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38. Include a brief summary of the execution services to be provided by the GEF Agency. Please refer to GEF Project and Program Cycle Guidelines Annex 8 (Table B) for eligible execution functions. [↑](#footnote-ref-39)
39. This para to be included as appropriate. Delete if all execution services are to be provided by GEF Agency. [↑](#footnote-ref-40)