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United Nations Development Programme

Country: Nepal

Initiation Plan

Project Title	**: Renewable Energy for Resilient Agri-Food Systems (RERAS)**
Expected UNSDCF/CPD Outcome(s)	**: CPD Outcome 3-:** By 2027, more people, especially women, youth, children, and the most marginalized and poor, increasingly benefit from and contribute to building an inclusive, sustainable, climate-resilient and green society and reduced impacts of disasters at federal, provincial, and local levels
Expected CPD Output(s)	**: CPD *Output 3.1-*** *Innovative resilience-building solutions introduced at all levels to reduce risks from disasters and climate change.* **: CPD *Output 3.3 -*** *Reliable, affordable and efficient clean energy solutions promoted*
Initiation Plan Start/End Dates	**:** 01 September 2023 - 30 June 2024
Implementing Partner	**:** United Nations Development Programme

Brief Description

Access to energy, finance and modern technology tailored to local needs are vital for agricultural productivity, value chain development and establishment of sustainable food systems. There is limited use of renewable energy technology in agriculture value chain development due to poor energy infrastructure and knowledge about application of energy-based technical solutions. Access to finance is another challenge in commercialization of agriculture for smallholder farmers as farmers cannot afford use of modern technology Production of local and diverse farm produce in home gardens, commercialization of local food products and creating awareness among stakeholders about the use of locally produced food for household consumption and school feeding contribute to food and nutrition security.

The project aims to increase agricultural productivity and ensure food and nutrition security by enhancing the use of reliable and affordable energy solutions for production, irrigation, processing, storing, packaging, and marketing of locally grown farm products. The project will support establishing dedicated funds at local level to support the farmers for use of modern technology in production and processing. The project will work with local and provincial governments, cooperatives, traders, and service providers to enhance their knowledge on use of modern technology for food production and sustainable food system management through capacity building and provisions for climate information, policies, finance, and farm research. Extensive use of energy-based and climate smart technology will help reduce the cost of production and increase local food supply. This will also support economic empowerment of women and marginalized groups through job creation and contribute to environment. The project will be implemented by UNDP in 11 local governments of Sudur Paschim (6) and Karnali provinces (5).

The Initiation Plan will be implemented between August 2023 to June 2024 and support in the development full Project Document to be implemented in July 2024. The project will be implemented in partnership with ICIMOD, WFP, AEPC, NARC and other national institutions.

Programme Period:	2023-2024
Quantum Project Number:	01001010
Quantum Output Number:	
Gender Marker:	GEN 2

Total resources required	: **US$ 2,375,149**
Total allocated resources	: **US$ 2,375,149**
Ministry of Foreign Affairs (Energy Unit) - RNE	: US$ 893,467
Ministry of Foreign Affairs (Agriculture and Food Security) -RNE-FS	: US$ 889,033
Ministry of Foreign Affairs (Energy and Food Security) - RNE-E	: US$ 488,433
UNDP	: US$ 104,325

Agreed by UNDP: Ayshanie Medagangoda- Labé, Resident Representative

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I. PURPOSE AND EXPECTED OUTPUT

Situation Analysis

Food Insecurity

Nepal Food Security Monitoring System (NeKSAP) reported that nearly 7 percent of households in Karnali Province was found to be severely food insecure[1] while WFP in 2022 stated that Karnali and Sudur Pashchim Provinces having higher incidences of poor or borderline food consumption (15.3% and 14.5%) than other provinces when compared to the national average (13.2%)[2] with the mountain districts in the two provinces, including Dolpa, Jumla, Mugu, Bajura, and Humla the most adversely affected.[3]

The food security situation in Sudur Paschim and Karnali provinces is a particular concern due to high climate change impacts, higher poverty rate and underdeveloped infrastructure. The people living in these two provinces face numerous challenges related to food production and access. At the same time, the two provinces have consistently been hit by natural hazards such as floods and landslides, which led to loss of agriculture land, crop damage and disruption of food supplies. In October 2022, due to untimely heavy monsoon rains and ensuing flood disaster, at least 35 people died, and a total of 2,889 families across Karnali province were displaced. As a result of the unusual heavy rains, more than 90 landslides descended on the Surkhet-Jumla section, and an additional 73 on the Kalikot section of the Karnali Highway, the lifeline of Karnali Province. Similarly, the Karnali corridor which passes through five local governments of Kalikot, connecting the Kolti area of Bajura and the western parts of Mugu and Humla districts, was also disrupted.[4]

Women constitutes 51 percent of Nepal's total population[5] and 32 percent of households are headed by women. The percentage of women headed households is higher in Karnali (35%) partly due to large-scale out-migration of young men. Approximately 80 percent of Nepali women work in agriculture sector under challenging work conditions, mainly because most of the women work either as subsistence farmers or small-scale producers.[6] Despite a significant number of women engaged in agriculture, only 9.7 percent of women legally own land, and their contribution to formal economy is undervalued. Moreover, rural women are often denied access to services, resources, information, and opportunities, which prevent them from taking ownership of production, resources, and technologies throughout the value chain development and utilizing their full economic potentials contributing to food security. Despite the majority of the population in the two provinces is dominated by Chettri ethnic group, followed by Dalit , Brahmin-Hill and Magar in the mid-hills, the level of food insecurity is almost the same across all ethnic groups, where the Dalit and the Magar groups further face social marginalization with respect to access to services and opportunities for livelihoods. The Initiation plan therefore prioritizes to work with these groups and particularly female headed households, the youth and disabled people across all ethnic groups based on their engagement in agriculture practices and potential to build sustainable food systems.

Food Insecurity in the two provinces has further impacted regular attendance of the children to schools as cash-based school feeding programme of the government has not produced expected results on improving health conditions of primary school children, reducing school dropout and creating children's motivation for classroom education. In lack of proper strategy for school feeding as mid-day meal for primary school

[1] *WFP (2020). The impact of covid-19 on households in Nepal, Second round of mVAM Household Livelihoods, Food Security and Vulnerability Survey. Ministry of Agriculture and Livestock Development*
[2] *World Food Programme (2022), Impact of Current Shocks on Household Food Security in Nepal: Sixth Round of vMAM Household Livelihoods, Food Security and Vulnerability Survey*
[3] *National Planning Commission (2019), The Food Security Atlas of Nepal, Food_Security_Atlas_2019.pdf (npc.gov.np)*
[4] *https://kathmandupost.com/karnali-province/2022/10/13/35-dead-20-missing-in-karnali-floods-and-landslides*
[5] *CBS, NPC, Government of Nepal, 2023*
[6] *Food and Agricultural Organization of the United Nations (2019), Country gender assessment of agriculture and the rural sector in Nepal*

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students, in many schools, children are given either packed food purchased from the market with very low nutrition or local food prepared without knowledge of dietary requirements of the children.

Productive use of energy

Almost 770 million people globally lack access to electricity, which impedes their efforts to reduce poverty and achieve human development. Approximately 2.5 billion people lack access to clean cooking methods, meaning nearly one-third of the global population still depends on firewood and charcoal for cooking meals. In Nepal, the major source of energy used for cooking is firewood (57 percent nationwide), with even higher shares in Karnali (90%) and Sudur Paschim (80%). Nepal's constitution emphasizes on ensuring reliable and affordable supply of energy and making proper use of energy for fulfilment of basic needs of the citizen.[7] [8]

Electricity access to rural population in Nepal is mostly through off-grid renewable energy sources for domestic lighting and run micro-enterprises. Despite energy is a key enabler to improve agriculture productivity and enhance value chain through improvements in irrigation, transportation, processing, storage, and product diversification, it has not been optimally used for commercialization of agriculture sector. Reliable energy technology from off-grid sources such as micro-hydro, solar photovoltaics, solar thermal or through on-grid or distributed generation must be integrated with agriculture and food system.

A rapid assessment commissioned by UNDP in three districts of Karnali and Sudur Paschim Provinces, namely, Jumla, Mugu, and Bajura with highest food insecurity and lowest human development, identified five major barriers in food security as: a) lack of market, transportation, storage and soil testing facilities, b) limited access to finance and information about use of modern technology which result into high upfront cost of production, c) limited energy infrastructure to support for storage and irrigation facilities, d) lack of knowledge to the farmers about local food and its nutrition value, e) lack of policy incentives and institutional capacity to promote modern energy for food and nutrition security and f) lack of climate information and weather forecast and their impacts on crop production.

Nepal's current policy context is relatively favourable to support overall development and improvement of food systems for enhanced food and nutrition security. There are ample opportunities to work with the federal, provincial, and local governments to make use of energy-based technology to mechanize food system.[9] The three-tier government, with support of development partners, has been working to address the key barriers related to policy, financing and technology that collectively contribute to food insecurity in Karnali and Sudur Paschim provinces. However, much more still needs to be done to address the underlying causes of food insecurity through an integrated energy-agriculture-food security nexus approach.

The project aims to contribute to the *"improved food and nutrition security of the communities in targeted municipalities of Sudur Paschim and Karnali provinces by promoting indigenous crop varieties through mechanization of agriculture using renewable energy-based technology."* The project aims to achieve this objective through following three outcomes:

- *Outcome 1: Households have enhanced access to enough food to meet their daily dietary needs*
- *Outcome 2: Renewable energy solutions play key role in improvement of agriculture value chains*
- *Outcome 3: Enabling environment to promote resilient food system is ensured through knowledge and capacity of value chain actors*

7 Constitution of Nepal (2015), Article 50 (h) (12)

8 Constitution of Nepal (2015), Article 50 (g) (3)

[9] Some of the major policies at the federal level are: Provincial at Sudur Paschim (Provincial Agriculture Development Strategy 2079/80 to 2093/94; Agriculture and Livestock Business Promotion Regulation, 2079; Agriculture Research Extension and Education Programme Procedure, 2078) and Karnali are (Right to Food and Food Sovereignty Act 2079; Agriculture Business Promotion Act, 2079; Provincial Agriculture Development Strategy, 2079

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The project results are aligned with and contributes to the UNDP Strategic Plan intervention areas, several SDGs including SDG 1, 2, 5,7 and 10 and 16, the Nepal UNSDCF and UNDP Nepal CPD through three dedicated outcomes (mentioned above) and nine outputs. Assumptions, approaches, baselines, and targets will be further reviewed, potentially revised, and validated during the project inception phase between 01 August to 31 December 2023 in close collaboration with key stakeholders.

During the implementation of the Initial plan, a full-fledged Project Document on "Renewable Energy for Resilient Agri-food System (RERAS)" will be finalized. The Initial Plan will contribute to develop project baselines and - finalize a series of documents such as Gender Equality and Social Inclusion (GESI) Strategy and Action Plan, stakeholder engagement strategy, environment and social safeguard management plan and communication strategy and action plan, required for full-fledged Project Document. A general outline of the full-fledged document with Theory of Change and Result Framework has already been developed. Further the Initiation Plan will set up a foundation for implementation of the full-fledged project by implementing ancillary activities as identified under the Result Framework of full-fledged document.

OUTCOME 1: Households have enhanced access to enough food to meet their daily dietary needs

This outcome focuses on promoting dietary diversification and increasing production of indigenous crops at the local level through home gardens.[10] it also emphasizes on developing market linkages of the selected local products through value chain development. The emphasis is given to enhance production of diverse indigenous crop varieties and ensure availability of sufficient food in the market that meet daily dietary needs of the population. Towards this end, generating awareness about dietary diversity and nutritional value of local indigenous food, effective management of home gardens and subsistence farming practices, will be prioritized.

The value chain of selected food crops will be developed in collaboration with the local governments, agriculture knowledge centers, and other local partners, including community-based organizations. The outcome is also expected to contribute to livelihood improvement of the small farmers, many of whom are women, by building their capacities to use new set of knowledge and modern technology for sustainable farming. The outputs and activities under this Outcome are detailed out below:

Output 1.1: Demand for indigenous crop varieties to meet diverse dietary needs of the community is increased (Dietary diversification)

Under this output, the project will support for enhancing knowledge of the farmers and the community about daily dietary needs of the population (at individual and household level) that meets their nutritional requirements for living a healthy life. This will be done through creating awareness about dietary diversity and significance of indigenous crops to maintain the diversity and fulfill the nutritional requirements. Majority of farmers draw their livelihood from subsistence farming based on rudimentary farming practices with limited use of innovations and technologies at production and post-harvest processing phase. It is therefore important to build confidence of the farmers to invest on growing indigenous crop varieties by improving their skills and abilities for value addition to existing production and processing practices through use of energy-based applications and increasing demand in the market of locally produced food items. The Project will support for capacity building of the farmers through awareness, training, and demonstration of energy-based technology and introducing incentive models of financing in collaboration with the local governments to ensure easy uptake of technology by the farmers.

To increase the demand of locally produced food from diverse and indigenous crop varieties grown by the farmers, the project will support for increasing consumption of such food at household level and schools by

[10] Home gardens are mainly managed and in control of women which promotes their access, choice and decision what to cook, what to feed and eat at hhs level and sell surpluses for extra incomes too

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intervening recipes of school feeding programs. The Project will promote farmer's home gardens to increase production of indigenous crops and empower farmers to expand their family food baskets to include local food that meets their dietary diversity needs. The project will collaborate with NARC and ICIMOD and the partners of ASDP and GRAPE programmes to learn about their experience and best practices of promoting indigenous crops.

Activities contributing to this output include:

- Activity 1.1.1: Prepare a firm baseline to take stock of indigenous crops varieties, agriculture practices and project boundary
- Activity 1.1.2: Enhance understanding about indigenous crops to enhance production and local consumption
- Activity 1.1.3: Enhance capacities of local governments, farmer groups and local value chain actors in pocket area development and adoption of energy-based technologies for pre- and post-production

Output 1.2: Productivity of selected local varieties of food crops increased (Productivity)

This output will contribute to enhancing productivity of the selected agriculture crop varieties with focus on increasing crop yield. To increase crop yield, women-led cooperatives comprising women, disadvantaged groups and person with disability in the pocket areas will be supported for soil testing, seed selection and treatment, pest and disease control, organic composting, nursery techniques and crop and water management. Use of energy-based technology during pre-production and production phase, for example, greenhouse technology for growing seedlings, drip irrigation, safe seed storage to increase seed viability and post-harvest processing and storage, will be promoted through on-site demonstration and hands-on-training. Agriculture mechanization will emphasize on using gender responsive tools and equipment that directly support the disadvantaged women to participate in value chain development and fetch better prices of locally grown products and reduce post-harvest loss.

Activities contributing to this output include:

- **Activity 1.2.1:** Conduct assessment to take stock of soil organic matter, seeds quality, crop management practices and post-harvest losses in select commodities
- **Activity 1.2.2:** Provide technical assistance and support for selected agriculture crops to boost production capacity with added value chain support at different nodes.
- **Activity 1.2.3:** Scale-up gender-responsive agro-mechanization, agro-processing and storage systems
- **Activity 1.2.4:** Strengthen agriculture value chain with modern technology solutions

Output 1.3: Supply of diverse and local food produce in the market enhanced (Market access)

Limited market access for selected value chain products in Project sites is a major concern in availability of local food for the households, except in Jumla where some level of commercialization of local food products has started. Project will support for developing market outlets and build capacities of traders, cooperatives, particularly the women-led cooperatives and farmer groups, with majority of members coming from women and socially marginalized groups, for sale of products through these outlets. To establish market links of local food products and strengthen supply chain, the project will support for start-ups, enterprise development and small infrastructure services based on the analysis of value chain actors and market research. Use of

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digital technology such as digital display of prices at the regional market centres, and use of community FM radio in disseminating market information will be promoted.

At the post-production level, the project interventions are targeted to maintain quality of harvests through proper grading and sorting of products. Support for combined production and collection facilities and integrated small-scale storage and value processing services will be ensured to increase both shelf-life and financial returns of the products. Product marketing will be supported through branding to assure product quality. Activities contributing to this output include:

- **Activity 1.3.1:** Technical support towards understanding the value chain of select commodities and capacity of user groups to scale up processing
- **Activity 1.3.2:** Provide access to finance and subsidy mechanisms to strengthen enhanced market access and digitization of market connectivity

OUTCOME 2: Renewable energy solutions play key role in improvement of agriculture value chains

The outcome is focused on ensuring sustainability of energy systems for necessary value chain support that helps improve productivity and quality of local indigenous crops and maintain food security. Provision of reliable energy solutions is expected to address the needs of the farmers for increased production, reduced post-harvest loss and better-quality of food with high demand in the market. At the same time, energy solutions can also help farmers rely on consumption of local food to meet their dietary requirements through improved supply chain and reduced food waste.

The project will support existing distributed energy systems run by the communities and the cooperatives and interventions are targeted to support them to ensure supply of reliable energy services required for operation of agriculture enterprises. The project will support to build capacities of energy service providers, farmers and end-users including women, for optimum utilization of energy-based solutions by agriculture enterprises. To ensure sustainable supply of reliable energy services and promotion of energy-based technology in agriculture, the Project will support for design of financing instruments through Central Renewable Energy Fund (CREF) of AEPC to ease access to finance needed to meet the cost of regular maintenance of energy systems, purchase of energy-based applications for agriculture and operation of agri-enterprises.

During the inception phase, the project will develop financial instruments and guidelines to enhance access to finance by the farmers, including women. The project will also support for design of agriculture insurance system and replicate models of WFP [11] supported market-based sustainable energy approaches that provides better means of cooking and increases resilience. This in turn is expected to generate further demands for additional energy systems and make multi-functional use of available energy services.

Output 2.1: A suit of renewable energy solutions and applications ascertained for selected value chain (energy solutions)

Reliable renewable energy solutions play an important role in agriculture value chains from farms to markets through influence on inputs, production, processing, distribution, utilization, and marketing of farm products. Access to reliable energy is a key enabler for enhancing agricultural productivity, product diversification and marketing with profound effects on commercialization of agriculture. At the same time, a systematic and coordinated value chain approach with clearly identified steps contribute to sustainability of energy systems.

[11] https://www.wfp.org/energy-for-food-security

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Poorly developed energy infrastructure in the project area is unable to supply reliable energy services needed for commercial operation of agro-based enterprises, which minimizes the opportunity for food diversification and increased household consumption of local food. The Project will support identifying actual energy needs for smooth and commercial operation of agro-enterprises and design interventions to promote productive end-use of electricity for sustainable agriculture value chain development.

Activities contributing to this output include:

- **Activity 2.1.1:** Identify and map energy needs and demands, technological options and energy-based enterprises to strengthen value chain products
- **Activity 2.1.2:** Promotion of productive end use of electricity to support agro-based productive use, value chain and, school feeding

Output 2.2: Reliable supply of renewable energy services ensured by energy service providers (capacity)

There are several factors related to reliable supply of energy services in the project area. First, due to poor utilization of energy generated from decentralized micro-hydro systems, most of the systems run under low plant factor and are unable to meet the cost of operation of the system, which demotivates the plant operators to continue supply of energy services in the long run. Second, opportunities for use of energy-based technology by the farmers and agro-based enterprises are limited as most of the energy-based applications are not tailored to the local context. For example, women are heavily engaged in agriculture value chain, largely due to seasonal migration of men, but the technologies available for are not women friendly. Even the women lack capacities for proper use, operation, and maintenance of the technology. Third, many of the hydro-power plants in the project area, funded under DB(ADB)/SASEC programme, are unable to generate sufficient power required for agriculture value chain development on sustainable basis. Most of these plants are either not under full operation yet or are behind the schedule of completion or confronted with the issue of climatic disasters and grid interconnectivity. For example, 19 existing micro-hydro plants in the area with total capacity of 2.98 MW of electricity has immense potential to generate enough energy for mechanization of agriculture.

The project will support to strengthen capacities of energy cooperatives and management committees of community managed power plants to supply more reliable energy services, through improvement management and regular maintenance, proper tariff regime and load management. The project's capacity development support will be targeted to ensure participation of women in the management and operation of mini-hydro systems, agro-based enterprise operation s and school management and get direct benefits from new cooking technology such as electric stoves that will increase consumption of renewable energy and reduce use of fossil fuels. Access to these systems and new technology will thus reduce the drudgery of women and indoor air pollution and enhance their access to entrepreneurship opportunities.. Activities contributing to this output include:

- **Activity 2.2.1:** Technical support for strengthening electricity infrastructure
- **Activity 2.2.2:** Strengthen capacities on sustainable operation and management of energy systems and promotion of energy services & systems

Output 2.3: Inclusive Financing mechanisms for sustainable operation of energy systems and enterprises are in place (Access to finance)

Among the key constraints in enhancing use of renewable energy-based technologies at the local level by farmers, farmer groups, cooperatives, and small enterprises is not having access to finance. The project will support for development of financial instruments and insurance mechanism to support uptake of the technology by value chain actors either through establishment of dedicated fund at the local level together

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targeted for the farmers and community groups or a mechanism through Central Renewable Energy Fund (CREF) targeted to energy cooperatives. These instruments, together with operational guidelines, will be designed to support results-based financing, encourage market competitiveness, and effective use of energy services and energy-based applications. The funding mechanism and financing instruments will further guide leveraging resources from local and provincial governments to work on energy-agriculture-food security nexus in the long term and meet the cost of maintenance and rehabilitation of small-scale agriculture infrastructure on short-term.

In remote locations, the fund can support the local governments to introduce transportation subsidies and operation of agriculture ambulances for identified products. The fund mechanism and financing instrument will be tested during the initial years of implementation.

Activities contributing to this output include:

- **Activity 2.3.1:** Identify and promote financing instruments to strengthen capacity and access by local communities particularly by women and marginalized groups.
- **Activity 2.3.2:** Technical support to leverage financing for value chain actors on agriculture technology and result-based financing for farmer groups, women groups, and youths to enhance commercialization of indigenous crops

OUTCOME 3: Enabling environment to promote resilient food system is ensured through enhanced knowledge and capacity of value chain actors

As per the constitutional mandates, the local governments have the responsibility to develop necessary policies, regulations, and incentive mechanisms to support sustainable agriculture practices through research, innovation, finance and technology to ensure food and nutrition security of the most poor and vulnerable men and women. Under this outcome, the project will support the local governments to create an enabling policy and institutional environment to support resilient agriculture value chain development of indigenous crops using renewable energy-based technology. The interventions under the outcome will support the local governments to build their capacities to devise policies, strategies and tools based on enhanced understanding of linkages between energy systems, agriculture, and food security. The outcome will also support building knowledge of the farmers, cooperatives, local governments, traders, and service providers in the food value chain system related to energy-agriculture and food system nexus and fulfil this knowledge gap.

Under this outcome, the project will work with the agriculture sections of the local governments, the farmer groups and the cooperatives, to ensure coordination among various programmes to avoid duplications and build synergy at implementation. Project will support awareness programmes and knowledge sharing initiatives through farmer field schools, on-site demonstrations and exchange visits organized at national, provincial, and local levels for value chain actors.

Output 3.1: Knowledge about policies, institutions, technologies, and finance consolidated for local governments to design appropriate policy instruments

Policy frameworks of local governments are fragmented and institutional mechanisms to support the technology and financing for energy and food systems are weak. The project will support for consolidating knowledge about existing policy and institutional environment, followed by development of a roadmap for making periodic improvements in policy and institutional regime at the local level. The future policy frameworks must focus on promoting use of renewable energy technology in agricultural value chains with emphasis on women-led enterprises and adaptive technologies. Knowledge gap assessment across value-chain actors about technology and finance will inform development of capacity building plan and knowledge products, which will be used as future tools for further replications and promote inter-governmental

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cooperation among the three tiers of governments and the stakeholders. Activities contributing to this output include:

- **Activity 3.1.1:** Undertake need assessment to identify barriers including for women and marginalized groups, map capacities of actors towards strengthening capacities of value chain actors and food systems
- **Activity 3.1.2:** Technical support for institutional arrangement and strengthening capacities of local governments and value chain actors

Output 3.2: Farm research and experiments conducted to develop sustainable and resilient value chains

Farm research and experiments are essential to develop sustainable and resilient value chains contributing to livelihood enhancement and food security. Farm research based on soil testing and mapping will help understand the impacts of climate change on productivity and accordingly design interventions for effective soil management, integrated pest management, conservation agriculture, crop diversification, and identification of appropriate crop varieties. Farmer field schools will be linked to farm research to demonstrate climate smart technologies and build knowledge about resilient value chain development in the pocket areas. Pilot research activities will be implemented in collaboration with the farmers. Activities contributing to this output include:

- **Activity 3.2.1** Undertake on-farm research to enhance food productivity, storage, and hands-on learning of local farmers

Output 3.3: Capacities of value chain actors enhanced for improved production, processing, post-harvest handling and supply of food in the market

Capacities of value chain actors will be strengthened to improve skills and knowledge about enhancing crop productivity and quality to compete in the market. The project will support implementation of a range of activities, including capacity needs assessments for various value chain actors, organizing knowledge exchange platforms and pilots. Climate smart agriculture practices will be promoted through use resilient crop-varieties, conservation agriculture practices, and piloting of protected agriculture[12] systems, all with potential replicability effects to support increased production. Capacity building support will be provided to provincial and local governments to formulate inclusive agriculture policies, guidelines, and procedures to enable efficient use of technology and finance in energy and food systems, all in line with federal policies and programmes.

Local governments will also be supported to develop comprehensive monitoring and evaluation frameworks during this process. Support will be provided to enhance local government capacities to engage in consultations with all stakeholders at the local level, determine capacity and institutional needs, promote nutritional awareness and education, as well as energy security, and support to local budgetary allocation. The local governments will be supported to establish Management Information Systems (MIS) for better data management of energy and food systems to measure results and improve information availability. Activities contributing to this output include:

- **Activity 3.3.1:** Organize shared knowledge and dialogues opportunities for value chain actors and document best practices and IP knowledge
- **Activity 3.3.2:** Technical support to Local Governments for climate resilient agriculture value chain

Partnerships

[12] Protected agriculture – the cultivation of high-value vegetables and other horticultural crops in greenhouses – allows farmers to grow cash crops on small plots in marginal, water-deficient areas where traditional cropping is not viable.

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In view of extensive work on food security in the region, the project will aim for a strategic partnership approach utilizing strengths of various organizations in the best possible way to achieve the project outputs. Collaboration and synergy will be prioritized with ongoing project interventions in the region, i.e., Green Resilient Agriculture Productive Ecosystems (GRAPE), Agriculture Sector Development Programme (ASDP), Prime Minister Agriculture Modernization Project (PMAMP), Alternative Energy Promotion Center (AEPC), and other NGO-supported projects. Appropriate coordination mechanisms will be established or strengthened to ensure synergies throughout implementation.

A strategic partnership with ICIMOD will be prioritized. This partnership aims to align ongoing work of ICIMOD under GRAPE, which includes scaling up conservation farming. At the national and provincial level, the program will coordinate with NARC and relevant UN agencies, most notably the World Food Programme (WFP) to promote farming of indigenous crops, increased consumption of local food in school feeding programme, and adoption of green energy and cooking solutions in local schools. It will also engage private sector service providers, suppliers of energy services and managers of agro-based enterprises to ensure sustainable supply of energy services and use of energy-based applications in agriculture value chain. Access to financial services to the farmers, women's groups and cooperatives will be ensured with appropriate funding mechanism established by the local governments and financing tools developed in collaboration with Central Renewable Energy Fund (CREF). The energy-related activities will be centrally coordinated through AEPC following national policy and guidelines for solar water pumping and rehabilitation of micro/mini hydro plants. Local traders, service providers, and private sector actors will be incentivized to supply equipment and provide after-sales services. The required assessment as per the HACT guidelines of UNDP will be completed for the partners.

Partnerships with provincial and local governments aim to maximize project benefits, serving as an enabler to mobilize government resources. The project will coordinate and integrate its activities with the local government agriculture sections and the Agriculture Knowledge Centers (AKC). Project resources will be used to leverage synergies and mobilize resources available at the local governments to contribute to enhancing agricultural productivity and food security. Committees representing local governments, farmer groups, cooperatives, and other relevant stakeholders will be strengthened in coordination with ongoing similar projects. Technical agencies will also be engaged to facilitate technological innovations, conservation farming practices in the Far-western region for field level implementation.

Gender Equality and Social Inclusion:

The development context shows that youth-male out-migration is widespread in the proposed project sites. Additionally, due to socio-cultural reasons, women have reduced mobility and exposure to different livelihoods options. Many women are therefore bound to engage in domestic work and/or subsistence or small-scale farming. Throughout, the project will conduct thorough gender equality and social inclusion (GESI) analysis and integrate findings across all relevant interventions. Further, the Initial Plan will come up with GESI strategy which will guide the design and implementation of specific activities directly aimed at supporting women and persons from marginalized and disadvantage groups, related to sustainable agricultural practices, farming technologies, and food security. The project will also ensure close engagement with local communities and a wide range of beneficiaries to inform design and implementation of activities, thus further contributing to a GESI-responsive and locally adapted and relevant approach. The project will regularly track the progress on project support to women and marginalized groups and report to the project stakeholders, which will be reflected in Project MIS. Details will be further outlined during the inception phase, but some of the activities include:

- Assessment and promotion of women-friendly and women-responsive farming technologies adaptation.

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- Engage women and people from marginalized and disadvantaged groups in decision-making platforms to enhance awareness, participation, voice, and agency, including as representative user groups, cooperatives, enterprises, and businesses;
- Facilitate services for women's and people from marginalized and disadvantage groups' access to tools, equipment and machines through cooperatives and custom hiring centers.
- Facilitate services for women's access to credit/ finance;

A detailed gender and inclusion analysis will be undertaken and a development of an inclusive GESI strategy and action plan for the project will be prepared during the initiation phase.

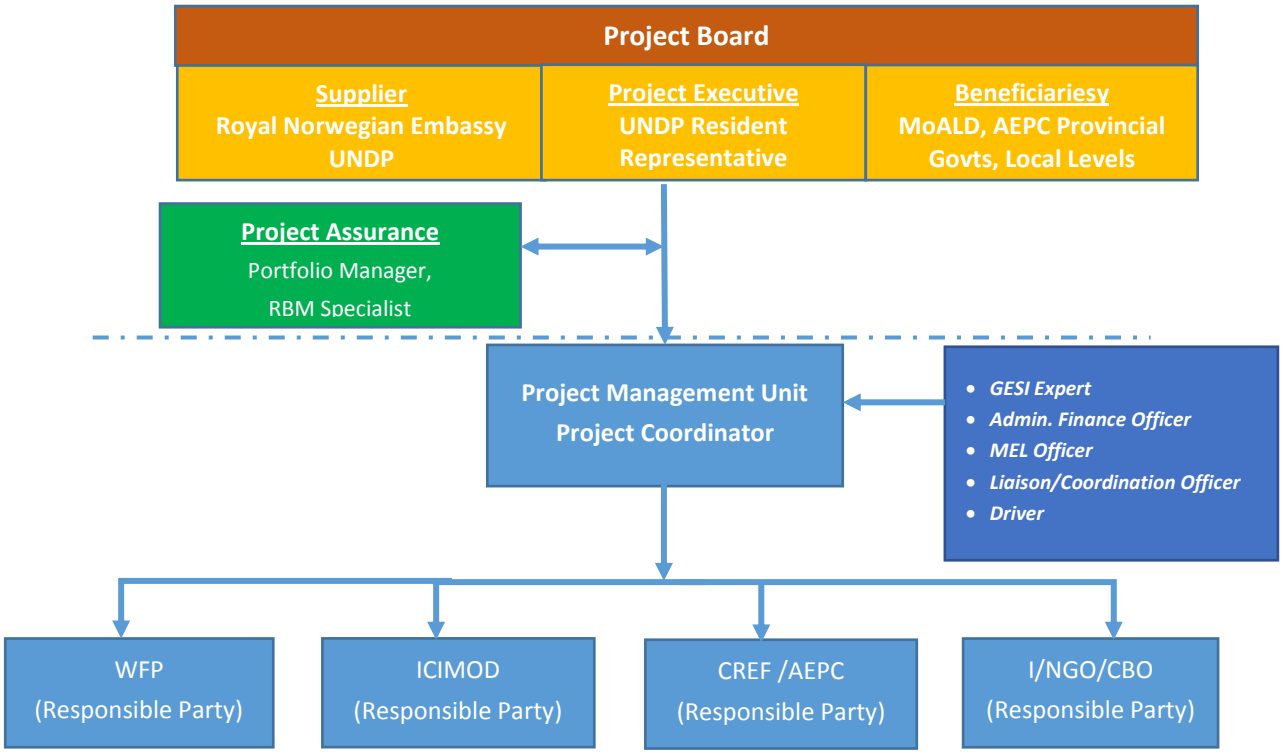
II. MANAGEMENT ARRANGEMENTS

The project will be managed by UNDP under the Direct Implementation Modality (DIM) guided by UNDP's standard programme and operational policy and guidelines. On day-to-day basis, UNDP will setup a dedicated Project Support Unit lead by the Senior Project Coordinator/ Livelihood Expert for day-to-day management of the project under overall guidance of the Portfolio Manager of Resilience and Environment Pillar. The Project Coordinator/Livelihood Expert will be supported by Admin. and Finance Officer, Monitoring, Communication and Reporting Officer, two UNV experts on Finance Support Officer and Liaison & Coordination Officer and a driver. The Project Coordinator will report to the Portfolio Manager of the Resilience and Environment Portfolio and will work closely under the guidance of UNDP's Strategic Advisor for Resilience and Environment. UNDP field offices will support in coordination with provincial governments and partners as necessary to help organize consultation meetings and workshops. UNDP CO Operations will provide required oversight and support for the successful implementation of the project.

UNDP will be responsible for project finance management and reporting to donors as per UNDP policy, assuring quality of project results, managing project risks and ensuring achievements of project outcomes. UNDP will set up a Project Board chaired by UNDP Resident Representative (RR) with members from Norwegian Embassy, Alternative Energy Promotion Center (AEPC), MoALD, representatives from Karnali and Sudur Paschim provincial governments as highest governance mechanism for the project for quality assurance and oversight of project management. UNDP's Policy Advisor, RBM Specialist and Head of Operations and Portfolio Manager for Environment and Resilience will be the members of Project Board. The Project Board review project performance based on monitoring, evaluation, and reporting, including progress reports, risk logs and the combined delivery report.

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Fig 1: Project Board & Implementation Structure



Based on the need of the project during implementation with the approval of Project Board, required human resources will be managed for achieving the results. The Project Board (see Fig1) is responsible for making management decisions to ensure best value money, fairness, timeliness, integrity, transparency, and effectiveness. The Project Board will meet on quarterly basis in general but bi-annual meetings will be mandatory. (Annex A: Terms of Reference of Project Board)

III. MONITORING

Tracking of project funds, monitoring of progress, implementation of compliance and reporting will follow UNDP standard rules and procedures. A comprehensive work plan with concrete deliverables, targets, baseline, budget and timeline has been developed as the key basis for monitoring of the Initiation Plan activities. The PEB will be organized on quarterly basis while an annual review on the basis of the work plan will also be organized.

The Project will regularly track progress on a monthly basis and analyzed against the proposed project outputs. A progress report shall be produced in every quarter containing results achieved against the set targets by the team and presented to the project board. Quarterly report will be compiled and used to prepare the annual report. It will also contain section on the risks, mitigation measures and adaptive management. An Impact Assessment will also be organized prior conclusion of the Initiation Plan.

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IV. RESULTS FRAMEWORK

Intended Outcome as stated in the UNSDCF/Country Programme Results and Resource Framework:
UNSDCF/CPD Outcome 3: By 2027, more people, especially women, youth and the most marginalized and poor, increasingly benefit from and contribute to building an inclusive, sustainable, climate-resilient and green society and reduced impacts of disasters at federal, provincial, and local levels.

Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets:
Ratio of renewable energy in total energy consumption (%)
Baseline (2019): 5%; Target (2025): 37.3%

Applicable Output(s) from the UNDP Strategic Plan:
SP Output 5.1 Energy gap closed
Indicator 5.1.1 Number of people, who gained access to clean, affordable and sustainable energy:

- Female
- Male
- Sex-disaggregated data unavailable
- In urban area
- In rural area

5.1.2 Number of people, who benefitted from services from clean, affordable and sustainable energy:

- Female
- Male
- Sex-disaggregated data unavailable
- In urban area

In rural area
SP Output 5.2 Transition to renewable energy accelerated capitalizing on technological gains, clean energy innovations and new financing mechanisms to support green recovery
5.2.1 Increase (in megawatt) in installed renewable energy capacity per technology:

- Solar
- Wind
- Biomass
- Hydro
- Geothermal

CPD Output 3.3 : Reliable, affordable, and efficient clean energy solutions promoted
3.3.1. Number of men and women with access to clean, affordable and sustainable energy (IRRF5.1.1)
Baseline (2022): 610,708 (50% women) Target (2027): 760,708 (50% women)
3.3.2. Number of renewable energy-based businesses operational, including women-owned (IRFF-5.1.2)
Baseline (2022): 1,640 (30% owned by women/marginalized groups) Target (2027): 2,060 (30% owned by women/marginalized groups)
3.3.3. Increase (kilowatt) in installed renewable energy capacity per technology (IRFF-5.2.1)
Baseline (2021): Solar-565 KW; Micro-Hydro-12 MW Target (2027): Solar-685 KW; Micro-Hydro- 16.75 MW

Project title and Quantum Project Number: Renewable Energy for Resilient Agri-Food Systems

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EXPECTED OUTPUTS	OUTPUT INDICATORS[13]	DATA SOURCE	BASELINE[14]		Yearly Targets			DATA COLLECTION METHODS & RISKS
			Value	Year	2023	2024	TOTAL	
Project Impact **Improved food and nutritional security of the community through mechanization of agriculture in selected areas of Nepal**	***Impact Indicators*** ***No of households (X to Y) with improved food sufficiency status*** ***No of households consuming diversified food with high nutritional value***	***Project impact survey***	*TBD*	***July 2023***		***1***	***1***	*Impact Survey*
Outcome 1: Households access to sufficient food supply in the market to meet their daily dietary needs is enhanced	**% of household has enhanced food supply** (50% women-head households, socio-economic vulnerable groups)	**National agriculture Survey/ Nepal Household Survey/ Nepal Demographic and Health Survey**	TBD	**July 2023**		**1%**	**1%**	National Surveys/Assessment
Output 1.1: Demand for indigenous crop varieties to meet diverse dietary needs of the community increased (Dietary diversification)	*% increase in Area under cultivation of local indigenous crops*	*Municipal Agriculture profile/ Statistical Information on Nepalese Agriculture Report*	TBD	Aug 2023	-	0.5	*0.5*	*National Survey/Assessment*
	% increase in contribution of indigenous crops in Local Level/food composition (HH, School Feeding, Offices) (Food Basket)	*Periodic Municipality report/School Feed programme report/WFP report*	*TBD*	*2023 July*	-	0.5	*0.5*	*National Survey/Assessment*
	# of people reached from training and awareness campaigns on utilization of energy technology to enhance food and nutrition security. (70% beneficiaries includes women, person with disability, socio-economic vulnerable groups)	*Project report/Periodic report*	TBD	2023 July	*200*	500	*700*	*Project MIS/Routine monitoring*
	1 Project Document prepared	*Project Document*	0	2023 July	*1*		*1*	*Project MIS/Routine monitoring*

[13] *Adjustment to Output indicators will be undertaken during the inception phase.*
[14] *Baseline to be updated during preparatory phase in 2023*

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Output 1.2:- Productivity of selected local varieties of food crops increased (Productivity)	*% increase in yield in selected commodities*	*Municipal Agriculture Profile*	TBD	2023 July	-	0.5	*0.5*	*Municipal Survey/Assessment*
	# of irrigation facilities installed	*Municipal Agriculture Profile;*	*TBD*	*2023 July*	-	*3*	*3*	*Municipal Survey/Profile*
	# of hh access to facilities (storage) (50% includes women, persons with disability, socio-economic vulnerable groups)	*Municipal Agriculture profile/District Chamber of Commerce records*	*TBD*	*2023 July*	-	*3*	*3*	*Municipal survey/Assessment/Agriculture profile*
	# of gender responsive agricultural technologies, practices and services provided (solutions)	*Periodic report/Reports of Municipal Agriculture section/Agriculture Knowledge Center*	TBD	2023 July	*5*	10	*15*	*Project MIS/Routine monitoring*
	# of farmers using climate resilient agricultural (CRA) practices (70% women, person with disability, socio-economic vulnerable groups))	*Project reports*	*TBD*	*2023 July*	*0*	*50*	*50*	*Project MIS/Routine monitoring, and action research,*
Output 1.3 :-Supply of diverse and local food produce in the market enhanced (Market access)	*# of market outlets selling local indigenous crops/value added products*	*Periodic Reports*	TBD	2023 July	*1*	3	*4*	*Project MIS/Routine monitoring*
	% increase in marketable produce (volume, products, sales value)	*Periodic Reports/District Chamber of Commerce data*	TBD	2023 July	-	*5*	*5*	*Municipal survey/Assessment*
	# of agro-based start-up, enterprises and infrastructures (collection center, cold storage) engaged in value chain (50% women, person with disability, socio-economic vulnerable groups)	*Periodic Reports/ Municipal Profile/District Small and Cottage Industry profile*	TBD	2023 July	*2*	5	*7*	*Municipal survey/Assessment*
	# of digitized market services (vertical linkages among VC actors, market intelligence such as market price, display boards)	*Periodic Reports*	*TBD*	*2023 July*	-	*3*	*3*	*Municipal survey/Assessment*
Outcome 2: Renewable energy solutions play key role in improvement of agriculture value chain	**# of Reliable energy systems maintained in supporting agriculture value chain.**	**Project Periodic Report**	**TBD**	**2023 July**	**-**	**5**	**5**	*Project MIS/Routine monitoring*

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Output 2.1:- A suit of renewable energy solutions and applications ascertained for selected value chain (energy solutions)	*# of assessment reports prepared on energy-based solutions contributing to production and post-production services.*	*Project Periodic Report*	**TBD**	2023 July	*1*	*1*	*20*	*Survey, Project MIS/Routine monitoring*
	# of energy-based enterprises supported for agriculture value chain (50% women led).	*Project Periodic Report*	**TBD**	*2023 July*	*-*	*2*	*2*	*Survey, data analysis*
Output 2.2:- Reliable supply of renewable energy services ensured by energy service providers (capacity)	*# of people trained on sustainable operation and management of energy systems.*	*Project Periodic Report/ training report*	**TBD**	2023 July	*-*	*50*	*50*	*Project MIS/Routine monitoring*
	# of energy systems supported for sustainable and reliable energy supply to support agriculture value chain	*Project Periodic Report/survey and completion report*	**TBD**	*2023 July*	*-*	*1*	*19*	*Survey, data analysis, Project MIS/Routine monitoring*
	# of schools with access to electric cooking	*Project Periodic Report/survey and completion report*	**TBD**	*2023 July*	*1*	*4*	*5*	*Project MIS/Routine monitoring*
Output 2.3 :-Inclusive Financing Mechanism for sustainable operation of energy systems and enterprises set in place. (access to finance)	*# of municipalities supported with financial instrument to leverage inclusive financing* *# of farmers groups, marginalized groups, women's groups, youth supported by inclusive financing*	*No. of financial instruments/Project report*	**TBD**	2023 July	*0*	*2*	*2*	*Project MIS/Routine monitoring*
Outcome 3: Enabling environment to promote resilient food system is ensured through enhanced knowledge and capacity of value chain actors	**# of Municipalities having strategy/policy document and MIS systems on food systems**	**Municipal reports/MoLMAC progress reports**	**TBD**	**2023 July**	*-*	*1*	*1*	*Project MIS/Routine monitoring*
Output 3.1:- Knowledge about policy, institution, technology and finance consolidated to design right policy instrument by the municipalities	*# of gender responsive roadmaps agreed and institutionalized*	*Municipality report, project report*	**TBD**	*2023 July*	*-*	*1*	*1*	*Project MIS/Routine monitoring*
	# of knowledge product on policy briefs on technology and finance for municipalities developed.	*Municipality report, project report*	**TBD**	*2023 July*	*-*	*1*	*1*	*Knowledge products, publications, information dissemination, Project MIS/Routine monitoring*
Output 3.2:-Farm research and experiments conducted to	*# Digital soil maps prepared*	*Soil mapping reports, AKC reports*	**TBD**	2023 July	*-*	*1*	*1*	*Soil mapping of each municipality; research and reporting*

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develop sustainable and resilient value chain	*# of farm school conducted in demonstrating technology and agriculture value chain linkages.*	*Municipality and AKC reports, project report*	**TBD**	*2023 July*	-	*2*	*2*	*Project MIS/Routine monitoring*
Output 3.3 :-Capacities of value chain actors built for improved production, processing, post-harvest and supply of food in the market	*# of famers/groups/women municipal officials, agro-enterprises and cooperatives provided exposure with knowledge exchange and workshops on improved production, post-harvest and processing with adaptive technologies on enhancing agriculture value chain.(70% women, dalit, person with disability)*	*Reports of Agribusiness promotion/AKC, training report, project report*	**TBD**	2023 July	-	*25*	*25*	*Project MIS/Routine monitoring*
	# of municipalities strengthened MIS based data management system.	*Municipal reports, project report*	**TBD**	*2023 July*	-	*1*	*1*	*Project MIS/Routine monitoring*

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V. WORK PLAN

EXPECTED OUTPUTS	PLANNED ACTIVITIES	TARGET FOR PLANNED ACTIVITIES	2023		2024			Planned Budget					TOTAL BUDGET (USD)
			Q3	Q4	Q1	Q2	RESPONSIBLE PARTY	FUNDING SOURCE	BUDGET DESCRIPTION	UNIT	2023	2024	
Outcome 1: Households access to sufficient food supply in the market to meet their daily dietary needs is enhanced													
Output1.1:- Demand for indigenous crop varieties to meet diverse dietary needs of the community increased (Dietary diversification) Baseline: No baseline report Indicators: 1 Baseline report Target:	**Activity 1.1.1:** Prepare a firm baseline to take stock of indigenous crops varieties, agriculture practices and project boundary	**Sub-Activity 1.1.1.1:** Develop baseline data for indicator targets and validation of proposed activities and project boundary in the inception phase	**X**	**X**			UNDP	UNDP	Professional or contractual services	1	40,000	-	40,000
	Activity 1.1.2: Enhance understanding on indigenous crops to enhance production and local consumption	**Sub-Activity 1.1.2.5:** Organize cooking demonstration for recipe and product diversification, to include local ingredients for consumption	**X**	**X**	**X**		UNDP-RP	RNE-FS	Professional or contractual services	6	12,000	6,000	18,000
		Sub-Activity 1.1.2.6: Promotion of Integrated Home Garden for improving household dietary diversity, food and income security		**X**	**X**	**X**	UNDP-RP	RNE	Professional or contractual services	16	6,000	6,000	12,000
	Activity 1.1.3: Enhance capacities of local governments, farmer groups and local value chain	**Sub-Activity 1.1.3.1:** Prepare Climate Resilient Agriculture Farming plan for the identified for 11 municipalities	**X**	**X**	**X**	**X**	ICIMOD	RNE	Professional or contractual services	1	40,000	-	40,000

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	actors in pocket area development and adoption of energy based technologies for pre- and post-production	**Sub-Activity 1.1.3.2:** Develop a training module for farmer/farmer group/energy and agriculture cooperatives to implement climate resilient agriculture and adoption of energy-based technologies during pre- and post-production.					ICIMOD	RNE	Professional or contractual services	1	-	16,500	16,500
		Sub-Activity 1.1.3.4: Technical support to strengthen municipal extension to enhance services to farmers in pocket area development program		**X**	**X**	**X**	UNDP-RP	RNE-FS	Professional or contractual services	17	25,200	5,400	30,600
		Sub-Activity 1.1.3.5: Technical support on agriculture solutions i.e. nursery of crop varieties, efficient farm practices with tunnel farming, micro-irrigation support for enhanced production with effective market linkage and business development support.		**X**	**X**	**X**	UNDP-RP	RNE-FS	Professional or contractual services	5	25,000	-	25,000
		Sub-Activity 1.1.3.6: Finalize the Project Document for RERAF		**X**	**X**		UNDP	UNDP	Professional or contractual services	1	0	0	0
	Sub-Total for Output 1.1										**148,200**	**33,900**	**182,100**
Output 1.2 :- Productivity of selected local varieties of food crops increased (Productivity) *Baseline:* *Target:* *Gender marker:*	**Activity 1.2.1:** Conduct assessment to take stock of soil organic matter, availability of quality seeds, crop management practices, productivity and post-harvest losses in select commodities	**Sub-Activity 1.2.1.1:** Comprehensive assessment of selected commodity value chain **(***Linked with Sub Act 1.3.1.1 - value chain analysis & market analysis of select commodities)*		**X**	**X**	**X**	ICIMOD	RNE	Professional or contractual services	**1**	30,000	-	30,000
		Sub-Activity 1.2.1.2: Assessment of post-harvest losses in select commodities and storage mechanism	**X**	**X**	**X**		ICIMOD	RNE-FS	Professional or contractual services	**1**	15,000	-	15,000
		Sub-Activity 1.2.1.4: Provide support for water management, organic fertilizer and crop management	X	X	X		ICIMOD	RNE-FS	Professional or contractual services	**1**	30,000	-	30,000
				X	X	X	ICIMOD	RNE	Professional or contractual services	**1**	-	10,000	10,000

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	Activity 1.2.2: Provide technical assistance and support for selected agriculture crops to boost production capacity with added value chain support at different nodes.	**Sub-Activity 1.2.2.1:** Conduct gender responsive need assessment, analysis of the agriculture sector in the area in terms of agriculture technology and extension services to boost productivity		**X**	**X**		ICIMOD	RNE	Professional or contractual services	**1**	10,000	-	10,000
		Sub-Activity 1.2.2.2: Provide support for seed storage and nursery establishment of selected indigenous, horticultural/ Home garden crops			**X**	**X**	UNDP-RP	RNE-FS	Professional or contractual services	**1**	15,000	-	15,000
		Sub-Activity 1.2.2.3: Develop and adapt gender responsive agriculture technologies and practices that address specific needs and constraints including means for drudgery reduction.		**X**	**X**	**X**	ICIMOD	RNE	Professional or contractual services	1	5,000	-	5,000
		Sub-Activity 1.2.2.4: Develop training modules on resilient agriculture practices and conduct trainings on improved package of practices of selected commodities (Production and Post-harvest management)			**X**	**X**	ICIMOD	RNE	Professional or contractual services	1	-	6,500	6,500
		Sub-Activity 1.2.2.5: Establish and strengthen community seed banks and community seed producer groups to enhance the access, availability and marketing of quality seeds of targeted crops		X	X	X	UNDP-RP	RNE-FS	Professional or contractual services	2	7,000	7,000	14,000
	Activity 1.2.3 Scale-up gender-responsive agro-mechanization, agro-processing and storage systems (move to 1.2.1	**Sub-Activity 1.2.3.1:** Implement pilot projects in testing the feasibility and effectiveness of the energy solutions in food systems in collaboration with the farmers, researchers and technology service providers to document the knowledge and results		**X**	**X**	**X**	UNDP	RNE-FS	Professional or contractual services	3	25,500	-	25,500

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		Sub-Activity 1.2.3.2: Pilot conservation agriculture and smart precision agriculture in each cluster to demonstrate its benefits and enhance practices in the project area.		**X**	**X**	**X**	UNDP-RP	RNE-FS	Professional or contractual services	1	40,000	-	40,000
		Sub-Activity 1.2.3.3: Piloting technologies and solutions on food processing, sorting/grading, grinding/pulping in two selected municipalities			**X**	**X**	ICIMOD	RNE	Professional or contractual services	1	15,000	-	15,000
	Activity 1.2.4: Strengthen agriculture value chain with modern technology solutions	**Sub-Activity 1.2.4.1:** Promote mechanization of agriculture from production to harvest, post-harvest storage and processing					UNDP-RP	RNE-FS	Professional or contractual services	5	40,000	12,500	52,500
		Sub-Activity 1.2.4.2: Climate responsive technologies from system perspectives e.g. strengthening research-extension-education triangle to make services responsive to farmer's needs, demands and priorities (technology need assessment, sources, operation & maintenance trainings for agricultural mechanization)					UNDP-RP	RNE	Professional or contractual services	5	10,000	10,000	20,000
	Sub-Total for Output 1.2										**242,500**	**46,000**	**288,500**
Output 1.3 :-Supply of diverse and local food produce in the market enhanced (Market access) *Baseline:* *Target:*	**Activity 1.3.1:** Technical support towards understanding the value chain of select commodities and capacity of user groups to scale up processing	**Sub-Activity 1.3.1.1:** Conduct and prepare report on value chain analysis and market research of selected commodities (Including market research on consumer preference and willingness and ability to pay for value added products **(Linked with Act 1.2.1.1)**					ICIMOD	RNE	Professional or contractual services	**1**	-	-	-

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Gender marker:		**Sub-Activity 1.3.1.2:** Support provided in establishing market outlets linking with producer groups/ cooperatives and processing facilities (4 market clusters established)					UNDP-RP	RNE	Equipment	1	10,000	5,000	15,000
	Activity 1.3.2: Provide access to finance and subsidy mechanisms to strengthen enhanced market access and digitization of market connectivity	**Sub-Activity 1.3.2.1:** Support municipalities on devising policies and institutional frameworks with establishment of funds that promote the production and marketing of local and diverse food produce, such as supportive regulations and incentives for small-scale farmers mainly women and youth.		**X**	**X**	**X**	UNDP-RP	RNE	Professional or contractual services	1	-	2,000	2,000
	MONITORING Cost		**X**	**X**	**X**	**X**	UNDP	RNE-FS	Travel and DSA	1	3,939	2,061	6,000
	Technical Support for Output 1			**X**	**X**	**X**	AEPC	RNE-FS	Staff Cost	1	60,326	52,680	113,006
				X	**X**	**X**	UNDP-RP	RNE	Staff Cost	1	64,845	92,943	157,788
	Sub-Total for Output 1.3										**139,109**	**154,684**	**293,794**
	Quality assurance, technical inputs, operations support and communication		**X**	**X**	**X**	**X**	UNDP	RNE-FS	Direct Project Cost	1	20,928	5,995	26,922
			X	**X**	**X**	**X**	UNDP	RNE	Direct Project Cost	1	13,359	10,426	23,785
			X	**X**	**X**	**X**	UNDP	UNDP	Direct Project Cost	1	2,800	-	2,800
	Sub-Total for OUTCOME 1										**566,896**	**251,005**	**817,901**
OUTCOME 2: Renewable energy solutions play key role in improvement of agriculture value chains													
Output 2.1:- A suit of renewable energy solutions and applications ascertained for selected value chain (energy solutions)	**Activity 2.1.1:** Identify and map energy needs and demands, technological options and energy-based	**Sub-Activity 2.1.1.1:** Conduct need and technology assessment to identify energy needs and technological options and map energy-based enterprises for small-holder farmers including for women.	**X**	**X**	**X**		AEPC	RNE-FS	Professional or contractual services	**1**	25,000	-	25,000
					X	**X**	AEPC	RNE-E	Professional or contractual services	1	10,000	2,000	12,000

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Baseline: *Target:* *Gender marker:*	enterprises to strengthen value chain products	**Sub-Activity 2.1.1.3:** Support to establish energy based-solutions to the targeted farmer groups and cooperative with agriculture equipment for commercialization of identified value chain products.			**X**	**X**	AEPC	RNE-FS	Equipment	2	4,000	4,000	8,000
	Act 2.1.2 Promotion of productive end use of electricity to support agro-based productive use, value chain and, school feeding	**Sub-Activity 2.1.2.1:** Promotion of agriculture-based productive use of electricity *(milling, processing, packaging)*		**X**	**X**	**X**	AEPC	RNE-FS	Equipment	1	3,000	3,000	6,000
		Sub-Activity 2.1.2.2: Support farmer groups in pocket area with small scale lift irrigation systems (solar, hydro)		**X**	**X**	**X**	AEPC	RNE-E	Equipment	1	25,000	-	25,000
		Sub-Activity 2.1.2.3: Support to multi-stage irrigation facilities	**X**	**X**	**X**		AEPC	RNE-FS	Equipment	2	150,000	-	150,000
				X	**X**	**X**	AEPC	RNE-E	Equipment	1	75,000	-	75,000
		Sub-Activity 2.1.2.4: Promotion of energy solutions for schools to complement school feeding programme	**X**	**X**	**X**	**X**	WFP	RNE-E	Equipment	1	180,000	45,000	225,000
	MONITORING						UNDP	RNE	Travel and DSA	4	-	-	-
	Sub-Total for Output 2.1										**472,000**	**54,000**	**526,000**
Output 2.2:- Reliable supply of renewable energy services ensured by energy service providers (capacity) ***Baseline:***	**Activity 2.2.1:** Technical support for strengthening electricity infrastructure	**Sub-Activity 2.2.1.2:** Provide support to rehabilitate MHPs to support agriculture-based productive end use	**X**	**X**	**X**		AEPC	RNE-E	Contractual Services-Companies	1	40,000	15,000	55,000
		Sub-Activity 2.2.1.5: Provide support to micro hydro projects to extend energy services to supply reliable and sustainable energy solution to support agricultural value chain.		**X**	**X**	**X**	AEPC	RNE	Contractual Services-Companies	1	-	25,000	25,000

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Target: ***Gender marker:***	**Activity 2.2.2:** Strengthen capacities on sustainable operation and management of energy systems and promotion of energy services & systems	**Sub-Activity 2.2.2.1:** Organize technology demonstration to showcase and replicate the technologies for food preparation and processing with promoting use of e-cooking and improved stoves in reducing the drudgery for women.		X	X	X	AEPC	RNE	Professional or contractual services	5	-	10,000	10,000
		Sub-Activity 2.2.2.2: Conduct technical and managerial training on the sustainable operation and management of the micro hydro, solar based energy solutions in providing reliable energy supply and provide technical support for agro-based enterprises.		**X**	**X**	**X**	AEPC	RNE	Training, workshops, and conferences	1	-	4,000	4,000
		Sub-Activity 2.2.2.3: Support women led productive energy use enterprises (70% women led or youths led)		**X**	**X**	**X**	AEPC	RNE	Professional or contractual services	25	4,500	8,000	12,500
	MONITORING				**X**	**X**	UNDP	RNE	Travel and DSA	1	-	500	500
	Sub-Total for Output 2.2										**44,500**	**62,500**	**107,000**
Output 2.3 :-Financing Mechanism for sustainable operation of energy systems and enterprises set in place. (Access to finance) *Baseline:* *Target:* *Gender marker:*	**Activity 2.3.1:** Identify and promote financing instruments to strengthen capacity and access by local communities particularly by women and marginalized groups.	**Sub-Activity 2.3.1.1:** Assess and propose a financing instrument/mechanism and institutionalization of the arrangement i.e. CREF					AEPC	RNE	Professional or contractual services	**1**	7,000	8,000	15,000
	MONITORING				**X**	**X**	UNDP	RNE	Travel and DSA	1	-	1,500	1,500
			X	**X**	**X**	**X**	UNDP	RNE-FS	Travel and DSA	1	5,202	4,464	9,666
	Technical support for Output 2		**X**	**X**	**X**	**X**	AEPC	RNE	Staff Cost	**1**	109,248	91,040	200,288
	Sub-Total for Output 2.3										**121,450**	**105,004**	**226,454**
	Quality assurance, technical inputs, operations support and communication		**X**	**X**	**X**	**X**	UNDP	RNE-E	Direct Project Cost	1	23,100	4,340	27,440

			X	X	X	X	UNDP	RNE-FS	Direct Project Cost	1	13,104	802	13,907
			X	X	X	X	UNDP	RNE	Direct Project Cost	1	8,452	10,363	18,815
	Total for OUTCOME 2										**682,607**	**237,009**	**919,616**
Outcome 3: Enabling environment to promote resilient food system is ensured through enhanced knowledge and capacity of value chain actors													
Output 3.1:- Knowledge about policy, institution, technology and finance consolidated to design right policy instrument by the municipalities ***Baseline:*** ***Target:*** *Gender marker:*	**Activity 3.1.1:** Undertake need assessment to identify barriers, map capacities of actors towards strengthening capacities of value chain actors and food systems	**Sub-Activity 3.1.1.1:** Conduct stakeholders, value chain actors mapping in the energy and food systems to identify the roles and responsibilities and developing capacity building plan.	X	X	X	X	UNDP	RNE-FS	Professional or contractual services	1	25,000	-	25,000
		Sub-Activity 3.1.1.2: Enhance capacity of value chain actors and local governments on value chain and food systems	X	X	X	X	UNDP	RNE-E	Professional or contractual services	11	11,900	5,100	17,000
	Activity 3.1.2: Technical support for institutional arrangement and strengthening capacities of local governments and value chain actors	**Sub-Activity 3.1.2.2:** Design and implement capacity trainings to strengthen institutional capacities of local governments for enhanced agriculture services and private sector engagement (training module, trainings)			X	X	UNDP	RNE-FS	Individual Consultant	1	6,000	-	6,000
				X	X	X	UNDP	RNE	Training, workshops, and conferences	2	-	3,000	3,000
	MONITORING			X	X	X	UNDP	RNE	Travel and DSA	1	-	1,000	1,000
	Sub-Total for Output 3.1										**42,900**	**9,100**	**52,000**
Output 3.2 : Farm research and experiments conducted to develop sustainable and resilient value chain ***Baseline:*** ***Target:*** ***Gender marker:***	**Activity 3.2.1** Undertake on-farm research to enhance food productivity, storage and hands-on learning of local farmers	**Sub-Activity 3.2.1.2:** Organize farmer field school at the selected pocket areas to provide hands-on learning experience on different crops and value chain in exchanging ideas and learnings.		X	X	X	UNDP-RP	RNE-FS	Training, workshops, and conferences	1	-	9,000	9,000
				X	X	X	UNDP-RP	RNE	Training, workshops, and conferences	1	-	4,500	4,500
	MONITORING			X	X	X	UNDP	RNE	Travel and DSA	1	-	500	500

	Sub-Total for Output 3.2									**-**	**14,000**	**14,000**
Output 3.3 :- Capacities of value chain actors built for improved production, processing, post-harvest and supply of food in the market Gender marker:	Activity 3.3.1 Organize shared knowledge and dialogues opportunities for value chain actors and document best practices and IP knowledge	**Sub-Activity 3.3.3.4:** Facilitate 2 way exchange of best practices between ICIMOD's Living Mountain Lab and the project beneficiaries and other relevant stakeholders from Karnali		**X**	**X**	**X**	ICIMOD	RNE	Professional or contractual services	**1**	24,000	-	24,000
	Activity 3.3.2: Technical support to Local Governments for climate resilient agriculture value chain	**Sub-Activity 3.3.2.1:** Review of budget allocation practices, agriculture insurance systems, access to finance for farmers in the agriculture, energy, food and nutrition security (inclusion in MEP)		**X**	**X**	**X**	UNDP	RNE	Professional or contractual services	**1**	3,000	-	3,000
		Sub-Activity 3.3.2.2: Provide technical assistance in the municipal annual plan and budget process to ensure the project-based learning are reflected (Energy & Food Security)			**X**	**X**	UNDP	UNDP	Professional or contractual services	**1**	-	2,000	2,000
	MONITORING				**X**	**X**	UNDP	UNDP	Travel and DSA	1	-	-	-
	Technical support for Outcome 3				**X**	**X**	AEPC	RNE	Staff Cost	1	-	426	426
	Technical support for Outcome 3 (ICIMOD)		**X**	**X**	**X**	**X**	ICIMOD	RNE	Staff Cost	1	9,667	9,667	19,333
	Sub-Total for Output 3.3										**36,667**	**12,093**	**48,760**
	Quality assurance, technical inputs, operations support and communication		**X**	**X**	**X**	**X**	UNDP	RNE-E	Direct Project Cost	1	833	357	1,190
			X	**X**	**X**	**X**	UNDP	RNE-FS	Direct Project Cost	1	2,170	630	2,800
			X	**X**	**X**	**X**	UNDP	RNE	Direct Project Cost	1	2,567	1,337	3,903
	SUB-TOTAL OUTCOME 3										**85,136**	**37,656**	**122,793**
	TOTAL BUDGET PROGRAMME										**1,334,639**	**525,670**	**1,860,310**
	Personnel Costs (Staff Costs)		X	X	X	X	UNDP	RNE-FS	Staff Cost	1	47,200	70,800	118,001

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	Kick off meeting / Annual review workshop / Project Boards			X	X	UNDP	UNDP	Training, workshops, and conferences	1	-	3,000	3,000
		X	X			UNDP	RNE-E	Training, workshops, and conferences	1	-	10,213	10,213
	Local Travel	X	X	X	X	UNDP	RNE-FS	Travel and DSA	1	5,000	5,000	10,000
	Joint Project Monitoring					UNDP	RNE	Travel and DSA	1	5,000	-	5,000
	Professional Services (Audit Fee)		X			UNDP	RNE	Professional or contractual services	1	3,500	3,500	7,000
	Equipment & Furniture	X	X			UNDP	RNE	Equipment & Furniture	1	20,000	-	20,000
	Supplies	X	X	X	X	UNDP	RNE	Supplies	2	800	800	1,600
	Printing and Publications		X	X		UNDP	RNE	Printing & Publication	1	500	-	500
	Sundries	X	X	X	X	UNDP	RNE	Miscellaneous Expenses	1	1,000	500	1,500
	IT Equipment		X	X		UNDP	RNE	Information Technology Equip.	1	18,700	-	18,700
	Communication	X	X	X	X	UNDP	RNE	Comm. & Audio Visual Equip	1	345	265	610
	Rental & Maintenance / Facilities			X	X	UNDP	UNDP	Rental & Maintenance-Premises	1	-	2,500	2,500
	Rental & Maintenance / Facilities		X	X		UNDP	RNE	Rental & Maintenance-Premises	1	3,596	-	3,596
	Assets; vehicles & motorcycles	X	X	X	X	UNDP	UNDP	Equipment	1	32,000	18,000	50,000
	Maintenance of vehicles (fuel/vehicle mgmt..)	X	X	X	X	UNDP	RNE-FS	Materials & Goods	2	8,000	2,000	10,000
	Misc. i.e. Bank Charges, Forex Gain/Loss, insurance	X	X	X	X	UNDP	RNE	Misc. Expenses	1	1,000	1,000	2,000
	Quality assurance, operations support and communication	X	X	X	X	UNDP	RNE-FS	Direct Project Cost	1	4,214	5,446	9,660
		X	X	X	X	UNDP	RNE	Direct Project Cost	1	3,811	425	4,235

		X	X	X	X	UNDP	UNDP	Direct Project Cost	1	2,240	1,645	3,885
Sub-Total PROGRAMME MANAGEMENT										**156,907**	**125,094**	**282,001**
Sub-TOTAL PROJECT BUDGET										**1,491,546**	**650,764**	**2,142,310**
	UNDP GMS @ 8%	X	X	X	X	UNDP	RNE	Programme & Support Services Inc	1	34,471	27,575	62,046
		X	X	X	X	UNDP	RNE-FS	Programme &Support Services Inc	1	49,423	15,742	65,165
		X	X	X	X	UNDP	RNE-E	Programme &Support Services Inc	1	29,267	6,561	35,827
	UN RC Coordination Levy @1%	X				UNDP	RNE	Levy	1	55,840	-	55,840
		X				UNDP	RNE-FS	Levy	1	9,307	-	9,307
		X				UNDP	RNE-E	Levy	1	4,653	-	4,653
Grand TOTAL										**1,674,506**	**700,643**	**2,375,149**

Agency	2023	2024	TOTAL (in USD)
Ministry of Foreign Affairs (Energy Unit) - RNE	521,201	372,266	893,467
Ministry of Foreign Affairs (Agriculture and Food Security) -RNE-FS	676,513	212,521	889,033
Ministry of Foreign Affairs (Energy and Food Security) - RNE-E	399,753	88,571	488,324
UNDP	77,040	27,285	104,325
TOTAL	**1,674,506**	**700,643**	**2,375,149**

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VI. Risk & Issue Log

Project Title: Renewable Energy for Resilient Agri-Food Systems (RERAS)	Project Number: 01001010	Date: 08-Sep-23

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner *(individual accountable for managing the risk)*	Risk Treatment and Treatment Owner
1	There is a risk that lack of quality data may fail to prioritize beneficiaries/targets.	Lack of primary data, poor technical assessment and consultations with local community.	Poor prioritization of targeted beneficiaries, community ownership and technical design of infrastructure.	**3. OPERATIONAL (3.5. Partners' engagement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **4 - Highly likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: 02-Aug-23 To: 22-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 1.1: Undertake detailed data requirements and data identification (identifying all sources) to update baseline and targets during the preparatory phase of the Project in 2023. Risk Treatment Owner: Project Coordinator Risk Treatment 1.2: Undertake through data analysis to identify quality, gaps, requirement for data modelling and additional data collection early on. Risk Treatment Owner: Project Coordinator
2	There is a risk of failure to agree on policy and legislative change and project buy-in.	As a result of failure to consult and engage relevant stakeholders.	Lack of project ownership and project sustainability.	**3. OPERATIONAL (3.5. Partners' engagement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **3 - Moderately likely** Impact: **2 - Minor** Risk level:	From: 01-Aug-23 To: 28-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 2.1: Undertake institutional mapping to identify all relevant stakeholders in government, non-government, community donor and other user groups. Risk Treatment Owner: Project Coordinator

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					LOW (equates to a risk appetite of CAUTIOUS)			Risk Treatment 2.2: Ensure continued engagement through multi-layered dialogue of stakeholders throughout the project and embed for future co-working at the Local, Province and Central Level. Risk Treatment Owner: Project Coordinator
3	There is a risk of resistance from certain local governments for support and scale-up of school meals programme.	As a result of lack of policy provisions at the local level, capacity of local government and failure of engagement of school management.	Which will impact on project strategy to increase in local demand for consumption of local food through school feeding programme.	**3. OPERATIONAL (3.5. Partners' engagement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **1 - Not likely** Impact: **3 - Intermediate** Risk level: **LOW (equates to a risk appetite of CAUTIOUS)**	From: 01-Aug-23 To: 28-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 3.1: Work closely with school management committee to monitor school feeding programme using indigenous crop varieties based on the dietary requirements of the children and share the success of the programme based on evidence with the local governments for further scaling up. Risk Treatment Owner: Project Coordinator
								Risk Treatment 3.1: Work closely with the local governments to enhance policy support on facilitating local production to local consumption. Risk Treatment Owner: Project Coordinator
4	There is a risk that the government may not prioritize the project.	As a result of political instability and change in government at	Ongoing implementation will be stopped and failure to adopt policy measures	**8. SAFETY AND SECURITY (8.2. Political instability) - UNDP**	Likelihood: **3 - Moderately likely** Impact:	From: 01-Sep-23 To: 28-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 4.1: Regular communication with the local governments and political leaders about project objectives, results and strategy about transparent

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		federal and provincial level.	around school feeding, agriculture mechanization and access to financing.	**Risk Appetite: CAUTIOUS**	**3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**			implementation of project activities can win local people support even under unstable political conditions. Ensure strong engagement strategy and participation of the Local Government to facilitate transitions. Risk Treatment Owner: Project Coordinator
								Risk Treatment 4.2: Project field team to remain vigilant about the situation to take urgent measures for staff safety based on security inputs received from project field office and UN Department of Safety and Security and ensure appropriate budgeting and safety/contingency plans for staff to work under such conditions For urgencies, Project Board meetings to be requested for decision-making. Risk Treatment Owner: Project Coordinator

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5	There is a risk of delay on finalization of baseline and implementation of activities.	As a result of unforeseen delays in undertaking essential studies and activities implementation due to weather/access issues etc.	Which will impact in the delay of preparing the detailed feasibility studies of energy systems and on ground implementation and support.	**8. SAFETY AND SECURITY (8.6. Natural hazards) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **4 - Highly likely** Impact: **4 - Extensive** Risk level: **HIGH RISK (equates to a risk appetite of SEEK)**	From: 01-Sep-23 To: 15-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 5.1: Surveys to be scheduled to maximise favourable weather conditions i.e. post-monsoonal period. Initial stock-taking to be undertaking using existing technical staffs in the project locations. Issues/Risks will be raised to the PB and adequate mitigation measures will be discussed/approved by PB and implemented. Partnership with local organizations working in the region to be explored for local level implementation. Risk Treatment Owner: Project Coordinator
6	There is a risk to the health and safety of staffs and work force.	As a result of adverse climatic conditions and natural calamities (earthquake, flood, landslide, etc.) and geographical locations.	Which will impact in hampers timely project delivery and additional cost for reconstruction and rehabilitation of damaged infrastructures.	**8. SAFETY AND SECURITY (8.6. Natural hazards) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **4 - Highly likely** Impact: **5 - Extreme** Risk level: **HIGH RISK (equates to a risk appetite of SEEK)**	From: 01-Sep-23 To: 28-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 6.1: The project will ensure that mitigation measures identified in environmental assessment are implemented to minimize damages due to natural calamities if and when that occurs. The project will draw up an engineering and safety plan to reduce immediate risks of hazard occurrence during works. Risk Treatment Owner: Project Coordinator
								Risk Treatment 6.2: Health and safety precautions for the workforce will be established in the inception phase, drawing on lessons from similar projects in challenging terrain.

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								Risk Treatment Owner: Project Coordinator Risk Treatment 6.3: Contingency and evacuation plans will be prepared. All sub-contracted firms will need to have H&S insurance for its employees. Risk Treatment Owner: Project Coordinator
7.	There is a risk of recruitment delays will affect project implementation timeline.	As a result of delays in the recruitment of qualified project staffs.	Which will impact in project activity completion and coordination at the local level within the project timeline.	**3. OPERATIONAL (3.2. Leadership and management) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **3 - Moderately likely** Impact: **4 - Extensive** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: 01-Sep-23 To: 15-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 7.1: A pro-active coordination mechanism will be established by UNDP during the project inception phase. TORs for key project staff have already been prepared. Existing Project team will be mobilized while, partnership with local organizations will be explored to contract the on-ground implementation. Risk Treatment Owner: Project Coordinator
8.	There is a risk the project outputs on agriculture productivity may not be achieved.	As a result of limited technical capacities and knowledge of organizations to delivery on agriculture component.	Which will impact on the quality of project delivery of agriculture components and timely completion of targets.	**3. OPERATIONAL (3.8. Capacities of the partners) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **3 - Moderately likely** Impact: **4 - Extensive** Risk level:	From: 01-Sep-23 To: 15-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 8.1: A responsible party agreement with a national level organization i.e. NGO will be initiated to provide strong technical backstopping of the agriculture component and on ground implementation. A capacity assessment of the organization will be undertaken, based on

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					SUBSTANTIAL (equates to a risk appetite of OPEN)			which partnership agreements will be signed to minimize risks. Risk Treatment Owner: Project Coordinator
9	There is a risk that upscaling of agriculture productivity may be limited.	As a result of failure to adopt technology (agriculture mechanization) and financing options by the local farmer user groups.	Which will impact the project scope on advancing sustainable livelihood options and upscaling agriculture productivity.	**3. OPERATIONAL (3.3. Flexibility and opportunity management) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: 01-Sep-23 To: 14-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 9.1: A detailed baseline assessment of the municipalities will take stock of the intervention's actions/support required. Learnings from prior and ongoing projects including GRAPE will be internalized to develop a clear strategy to support farmer groups. Exposures and learnings have been prioritized. Risk Treatment Owner: Project Coordinator
								Risk Treatment 9.2: Private sectors will be targeted particularly for agriculture mechanization including support service centres in coordination with the local government. Risk Treatment Owner: Project Coordinator
10	There is a risk of lack of synergy amongst partners and targeted outputs to disrupt project deliverables on time.	As a result of lack of coordination with partner agencies (responsible parties, UN agencies) for timely completion of the activities.	Which will impact in synergy and coordination and result in disjointed programming and poor delivery of the project.	**3. OPERATIONAL (3.5. Partners' engagement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **4 - Highly likely** Impact: **5 - Extreme** Risk level:	From: 01-Sep-23 To: 21-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 10.1: A clear implementation arrangement with clear roles and responsibilities, deliverables timeline, reporting arrangements and communication line will be prepared for clarity amongst partner agencies. A High-Level coordination meeting will be

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					HIGH RISK (equates to a risk appetite of SEEK)			proposed on a quarterly basis while a technical working team meeting will be organized on a monthly basis (initial year) and quarterly meetings from Y2 onwards. Joint monitoring visits will be planned on bi-annual basis amongst partner agencies. Risk Treatment Owner: Project Coordinator
11	There is a risk of increased safety issues that impacts project delivery.	As a result of difficult terrain conditions such as steep and fragile slopes, high altitude, sharp turns and riverbanks may expose workers involved in micro-hydro and solar panel installation at risks to hazard conditions and accidents.	Which will impact in project delivery, financial implications, and reputational risks.	**8. SAFETY AND SECURITY (8.7. Manmade hazards) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: 01-Sep-23 To: 28-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 11.1: OHS Guidelines and practices, as recommended by Government of Nepal and ILO provisions will be strictly followed and monitored. The workers should be oriented on this prior to the construction works. Safety measures during construction and operation will be followed. The contractor should ensure that the workers involved are well protected against work hazards. For example, safety wears such as helmets, gloves, boots, and other safety practices should be strictly put into practice. Risk Treatment Owner: Project Coordinator
12	There is a risk that increased incidences of harassment and gender-based violence that may result in reputational risks.	As a result of influx of projects workers and migrant labours into project areas and lack of awareness on SH/SEA.	Which will impact in social disharmony in the field and result in reputation risks.	**5. REPUTATIONAL (5.1. Public opinion and media) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **4 - Highly likely** Impact: **4 - Extensive** Risk level:	From: 01-Sep-23 To: 22-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 12.1: Gender Action Plan will be put into practice and monitored. Orientation will be organized to the contractor and their staffs while a standard practice of obtaining signatures of concerned service provider on SH/SEA Policy during time of

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					SUBSTANTIAL (equates to a risk appetite of OPEN)			signing the contract will be followed. Risk Treatment Owner: Project Coordinator
13	There is a risk that beneficiaries may limit in the upscaling of energy services.	Due to rapid expansion of the national grid, the mini hydro projects in off-grid areas during development have the risk of grid encroachment.	Which will impact in risk on future sustainability of the isolated RE projects and upscaling of energy solutions.	**3. OPERATIONAL (3.6. Transition and exit strategy) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **4 - Highly likely** Impact: **2 - Minor** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: 01-Sep-23 To: 22-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 13.1: The project is supporting developers for grid connection of mini grids and will coordinate with AEPC and NEA who are preparing an Interconnection Master Plan for Mini Grids to facilitate in the policy direction for grid interconnection. Risk Treatment Owner: Project Coordinator
	There is a risk that intensification of agriculture may impact local environment.	As a result of promotion of commercial level farming of local indigenous crops, there is a risk of communities adopting intensive agriculture practices including excessive use of chemical fertilizers.	Which will impact in the degradation of soil organic matter and increased water pollution	**1. SOCIAL AND ENVIRONMENTAL (1.11. Pollution prevention and resource efficiency) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **4 - Highly likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: 01-Sep-23 To: 21-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 13.2: Promotion of conservation farming practices will be promoted in the project site. Farmer field schools will be operated to enhance farmer's capacity on better soil management and conservation farming approaches. Risk Treatment Owner: Project Coordinator
14	There is a risk that poor environmental accountability and risk mapping may disrupt the Project.	As a result of poor environmental assessment, risk mapping and technical design.	Which will impact in increased financial burden and potential risks to downstream communities. .	**1. SOCIAL AND ENVIRONMENTAL (1.5. Climate change and disaster risks) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **2 - Minor** Risk level:	From: 01-Sep-23 To: 21-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 14.1: Most of the energy component focuses on supporting rehabilitation of existing mini/micro hydro projects that operate on run-off rivers systems that can have minimal environmental damages. Most of these are functional but, whose capacity has been degraded as a

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					MODERATE (equates to a risk appetite of EXPLORATORY)			result of damage or in need of repair. Risk Treatment Owner: Project Coordinator
15	There is a risk that corruption may impact project and reputation risks.	As a result of corruption during the procurement of consultancy firm/agencies for their service on goods and services i.e conservation farming, rehabilitation work of micro-hydro and solar irrigation systems.	Which will impact in the timely completion of activities and increased reputation risks. .	**2. FINANCIAL (2.3. Corruption and fraud) - UNDP Risk Appetite: MINIMAL TO CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **4 - Extensive** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: 01-Sep-23 To: 21-Jun-24	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 15.1: UNDP will lead the procurement process particularly inline with its mandates through a competitive bidding process to ensure cost-efficiency as well as avoid conflict of risks and manipulations. Risk Treatment Owner: Project Coordinator
16	There is a risk that grant embezzlement of may occur during granting process.	Transfer of grants to local organizations to deliver projects on the ground has a risk of being embezzled and missed use for inappropriate headings by the project.	Which will impact in failure to delivery targeted outputs and increased reputational risks. .	**4. ORGANIZATIONAL (4.2. Execution capacity) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **4 - Highly likely** Impact: **3 - Intermediate** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: 01-Sep-23 To: 22-Dec-23	Pragyajan Rai; Portfolio Manager, R&E	Risk Treatment 16.1: A detailed partner capacity assessment will be undertaken during the initial stages prior contracting of the organization. The assessment outline technical capacity of the agency and internal control mechanism to mitigate the potential fiduciary risks. Risk Treatment Owner: Project Coordinator

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ANNEX A: TERMS OF REFERENCE (TOR) FOR THE PROJECT BOARD

Background

All UNDP projects must be governed by a multi-stakeholder board or committee established to review performance based on established monitoring and evaluation metrics and high-level implementation issues to ensure quality delivery of results. For the purpose of this ToR and to ensure standardization, henceforth, as regards project documentation, such a body shall only be referred to by 'Project Board'. The Project Board is the most senior, dedicated oversight body for a UNDP 'Development Project', which is defined in the PPM as an instrument where UNDP "Delivers outputs where UNDP has accountability for design, oversight and quality assurance of the entire project."

The Project Board is responsible for making management decisions by consensus when required, including the approval of project plans and revisions, and the project manager's tolerances. The Project Board approves annual work plans and reviews updates to the project risk log.

Within the overall governance and management arrangements of the project, the role of the Project Board as regards these two key functions ('High-level oversight of the project' and 'Approval of key project execution decisions') is distinct from the roles of entities involved in the implementation of the project, namely the implementing partner (IP), responsibilities parties (if applicable), service providers and project staff.

In order to ensure UNDP's ultimate accountability, the Project Board decisions should be made in accordance with the Quality Standards for Programming that shall ensure management for development results, best value money, fairness, integrity, transparency and effective national and international competition. An effective Project Board needs credible data, evidence, quality assurance and reporting to aid decision making (see next section on supporting functions to the Board). The Project Board also needs to be accountable to protect against conflicts of interest and fraud.

Specific responsibilities of the Project Board include the following:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints, and promote gender equality and social inclusion (LNOB) in the project implementation;
- Review project performance based on monitoring, evaluation and reporting, including standard quality assurance checks, progress reports, risk logs, spot checks/audit reports and the combined delivery report;
- Address any high-level project issues as raised by the project manager and project assurance;
- Provide guidance on emerging and/or pressing project risks and agree on possible mitigation and management actions to address specific risks (including ensuring compliance with UNDP's Social and Environmental Standards, Fraud/corruption, Sexual Exploitation and Abuse and Sexual Harassment);
- Agree or decide on project manager's tolerances as required, within the parameters set by UNDP (Manage Change in the PPM) and the donor, and provide direction and decisions for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP and the donor;
- Agree or decide on a project suspension or cancellation, if required; (note that for GEF and GCF projects it is UNDP that decides to suspend or cancel and project and the Project Board is informed/consulted only).
- Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily according to plans.
- Receive and address project level grievance, including overseeing whatever specific compliance and stakeholder response (or grievance) mechanisms have been put in place so that individuals

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and communities potentially affected by the project have access to effective mechanisms and procedures for raising concerns about the social and environmental performance of the project[15].

- Engage in the low value grant selection process where there is no Grant Selection Committee, as guided by the Low Value Grants – UNDP Operational Guide.

Additional responsibilities of the Project Board can include, but are not limited to, the following:

- Ensure coordination between the various donors and government-funded projects and programmes;
- Report to relevant inter-ministerial bodies or higher-level oversight bodies;
- Ensure coordination with multiple government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Act as an informal consultation mechanism for stakeholders;
- Approve the Project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up;
- Providing guidance or reporting protocols to technical committees or sub-bodies reporting to the Board (if applicable);

[15] The responsibilities of the board in this regard should follow UNDP's Social and Environmental Standards (SES) as codified in the PPM. It should be noted that while a project board can play a role in addressing or assisting with the compliance and stakeholder response (or grievance) mechanisms put in in place for a given project (as part of their quality assurance and oversight function), this will be in addition to and does not substitute for UNDP's core responsibility to ensure compliance with the SES throughout the project management cycle as part of UNDP's Programming Quality Assurance system.