

Annex 10: Economic and Financial Analysis

"Building Climate Resilience of Forest-Dependent Communities through Enhanced Livelihood Opportunities and Local Capacity in Karnali"

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Abbreviations

BCR	Benefit–Cost Ratio
CBA	Cost-Benefit Analysis
CDFWCP	Central Department Of Forests And Watershed Conservation Programme
CDMC	Community Disaster Management Committee
CFUG	Community Forest User Group
CN	Concept Note
DFO	District Forest Office
DRM	Disaster Risk Management
EBA	Ecosystem-Based Adaptation
EFA	Economic And Financial Analysis
EIRR	Economic Internal Rate Of Return
EWS	Early Warning System
FP	Funding Proposal
GCF	Green Climate Fund
HVAP	High-Value Agriculture Project
IP	Indigenous Peoples
LAPA	Local Adaptation Plans For Action
LCFMG	Local Community Forest Management Group
LDMC	Local Disaster Management Committee
LLCA	Locally-Led Climate Action
MAP	Medicinal And Aromatic Plant
MSME	Micro, Small And Medium-Size Enterprise
NbS	Nature-based Solutions
NPV	Net Present Value
NTFP	Non-Timber Forest Product
NTNC	National Trust For Nature Conservation
OP	Operational Plan
RAIN	Resilience, Adaptation And Inclusion In Nepal
SAP	Simplified Approval Process
SFM	Sustainable Forest Management
WMO	World Meteorological Organization

1. Executive Summary

This Economic and Financial Analysis (EFA) assesses the rationale, effectiveness, and economic justification of a proposed Green Climate Fund (GCF) Simplified Approval Process (SAP) project in Karnali Province, Nepal, covering 31 municipalities across Dolpa, Jumla, Jajarkot and Dailekh districts. The region is characterised by high climate vulnerability, forest-dependent livelihoods, limited infrastructure, and constrained institutional capacity, with climate change exacerbating risks related to forest degradation, landslides, erosion, floods, forest fires, and declining water availability.

The project adopts an integrated adaptation approach combining forest restoration, improved Sustainable Forest Management (SFM), targeted Nature-Based Solutions (NbS) for watershed and land resilience, and the development of sustainable non-timber forest product (NTFP) and medicinal and aromatic plant (MAP) value chains. Complementary investments in community and municipal adaptive capacity—including climate awareness and training, early warning systems, local planning, and demonstration sites—are designed to strengthen preparedness and reduce climate-related losses.

The economic analysis demonstrates strong overall performance. Using conservative assumptions, the project generates total discounted (NPV) benefits of approximately USD 63.14 million against discounted costs of approximately USD 8.51 million, yielding a Net NPV of approximately USD 54.63 million, a Benefit–Cost Ratio (BCR) of 7.42, and an Economic Internal Rate of Return (EIRR) of approximately 54%. Weighted average benefits are estimated at USD 316 per person, compared with weighted average costs of USD 60 per person, indicating strong value for money in a low-income, high-risk context.

Benefits are driven primarily by avoided climate-related losses (approximately USD 20.43 million NPV) and stabilised and diversified forest-based production and incomes (approximately USD 14.24 million NPV), with carbon sequestration co-benefits (approximately USD 28.5 million NPV) providing an significant additional contribution. High-performing and scalable interventions—particularly community-based Early Warning Systems, restoring priority forest sites and improved forest management with value-addition —anchor portfolio performance and account for a substantial share of total net economic value.

Evidence from Nepal-specific studies, stakeholder consultations, and comparable interventions confirms that the proposed actions are cost-effective, durable, and well suited to local delivery mechanisms, particularly through Community Forest User Groups and municipal institutions. Sensitivity analysis indicates that the project remains economically viable under conservative downside scenarios, including reduced adoption, lower avoided losses, and higher discount rates.

While some forest-based enterprises and livelihood activities can generate private returns, the analysis confirms that concessional finance is required to overcome market failures, coordination constraints, and the public-good nature of many adaptation benefits. Overall, the EFA concludes that the project represents an economically justified and effective response to climate change threats in rural Karnali,

aligned with GCF investment criteria and national adaptation priorities. By linking ecosystem restoration, livelihood diversification, and institutional strengthening, the project is expected to deliver inclusive, long-lasting adaptation benefits that can be sustained beyond the project period and replicated across similar high-mountain contexts in Nepal.

2. Introduction and Background

2.1. Project Overview

The proposed project will be implemented across 31 municipalities in four districts of Karnali Province—Dolpa, Jumla, Jajarkot and Dailekh—one of Nepal’s most climate-vulnerable and least developed regions. The project aims to strengthen climate resilience and sustainable livelihoods by improving the management and productivity of forest and watershed landscapes that underpin rural economies. Key interventions include forest restoration across degraded community forests, improved Sustainable Forest Management (SFM), and targeted Nature-Based Solutions (NbS) to reduce erosion, landslides, flooding, and water insecurity. The project will also promote sustainable non-timber forest product (NTFP) and medicinal and aromatic plant (MAP) value chains, supporting community forest enterprises and small and medium enterprises to increase incomes and diversify livelihoods.

At the community level, the project will enhance adaptive capacity through climate awareness, skills development, and demonstration of climate-resilient practices. At the municipal level, it will strengthen local adaptation planning, early warning systems, and coordination mechanisms, enabling more effective climate risk management. By combining ecosystem restoration, livelihood diversification, and institutional strengthening, the project is designed to deliver durable adaptation benefits, reduce climate-related losses, and support inclusive, low-carbon development in Karnali Province.

2.2. Rationale for Economic and Financial Analysis

This Economic and Financial Analysis (EFA) has been prepared to demonstrate that the proposed GCF SAP project in Karnali Province meets the Green Climate Fund’s Investment Criteria, with particular emphasis on efficiency and effectiveness, cost-effectiveness, financial adequacy, minimum concessionality, leveraging and catalysation, and long-term economic and financial viability.

The analysis follows GCF guidance for SAP proposals (including Annex VI EFA Guidance) and is aligned with the structure expected for the Economic and/or Financial Analysis annex (SAP Annex 10). It assesses the economic rationale of the project from an economic (societal level) perspective.

The analysis compares a “with-project” scenario against a “without-project” (baseline) scenario, incorporating climate risks, avoided losses, and uncertainty under future climate conditions.

2.3. Methodological Approach

The analysis was based on available data and evidence of likely project impacts. The EFA process was required to produce an analysis before economic-specific data was assembled in the project region. Consequently, there has been a strong focus on a description of:

- the need for planned project activities –based on general stakeholder consultation transcripts, and
- the likely effectiveness of planned activities –based on published papers and reports.

[REDACTED]

This portion has been redacted in accordance with the GCF Information Disclosure Policy, as the portion is confidential under the disclosure policy of the Accredited Entity.

2.4. Limitations and assumptions

The economic analysis was developed under a compressed proposal timeline, meaning key project-specific data were not available. As a result, the model relies mainly on published averages for Karnali/Nepal and qualitative consultation transcripts, with only a limited set of sources providing quantified benefit parameters (e.g., SFM/MAP income and avoided losses from climate extremes). No stakeholder workshops were held to validate key assumptions (timing of benefits, effectiveness, adoption, and event frequency), so the model necessarily uses many assumptions and should be treated as indicative. Finally, several institution-focused activities' benefits could not be monetised and were assigned zero benefits while costs were fully included, making the overall BCR conservative.

3. Contextual Analysis

3.1. Socio-economic Context of Karnali

Karnali Province is among Nepal's least-developed regions, with high poverty and low human development outcomes. The Concept Note reports a provincial poverty rate of 28.9%, per-capita income of USD 606, low literacy (66%) and a high share of poor households (43.7%), alongside limited access to basic services (e.g., 13% of households with tap water at home and 26% with toilets).

Livelihoods are heavily dependent on agriculture and natural resources. Karnali's economy is described as largely agricultural, with around 80% of people employed in agriculture and high underemployment (reported at 27.5%).

Forest-dependent livelihoods are central to household welfare and local energy systems. The Concept Note notes that forests cover about 38.6% of Karnali (about 408,500 ha) and that roughly 377,000 households depend on forest resources for livelihoods. This implies some 1,08 forested hectares per household, generating a sustained harvesting pressure on the ecosystem.

It also reports very high fuelwood reliance, with 89.5% of provincial energy consumption derived from fuelwood, which increases pressure on forests.

Gender and social inclusion barriers compound vulnerability. The Concept Note states that women, Dalits and Indigenous Peoples are disadvantaged in access to information, services, technologies and support networks, and are often excluded from decision-making, reducing adaptive capacity.

3.2. Climate Vulnerability and Risks

The Concept Note characterizes Karnali's project districts as high to very-high climate vulnerability areas and highlights growing exposure to drought, forest fires, erosion, and changing precipitation/temperature trends with significant impacts on livelihoods and ecosystems.

Observed trends described in the Concept Note include increasing maximum temperatures and decreasing annual precipitation. Forward-looking climate projections cited include a temperature increase (about 0.97–1.78°C under RCP4.5 by the 2060s) and potentially larger warming (up to 2.41–6.63°C under RCP8.5 by the 2090s), with precipitation increases also projected in some scenarios.

The Concept Note further links these trends to elevated risks of flooding and landslides, and to stress on natural resource systems that underpin local livelihoods. In addition, community stakeholder consultation confirms these risks.

3.3. Problem Statement and Baseline Situation

The baseline situation described in the Concept Note combines ecosystem degradation with institutional and financing constraints. Key root causes and barriers include:

- Limited uptake of nature-based solutions (NbS) to increase resilience of infrastructure and landscapes, despite co-benefits for ecosystem protection and safety.

- Low awareness among communities and local authorities of forests/watersheds' roles in disaster control and climate resilience, and limited capacity of local government bodies to integrate climate issues into planning.
- Limited technical and financial capacity, including inadequate access to awareness, data and information for grassroots adaptation, and constraints in adopting sustainable NTFP/MAP production practices and technologies.
- Weak governance and coordination between line agencies and local institutions, with uncertainties in authority/responsibilities during the federal transition.
- Institutionally young and under-resourced municipal/ward bodies with limited access to predictable finance and technical capabilities to plan and implement adaptation responses.

These interacting baseline constraints contribute to degraded or poorly managed forest and watershed systems (including degradation pressure driven by fuelwood dependence), gaps in local adaptive capacity, and limited ability to mobilize sustained finance and partnerships for resilient livelihoods and landscape management.

4. Project Description for EFA Purposes

4.1. Project Components, Outputs, and Activities

4.1.1. Enhanced Forest Ecosystem Resilience and Livelihoods of Vulnerable Communities

This intervention focuses on restoring degraded forests, improving forest management, and strengthening forest-based livelihoods.

Key activities:

- Forest restoration across 1,000 ha to improve forest quality and ecosystem resilience.
- Improved Sustainable Forest Management (SFM) across 10,000 ha via participatory forest zoning and community forest user group (CFUG) capacity building.
- Targeted Nature-Based Solutions (NbS) for watershed and land resilience, including agroforestry, erosion control, water conservation, slope stabilization, wetland protection, and gully control. These site-level NbS activities span 150 ha and aim to reduce floods, erosion, and climate-risk exposure.
- Promotion of sustainable NTFP/MAP value chains, including:
 - Value chain analysis and enterprise incubation;
 - Business plans for 10 MSMEs;
 - Sustainable harvesting training for 60 CFUGs;
 - Establishment of NTFP nurseries and improved cultivation systems.

Purpose: Improve resilience of forest ecosystems, generate climate-adaptive livelihoods, and reduce climate-induced degradation.

4.1.2. Improved Adaptive Capacity of Climate-Vulnerable Communities and Local Institutions

This intervention strengthens local planning, preparedness, and adaptive capability through locally-led climate action (LLCA).

Key activities:

- Inclusive Local Adaptation Plans for Action (LAPAs)—community-driven planning processes with strong participation from women, Dalits, and Indigenous Peoples.
- Strengthening local Early Warning Systems (EWSs), including disaster-risk committees, communication mechanisms, and training for response systems.

- Establishing climate adaptation model sites, showcasing replicable adaptation innovations; 10 model sites will directly benefit 1,000 people.
- Capacity-building for local governments and institutions on climate risk, disaster preparedness, resource planning, and data use.

Purpose: Shift adaptation from top-down to locally led, integrated climate resilience, incorporating community decision-making, knowledge, and governance.

4.1.3. Strengthened Climate Awareness and Communication

This intervention improves climate knowledge, communication systems, and public awareness across the province.

Key activities:

- Development of a 10-year Climate Change Communication Strategy to coordinate climate messaging across Karnali and enhance access to climate information, especially for vulnerable groups.
- Creation and dissemination of climate communication materials (print, audio, video, e-platforms, radio, hoarding boards), targeted at women, Dalits, Indigenous Peoples, youth, policymakers, and the general public.
- Climate advocacy workshops for provincial and local authorities to integrate climate information into planning and policies, with 300 officials engaged.

Purpose: Increase climate literacy, improve decision-making across institutions, and embed climate considerations into provincial and local planning.

4.2. Theory of Change

The project's theory of change is that restoring and sustainably managing forest and watershed ecosystems, while strengthening community forest enterprises and local institutions, will reduce climate risks and improve livelihood resilience in Karnali Province. By combining forest restoration, improved Sustainable Forest Management, targeted Nature-Based Solutions, and strengthened NTFP/MAP value chains, the project enhances ecosystem services, diversifies and stabilises household incomes, and reduces exposure to climate-related hazards. Complementary investments in adaptive capacity, local planning, and early warning systems enable communities and municipalities to anticipate, absorb, and respond to climate shocks. Together, these interventions are expected to generate durable, inclusive adaptation benefits that persist beyond the project period and can be replicated across similar high-mountain contexts.

In terms of the economy, the project actions largely contribute to:

- avoided losses to households where there is successful adaptation to climate change perturbations,

- elevated and/or sustained household incomes where resource use is managed sustainability, and /or where value-addition occurs with the resources,
- improved forest management contributes to climate change mitigation and avoided societal losses,
- reducing poverty in vulnerable population groups, and
- supporting rural economic development in the district.

4.3. Target Beneficiaries

For the purposes of this proposal, beneficiary numbers are reported in terms of people, consistent with GCF reporting requirements. [REDACTED]

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5. Cost Analysis

Table 2 outlines the project costs per activity. See below.

Table 2: Outline of project costs per activity

Project action costs	Costs
Activity 1.1.1. Improve Sustainable Forest Management (SFM) for Increased Resilience to Climate Change and Carbon Sequestration Benefits	1,611,800
Activity 1.1.2. Restore priority sites in community forests, prioritizing species that can be integrated into sustainable NTFP supply chains	1,057,700
Activity 1.1.3. Implement Targeted Nature-Based Solutions (NbS) for Watershed and Land Resilience	1,728,800
Activity 1.2.1. Value Chain Analysis and Enterprise Incubation	799,300
Activity 1.2.2. Promote Sustainable Production and Harvesting Practices	547,400
Activity 1.2.3. Facilitate Market Access and Financial Mechanisms	245,200
Activity 1.2.4. Capacity Building and Entrepreneurship Support	197,300
Activity 2.1.1. Climate change awareness and adaptation training.	364,600
Activity 2.1.2. Formulation and implementation local adaptation plans for action (LAPA).	995,800
Activity 2.1.3. Provide strategic support to the provincial government to scale and sustain adaptation governance beyond the project period.	178,000
Activity 2.1.4. Establish Community-Based Early Warning Systems (CB-EWS).	344,000
Activity 2.1.5. Establish climate adaptation model sites.	490,600
Activity 3.1.1; 3.1.2; & 3.1.3 Communications - province & districts	249,000
Project Management Cost	400,000
Total project cost	9,209,500

In terms of annual budgets, over 4 years, the following expenditure is planned – see Table 3.

Table 3: Annual budget expenditure

Year 1	Year 2	Year 3	Year 4	Total
\$1,534,650	\$3,392,595	\$2,964,435	\$1,317,820	\$9,209,500

The EFA was not able to ascertain the magnitude of annual government expenditure which would be invested into maintaining institutional platforms.

6. Economic Analysis

6.1. Economic Benefits

6.1.1. Activity 1.1.1 – Improved Sustainable Forest Management (SFM) (10,000 ha; 80 CFUGs)

Planned impacts (proposal):

Institutional reach: about 80 CFUGs adopting improved SFM; estimated 43,200 direct beneficiaries².

Improve SFM across 10,000 ha through updated management planning, compliance and sustainable harvesting protocols.

Necessity:

Consultations flagged governance issues (elite capture risks, poor accounting systems) and limited technical capacity, reducing equitable benefit-sharing and long-term stewardship ((RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

FECOFUN consultations identified operational plan (OP) updating as a critical constraint and a significant risk to ongoing management and value-addition investments: government caps OP revision funding at NRs 25,000 while consultant costs were reported around NRs 100,000, leaving many CFUGs unable to update OPs and manage/harvest legally ((RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

A recurring national constraint in community forestry is the backlog of CFUG operational plans and renewals since introduction of mandatory forest inventory requirements (from 2000) and due to limited technical staff capacity; where operational plans lapse (after 5 years), CFUG implementation slows and opportunities for sustainable management and legal harvesting are constrained (Acharya, K.P. (2003) Sustainability of Supports for Community Forestry in Nepal, *Forests, Trees and Livelihoods* 13(3):247–260; summarised in Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 33).

Kanel notes that, despite legal provisions requiring CFUGs to prepare their own operational plans, many still depend on District Forest Office staff for plan preparation and revision—supporting the need for technical assistance, a fast-track process of re-issuing licenses and institutional strengthening as part of SFM support (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 33).

Effectiveness evidence:

² Note that in the planned impacts descriptions, we use the original stated beneficiary numbers. However, when modelling the benefit values, we use moderated or adapted numbers to ensure benefits are not over-stated.

Consultation evidence indicates many CFUGs are inactive or struggling due to administrative burdens and OP constraints, implying strong additionality from targeted SFM support ((RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

National evidence shows community forestry as a scalable platform; when and where governance and technical support are adequate, improved management can increase sustainable yields and forest regeneration while reducing unmanaged biomass accumulation and fire risks (World Bank (2025) *May the Forest Be With You: Mapping Nepal’s Forest Landscapes and Livelihoods*).

National federations and networks (e.g., FECOFUN) provide established governance and accountability platforms across districts that can support dissemination of improved SFM practices and monitoring of compliance (Kanel, K.R. (undated) *Current Status of Community Forestry in Nepal*, submitted to RECOFTC, Bangkok, p. 30).

Community forestry has built local institutional capacity through training (e.g., silviculture, record keeping) and democratic governance processes; this local social capital underpins the plausibility of improved compliance and benefit-sharing outcomes when governance strengthening is coupled with technical SFM support (Kanel, K.R. (undated) *Current Status of Community Forestry in Nepal*, submitted to RECOFTC, Bangkok, p. 30).

Plausible benefit pathways:

Strengthened CFUG governance and management capacity supporting long-run forest sustainability and equitable benefit distribution.

Reduced fire risk through improved forest health and management of fuel loads – reduce damage costs to rural households.

Increased sustainable supply of timber and NTFPs through compliant harvesting and improved regeneration, offering greater energy security and income security (diversification, value-addition, and sustainable supply).

Elevated ecosystem services supply levels through improved forest management resulting in reduced erosion and fire risk; improved watershed regulation and soil stability in managed areas; the services reducing risk and elevating water security, reducing livelihood vulnerability (Mander (2019) *Chiti EbA Ecosystem Services Scenarios CBA (Final v6)*, project report, Nepal).

6.1.2. Activity 1.1.2 – Forest restoration (1,000 ha; 50 community forests)

Planned impacts (proposal):

Delivery platform: approximately 50 community forests; estimated 17,550 direct beneficiaries (calculated from the CN beneficiary assumptions and adjusted to avoid double counting).

Restore 1,000 ha of forest (in multiple locations) through restoration/enrichment planting and related measures implemented through CFUG/LCFMG platforms.

Necessity:

Consultations in (RAIN–Pragati, 2025: Nalgad), (RAIN–Pragati, 2025: Barekot) and (RAIN–Pragati, 2025: Shivalaya) reported increased forest fire incidence, soil erosion, and declining ecosystem services; CFUG rule enforcement was noted as weakening post-disasters, alongside unmanaged extraction of forest products ((RAIN–Pragati, 2025–26) reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025)).

Community consultations (RAIN–Pragati, 2026: Jumla and RAIN–Pragati, 2026: Dailekh) confirmed that although plantation and restoration activities are included in CFUG operational plans, they are frequently not implemented due to financial and technical constraints, leaving forests vulnerable to fire and degradation (Karnali field consultations, 2025–26).

Karnali’s high dependence on fuelwood (CN reports 89.5% of household energy consumption from fuelwood) contributes to forest harvesting’ pressure and degradation, reinforcing the need for restoration and improved forest condition (RAIN Concept Note, p. 39).

Forests, particularly in Nepal’s hills, are integral to farming systems because households rely on forest products such as leaf materials for fodder and animal bedding, fuelwood for energy, and timber for buildings and agricultural implements—so forest degradation has direct livelihood and agricultural productivity impacts, reinforcing the rationale for restoration investments (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 4).

Effectiveness evidence:

Nepal EbA evidence (Chiti Ecosystem Services and EbA CBA) supports the premise that improved forest condition produces high social returns as benefits are public goods (Mander (2019) Chiti EbA Ecosystem Services Scenarios CBA (Final v6), project report, Nepal).

Nepal’s community-based forest management has contributed to large-scale forest recovery nationally (forest cover increasing from 29% in 1994 to over 46% in 2022) and remains an effective institutional platform for restoring forest condition and sustaining household access to forest products (World Bank (2025) *May the Forest Be With You: Mapping Nepal’s Forest Landscapes and Livelihoods*).

Long-running community forestry implementation demonstrates scalability and delivery feasibility: by March 2006 Nepal had established 14,258 CFUGs managing 1.187 million ha and involving 1.64 million households (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 26).

Empirical studies report measurable improvements in forest condition under community forestry: for example, in the Koshi Hills total stems per hectare increased by 51% and basal area by 29% (1994–1998), and shrub/grasslands have been converted into productive forest in central hill districts (Branney & Yadav (1998); Jackson et al. (1998); as summarised in Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 30).

Assessments of CFUG outputs and finances suggest substantial annual production of timber, firewood and grasses, with significant revenues from forest product sales used for community development and pro-poor activities—supporting plausible livelihood benefits from improved forest condition and management (Kanel and Niraula (2004), as summarised in Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 31).

Community forestry has also mobilised substantial voluntary labour and inclusive participation: annual voluntary participation has been estimated at 2.5 million person-days (valued at NPR 164 million), and the national community forestry database reports women participation around 24% with approximately 600 CFUGs managed by women-only committees—supporting the plausibility of community contributions to restoration maintenance and inclusive delivery (Kanel & Niraula (2004), as summarised in Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 30).

Plausible benefit pathways:

Strengthened local stewardship and compliance support sustainable supply systems - through strengthened CFUG operational mechanisms.

Elevated forest functionality increases ecosystem services supply including reduced erosion, landslide and fire risk; improved watershed regulation and soil stability in treated areas; the services reducing risk and elevating water security, reducing livelihood vulnerability.

Improved availability and sustainability of fuelwood, fodder and NTFPs, reducing livelihood vulnerability and fostering income diversification.

Sustainable forest products supply elevated opportunities for value-addition and diversification.

Empowering CFUGs levers additional resources for forest resource management and climate change adaptation.

6.1.3. Activity 1.1.3 – Targeted nature-based solutions for watershed and land resilience (150 ha; 50 Hh with 270 people directly affected)

Planned impacts (proposal):

Direct benefits to approximately 50 households with 4,320 people at targeted sites (with additional indirect downstream watershed benefits).

Implement site-level NbS measures (e.g., gully protection, slope stabilization, spring/wetland protection, erosion control and water conservation) across about 150 ha of priority sites.

Necessity:

(RAIN–Pragati, 2025: Shivalaya) field report notes unplanned road construction and spoil dumping degrading aquatic ecosystems and increasing risks; also highlights the need for better-designed recharge ponds within integrated watershed management ((RAIN–Pragati, 2025–26) reports: (RAIN–Pragati,

2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025)).

Consultations report drying springs, erosion and landslides affecting livelihoods and infrastructure, and increasing time burdens for water collection (usually borne by women) (Pragati field reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025); (RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

Community consultations in (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh) consistently identified drying springs, increased landslide risks linked to unplanned rural road construction and spoil dumping, and rising time burdens for water collection—particularly for women—reinforcing the necessity of targeted NbS for watershed regulation, slope stabilisation and water-source protection (RAIN–Pragati, 2025–26).

National watershed-management experience emphasises that catchment management is intended to reduce natural-hazard pressures (including floods and landslides) and that user-group-based micro-watershed planning is a common delivery modality; however, watershed user groups often lack clear legal recognition compared with CFUGs—reinforcing the need for explicit O&M and governance arrangements for NbS structures (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 15).

Effectiveness evidence:

Stakeholder testimonies in Karnali (drying springs, severe erosion, landslide triggers, uncontrolled forest fires) are consistent with known NbS benefit pathways (runoff moderation, slope stabilization, sediment control, fuel load reduction) ((RAIN–Pragati, 2025–26) reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025)).

The Chiti EbA scenario analysis demonstrates that EbA/NbS interventions in Nepal can reduce water-supply risk and improve resilience through improved forest and riparian functionality, with benefits that persist over decades if managed (Mander (2019) Chiti EbA Ecosystem Services Scenarios CBA (Final v6), project report, Nepal).

Evidence from donor-supported community-based watershed programmes in Nepal reports increasing community awareness, community co-financing for local development, and application of equity principles in participation and decision-making (e.g., watershed committees with around 30% women and targeted disadvantaged participation) (CDFWCP (2005) Impact Assessment and Analysis..., cited in Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 15).

Plausible benefits pathways:

Benefits from ecosystem service flows that underpin livelihoods but are limited due to small area restored.

Reduced flood/erosion/landslide risks at site and downstream levels, lowering damages to homes, infrastructure and farmland, generating significant avoided costs for households.

Improved dry-season water reliability and reduced sediment loads, supporting domestic use and agriculture, and reducing water collection time costs.

6.1.4. Activity 1.2.1 & 1.2.2 – Sustainable NTFP/MAP value chains (60 CFUGs trained; 10 MSMEs with business plans)

Planned impacts (proposal):

Targeting: at least 50% of MSME beneficiaries to be women, Dalits and Indigenous Peoples.

Develop business plans and incubation support for 10 NTFP/MAP-based MSMEs (estimated 3,564 direct beneficiaries, approx. 50 per MSME).

Provide sustainable harvesting and climate-smart NTFP/MAP production training for 60 CFUGs (estimated 16,200 beneficiaries).

Necessity:

The Karnali MAP master plan notes the province’s significant role in the national MAP industry and highlights the need for quality planting material, nurseries and certification systems to improve productivity and sustainability (Nepal Environmental and Scientific Services Pvt. Ltd. & Innovative Vision Pvt. Ltd. (2021) Master Plan of Karnali MAP Study (Final Report), submitted to MoITFE Karnali Province).

FECOFUN consultation documented enterprise failure driven by lack of business plan, input services and market linkages, supporting the project’s focus on enterprise planning and market systems ((RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

Field evidence indicates strong demand but limited value addition (e.g., (RAIN–Pragati, 2025: Nalgad) beekeeping cooperative reports high demand exceeding supply and limited processing/branding) ((RAIN–Pragati, 2025–26) reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025)).

Community-level evidence highlights that while MAP/NTFP activities generate income, returns are often low relative to labour input (e.g. Allo producers reporting annual earnings of approximately NPR 15,000–20,000), and multiple enterprises have collapsed following withdrawal of external technical support, underscoring the need for sustained enterprise incubation, mechanisation, and market linkage rather than short-term training alone (Karnali (RAIN–Pragati, 2025–26), 2025–26).

District-level evidence indicates substantial MAP/NTFP trade volumes and monetary flows in the project geography: in Jajarkot, NTFP/MAP trade includes approximately 53 species and 2015–2020 exports average 1.59 million kg/year, generating around NPR 3.82 million in royalties (Lamichhane et al. (2021) Role of NTFPs: Jajarkot District, Grassroots Journal of Natural Resources; as synthesised in Mott MacDonald (2025) Value Chains, Business Promotion, and NTFPs/MAPs in Karnali, para. 9).

Value chains remain predominantly raw-material and trader-led: supply chains typically involve wild collection, local aggregation and onward trade to hubs (e.g., Nepalgunj) with limited local processing; collectors are price-takers due to limited market information, and margins are often captured downstream—supporting investments in aggregation, quality assurance, traceability and local market information systems (Mott MacDonald (2025) Value Chains, Business Promotion, and NTFPs/MAPs in Karnali, paras. 10, 25).

Governance and sustainability constraints are widely documented: bottlenecks include limited sustainable harvesting plans and weak legal awareness within forest user groups (e.g., (RAIN–Pragati, 2026: Jumla)), as well as compliance/permitting burdens and variable resource inventories in remote high-altitude contexts (e.g., (RAIN–Pragati, 2026: Dolpa)) and limited quality control and investment capital for processing in mid-hill districts (e.g., Dailekh) (Mott MacDonald (2025) Value Chains, Business Promotion, and NTFPs/MAPs in Karnali, paras. 14, 18, 22, 26).

District-wise supply clustering and targeting emphasises that municipality-level MAP/NTFP resource data are often indicative and recommends rapid field inventories before making investment decisions—reinforcing the project’s key data requirement for resource inventories and supply projections linked to sustainable harvesting and enterprise planning (Mott MacDonald (undated) Report on Clustering Idea Compilation, para. 1).

Effectiveness evidence:

District-level consultations in Jajarkot confirmed the feasibility of forest-based enterprises where governance and markets function: over 45 forest-based enterprises currently operate, supporting approximately 159 direct jobs, with some enterprises generating substantial revenues but constrained by access to finance, processing capacity and long-term market contracts—validating the project’s focus on value-chain upgrading rather than resource expansion alone (DFO Jajarkot Annual Report 2024/25; Karnali (RAIN–Pragati, 2025–26), 2026).

Published and programme evidence indicates that upgrading value chains (quality, processing, certification, governance) increases incomes where market demand exists, especially for high-value MAPs (e.g., in Karnali’s MAP potential areas) (Nepal Environmental and Scientific Services Pvt. Ltd. & Innovative Vision Pvt. Ltd. (2021) Master Plan of Karnali MAP Study (Final Report), submitted to MoITFE Karnali Province).

HVAP (2011–2018) provides a Nepal precedent for inclusive value chain development in Karnali districts (including (RAIN–Pragati, 2026: Jumla)), linking producer organisations with traders, service providers and finance, strengthening business literacy and formal contracting—mechanisms directly relevant to MSME business planning, aggregation and market linkage for MAP/NTFP products (Government of Nepal (2018) HVAP Project Completion Report; Krah, Songsermsawas & Kafle (2018) Impact Assessment of HVAP; as synthesised in Mott MacDonald (2025) Value Chains, Business Promotion, and NTFPs/MAPs in Karnali, para. 7).

In Karnali's high-hill districts, NTFPs can represent a material share of household cash income (e.g., approximately 20% in (RAIN–Pragati, 2026: Jumla)), implying that value chain upgrading can plausibly generate meaningful income benefits if sustainability and governance constraints are addressed (Regmi, Bergeron & MacIsaac (2000) High-altitude NTFPs in Karnali Zone, BANKO Janakari; as synthesised in Mott MacDonald (2025) Value Chains, Business Promotion, and NTFPs/MAPs in Karnali, para. 13).

Plausible benefits pathways:

Employment and/or income generation and inclusive participation (women/Dalit/IP) through enterprise development and CFUG-linked value chains.

Improved sustainability of harvesting and regeneration, protecting the long-run resource supply base that underpins livelihoods, and supports investment into value addition processing.

Increased household and MSME income from value addition, improved quality, and more reliable market access for MAP/NTFP products; incentivises ongoing forest resource management.

Greater income security with diversification and value addition.

Local economic development from a growing MAPs sector with value-addition and sustainable forest products supply.

6.1.5. Activity 2.1.1 – Climate change communication strategy and materials (reach 21,600 people)

Planned impacts (proposal):

Develop and implement a 10-year Climate Change Communication Strategy and disseminate materials expected to reach around 21,600 people (50% of the project-district population).

Necessity:

Consultations report shifting roles and capacity gaps, especially for women as male outmigration increases responsibilities, reinforcing the need for accessible information and practical guidance (Pragati field reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025); (RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

Community consultations repeatedly cited limited access to reliable climate and disaster information, particularly among women and marginalized groups, reinforcing the necessity for structured and inclusive climate communication systems ((RAIN–Pragati, 2025–26), 2025–26).

Effectiveness evidence:

Climate Asia's Nepal research provides evidence on information channels, attitudes and constraints that shape climate behaviour change, supporting evidence-based communication design (BBC Media Action

(2013) Climate Asia: Nepal – How the people of Nepal live with climate change and what communication can do).

Plausible benefits pathways:

Support for inclusive participation by targeting women, Dalits, Indigenous Peoples, youth and local decision-makers, which strengthens vulnerable groups' engagement in the economy.

Greater uptake of preparedness measures, sustainable practices and use of advisories (agro-met, fire preparedness, flood alerts) which reduces damage losses to rural households.

Increased climate literacy and risk understanding among households and community institutions, with elevated capacity and incentives for preparedness.

6.1.6. Activity 2.1.4 – Early Warning Systems (EWS) strengthening (6 municipalities; 64,185 people)

Planned impacts (proposal):

Strengthen EWS functionality in 6 municipalities to reach approximately 64,185 people in pilot areas.

Necessity:

Consultations describe increasing climate hazards (erratic rainfall, floods/landslides, forest fires), reinforcing the need for improved preparedness and response capacity (Pragati field reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025); (RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

Field evidence indicates disaster management structures and alert practices already exist (e.g., LDMC/CDMC meetings; ward disaster committees; routine phone-based alerts), suggesting both an existing foundation and feasibility for rapid improvement rather than starting from scratch ((RAIN–Pragati, 2025–26) reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025)).

Effectiveness evidence:

Nepal EWS case studies report lead time improvements after operational upgrades (e.g., 2–3 hours increasing to around 7–8 hours) (Smith, Brown & Dugar (2017) Community-based early warning systems for flood risk mitigation in Nepal, *Natural Hazards and Earth System Sciences* 17:423–437).

Lower Karnali flood EWS economic analysis reports high benefit–cost ratios (1:24–73), avoided household losses equivalent to NPR 117,027 (USD 1,083) during flood events, and willingness-to-pay evidence suggesting O&M costs can be sustained under community management when governance is maintained (Rai, Homberg, Ghimire & McQuistan (2020) Cost-benefit analysis of flood early warning system in the Karnali River Basin of Nepal, *International Journal of Disaster Risk Reduction*).

Global evidence used to bound avoided-loss assumptions: early warnings issued within 24 hours can reduce hazard damage by 30% (World Meteorological Organization (WMO) Early warning system topic page (undated; accessed 2026-01-21)).

Plausible benefits pathways:

Strengthening local institutions for DRM, improving post-project sustainability of budgets, adaptation and preparedness practices.

Reduced damages to homes, crops, livestock and community infrastructure, improving household income stability.

Avoided loss of life/injury and reduced asset losses through improved warning, preparedness and response.

6.1.7. Activity 2.1.5 – Climate adaptation model sites (10 sites; 3,510 people directly impacted)

Planned impacts (proposal):

Establish 10 climate adaptation model sites showcasing replicable adaptation innovations; the proposal states these sites will directly benefit around 2,970 beneficiaries.

Model sites are intended to drive learning, adoption and replication through demonstration and peer-to-peer communication.

Necessity:

Consultations emphasize drying water sources, declining agricultural productivity and the need for integrated watershed management measures (e.g., reduced run-off, recharge ponds, erosion control), supporting the need for demonstrations that fit local conditions (Pragati field reports: (RAIN–Pragati, 2025: Nalgad) (27 Nov 2025), (RAIN–Pragati, 2025: Barekot) (28 Nov 2025), (RAIN–Pragati, 2025: Shivalaya) (28 Nov 2025); (RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

Consultations highlighted strong demand for practical demonstrations of climate-smart agriculture, water-source protection, and forest-based enterprises, noting that traditional practices alone are no longer sufficient under increasing climate variability (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh).

Effectiveness evidence:

Community forestry experience indicates that training and exposure visits can build durable local capacity and ‘social capital’ (e.g., silviculture, gender equity and record keeping), supporting the plausibility that well-designed demonstration/model sites can catalyse learning and replication beyond direct participants (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 30).

Plausible benefits pathways:

Adoption of novel practices by households beyond direct participants, amplifying benefits.

Improved water reliability and soil protection through on-farm and landscape measures.

Improved food crop yields and reduced climate sensitivity through adoption of resilient practices demonstrated at model sites, for direct beneficiaries and for potential new adopters.

6.1.8. Activity – LAPAs and institutional capacity (31 municipalities; indirect population-wide benefits – 532,488)

Planned impacts (proposal):

Benefits accrue indirectly to the population base through improved planning, budgeting, coordination and maintenance of adaptation investments.

Support inclusive Local Adaptation Plans for Action (LAPAs) and capacity strengthening for local governments and institutions across project municipalities.

Necessity:

MoITFE consultations emphasize that relevant policies exist, but implementation is constrained by shortages of human and financial resources, implying a real institutional capacity gap ((RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

District and municipal consultations in (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh) reported that LAPAs exist but remain weakly implemented due to budget constraints, limited technical staffing, and inadequate climate data—supporting the need for institutional capacity strengthening beyond plan preparation alone (district consultations, 2026).

Effectiveness evidence:

Published evaluations of Nepal’s LAPA approach find it has mobilized local institutions and community groups for adaptation planning, while noting constraints linked to governance and capacity barriers—supporting the case for targeted capacity investments (Regmi, Star & Leal Filho (2016) Effectiveness of the Local Adaptation Plan of Action to support climate change adaptation in Nepal, Mitigation and Adaptation Strategies for Global Change 21:461–478).

Complementary national institutional evidence from community forestry suggests that long-term capacity investments can create durable local governance capacity: CFUGs function as independent and self-governing entities with large membership and committee structures, and training/exposure has built social capital with some committee members later elected into local government bodies (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 30).

Plausible benefits pathway):

Improved access to climate information and integration of risk considerations into development decisions.

Improved targeting of vulnerable groups and coordination across ward/municipality/provincial levels.

Greater effectiveness and sustainability of forest, NbS, EWS and enterprise investments through better planning and budgeting.

6.1.9. Activity – Climate advocacy workshops (300 authorities and professionals)

Planned impacts (proposal):

Conduct climate advocacy workshops for provincial and local authorities; proposal expects about 300 officials and professionals engaged.

Necessity:

Consultations stressed the need to align locally-led climate action with real-world field constraints and to focus on what has worked/failed in enterprises and implementation, supporting structured learning and coordination ((RAIN–Pragati, 2025–26) meeting notes (23–27 Nov 2025)).

Consultations across (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh) identified weak inter-governmental coordination and limited learning from past enterprise and adaptation failures, supporting the role of structured advocacy and learning workshops as enabling public goods (district consultations, 2026).

Effectiveness evidence:

Experience from Nepal’s community forestry networks suggests that organised stakeholder platforms can influence policy and governance: FECOFUN (a national federation of CFUG networks) has spread across most districts and functions as a pressure group to promote favourable policies and good governance within the community forestry programme (Kanel, K.R. (undated) Current Status of Community Forestry in Nepal, submitted to RECOFTC, Bangkok, p. 30).

Plausible benefits pathways:

Improved institutional readiness to sustain EWS, forest governance and enterprise enabling conditions beyond project completion.

Greater leverage and catalysation through better alignment of public budgets and coordination with communities and private actors.

Improved policy coherence, planning and budgeting for climate resilience at provincial and municipal levels.

6.2. Summary of Economic Effectiveness Findings

The economic analysis of benefits associated with planned activities, indicates that the proposed project is an effective response to climate change threats in rural Karnali, when assessed against criteria that are appropriate to high-vulnerability, forest-dependent, and institutionally constrained contexts.

6.2.1. Avoided losses and damages

A substantial share of the project's economic benefits arises from avoided climate-induced losses rather than from incremental production alone. Actions targeting forest restoration, improved SFM, watershed-scale NbS, and early warning systems reduce exposure to erosion, landslides, floods, forest fires, and water insecurity. Nepal-specific evidence cited in Section 6 demonstrates that such interventions can generate large avoided-damage benefits relative to cost, particularly where benefits accrue to households, community assets, and municipal infrastructure.

6.2.2. Income diversification and income stability

The project improves economic resilience by diversifying and stabilising household income sources rather than maximising short-term income gains. Forest products, NTFPs/MAPs, and forest-based enterprises provide diversified income streams that are less sensitive to climate variability than rain-fed agriculture alone. This stabilisation effect—reducing the volatility of household income and the likelihood of distress coping—is a core dimension of effectiveness in rural Nepal. Furthermore, value-addition processes support rural economic development at the district level, generating benefits to a broader population.

6.2.3. Cost-effectiveness of adaptation options

The project delivers adaptation benefits at scale through several low-cost delivery platforms, including Community Forest User Groups and municipal institutions. Area-based interventions (10,000 ha under improved SFM) and population-level preparedness measures achieve favourable cost-per-hectare and cost-per-beneficiary outcomes compared with stand-alone or household-level approaches. Nepal-first benchmarking evidence, particularly for early warning systems, supports the cost-effectiveness assumptions used in the analysis. (Rai et al., 2020; WMO, undated)

6.2.4. Institutional and behavioural effectiveness

Economic effectiveness depends on the persistence of institutions and behaviours beyond the project period. By strengthening CFUG governance, local planning systems (LAPAs), disaster-risk management committees, and information flows, the project establishes 'pre-informed' and action-ready communities, reduces response start-up costs and increases the durability of benefits. Evidence presented in Section 6 shows that when institutional capacity is strengthened, economic benefits from forest and adaptation investments are more likely to be sustained.

6.2.5. Inclusion and distribution of benefits

The analysis confirms that benefits are expected to reach climate-vulnerable groups, including women, Dalits, Indigenous Peoples, and forest-dependent households. Many benefits—such as reduced disaster losses, improved water security, and ecosystem services—accrue at

community and landscape scales, reducing the risk of elite capture and supporting equitable benefit distribution. This distributional effectiveness is economically relevant in contexts where vulnerability and poverty overlap.

6.2.6. Persistence and durability of benefits

Forestry, NbS, and institutional capacity investments generate benefit streams that persist over long time horizons, with relatively low recurrent costs once systems are established. The analysis assumes conservative benefit accrual profiles, recognising that ecological and institutional benefits build gradually but endure over decades.

6.2.7. Additionality and no-regret characteristics

The project addresses market and coordination failures that would otherwise prevent adequate investment in ecosystem restoration, watershed protection, preparedness, and local institutions. Many actions are “no-regret” options: they deliver positive economic and social returns even under lower-than-expected climate impacts, while providing increasing value under higher-impact scenarios.

6.2.8. Scalability and replicability

The use of established community and municipal delivery platforms, demonstration sites, and enterprise incubation creates pathways for replication beyond the project footprint. This catalytic potential enhances economic effectiveness by lowering the marginal cost of future adaptation investments and enabling benefits to extend beyond directly funded activities.

Overall, the findings of the benefits’ analysis demonstrate that the project’s effectiveness lies not only in measurable income gains, but in reduced climate losses, improved income stability, strengthened institutions, inclusive benefit distribution, and durable, scalable adaptation outcomes—features that are particularly relevant to rural Nepal.

6.3. Benefits Cost Model Outputs

6.3.1. Limitations and assumptions of quantitative analysis

Limitations in modelling

- The project proposal development time was foreshortened and consequently, anticipated data has not been made available for the economic analysis.
- Therefore, there has been a reliance on published information available for the Karnali area and Nepal. There has been little or no quantitative data available from the intended stakeholders apart from broad stakeholder consultation transcripts.
- A limited number of references have been available which quantify benefits such as household income associated with SFM and MAPs, and avoided losses associated with climate extremes.

Consequently, the modelling has relied heavily on these published values in estimating project activity benefits.

- No stakeholder workshops were undertaken to evaluate or generate key assumptions regarding years which benefits accrue, implementation effectiveness, adoption likelihood, and the frequency of years which benefits accrue. However, a team meeting (including a local expert) was held to develop appropriate assumptions.
- With limited quantitative data available a simple model has been developed using broad published averages for several key criteria. Consequently, many assumptions have been employed in this analysis.
- The quantitative analysis offers indicative values for the type and magnitude of benefits associated with each of the key project activities.
- Some project activities do not focus on households, but on supporting institutions, with little means to estimate the numbers of households which may benefit, apart from broad district population estimates. No attempt was made to quantify these benefits; they have been included as zero in the analysis. However, all costs have been included in the analysis and the BCR is therefore conservative.

Key assumptions in the modelling

- Household avoided costs are from published flooding damage estimates in Karnali and is used as a proxy for all avoided losses, including erosion, fires, and landslides. This proxy is also assumed to cover other ecosystem service benefits.
- Household income from forests products harvesting use is an average broad catch-all, covering a broad range of high to low value products being possibly harvested.
- Different forest management activities (excluding value-addition processing) are assumed to produce the same maximum level benefits per household, but outcomes are adjusted differently in terms of adaptation levels and implementation effectiveness.
- Different climate change adaptation activities are assumed to produce the same maximum level benefits per household but are adjusted differently in terms of adoption levels and implementation effectiveness.
- Household efforts are assumed to be project costs as they are 'additional' and are unlikely to have occurred in a 'without ' project scenario.
- Some beneficiaries benefit from two or more actions, but this model assumes only a single benefit (using the Funding Proposal convention), but selects the highest value. The SFM therefore shows an unrealistic low number of beneficiaries in the model as it only includes those who don't benefit from any other higher earning project activity.

6.3.2. Summary of Overall Economic Results

Using the budget assumptions, the project demonstrates strong economic viability. The analysis estimates total discounted economic benefits (NPV) of approximately USD 63.14 million, compared with total discounted costs (NPV) of approximately USD 8.5 million over the project life (20 years). This yields

a Benefit–Cost Ratio (BCR) of approximately 7.42, and an Economic Internal Rate of Return (EIRR) of approximately 54%.

These results indicate that the project generates substantial net welfare gains in a high vulnerability, low-income context, with discounted benefits exceeding discounted costs by more than seven times – see Table 4 below. Further details are outlined in Annex 2.

Table 4: Summary of project modelling

Economic and Financial Criteria	Values
NPV Benefits	\$ 63,139,655
NPV Costs	\$ 8,507,631
NPV Net Benefit Value over project lifetime	\$ 54,632,024
Economic IRR	54%
BCR - Benefits per \$1 cost	\$ 7.42
Average benefits per person (USD)- weighted	\$ 316
Average costs per person (USD)- weighted	\$ 60

6.3.3. Composition and Drivers of Benefits

The composition of benefits is balanced across three major channels, consistent with the project’s integrated adaptation theory of change.

First, avoided losses from climate hazards account for a substantial share of total benefits, with an estimated NPV of USD 20.43 million. These benefits arise primarily from reduced damages associated with floods, landslides, erosion, forest fires and water insecurity, driven by early warning systems and targeted watershed and NbS interventions.

Second, additional and stabilised production and income benefits contribute an estimated NPV of USD 14.24 million, reflecting improved Sustainable Forest Management, forest restoration, and sustainable NTFP/MAP production systems. These gains are driven by income diversification, improved reliability of production, and reduced degradation rather than short-term yield maximisation.

Third, the model includes mitigation co-benefits, with an estimated social value of carbon of USD 28.46 million. While secondary to adaptation outcomes, these co-benefits substantially reinforce the economic case for ecosystem-based approaches.

The model remains conservative in that several enabling and institutional activities are represented primarily as costs, with limited or no monetised benefit streams captured in the benefit accounting.

6.3.4. Relative Performance of Key Interventions

The updated results show that overall portfolio performance is anchored by a small number of high-return interventions:

- Community-Based Early Warning Systems (Activity 2.1.4) show strong cost-effectiveness, with an estimated NPV of benefits of USD 12.96m against NPV costs of USD 295,734, yielding a BCR of 43.81 and a high EIRR. This reflects large avoided losses relative to modest system costs and confirms the value-for-money of EWS in high-risk river basins. Similarly, Climate change awareness (2.1.1) shows a robust BCR of 11.78.
- Sustainable production and harvesting support (Activity 1.2.2) performs strongly (BCR 7.17), indicating that income stabilisation and enhanced production benefits are economically meaningful under conservative assumptions.
- Forest Restoration (Activity 1.1.2) and Targeted NbS (Activity 1.1.3) are economically justified, with BCRs of 4.46 and 2.38, respectively. NbS interventions shows some of the lowest BCR due to higher unit costs but still remain positive and consistent with their focus on high-risk hotspots where avoided losses are concentrated.
- Improved Sustainable Forest Management (Activity 1.1.1) is an important contributor, with NPV benefits USD 3m against NPV costs USD 1.67m, generating a BCR 1.80³. This reflects scale (10,000 ha), institutional delivery through CFUGs, and multiple benefit channels including avoided degradation, improved productivity and ecosystem services.
- Enterprise incubation / value chain analysis (Activity 1.2.1) shows a BCR 2.87, which is relatively low in comparison to other activities, but expected where enterprise enabling costs are incurred upfront while financial and market benefits are conservative and partly captured elsewhere in the results. This supports interpreting enterprise incubation as an enabling investment whose principal role is to strengthen uptake, market access and sustainability of benefits generated under other activities. This also strengthens community incentives for ongoing sustainable forest management.

6.3.5. Interpretation of Results and Implications for Concessional Finance

The updated model results confirm that the project's economic justification does not rely on optimistic assumptions or narrow income gains alone. Instead, overall economic performance is driven by: (i) avoided losses and damages in a hazard-prone landscape; (ii) stabilised and diversified livelihoods linked to sustainable forest management, restoration and NTFP/MAP systems; and (iii) durable institutional platforms that support the persistence of benefits beyond the project life.

Although societal returns are strong, many benefits accrue as public goods (risk reduction, ecosystem services, avoided disaster losses, institutional strengthening) and are not fully captured by individual

This portion has been redacted in accordance with the GCF Information Disclosure Policy, as the portion is confidential under the disclosure policy of the Accredited Entity.

households or enterprises. This provides a clear rationale for concessional grant finance to overcome market and coordination failures, enable upfront investment, and ensure equitable access to adaptation benefits.

6.3.6. Mitigation co-benefit and indicative cost per tCO₂e

As a secondary outcome, the project is estimated to generate approximately 1,101,385 tCO₂e of sequestration or avoided emissions over the analysis period. Using the total project cost of USD 9.2 million, this corresponds to an indicative cost of approximately USD 8.36 per tCO₂e. Using the GCF contribution of USD 8.5 million yields an indicative cost of approximately USD 7.73 per tCO₂e. These values are similar to commercial carbon project costs undertaking reforestation action.

These figures are provided for contextual reference only. The project is designed primarily as an adaptation investment, and mitigation outcomes are treated as co-benefits rather than primary objectives.

6.3.7. Financing and leverage assumptions used in the model

Total project costs amount to USD 11.11 million (undiscounted), comprising a GCF grant of USD 8.5 million (76.6%), co-funding of USD 0.70 million (6.3%), and an estimated community labour contribution of USD 1.9 million (17.1%) over the project term.

Community labour inputs represent a significant share of total resources and reflect strong local engagement and ownership. In the economic analysis, these contributions are treated as economic costs using shadow valuation to capture their opportunity cost, rather than as cash expenditures, ensuring a conservative and comprehensive assessment.

6.3.8. Composition of benefits and economic interpretation

The modelling results indicate that total discounted benefits (NPV USD 63.14 million) are generated through a balanced combination of benefit streams:

- Avoided losses from climate hazards, including floods, landslides, erosion, forest fires and water insecurity, represent the single largest contribution to total benefits, driven primarily by early warning systems and watershed-scale resilience measures.
- Additional and stabilised production and income benefits arise from improved Sustainable Forest Management, forest restoration, and sustainable NTFP/MAP harvesting, reflecting increased reliability and diversification of livelihoods rather than short-term yield maximisation.
- Mitigation co-benefits, captured through the social value of carbon, contribute a large share of total benefits and reinforce the economic case for ecosystem-based interventions.

This benefit composition is consistent with the project's theory of change, under which resilience outcomes are achieved both by reducing exposure to climate-related losses and by strengthening the stability and sustainability of forest-based livelihood systems. The conservative treatment of enabling and institutional activities in the model suggests that total economic benefits are likely understated.

7. Assessment Against GCF Investment Criteria: Efficiency, Effectiveness and Value for Money

7.1. Economic Efficiency and Cost-Effectiveness

The economic modelling demonstrates strong cost-effectiveness and value for money. Discounted (NPV) benefits are estimated at USD 63 million, compared with discounted (NPV) costs of USD 8.5 million, yielding a Net NPV of approximately USD 54.6 million, a Benefit–Cost Ratio (BCR) of 7.42, and an Economic Internal Rate of Return (EIRR) of approximately 54%. These results indicate that each dollar invested generates more than seven dollars in economic benefits.

On a per-beneficiary basis, weighted discounted benefits are approximately USD 316 per person, compared with weighted discounted costs of approximately USD 59.67 per person. This represents strong cost-effectiveness in a low-income, high climate-risk context such as Karnali Province.

7.2. Unit Costs and Drivers of Value

7.2.1. Cost per hectare

For area-based interventions, the modelling indicates competitive unit costs when delivered through community-based platforms. Improved Sustainable Forest Management (Activity 1.1.1) exhibits relatively low per-hectare costs (USD 167/ha), reflecting scale efficiencies and established CFUG delivery mechanisms. Forest restoration at priority sites (Activity 1.1.2) has higher per-hectare costs (USD 1,087/ha), consistent with enrichment planting and site rehabilitation. Targeted Nature-Based Solutions (Activity 1.1.3) show substantially higher per-hectare costs (USD 10,789/ha) due to their focus on intensive, site-specific measures in high-risk locations.

These cost differentials reflect a deliberate design trade-off between spatial scale and intervention intensity and are consistent with the expected benefit profiles of each activity.

7.2.2. Cost per beneficiary and high-impact interventions

The economic results are anchored by several high-impact, scalable interventions. Community-Based Early Warning Systems (Activity 2.1.4) and Climate change awareness (2.1.1) both deliver exceptionally high economic returns due to large avoided losses relative to modest investment costs, benefiting a large population at very low cost per person.

Restoring priority sites (1.1.2), Improved SFM (Activity 1.1.1), Targeted NbS (1.1.3) and Sustainable production (1.2.2) are all major contributors to net economic value, benefiting from large spatial coverage, durable institutional delivery through CFUGs, and multiple benefit streams including avoided degradation, stabilised production, and ecosystem services. Together, these interventions account for a substantial share of total Net NPV, providing a robust anchor for portfolio-wide efficiency.

7.3. Mitigation Co-benefits (Secondary)

The project includes mitigation co-benefits of approximately 1,101,385 tCO₂e sequestered or avoided over the analysis period, with an indicative cost is approximately USD 8.36 per tCO₂e. Using the GCF contribution of USD 8.51 million, the indicative cost is approximately USD 7.73 per tCO₂e.

7.4. Impact Potential and Sustainable Development Outcomes

The project demonstrates strong impact potential by targeting climate risks affecting forest-dependent and climate-exposed communities across 31 municipalities in Karnali Province. Total discounted benefits are driven primarily by avoided losses from climate hazards (USD 20.4 million NPV) and stabilised and diversified forest-based production and incomes (USD 14.2 million NPV).

In addition to adaptation outcomes, the project delivers significant sustainable development co-benefits. Improved forest management and restoration enhance ecosystem services, biodiversity, and watershed regulation, while sustainable NTFP/MAP value chains contribute to income diversification and rural economic development. The strong benefit–cost profile supports poverty reduction, livelihood resilience, and environmental sustainability, with positive distributional effects through community-based delivery mechanisms.

7.5. Needs of the Recipient and Country Ownership

Karnali Province faces acute development constraints, including poverty, remoteness, limited infrastructure, and high dependence on climate-sensitive natural resources. Climate change exacerbates these challenges, increasing exposure to natural hazards and undermining traditional livelihood systems.

The project responds directly to these needs by addressing both climate risks and structural barriers to adaptation, including weak market access, limited institutional capacity, and underinvestment in public-good resilience measures. Alignment with Nepal’s national and sub-national climate, forestry and adaptation policies, combined with extensive stakeholder consultations, demonstrates strong country ownership. Delivery through existing community forestry and municipal institutions further enhances local ownership and sustainability.

7.6. Financial Adequacy, Minimum Concessionality and Leveraging

The financing structure demonstrates adequate resourcing and meaningful leverage. Total project costs amount to USD 11.1 million (undiscounted), comprising GCF funding of USD 8.5 million (76.6%), government co-financing of USD 0.70 million (6.3%), and a substantial community labour contribution of USD 1.90 million (17.1%). Non-GCF contributions therefore account for approximately 23.4% of total project resources, reflecting strong domestic and community-level commitment.

Despite strong economic returns at the societal level, concessional grant finance is required because a large share of benefits accrue as public goods, including avoided disaster losses, improved ecosystem services, and strengthened institutions. These benefits are diffuse, non-excludable, and not fully captured by private actors, leading to underinvestment in the absence of concessional support. The conservative treatment of enabling and institutional investments in the model further reinforces the case for grant financing under the principle of minimum concessionality.

7.7. Long-Run Viability and Catalysation

The modelling indicates that key high-return interventions deliver strong benefits at low unit cost per beneficiary, supporting long-run viability provided that operations and maintenance responsibilities are embedded within existing institutional arrangements, including municipal budgets, CFUG mechanisms, and community disaster risk management structures.

The portfolio's strongest-performing interventions—particularly community-based Early Warning Systems and CFUG-delivered Sustainable Forest Management—are institutionally grounded and highly amenable to replication and mainstreaming. Activities with weaker standalone economic returns, such as enterprise incubation and analytical support, should be interpreted as enabling investments whose primary role is to unlock, sustain, and scale benefits generated elsewhere in the portfolio. Overall, the project remains strongly positive even under conservative assumptions, indicating a high likelihood of sustained net benefits beyond the project period.

8. Distributional, Gender, and Social Inclusion Impacts

8.1. Distribution of Benefits Across Groups

Benefit distribution is designed to be explicitly pro-poor and socially inclusive. The Concept Note prioritises women, Dalits, Indigenous Peoples, and other disadvantaged households as primary beneficiary groups, including in livelihood/value-chain support (e.g., the proposal targets $\geq 50\%$ of MSME beneficiaries to women, Dalits and Indigenous Peoples). Delivery through community forestry institutions and municipal systems supports broad reach while providing an established platform to target excluded households through participatory planning and benefit-sharing mechanisms. Community consultations reinforce the need for this distributional focus: women's groups and marginalised groups reported being disproportionately affected by climate and ecosystem stresses, with limited voice and capacity in local resource governance, and highlighted constraints that reduce equitable benefit sharing ((RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh) community level meetings). Existing community institutions already show substantial female participation (e.g., local cooperative membership reported at 50% female in (RAIN–Pragati, 2025: Nalgad)), indicating a realistic pathway for women's participation and benefit capture if targeted support is provided ((RAIN–Pragati, 2025: Nalgad), (RAIN–Pragati, 2025: Barekot) and (RAIN–Pragati, 2025: Shivalaya)).

8.2. Gendered Economic Impacts

Gendered economic impacts are expected to arise through both reduced labour burdens and improved access to income opportunities. Consultations reported drying water sources and increased time burdens for water collection—tasks typically carried by women—alongside wider climate stresses on livelihoods ((RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh) community level meetings). Actions that stabilise watersheds and improve water reliability (NbS, restoration/SFM, model sites) are expected to reduce unpaid labour time and improve productivity and wellbeing. At the same time, targeted MSME/value-chain support (MAP/NTFP processing, business planning, and market linkages) is designed to increase women's and excluded groups' participation in higher-value nodes of the chain rather than only low-return harvesting, addressing barriers raised in consultations such as limited business planning and weak market access (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh; RAIN–Pragati, 2025: Nalgad; RAIN–Pragati, 2025: Barekot and RAIN–Pragati, 2025: Shivalaya). Capacity strengthening for CFUGs and municipalities should also address the consultation-identified gaps in financial/administrative roles and governance, which are particularly important where male out-migration shifts responsibilities to women (RAIN–Pragati, 2025: Nalgad; RAIN–Pragati, 2025: Barekot and RAIN–Pragati, 2025: Shivalaya).

9. Risk Assessment

9.1. Economic and Financial Risks

The project faces several economic and financial risks.

Market risks: MAP/NTFP prices and demand can be volatile, with risks of buyer concentration, low farm-gate prices, and high transport/transaction costs; consultations noted situations where producers receive very low returns compared to downstream margins, and enterprise failure where business planning and market linkages were weak (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh).

Climate-hazard risks: floods, landslides, forest fires and drought can damage restoration and NbS investments, disrupt production and value chains, and impose avoided-loss benefits that are uncertain without adequate preparedness and maintenance; consultations across municipalities reported increasing hazard incidence and ecosystem degradation (RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh; RAIN–Pragati, 2025: Nalgad; RAIN–Pragati, 2025: Barekot and RAIN–Pragati, 2025: Shivalaya).

Institutional and fiduciary risks: limited capacity and administrative burdens in CFUGs/municipalities (e.g., operational plan update constraints; governance/elite capture risks) can reduce implementation effectiveness and equitable benefit sharing if not directly addressed.

9.2. Mitigation Measures

Mitigation measures are embedded in both project design and institutional arrangements. The Concept Note specifies implementation oversight through NTNC as the Executing Entity, a Project Management Unit and Project Steering Committee, and coordination/monitoring arrangements intended to manage delivery, fiduciary controls and adaptive. To mitigate market risks, the value-chain component emphasises business planning and incubation for MSMEs, improved quality/certification, and market linkage support—measures that directly respond to consultation-identified drivers of enterprise failure and low producer returns ((RAIN–Pragati, 2025: Jajarkot; RAIN–Pragati, 2026: Dailekh). To mitigate climate-hazard risks, the project strengthens early warning systems and local DRM structures and promotes climate-resilient land and watershed management; consultations confirmed baseline DRM structures and communications channels that can be formalised and upgraded (RAIN–Pragati, 2025: Nalgad; RAIN–Pragati, 2025: Barekot and RAIN–Pragati, 2025: Shivalaya). Across components, capacity building for governance, accounting and inclusion in CFUGs and municipalities is a risk-control measure to address implementation bottlenecks and safeguard equitable benefit distribution.

10. Conclusions and Recommendations

10.1. Economic Justification Summary

The Annex 10 analysis provides a robust and updated economic rationale for the project based on the budget and results from the economic model. The quantitative analysis estimates total discounted (NPV) benefits of approximately USD 63.1 million against total discounted (NPV) costs of approximately USD 8.51 million, generating a Net NPV of approximately USD 54.6 million, an overall Benefit–Cost Ratio (BCR) of 7.42, and an Economic Internal Rate of Return (EIRR) of approximately 54%.

Project benefits are driven primarily by avoided losses from climate hazards (estimated at USD 20.4 million NPV) and additional and stabilised production and income benefits (estimated at USD 14.2 million NPV), with the social value of carbon (USD 28.46 million NPV) providing a secondary significant co-benefit. This distribution is consistent with the project’s theory of change, under which resilience outcomes arise both from reduced exposure to climate-related losses and from more reliable and diversified forest-based livelihood systems.

A summary of the analysis results is outlined below – see Table 6.

Table 6: Summary of modelled economic analysis

Economic and Financial Criteria	Values	
NPV Benefits	\$ 63,139,655	
NPV Costs	\$ 8,507,631	
NPV Net Benefit Value over project lifetime	\$ 54,632,024	
Economic IRR	54%	
BCR - Benefits per \$1 cost	\$ 7.42	
Average benefits per person (USD)-weighted	\$ 316.24	
Average costs per person (USD)- weighted	\$ 59.67	
Project carbon	Values	Cost/tCO2e
Project CO2e Sequestered and avoided emissions	1,101,385	
Costs (USD) per tCO2e - project cost	\$ 9,209,500	\$ 8.36
Costs (USD) per tCO2e - GCF cost	\$ 8,509,500	\$ 7.73
Funding source	Value (not discounted)	% contribution
GCF costs - actual	\$ 8,509,500	76.6%
NTNC co-funding - actual	\$ 700,000	6.3%
Community labour contribution (project term) - actual	\$ 1,900,800	17.1%

Total project cost - Actual	\$ 11,110,300	
Economic impact	Values	Notes
Total additional production value NPV	\$ 14,242,120	Contribution to rural economic development
Total avoided losses NPV	\$ 20,433,533	Contribution to poverty reduction
Total social value of CO2e	\$ 28,464,002	Contribution to global welfare

The economic results are anchored by several high-performing, scalable interventions, which together contribute a substantial share of total net economic value. This indicates that the portfolio's performance does not depend on one or a few activities. The analysis also treats several enabling and institutional actions conservatively as costs with limited or no monetised benefits, implying that the reported BCR is likely understated and that the full economic case—particularly including governance and institutional strengthening benefits—is stronger than the quantified results alone.

10.2. Financial Viability Summary

Financial viability is supported by the project's portfolio structure, its delivery through durable local institutions (including Community Forest User Groups, local community forest management groups, and municipalities), and a credible financing and leverage framework. The financing plan includes GCF funding of USD 8.5 million, government co-financing of USD 0.70 million, and a substantial community labour contribution of approximately USD 1.9 million over the project term, resulting in a total project cost of approximately USD 11.11 million (undiscounted). This structure demonstrates meaningful local ownership and leverage alongside concessional finance.

High-return interventions—particularly Early Warning Systems—exhibit very low costs per beneficiary relative to expected avoided losses, strengthening the plausibility that operations and maintenance arrangements can be sustained once responsibilities are clearly assigned and integrated into municipal and community systems. While some livelihood and value-chain activities are more sensitive to market conditions and adoption risks, these risks are explicitly recognised and mitigated through the project's emphasis on business planning, capacity building, and market linkages.

Taken together, the strong economic performance at the societal level, conservative modelling assumptions, and institutional embedding of delivery mechanisms provide a credible basis for concluding that project benefits are likely to be sustained beyond the GCF financing period.

10.3. Sensitivity Analysis

The sensitivity analysis uses a deliberately conservative base case that excludes selected benefit streams, resulting in a lower baseline BCR than the full economic analysis presented in Sections 6 and 7. The sensitivity analysis confirms that the project's economic performance remains robust under a range of conservative and adverse assumptions, while also illustrating the relative importance of key benefit drivers.

In the base scenario, the portfolio achieves a Benefit–Cost Ratio (BCR) of 7.42 and an Economic Internal Rate of Return (EIRR) of 54%, with weighted average benefits of approximately USD 316 per person. When the largest avoided-loss benefit from Early Warning Systems (EWS) is reduced by 50%, the BCR declines to 6.16 and the EIRR to 44%, with average benefits per person falling to USD 218. Despite this substantial reduction in a key benefit stream, the project remains economically viable.

Reducing SFM production gains by 50% results in a BCR of 6.96 and EIRR of 53%, indicating that the project is not dependent on optimistic assumptions regarding productivity improvements. Increasing the discount rate from 7% to 12% reduces the BCR to 6.21 and average benefits per person to USD 232, reflecting the greater discounting of long-term ecosystem and resilience benefits; the EIRR remains unchanged at 54%, demonstrating limited sensitivity to the choice of discount rate.

A scenario in which adoption of the largest benefit drivers is reduced by 50% yields a BCR of 7.19, again confirming that partial under-performance in uptake does not undermine overall economic justification. Increasing the carbon price to USD 75/tCO₂e improves economic performance (BCR 9.09; EIRR 63%).

The most conservative scenario—a 50% reduction in adoption across all actions—produces a BCR of 5.38 and an EIRR of 40%, indicating that even under an assumption of uniform under-performance, the project remains economically justified with benefits exceeding costs.

Overall, the sensitivity analysis demonstrates that the project’s cost-effectiveness is resilient to plausible downside risks in avoided losses, production gains, adoption rates and discounting assumptions, with economic viability maintained across all tested scenarios. See Table 7.

Table 7: Outline of sensitivity analysis

Sensitivity analysis					
Scenario	Baseline value	Adjusted value	BCR	EIRR	Ave benefits per person
Base scenario			\$ 7.42	54%	\$ 316
Early warning system - 50% of avoided loss	\$ 1,083	\$ 542	\$ 6.16	44%	\$ 218
Improve SFM - 50% of production gains	\$ 300	\$ 150	\$ 6.96	53%	\$ 280
Increase discount rate to 12%	7%	12%	\$ 6.21	54%	\$ 232
Decrease adoption of biggest benefits by 50%	1	0.5	\$ 7.19	52%	\$ 305
Increase social value carbon to \$75	\$ 50	\$ 75	\$ 9.09	63%	\$ 316
Benefits - 50% reduction in adopting beneficiaries	1.00	0.50	\$ 5.38	40%	\$ 316
Double counting allowed for SFM	25%	75%	\$ 8.13	57%	\$ 310

11. Annexes

Annex 1: Citations

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Annex 2: Summary of the benefit Cost Analysis modelling

Activities	Benefits NPV	Costs NPV	Totals NPV	Benefit Cost Ratio	Economic Internal Rate of Return	Benefits per person	Costs per person (project life time)	% of total project beneficiaries	Cost of per ha	Number of people - beneficiaries (moderated)	Average benefits per person - weighted	Average costs per person - weighted
Activity 1.1.1. Improve Sustainable Forest Management (SFM) for Increased Resilience to Climate Change and Carbon Sequestration Benefits	\$ 3,005,065	\$ 1,656,729	\$ 1,348,336	\$ 1.80	12%	\$ 278.25	\$ 153.40	9.8%	\$ 166	10,800	\$ 27.41	\$ 15.11
Activity 1.1.2. Restore priority sites in community forests, prioritizing species that can be integrated into sustainable NTFP supply chains	\$ 4,845,337	\$ 1,105,592	\$ 3,739,744	\$ 4.46	16%	\$ 276.09	\$ 63.00	16.0%	\$ 1,106	17,550	\$ 44.19	\$ 10.08
Activity 1.1.3. Implement Targeted Nature-Based Solutions (Nbs) for Watershed and Land Resilience	\$ 3,850,531	\$ 1,611,375	\$ 2,239,155	\$ 2.39	25%	\$ 891.33	\$ 373.00	3.9%	\$ 10,743	4,320	\$ 35.12	\$ 14.70
Activity 1.2.1. Value Chain Analysis and Enterprise Incubation	\$ 1,955,486	\$ 685,554	\$ 1,269,933	\$ 2.87	26%	\$ 548.68	\$ 192.36	3.3%		3,564	\$ 17.83	\$ 6.25
Activity 1.2.2. Promote Sustainable Production and Harvesting Practices	\$ 3,333,216	\$ 461,218	\$ 2,871,997	\$ 7.23	69%	\$ 205.75	\$ 28.47	14.8%		16,200	\$ 30.40	\$ 4.21
Activity 2.1.1. Climate change awareness and adaptation training.	\$ 3,626,678	\$ 301,756	\$ 3,324,921	\$ 11.78	381%	\$ 335.80	\$ 27.94	9.8%		10,800	\$ 33.08	\$ 2.75
Activity 2.1.4. Establish Community-Based Early Warning Systems (CB-EWS).	\$ 12,956,325	\$ 295,734	\$ 12,660,591	\$ 43.81	153%	\$ 288.37	\$ 6.58	41.0%		44,930	\$ 118.16	\$ 2.70
Activity 2.1.5. Establish climate adaptation model sites.	\$ 1,103,017	\$ 420,518	\$ 682,498	\$ 2.62	23%	\$ 742.77	\$ 283.18	1.4%		1,485	\$ 10.06	\$ 3.84
Other activities without direct community engagement	\$ -	\$ 1,969,532	\$ -1,969,532	\$ -		\$ -						
Social value of carbon	\$ 28,464,002	\$ -	\$ 28,464,002									
Totals	\$ 63,139,655	\$ 8,508,009	\$ 54,632,024	\$ 7.42	54%					109,649	\$ 316.24	\$ 59.63