ས་ནམ་མཐུན་འགྱུར་དང་ཚོང་འབྲེལ་ཆུང་བ་ཡར་དྲག་ལས་འགུལ།

Building Resilient Commercial Smallholder Agriculture

(BRECSA)

Terms of Reference for the Establishment of Permaculture

Type of Document: Terms of Reference for the Establishment of Permaculture

Document Number: BRECSA-ToR-PMC-2025-016

Date: September 2024

IFAD
Investing in rural people

GAFSP
global agriculture & food security program

WFP

ROYAL GOVERNMENT OF BHUTAN

MINISTRY OF AGRICULTURE AND LIVESTOCK

ས་ནམ་མཐུན་འཇུར་དང་ཚོང་འབྲེལ་ཆུང་བ་ཡར་དགེ་ལས་འགུལ།

BUILDING RESILIENT COMMERCIAL SMALLHOLDER AGRICULTURE (BRECSA)

Terms of Reference for the Establishment of Permaculture

September, 2024

Project Management Unit

Gelephu, Sarpang

Table of Contents

Terms of Reference for the Establishment of Permaculture

Background

The Ministry of Agriculture and Livestock (MoAL) under the Royal Government of Bhutan (RGoB) is implementing *Building Resilient Commercial Smallholder Agriculture* (BRECSA) project financed by Global Agriculture and Food Security (GAFSP) of USD 13 million grants. The project is co-financed by International Fund for Agriculture Development (IFAD) of loan of USD 8.934 million. IFAD is the Supervising entity for the investment while WFP is the supervising entity for Technical Assistance. BRECSA will be implemented in four Dzongkhags of Sarpang, Trongsa, Tsirang, and Zhemgang comprising of 37 Gewogs and 539 villages.

The project aspires to catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the 4 target Dzongkhags by 2030. The developmental objective of the project is to transforms smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure. BRECSA will adopt several measures to enhance farming resilience and upscaling production through multi-pronged approaches while drawing inspirations from the lesson learnt by the on-going IFAD funded CARLEP, projects and also from the GAFSP funded Food Security and Agriculture Productivity project. These includes, emphasis on community empowerment and gender inclusion, mainstreaming youth, women and vulnerable groups into to the project scope, nutrition sensitive interventions, market-led value chain development, and most importantly by integrating principles of agro-ecological productions for a holistic and sustainable food system transformation.

BRECSA, will focus on the principles of agro-ecology to enhance crop production through permaculture farming. While, lessons from the CARLEP project indicated that permaculture farming has helped reduce climate risk vulnerability, reduce cost, and helped revitalize fallow lands through regenerative agriculture models. Taking this into account, BRECSA, will promote model permaculture farms in the targeted districts to advocate its multi-dimensional advantages towards diversifying income generation and achieving long term sustainability. While in essence, the permaculture farming is defined as a holistic approach to farming, focused on sustainable food production by integrating natural ecosystem, maximizing productivity with minimal environmental impacts, and benefits to the local community.

Therefore, given the importance of the permaculture farming and its promotion included in project scope, there is a need of very clear and comprehensive terms of references (TOR) to streamline the planning process and ensure seamless implementation of the planned activities. With this clear purpose in mind, the TOR for permaculture is being developed.

Objectives

The objectives of this TOR are:

1. To facilitate in the selection of potential farmers (Lead farmer), identification of land area for establishing permaculture farm.
2. To facilitate in developing comprehensive permaculture design, guide in the implementation of permaculture principles and practices in creating a self-sustaining agricultural system.

Scope

In each Dzongkhag, four dynamic farmers (Lead Farmers) already practicing some level of diversified farming will be identified. Altogether, 16 permaculture farms will be developed in the four target districts. Similarly, young women and men and other farmers interested in adopting agroecological farming who reside relatively close to the Lead Farmer will also be identified. A service provider will be recruited by the project to help train the selected farmers and youth about permaculture farming methodologies and develop a fully operational permaculture farm. The network of permaculture farms and Hubs will be linked to form a community of practice (COP) and connected via an online app for remote supervision and intermittent support from the service provider for a period of 2 years.

Approach and Methodology

The selection of farmers for permaculture, will be done in compliance with the developed criteria. However, the general approach to the establishment of permaculture farm will be guided by the following principles:

1. **Land Assessment**

A comprehensive understanding of land is crucial for a successful permaculture design.

- **Soil quality:** Determine soil type, fertility, structure, pH, and nutrient content. This information will guide crop selection and soil amendments.
- **Topography:** Analyze the land's slope, aspect, and elevation. This will influence water management, erosion control, and site layout.
- **Climate:** Understand the local climate, including temperature, rainfall, humidity, and wind patterns. This information will help in the crop selection and design systems that are resilient to weather extremes.
- **Existing vegetation:** Identify native plants, weeds, and invasive species. This knowledge will help in making informed decisions about plant selection and ecosystem restoration.

2. **Design Development**
   Creating a well-thought-out design is essential for maximizing productivity and sustainability.

- **Water management:** Plan for rainwater harvesting, water retention, and efficient irrigation systems to ensure water availability during dry periods.
- **Soil building:** Develop strategies to improve soil fertility, structure, and organic matter content through composting, cover cropping, bio-char incorporation, and mulching practices.
- **Crop rotation:** Plan crop sequences to maintain soil health, prevent pest and disease buildup, and optimize nutrient utilization.
- **Agroforestry:** Integrate trees and shrubs into your system to provide shade, windbreaks, nitrogen fixation, and additional food and income sources. For instance, plantation of fruit trees, high-value trees like agarwood, sandalwood, and Bamboo can provide additional benefits.

3. Infrastructure Establishment

Building the right infrastructure supports efficient farm operations.

- **Fences:** Protect crops and livestock from predators and trespassers.
- **Water harvesting systems:** Collect and store rainwater for irrigation and other uses. Rain water harvesting technologies can be promoted to address water shortage in lean season. Likewise, climate resilient interventions like drip irrigation, automated irrigation etc., should be promoted.
- **Composting facilities:** Manage organic waste to produce nutrient-rich compost for soil improvement. Vermicompost and Bio-gas technologies can be adopted.
- **Other infrastructure:** Consider structures like greenhouses, shed houses, shelter for livestock and processing facilities based on the specific needs.

4. Crop Production

Diversified crop production is a cornerstone of permaculture.

- **Crop selection:** Choose a variety of food crops adapted to the local climate and soil conditions, including fruits, vegetables, grains, and legumes.
- **Organic farming methods:** Prioritize soil health, biodiversity, and ecosystem balance by practicing organic or natural farming. Minimize use of chemicals and synthetic products.

- **Crop spacing:** Arrange plants in guilds to create mutually beneficial relationships and optimize space utilization. Multi-tiered cropping methods can be adopted for efficient utilization of space.
- **Succession planting:** Continuously plant crops to ensure a steady supply of food and maintain soil cover.

5. Livestock Integration

Animals plays a valuable role in permaculture systems.

- **Species selection:** Choose livestock that are well-suited to local climate, available feed, and market demand.
- **Nutrient cycling:** Integrate animals into the system to convert plant matter into manure, which can be used as compost.
- **Income generation:** Raise livestock for meat, eggs, dairy, or fiber to supplement on income.

6. Community Engagement

Fostering strong relationships in the community is essential for long-term success.

- **Knowledge sharing:** Organize workshops, demonstrations, and field days to share permaculture knowledge and skills.
- **Collaboration:** Partner with local organizations, farmers, and researchers to promote sustainable agriculture.
- **Education:** Work with schools and youth groups to foster environmental awareness and food literacy.
- **Community support:** Create opportunities for community members to participate in the farm, such as volunteering, labour force, job etc.

7. Market Development

Access to market is very critical for the overall sustainability of the farm.

- **Market research:** Analyze local demand for products and identify potential customers.
- **Value-added products:** Consider processing your crops into value-added products to increase profitability.
- **Direct marketing:** Explore options like farmers groups or cooperatives, and reliable vendors.

- **Branding and promotion:** Develop a strong brand identity and effective marketing strategies to build customer loyalty.

Criteria for the selection of permaculture farm

Overall the selection of the lead farmers for permaculture farming would be done in conformity to the following criteria's:

1. Interested farmer need to have at least 4 acres of land (dry land or dry or wet land combined) to be categorized as a permaculture farm.
2. The selected farmers should be genuinely interested in the permaculture concept.
3. The identified farmers should have at least three years of farming experience (crop and livestock production) however those graduates with relevant knowledge and qualifications in agriculture can be provided the opportunity.
4. The factors like land suitability, resource availability, feasibility study and market aspects should be taken into consideration while selecting the farms.
5. The farm should have road accessibility.
6. The farmers should be willing to comply with the all the criteria established including cost sharing mechanism
7. Farms should be a registered land or on lease. If the land is registered in parents name, a letter of parent's consent with a witness should be attached.
8. No objection letter from the neighbours/land owners within the radius of 200 meters attested by Gewog administration should be obtained.
9. Abide by SECAP

Working Modality

For seamless establishment of a model permaculture farms, following procedures shall be applied.

1. Identification and selection of lead farmers for the permaculture shall be facilitated by the dzongkhags. While the selection of lead farmers shall comply with the criteria aforementioned.
2. Altogether 16 permaculture farms will be developed in the four dzongkhags; 4 per dzongkhag.
3. Comprehensive trainings, technical guidance and demonstrations shall be provided by the PMU in close consultation with WFP-TA. This also include recruitment of service provider to optimize efficiency.
4. The PMU will enhance the capacity of selected farmers by facilitating exposure visits to neighboring countries and study visit to the CARLEP permaculture farms.
5. Regular monitoring of farms will be undertaken by the PMU and Districts to track progress and facilitate timely interventions.