Farmer-to-Farmer Program

Small Farms Conference Report

June 2022
Kathmandu, Nepal

FARMER TO FARMER
The USAID John Ogonowski and Doug Bereuter Farmer-to-Farmer Program

Report contributors:

Dr. Devendra Gauchan
Dr. Rajendra Mishra, Joint Secretary, MoALD
Dr. Bal krishna Joshi, Chief: NAGRC Senior Scientist
Mr. Durga Adhikari, Managing Director, SEAN
Mr. Bal Krishna Thapa
Ms. Namita Nepal
Uttam Poudel
Chhan B Bhattachan

Editorial Team:

Mahesh Jaishi, PhD Scholar & Extension Director, IAAS, TU
Nirmal Gadal, Country Project Director, F2F CRS
Prachanda Kattel,Project Coordinator, F2F CRS

Table of Contents

Acronyms

ADB	Agricultural Development Bank
AFU	Agriculture and Forestry University
BFI	Bank and Financial Institution
CBS	Central Bureau of Statistics
CRS	Catholic Relief Service
EAS	Extension and Advisory Services
F2F	Farmers-to-Farmer
GDP	Gross Domestic Production
GoN	Government of Nepal
IAAS	Institute of Agriculture and Animal Science
IDP	Integrated Pest Management
LI-BIRD	Local Initiatives for Biodiversity, Research and Development
MoALD	Ministry of Agriculture and Livestock Development
NARC	Nepal Agriculture Research Council
RNFE	Rural Non-Farm Employment
SDG	Sustainable Development Goal
SFACL	Small Farmer Agriculture Cooperative Ltd.
SME	Small and Medium-Sized Enterprise
USAID	United States Agency for International Development

1. EXECUTIVE SUMMARY

The agricultural production system in Nepal is largely dominated by smallholder farmers. Average land holding size is about 0.73 ha/household and 55% of households have less than 0.5 ha of cultivated land. According to the National Census of Agriculture 2011-2012 (Central Bureau of Statistics [CBS]), only a small percentage (<20%) of produce from smallholder farmers are sold formally in the market. Smallholder farmers typically lack access to credit, receive little technical support and often have low productivity due to an inability to invest in inputs such as improved seeds, soil replenishment and small irrigation initiatives. Smallholder farmers generally rely on labor-intensive production methods and family labor, although they often must hire additional labor, especially at key moments in the production cycle (e.g., harvest). Since smallholder farmers are generally impoverished, the pay and working conditions for hired labor is usually very poor. Two-thirds of the land cultivated by smallholder farmers in Nepal is rain-fed and at risk of flooding from annual monsoons.

The sustainable transformation of agricultural practices is vital to ensuring reduced poverty and improved food security, livelihoods and prosperity among smallholder farmers and the wider population. The Agriculture Development Strategy 2015-2035, developed by the Government of Nepal (GoN), puts particular emphasis on making agriculture competitive, sustainable and inclusive through commercialization and modernization. The GoN has enacted measures aimed at improving livelihoods and food security and reducing poverty among smallholders, including extension training, irrigation support, electricity and fertilizer subsidies, and infrastructure development to improve market connections. Overall government investment to support smallholder farmers has nearly doubled over the last five years, however, much more needs to be done to ensure improved provision and access.

Understanding how smallholder farmers and other relevant stakeholders perceive the sustainable transformation of agricultural production in Nepal is essential. On June 24, 2022, staff from the Farmer-to-Farmer (F2F) project in Nepal—funded by the United States Agency for International Development (USAID) and led by Catholic Relief Services (CRS)—convened the **2022 Small Farms Conference: Transforming and Sustaining Small Farmers**. This conference brought together diverse stakeholders, including representatives from the GoN, universities, research organizations, the Federation of Small Farmers' Cooperatives, the National Farmers Group Federation, financial and agricultural insurance institutions, USAID implementing partners, private enterprises and community-based organizations, to better understand the challenges confronted by smallholder farmers, including limited extension and advisory services (EAS), a lack of proper business skills as well as a lack of credit access and poor marketing infrastructure, dysfunctional farmer-extension linkages, land degradation, climate change and market variability.

Based on panel discussions held during the conference, the following recommendations were made to the GoN and other concerned stakeholders to transform and sustain smallholder farming in Nepal.

1. **Provide business skills; promote easier agricultural credit process and insurance services:** Smallholder farmers were discouraged from undertaking

commercial agricultural activities due to risks associated with production failures, pest infestations, low crop yields, limited availability of livestock fodder and space for grazing, and uncertain sales post-production. Any support strategy should address these challenges, including the provision of effective crop and livestock insurance services and agricultural loans to small commercial farmers.

2. **Enhance the role of the private sector:** The government should work to increase the role of the private sector in providing technical knowledge, business skills and agro-enterprise development. Official policies should recognize private sector actors as service providers. The sustained involvement of the private sector is critical to making agricultural services more effective.

3. **Address out-migration:** Labor shortages due to male out-migration and a lack of youth interest in agriculture have become a serious concern. It is important to engage returned youth (from outside of the country) in agricultural production by making agriculture more profitable and attractive. This concern should be addressed through appropriate government policies and programs.

4. **Support and protect local production:** While agricultural production is highly commercialized in Nepal's neighboring countries, the subsistence level of agricultural production in Nepal increases costs, making farmers and customers more dependent on imported food. Addressing this challenge will require a number of measures, including low-cost production support to farmers and policy reforms and regulations that promote local production. Transitioning from small-scale cash crops to highly in-demand crops, such as berries, mushrooms and *Akabare* chilies (Dalle Khursani), can improve livelihoods.

5. **Value agriculture:** Agriculture is considered a low-value profession. It is important to educate people on the value of farming and its role in growing the rural economy. Smallholder farmers should be provided with support for more resilient livelihoods through improved market linkages: empowering farmers to sell directly to consumers, ensuring good prices and higher incomes.

6. **Digital tools and approaches**: Innovative digital tools and approaches provide smallholder farmers with an opportunity to develop pathways to improve their access to support services and their knowledge of best practices to increase their productivity, income, sustainability and, ultimately, resilience to climate change.

7. **Access to agricultural training:** Improving farming methods and yields, and empowering farmers to sell pesticide-free produce directly to consumers. On-site, hands-on training is very effective at increasing access to innovative tools and methodologies and improving implementation. This can be facilitated through community engagement programs with universities and research institutions.

8. **Access and connection to markets:** Effective networking and engagement with small, local, day- and product-specific markets. Another approach would connect smallholder farmers with export markets, either through fair trade markets that apply specific standards for certain commodities (e.g., cocoa and coffee) or through grower schemes in horticulture where buyers (e.g., supermarkets) have committed to strict ethical codes of conduct.

9. **Rainwater harvesting and drip irrigation:** Collecting rainwater and using it effectively as needed. Access to drought tolerant varieties of cereals and vegetables may also be the best option

10. **Methodologies for terraced farming:** For terraces on steep hills or mountain sides, conventional tools and methods are ineffective. For smallholder farmers to thrive, farming needs to become efficient and diversified, eliminating waste and improving yields. Special emphasis should be put on low-cost, efficient tools and methods, focusing on small, terraced plots and back-yard farms.

2. BACKGROUND AND THE CONTEXT

CRS' F2F project in Nepal organized the "2022 Small Farms Conference: Transforming and Sustaining Small Farmers" on Friday, June 24, 2022, in collaboration and partnership with the GoN, universities, research organizations, the Federation of Small Farmers' Cooperatives, the National Farmers Group Federation, financial and agricultural insurance institutions, USAID implementing partners, private enterprises and community-based organizations. During the conference, presenters (farmers, researchers and experts) shared successes in small-scale farming as well as innovative ideas for research, extension and education to strengthen collaboration and partnership among the public, private and cooperative sectors who work to ensure that smallholder farmers advance and sustain their farms in rapidly evolving socioeconomic and environmental contexts. The conference also served as a forum to discuss the results of research conducted by the Nepal Agriculture Research Council (NARC), the Agriculture and Forestry University (AFU) and non-governmental organizations. In total, 110 participants attended the conference.

F2F is a USAID-funded program (2019-2023) with a primary goal of reducing hunger, malnutrition and poverty across six countries: Nepal, Benin, East Timor, Ethiopia, Rwanda and Uganda. The program aims to achieve this goal by advancing inclusive and sustainable agriculture-led growth, generating sustainable, broad-based economic growth in the agricultural sector. The program's secondary goal is to increase U.S. public understanding of international development issues and projects and share knowledge back in the U.S. To achieve its goals, the F2F program provides volunteer technical assistance to farmers and farmer groups (associations and cooperatives), private agribusinesses, and agricultural education institutions in developing countries to address identified technical needs in selected agricultural value chains. F2F volunteers are pooled from a broad a range of U.S. agricultural expertise, including private farmers with varied experience, university professors, bankers and certified accountants, animal health and nutrition specialists, soil scientists, and agronomists who support local host organizations. The F2F program introduces innovation and develops local organizations' capacity for more productive, profitable, sustainable and equitable agricultural systems while providing an opportunity for people-to-people interactions within the agricultural sector. F2F has been adapting local volunteer mobilization strategy pairing with U.S. volunteers since the start of the COVID-19 pandemic.

2.1 Goal and Objectives of the Conference

The overall goal of this small farmer's conference was to facilitate and promote strengthened sustainability, competitiveness and profitability for small farms and farming systems in Nepal. Specific objectives included:

1. Strengthen collaboration and partnership among farmers' groups, cooperatives, GoN institutions (research, extension and university), and the private sector.
2. Provide a platform for smallholder farmers to share their successes with their fellow farmers and stakeholders.
3. Provide a platform for smallholder farmers to share issues and challenges related to access to innovations, inputs (seeds, fertilizers, plant protection, irrigation), agricultural credits, government support, subsidies and crop and livestock insurance.

2.2 Expected Outputs of the Smallholder Farmers Conference

The conference was organized to achieve the following four major outputs:

1. 100 people from diverse areas of the agricultural industry (policy, program, producers, processors, agro-traders, academicians, agri-input suppliers, etc.) attend the conference.
2. At least 15 small producers will showcase their stories and the progress they have made through the support of the F2F program.
3. Academics and researchers in Nepal conduct educational sessions focusing on promising research results for adoption and use by smallholder farmers.
4. Participants actively engage in identifying issues and challenges for smallholder farmers and discuss ways to transform and sustain their production systems.

3. METHODOLOGY AND APPROACH

Prior to the conference, relevant literature was reviewed, and a list of national issues and concerns were compiled. Based on the components of the Conceptual Framework, five panel discussions were conducted (see Annex1: Schedule). These panel discussions were moderated by subject matter specialists. Standard checklists were developed, and guiding questions were discussed, prepared, finalized and shared with the moderators (see Annex 2: Guiding study question). This ensured that similar messaging could be collected during the conference. Parallel discussions were held among conference participants (see Annex 3: Moderators list of parallel discussion); these participants were purposefully selected for particular parallel discussions by selected moderators (see Annex 4: Group wise participants list).

The conference's opening session—a panel discussion on the F2F Program in Nepal—offered a platform for smallholder farmers and CRS staff to share successes and note areas for improvement. In a parallel group discussion session, participants represented diverse sectors, including farmers' groups and cooperatives, agro-entrepreneurs, civil society organizations, donor-funded project managers, government officials and academics. The group discussion was moderated by the respective moderators provided in Annex 3 and co-moderated by CRS staff. The list of participants and their affiliations are provided in Annex 4.

The group discussion was moderated after brief introductions of the participants. First, the moderator outlined the objectives of the group discussion and provided guiding questions to participants. Individual participants were asked to provide their responses to the questions. An interactive group discussion was held among participants to collect various views and to document consolidated and agreed upon answers for specific questions. The agreed upon answers and key points are outlined and presented in the larger panel session. Inputs and feedback are incorporated to improve the report.

4. CONFERENCE EVENTS

4.1. Inaugural and Opening Session

The conference opened with Nirmal Gadal, the Nepal Country Project Director for CRS, presenting an overview and welcoming all participants to the conference. Mr. Gadal gave a brief introduction to CRS' work, both globally and in-country, and explained that CRS implements most of its development interventions in Nepal through partner organizations. Currently, CRS has 18 local partners who are also funded by other donors. CRS primarily works to strengthen the capacity of its partner organizations who act as direct implementers of CRS-supported initiatives and activities. Mr. Gadal highlighted some of the achievements of CRS over the past eight years. Through its diverse initiatives and engagement, CRS has supported more than 15,000 households in the last year alone.

Dr. Govinda Prasad Sharma, Secretary of the Ministry of Agriculture and Livestock Development (MoALD), then delivered his opening statement. In his speech, Dr. Sharma emphasized the importance of such conferences in understanding the needs of smallholder farmers, and detailed several key points, including the necessity for scaling hybridization technology to reduce dependence on imported agriculture produce, and the problem of duplication of subsidies. Dr. Sharma praised the F2F program and participants' efforts in building and sharing knowledge regarding smallholder farmers' transformation and sustainability.

The participants of this panel session appreciated the services, inputs, discussions and networks created while working with F2F. Farmers benefited from assigning volunteers who have practical farm experience. Strengthening capacity building is very important: the backstopping approach of F2F is very promising and must be scaled up to more beneficiaries. CRS is very successful in enhancing business skills and entrepreneurship. Participants also told that majority of the foods we eat are produce by small holders' farmers, however more than 90% of farmers are out of the agriculture development mainstream. They also shared that small farmers are facing multifaceted problems related to quality and affordable inputs, access to credit and innovation, quality extension services and government support.

Before closing the opening session, Dr. Punya Prasad Regmi, Vice Chancellor of AFU, Rampur, expressed gratitude for the conference, and opportunities for frank discussion. Dr. Regmi expressed his view that a top-down approach to agricultural improvement in Nepal has failed, and that a bottom-up approach is critical. The Chair of the opening session, Dr. Sharma, then handed things over to Dr. Durga Devkota of the AFU, who delivered final remarks and wished success for the rest of the day's sessions and conference objectives.

4.2 Meaning and Concept of Smallholder Farmers

The definition of “smallholders” varies according to different stakeholders. However, most agree it encompasses small farmers who own/control their land. Smallholder farmers are small plot producers, farmers with a land holding size less than 0.5 hectare and economically poor. Worldwide, over 570 million smallholder farmers feed two-thirds of the Earth’s growing population. In Nepal, many smallholder farmers are facing increasing challenges in sustaining their production and livelihoods due to climate change, irregular weather and increased competition with large-scale farms in India. Three-quarters of the country’s terrain is mountainous; there is limited land, and the majority of smallholder farmers are forced to depend on rain-fed agriculture, as only a small percentage of arable land is irrigated. Yet despite these challenges, agriculture is the backbone of the economy. It provides livelihoods for almost 65% of the population and accounts for 26.5% of gross domestic product (GDP).

It is estimated that, of the 570 million total farms in the world, 475 million farms are situated on less than two hectares, dominating agriculture in most low- and middle-income countries, where farm sizes continue to fall. Sub-Saharan Africa has the highest rural population growth rate globally, and thus the number of small farms is expected to increase more than in other regions.

4.2.1 Major Characteristics of Smallholder Farmers in Nepal

The characteristics of smallholder farmers varies across nations, however, there are often similarities:

- Smallholders cultivate farms that are often much smaller than one hectare: In some countries, smallholder farm sizes can be very small; on average in Nepal, smallholders farm 0.5 ha.
- Housing and sanitation conditions are poor. In Nepal, about 78% of smallholders’ houses have proper toilets and access to safe drinking water. But only 12% have a non-dirt floor and only 31% have access to electricity.
- Smallholder farmers’ per-hectare productivity is at least two times higher than that of other farmers.
- They work on the farm at least three times more than other farmers. In Nepal, nearly five family members work on the household farm.
- There is some evidence that over time the productivity of smallholders increases more slowly than that of other farmers.
- Few smallholder farmers have access to innovation and credit. For example, in Nepal, only about one fifth of the 2.7 million smallholder farms use improved seed varieties.
- Smallholder farmers’ productive capital is minimal.
- Smallholder farmers produce many crops but sell only a small fraction of the food they produce.

- They work off-farm but are paid less than other farmers. Lack of education and capital makes smallholders move into low-cost and low-return activities, such as agricultural labor and petty commerce.
- In many countries, over 40% of smallholders are poor.
- Smallholder farmers spend more than half of their income to buy/produce food.

Transforming and sustaining small farms is thus a complex and long-term process. Most studies consider commercialization in terms of the volume of marketable commodities. In other words, a farming family is said to be commercialized if it is selling a significant surplus of its agricultural production. Commercialized farmers need to focus on market demand when making production decisions instead of simply selling some produce due to a production surplus.

Smallholder farmers deal with challenges of low productivity and low incomes caused by climate change and poor access to information on the latest and best farming practices. This challenge is heightened for sustainable agricultural approaches that often must be locally adapted and are usually more knowledge-intensive than conventional approaches.

4.2.2 Classification of Smallholders' Farmers

Smallholder farmers can be categorized in three groups:

1. **Commercial smallholder farmers** who run their farms as businesses and tend to specialize in farming high-value products.
2. **Smallholder farmers in transition** often depend heavily on rural non-farm employment (RNFE) while also maintaining small plots for home consumption plus some semi-commercialized food or non-food products. Their number is expected to remain large over the coming decade.
3. **Subsistence-oriented smallholder farmers** are marginalized for a variety of reasons, and their number is expected to fall with economic transformation.

4.2.3 Contribution of Small Farms in Nepal

Small farms not only contribute to feeding the households that operate them but also make two broader contributions.

First, small farms are important to the overall food security of low- and middle-income countries. In Africa and South and Southeast Asia, small farms with less than 2 ha produce around 30 percent of food and make valuable contributions to micro-nutrient-rich food production. Farms under 2 ha globally produce around 30–34 percent of the food supply yet small farm households themselves are often not able to afford a nutritious diet.

Second, small farms contribute to the sustainability of agri-food systems by maintaining the genetic diversity of crops and livestock and supporting ecosystem services. Small farms have more crop diversity and harbor greater non-crop biodiversity at the farm and landscape levels than do larger farms. Subsistence-oriented small farmers plant a greater diversity of traditional crops and maintain genetic resources. To the extent that small farms have more tree cover than larger farms, they provide above- and below-

ground carbon storage, with global benefits for climate mitigation. Trees on farms can also improve water infiltration, a hydrological service that benefits other water users in the landscape and downstream.

4.2.4 The Problem of Sustainable Transformation of Small Farms

The key challenges around access to innovation, information and advisory services are availability, affordability and relevancy. The development and use of innovation and information are constrained by both supply and demand and the lack of adequate linkages between them. At the supply end, lack of investment and technical capacity, coupled with complex and irrelevant information based only on scientific studies, completely overlook the demand perspective. At the demand end, smallholders and family farmers are often uninvolved in the co-creation of knowledge, leading to information that does not recognize farmer know-how and is often neither affordable nor actionable. This leads to a large number of smallholder farmers across the nation, especially women, lacking awareness that such information is even available.

Investment to improve the technical, infrastructural and institutional capacity of bridging institutions within the Agricultural Innovation Systems, including EAS, is rapidly dwindling. The fragmented and broken linkages between agricultural education, research, extension and farmers, as well as the absence of an institutional mechanism to bring them all together, hinder the co-creation of innovation, information and appropriate joint actions.

Traditionally, agriculture services and support have been delivered in person through trained technical personnel (i.e., agriculture extension workers) who coordinate agricultural activities with groups of farmers across multiple farming activities. With an extension-worker-to-farmer ratio typically much higher than the average 1:1,000, smallholder farmers are left vulnerable and without adequate support to transition to more sustainable and climate-resilient practices.

4.3 Promising Innovation & Technology in the Agriculture Sectors

During this session, Nanda Kishor Mandal from Skill Lab argued for improved business literacy training for smallholder farmers in Nepal and detailed five priority areas for support to bolster in-country agribusiness: market knowledge, financial support for promotion, effective technology, access to market networks and access to physical connectivity. In many countries, a robust agribusiness sector adds value to agricultural raw materials and correlates with a higher agricultural GDP and higher rural incomes. The lack of agribusiness in Nepal has been one of the main causes of stagnation in rural incomes.

Promoting the expansion of agribusiness is crucial and this expansion must ensure just and equitable benefits across the agricultural sector. The following are among the socioeconomic and environmental variables that allow for the linkage of agribusiness-linkage with small farmers:

- Technical improvement in artisanal, industrial and combined processes; organizational development that combines the entrepreneurial perspective with producers' practical experiences.

- Improved business education and skills, which directly affect managerial and negotiation capacity.
- Solid domestic markets and expanding markets whose remunerative prices permit innovations and enable new skills to be developed.
- Explicit policies of public and private cooperation.

To promote agribusiness at the local and cooperative levels, providing basic income grants to cooperatives would be an inclusive and bottom-up approach to growth that stimulates the local economy. These grants would help with purchase of appropriate seeds and fertilizer and would improve hygienic conditions on farms. Grants would come from a federal assistance fund to support programs that the government wants to encourage, and could take the form of, for example, cooperative agreements, technology adoption agreements, resolving loan agreements, or loan loss reserve agreements.

Cooperatives provide an opportunity for smallholder farmers to improve their productivity, add value to their products, increase their access to national and international markets, increase their access to credit and information, link to better markets, strengthen their bargaining power, and break from unfair and exploitative relationship that connects them with local money lenders and village traders.

The Director of NARC then presented on recent outreach research activities, which are built on an interactive approach involving researchers, technicians, farmers and the local government. Generally, Farmer Field Trials, Farmer Adoption Trials and technology kit distribution for large-scale demonstration are the main methods adopted for outreach research by NARC. Supply of source seeds, saplings, livestock and fish breeds and technical backstopping are also important activities.

The Director also shared NARC's current priority areas of research on rice, wheat and maize, including Lekali series and Sukha dhan series varietal research. All together NARC is promoting 150 varieties (50% exogenous), including Hardinath hybrid, small grain and aromatic rice, Kala Namak and Sugandhit, Bahuguni rice. NARC is also doing research on hybridization of maize, with Rampur hybrid presenting as a promising variety. Zinc-enriched wheat, finger millet, buck wheat, sugarcane and tomatoes are highlighted crops under research.

According to the Director, extending and re-modeling the present approach to outreach research in Nepal is needed. The National Outreach Research Center of Khumaltar aims to redefine outreach research through a participatory partnership approach. Currently, AFU and IAAS are the main educational institutions involved in basic and academic research on agriculture in Nepal. Other non-government sector involvement in research includes the Local Initiatives for Biodiversity, Research and Development (LI-BIRD), the International Center for Mountain Development, the Agriculture Enterprise Center and seed companies. These entities must coordinate for on-farm research at outreach sites if they are to be involved in improved technology development and dissemination**.**

Next, Assistant Professor Dr, Nirajan Bhattarai from AFU presented promising results from recent research projects conducted by IAAS, including: a wheat variety

development project; high-density orchards; ecology and management of Chinese citrus; evaluation for strawberry management practices; pinching technology of Akbare chillies; integrated pest management (IPM) models; botanical pesticides and production; and fall army worm research. According to Dr. Bhattarai, in the livestock sector, AFU is also documenting promising research results, including year-round breeding potential of buffaloes, synchronizing estrus and including ovulation in livestock; cross compatibility of Boer and local goats; tilapia-shaher polyculture; carp tilapia polyculture; warm water fish technology; and embryo transfer technology in cattle.

The increasing number of scientific studies analyzing the role of higher educational institutions in regional and local economic development lay out several trends that impact the performance of higher educational institutions in transforming agricultural knowledge systems. These include re-envisioning the role of these institutions beyond increasing agricultural production and productivity; introducing new trans-disciplines in academic agendas; widening the catchment by offering education in new academic areas; and providing off-campus, distance learning and open learning using new information and communication technologies and considering them as hubs for agriculture and agribusiness innovation. Higher educational institutions need to engage local educational institutions and their surrounding communities directly (Ash et al., 2005; Barra and Zotti, 2017).

Ravi Bhattarai was the last presenter during this session. He promoted producer-consumer collaboration through digital technologies to transform small farms in Nepal. Mr. Bhtatrai presented three representative cases from his work over the past decade. In his previous work with agricultural traders, Mr. Bhtatrai noted that their primary activities involved finding seasonal produce, comparing market prices and negotiating for purchase. Much of their work involved communication and negotiation to establish a successful business. Many business relationships are built and broken every season and the cycle repeats itself. This limits the scope to work on quality of available produce, finding the best value to both producers and consumers. This team could reduce a lot of this work with a platform for both parties to engage in the marketplace, e.g., like a traditional *hatbazar* (local market). A digital marketplace, owned and operated by the market itself.

A socially owned community platform which allows all agriculture stakeholders to come together and freely share their agriculture products, knowledge, purpose and passion for better and sustainable agriculture practices of producer-consumer collaboration through digital technologies could be positively transformative for small farms in Nepal.

4.4 Advancing & Sustaining Small Farms for the Nation's Prosperity

Five parallel group discussion sessions were conducted with separate leaders and moderators in this session. Each of the group discussions were allotted one hour and 30 minutes for discussion, followed by respective group presentations by group moderators. The list of participants is provided in Annex 4.

4.4.1 Sustainable transformation of small farms in Nepal: Current situation and the ways forward: Strategies for smallholder farmers

Discussion group findings:

- It is essential to understand how smallholder farmers and other relevant stakeholders perceive the sustainable transformation of small farms in Nepal.
- Agriculture in Nepal is predominantly dominated by smallholder farmers with subsistence-oriented production systems and low value addition.
- Small farmers are mainly family farmers who produce foods for their own consumption using their own family labor and family-based assets.
- Two-thirds of agricultural land cultivated by small family farmers in Nepal are rain fed and risk prone suffering from mercy of the monsoons and markets. Agricultural is still not a remunerative and attractive profession for over 60% of the population.

In this context, sustainable transformation of small farmers is important to make agriculture remunerative, reduce poverty and improve the food security, livelihoods and prosperity of the small farmers in Nepal.

What does transformation mean for the farmers?

The specific perceptions of stakeholders on the positive transformation of smallholder farmers are given below.

- Transformation means conversion from small subsistence farmers to modern agro-entrepreneurs through the process of commercialization.
- Transformation into dynamic agro-entrepreneurs with business models.
- Transformation towards upgrading farmers' knowledge levels.
- Transformation from small farms to bigger and more modern farms.
- The transformation process should be inclusive with the empowerment of women and disadvantaged groups.

What are the indicators of agriculture transformation: input, process, output, outcome and impact?

The participants in the groups discussed and identified some pathways, processes and proxy indicators for agricultural transformation at the different levels (from inputs and processes to outputs, incomes and impacts). Some of the important proxy indicators and pathways are outlined below.

1. Access to finance and financial literacy.
2. Access to capacity development opportunities for entrepreneurship, business skills, management (business and market).
3. Access to and use of cutting-edge technologies for transformation.
4. Access to knowledge on areas of production, value addition, marketing.
5. Number of women/disadvantaged groups as entrepreneurs.
6. Integration of small farmers into cooperatives.
7. Gender and social inclusion in production, value addition and marketing.
8. Access to decision-making.

What is currently working well and what is not?

Some small farms are working well because of their use of new technologies, innovations and business skills. For instance, “MUNA” farm is working well as it collaborates with small farmers and has adopted innovative business skills. Similarly, Kalinchowk Yak & Agroforestry Farm, Dolakha has adopted the innovative approach of linking agro-livestock forestry farms with agro-eco-tourism to sustain and promote agribusiness. However, many of the small farms in Nepal are not working well to achieve the goals of becoming innovative aggro-entrepreneurs. There are several structural, institutional and informational problems and gaps. These are broadly outlined below.

- Lack of assured markets for products.
- Penetration beyond middlemen is tough for small farmers.
- Access to inputs, services, finance is limiting for small farms to grow as entrepreneurs.
- Access to subsidies and government support services is limited.
- Access to information is limited.
- Lack of access to extension services.
- Government policies are fragmented and not coherent to support small farms.
- Private sectors are less involved in extension services; extension services should include public-private-partnership model.
- Lack of Investment by the private sector in small farms.

In what conditions they can transform their agriculture contributing to food and nutrition security?

Smallholder family farms cultivate diverse crops and livestock and maintain rich biodiversity in agriculture. They require human resources and institutional and policy support in order to transform into more productive business-oriented operations. These include:

- Training of smallholder farmers on indigenous agricultural product value chains
- Institutional development of small farmer organizations and their networking
- Policy support for indigenous, health and organic products and their value chain development

What are their policy and operational expectations from the federal, provincial, local governments?

Currently there are poor vertical and horizontal linkages between the three tiers of governments as the transition process from federal to local level is not yet completed. As a result, the process of agricultural transformation is not gathering momentum. Therefore, enabling policy support is needed for small farmers to achieve sustainable positive socioeconomic transformation. They are briefly outlined below.

- The Federal Government needs to support the formulation of policies on land consolidation for agricultural infrastructure development at scale.

- Provincial governments need to support for the development of agricultural infrastructure and strengthen agricultural extension services.
- Local governments need to support local value chain development, and farmer identification and registration.
- Capacity building of small farmers and women.
- Public-private-cooperative partnerships are needed for an effective agricultural extension service delivery mechanism.

How could the donor-funded agencies and the private sector contribute to the aforementioned transformation?

Donor agencies and the private sector have a critical role to play in facilitating and supporting the sustainable transformation process. These are briefly outlined below.

- Private sector investment in agricultural infrastructure focusing on whole value chains.
- Donor funding for the development of agriculture infrastructure connecting small farmers with private sector driven markets.
- Donor funding is essential for the infusion/penetration/adaptation of innovative learning and technologies.
- Donors and private sector actors should invest in small farmers' institutional development.

4.4.2 Small farmers' access to government support and subsidies: the current situation and the way forward

Small holder farming in Nepal is gradually transforming in two ways: firstly, towards commercialization and secondly, towards de-farming and a shift to other enterprises. The transformation from smallholder farming to commercial farming requires technical guidance, market linkages, training and extension services, access to modern production inputs and investment support.

Meaning of government support for farmers and their expectation

Generally smallholder farmers understand government support as subsidies, technical support, matching grants for startups, awareness raising, quality advisory, soft loan for agro-entrepreneurs, crop insurance, tax reductions etc. The main gaps in government support identified during the group discussions were:

- Support programs are not linked with smallholder-specific production systems; they are designed for large landholders.
- Smallholder farmers are scattered over difficult geographies and unable to harness market opportunities; furthermore, their production lacks scale and is unable to attract traders.
- Pricing mechanisms are not smallholder-friendly.
- Lack of markets/infrastructure accessible to small farmers.
- Poor access of small farmers to value added product markets/high end market.
- Lack of farmer ID card.

- Lack of government programs to promote smallholder-friendly technologies.
- Lack of programs to identify, develop and promote local technologies.

Means to enhance the government support

The following were listed as ways to enhance smallholder-friendly government support:

- Predictable support products with respect to subject, duration, quantity.
- Communication campaigns to increase awareness of government support programs.
- Targeted support programs suitable for smallholders.
- Provision of demand-based support services.
- Ensure quality and human resource at the government service centers
- Establish monitoring mechanisms to observe what support works and what does not work.
- Avoid duplication of support services.
- Rapid action approach to reach small holders and address their transformation needs.

What is working well and what is not in achieving their goals

The level of absorption and utilization of overall current government supports products varies. The following table gives an overivew.

Support products working well for small holders	Support products not working well
• Fertilizer subsidy • Seed subsidy • Technical support • Vaccination and AI services • Training and capacity building programs • Irrigation support • Extension services • Agri insurance (limited) • Small market infrastructures • Small value chain key driving infrastructures	• Soft credit services and interest subsidy • Competitive grant system • Cooperative and registered firm support • Laboratory services • Fixed and targeted support • High tech farming • Waiver of tax and duties • Mechanization support

Conditions to allow smallholders to transform their agriculture and contribute to food and nutrition security

The discussion group, coordinated by Dr Rajendra Prasad Mishra and co led by Nirmala Nepali, came up with the following recommendations:

- **Financial Assistance:** Concessional Loans, Interest Grants, Insurance Premiums, Tax Exemptions, Export Promotion Exemptions, Business Start-up Capital, Supplementary Investment, Infrastructure Development and Other Financial Facilities
- **Agricultural Input Assistance:** Fertilizer, Weeding, Agricultural Equipment, Irrigation

- **Output-based Assistance:** Value Chain Assistance, Support Price, Price Regulation, Product Target Quota, Barren Land Use Special Package
- **Technical Assistance:** Agricultural Extension, Animal Health and Breeding, Technology Development, Quality Management, Institutional Development Assistance, Value Chain Infrastructure Assistance

4.4.3 Access to innovations: the current situation and the way forward

Access to appropriate innovation, information and advisory services by smallholders and family farmers is a vital element in transforming agriculture and food systems and achieving the Sustainable Development Goals (SDGs). EAS play a critical role in improving access and bridging the gap between information provision and use. However, EAS and other bridging institutions face consistent challenges due to inadequate funding, insufficient capacity, and the lack of an enabling environment or the necessary reforms to meet current and emerging challenges.

Innovators

Major innovators in agriculture are NARC, AFU and IAAS, however, there are many informal innovators in Nepal (e.g., farmers, researchers, academics and businesspeople).

Strategies and methods for increased access to innovation

Both governmental and non-governmental organizations have developed and followed different strategies and methods to disseminate innovations, particularly technologies. A very common means of access to innovation is now through digital media. Digitalization has made access easier for many farmers although the majority of such systems are in English, which is not smallholder-friendly. Different types of dissemination exist (Figure 2) and currently triangular system of innovations process have been found effective (Figure 3).

Analysis of innovation in terms of success and failure, and gaps

All innovation should be based on local resources and avoid negative impacts on local traditions and ecosystems. Many farmers shared success stories in terms of innovations improving productivity but pointed to challenges in marketing their produce. They need a mechanism which links primary producers to consumer markets. There is also a need for regular interaction between innovators and smallholder farmers for innovators to better understand the smallholder context.

Conditions and provision of innovation to transform agriculture contributing to food and nutrition security

Innovations should be implementable using local resources and knowledge. In the name of food and nutrition security, many current technologies depend on foreign systems and inputs like urea, pesticides, seeds etc. There is a focus on mechanization and machines brought in from overseas which are difficult to maintain or repair. Such technologies should be tested in existing local environments. There should be a provision of observation of any innovation by smallholder farmers before adopting it.

Expectations from the universities and research centers

Smallholder farmers expect knowledge-based innovations which have a national as well global market potential. Single commodity-based technology does not suit them and they demand multiple commodity-based innovations. They also need regular interactions with universities, perhaps through traveling seminars.

Contribution of universities, academic institutions and research wings in agricultural innovation

Education and research system are mostly dependent on foreign innovations and therefore need to reorient their current innovative contribution strategies. Often such institutions have contributed to developing varieties and breeds which are not based on native genetic contexts.

Modalities in the innovation process

Innovations are generally not based on local needs, resources, issues and problems. Participatory modalities including the integration of tradition and science-based innovation processes would be the most effective. Smallholder communities should be engaged in the innovation process. Developing ownership in the innovation might help to provide greater impact within a short period of time.

Current situation: issues and challenges

- Many innovations are costly and demand expert knowledge and skills to apply.
- Many research stations do on-farm trials, however, such trials are not accessible to smallholder farmers. Demo trials should be in target areas of smallholder farmers.
- Farmers are knowledge-rich and they self-innovate but due to the influence of ‘exotic’ technologies, many such native and localized innovations are ignored.
- Smallholder farmers have diverse production and agricultural systems but extension workers give priority to single technology solutions and force smallholders to adopt them. Site-specific, suitable, diverse technologies are needed to meet the needs of smallholder farmers.
- The seed systems of many crops are 80% informal. However, focus has not been given to improve the informal seed system; rather, all investments are made in the formal seed system.
- Strategies is to commercialize a single commodity through large-scale cultivation are not applicable to smallholder farmers.
- On-farm trials (Figure 3) are generally carried out in fertile and road accessible areas. Such trials should also be targeted on smallholder farmers’ land and poorer agricultural land.

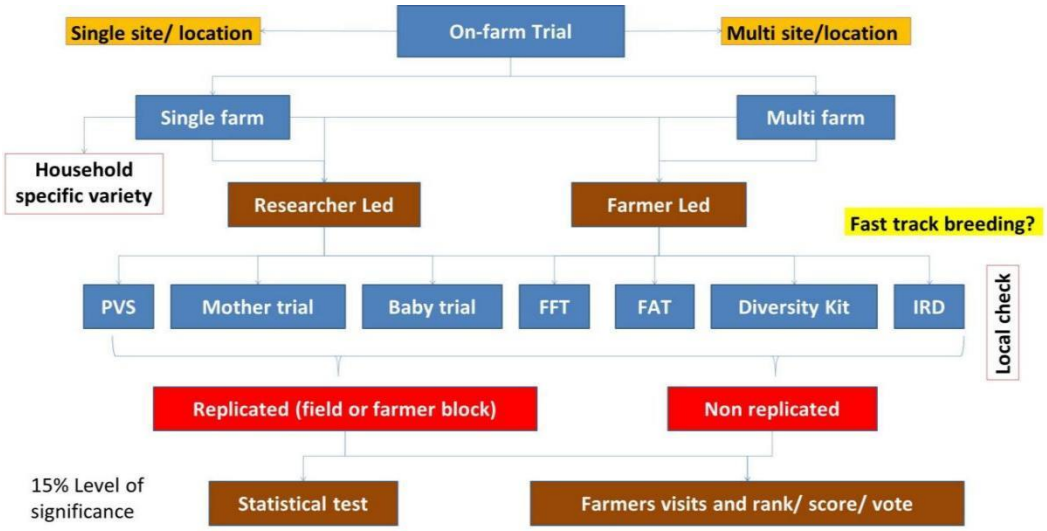

Figure 3. Current On-Farm Trial System (Source: Joshi, et. al. *2021)*

4.4.4 Small Farmers' access to quality and affordable inputs (seed/breed, fertilizers, plant protection, irrigation) in Nepal:

The Nepalese seed market is forecast to record a compound annual growth rate of 3.5% during the period 2020-2025 (MI, 2022). The adoption of hybrid seeds has significantly increased in the country due to the increasing pressure for high crop production to achieve food security. The increase in population, rapid urbanization and skyrocketing land prices have led to a decrease in agricultural land over the last decade. To feed the growing population, the country must increase agricultural output, which can be achieved by cultivating crops using hybrid seeds. Crops from hybrid seeds mature sooner and their return on investment is much higher as compared to local varieties, which are driving many Nepalese farmers to adopt hybrid seeds rather than local varieties. Favorable government policies supporting the intellectual property rights of domestic seed varieties and seed production are some of the factors driving market growth for the seeds sector in Nepal. The demand for hybrid seeds is increasing in the Nepalese market due to their high production potential. Annually, a large quantity of hybrid seeds is imported to fulfill this demand. To reduce seed imports, there is a need for the development of suitable hybrid and open-pollinated varieties of different crops according to farmers' choice. To safeguard the national interest of self-sufficiency, import substitution and increase exports of good quality seeds, the Nepal Ministry of Agriculture has come up with many policies, such as the National Seed Vision (2013-2025) and other seed related regulations to enhance the dynamism of the Nepalese seed industry. The Nepalese seed market is characterized mainly by private companies and farmers' cooperatives. The public sector dominates in seed variety development of major cereal and industrial crops, whereas private seed companies play a crucial role in vegetable seed production and distribution.

Fertilizer

The annual demand for chemical fertilizer in Nepal is about 800,000 tons whereas the government officially imports only around 450,000 tons. Rice plants require nitrogen, phosphorus, and potassium in large amounts with some trace amounts of zinc. But, the

majority of farmers in the country use traditional cultivation practices and only option for the use of urea, which is a source of nitrogen for the soil. Nepal has signed a government-to-government agreement with India for the import of chemical fertilizer import. For the past few years, the chemical fertilizer shortage has been one of the biggest problems of the Nepali agriculture sector. The government has launched several efforts to minimize the problem, but most of them have failed. Therefore, an effective mechanism to import and distribute quality fertilizers in adequate quantity and timely availability to the smallholder farmers has become utmost importance.

Irrigation

The development of agricultural productivity is directly related to the sustainable development of irrigation systems and practices. Nepal's modern irrigation system was started at 1928 with the construction of the Chandra Nahar canal in Saptari district to support wheat and maize farming. After this, irrigated agriculture practices started all over the country. However, though Nepal is rich with freshwater sources, most of the arable land is yet to be irrigated. The majority of the country's paddy production is through a rain-fed system with only a few areas covered by the irrigated canals, mainly in the flat Terai plains.

Plant Protection

Pest and disease outbreaks have always been a problem in Nepal. Tuta in 2015 and fall army worm in 2019 can be taken as examples. Nepal faces a significant risk of invasive species posing a direct threat to food security and native biodiversity. With the potential to cause a considerable loss in yield and quality, invasive pest species can lead to significant damage in the Nepalese agricultural sector.

4.4.5 Small Farmers' Access to Agriculture Credit in Nepal: current situation and way forward

Smallholder farmers and access to credit and SME business

Since 1993, smallholder farmers have created about 900 Small Farmer Agriculture Cooperatives Ltd. (SFACLs). These cooperatives are actively working in 74 districts of the country providing financial and support services to above 900 thousand households particularly poor, disadvantaged and marginalized comprising women, indigenous minorities, ethnic groups and other backward communities. In fact, 78 percent of members are women, and 53 percent are Dalits and indigenous minorities. Thus, these cooperatives are a good example of social and financial inclusion. They have attracted youth to agriculture and created employment opportunities in rural areas of Nepal. SMEs in the tea, dairy, pulse, rice, seed and mustard oil sectors, managed and run by smallholder farmers, have helped farmers gain better prices for their produce through value addition, storage and marketing.

Agriculture credit flow:

CRS recently organized a day long workshop in Kathmandu to discuss small farmers' access to finance. The summary is laid out below.

What type of financial support do smallholder farmers need?

1. Loans at subsidized interest rates.

2. Production – Production loans, inputs loans, machinery loans, farm management funds.
3. Aggregation – Agri-product purchase loans
4. Transport and trade – Transportation loans (in and out)
5. Storage/ Warehouse – Storage credit
6. Processing – Processing credit
7. Marketing loans
8. Insurance services

What is working well and what is not?

Working well:

- Subsidized loans are available.
- Special loans for women.
- ADB – 5% subsidy loan facility from the government. This is not available from coops and MFIs.

Not working well:

- Smallholder farmers without registered farms only have access to credit from cooperatives and MFIs and not commercial banks.
- High interest rates in MFIs and cooperatives.
- Inadequate skills in preparing documents/business plans for access to bank loans
- Quota system in non-collateralized loans.
- Poor monitoring mechanism for utilization of loans (agricultural loans being utilized for other purposes).
- Poor access to insurance.
- Lack of knowledge among smallholder farmers regarding financial access.

What are smallholder farmers' expectations of financial institutions?

- Low interest rates
- Long-term loans
- Appropriate repayment schedules
- Uncomplicated documentation processes
- Loan lending layers minimized for farmers to access government subsidies.
- Repayment schedule to be based on production cycle.
- Warehousing financing
- Financing against product stock.

5. CONCLUSION AND WAY FORWARD

5.1 Conclusion and Way Forward

Based on the panel discussions of the five groups, the following of the actions are recommended for the GoN and organizations working with rural farmers of Nepal to transform and sustain the smallholder farming.

Provide insurance services and loans: Users were found to fear risks such as production failures, pest infestations, low crop yields, limited availability of livestock fodder and space for grazing, and uncertainty of sales after production. These factors have discouraged smallholder farmers from undertaking commercial agricultural activities. Therefore, any support strategy should address these challenges, including the provision of effective crop and livestock insurance services and agricultural loans to small commercial farmers.

Enhance the role of the private sector: In addition to the existing role of the private sector in providing agriculture inputs, the government should work to increase the role of the private sector in providing technical knowledge, business skills, and agro-enterprise development. Policies should recognize the role of private sector actors as service providers. The sustained involvement of the private sector is critical to making agricultural services more effective.

Address out-migration: Labor shortages due to male out-migration and a lack of youth interest in agriculture have become a serious concern in the agriculture sector. It is important to engage returned youth (from outside of the country) in agricultural production by making agriculture more profitable and attractive. This concern should be addressed by government policies and programs

Support and protect local production: While agricultural production is highly commercialized in Nepal's neighboring countries (i.e., India and China), the subsistence level of agricultural production in Nepal increases production costs, making the farmers and customers dependent on imported foods and vegetables. Therefore, Nepalese agricultural products are unable to compete with products from neighboring countries. Addressing this challenge will require a combination of a number of measures including low-cost production support to farmers and policy reforms and regulations that promote local production.

Value agriculture: Agriculture is considered a low-value profession among the public. Therefore, it is important to educate people on the value of farming and its role in growing the rural economy. The government could include this information in school and university education.

Digital tools and approaches: Innovative digital tools and approaches provide smallholder farmers with an opportunity to develop pathways to improve their access to support services and knowledge on best practices to increase their productivity, income, sustainability and ultimately resilience to climate change more sustainable and climate-resilient agriculture.

The sustainable transformation of subsistence-oriented smallholder farmers into more commercial entrepreneurs requires innovative technologies, access to finance, markets and institutional support including an enabling policy environment. However, the pace of transformation of subsistence agriculture into modern innovative agribusiness activities

has been often slow in Nepal due to the lack of an adequate policy environment. This requires structural transformation.

5.2 Policies for Inclusive Small Farm Transformation through Innovation

To enhance small, commercial and transitional farmers' competitiveness to pursue market opportunities, government policies and public investments in the following areas are important:

1. Develop the technical, organizational and management skills of EAS and necessary infrastructure to better deliver services to farmers;
2. Reorient innovation, information and advisory services in order to build human capital and resilient agri-food systems;
3. Increase investment and promote institutional reform to meet emerging needs;
4. Assess EAS performance and provide evidence to develop an enabling environment; and
5. Develop programs to understand farmers' demands and facilitate the co-creation of innovative practices.
6. Increase investment in infrastructure, in particular rural roads and internet access;
7. Promote education and training programs for rural youth;
8. Facilitate cooperatives and farmer groups that can collectively pursue emerging opportunities in urban markets and modern farm technology;
9. Support SMEs upstream and down-stream from farms by reducing unnecessary regulations and informal restrictions that often discourage SME development;

5.3 Strategies and policy recommendations to promote agriculture

- Pursue policies that have broad effects across economic activities in rural areas and do not limit interventions to farming alone;
- Develop an enabling environment, including basic infrastructure, property rights, and legal systems with enforcement mechanisms: favorable to rural businesses that encourage and facilitate inclusive RNFE;
- Identify engines of regional growth through consultation with the private sector and farmers, and conduct supply chain diagnostics for prioritization of strategic interventions;
- Support new technologies that reduce risk and are attractive to small farmers;
- Ensure that agricultural interventions to support sustainable farming practices are economically viable for farmers and provide direct economic benefits;
- Scale up productive social protection programs for subsistence farmers in hinterland areas who face barriers in accessing markets and other economic opportunities.

Finally, small farmer business support is recommended to associative organizations and participating producers in developing entrepreneurial skills, management and negotiation. Four important fields are identified: (i) planning production using information on final markets with which the development process deals; (ii) trade development at domestic and foreign level, which, in addition to final production, incorporates collective

negotiation on production factors; (iii) the design and use of control mechanisms and risk prevention for producers as well as the associative organization; and (iv) the management and negotiation of agribusiness linkages according to priorities, costs and benefits.

Concluding Remarks and Workshop Close

Concluding remarks were delivered by Dr. Rajendra Mishra, Joint Secretary of the MoALD. Dr. Mishra stressed that people's capacity to purchase has increased, production has also increased but demand is also increasing so there is a gap between demand and supply in agriculture. It is one of the reasons behind the increase in imports. He stressed agriculture has to be built from the local level up, making the capacity of local service providers a must. Dr. Mishra also emphasized that farmers should know what services are available to them. Dr. Mishra noted that there is strength in economies of scale. In this regards, the coalition of land, 'Jagga Yek Swamittw Anek', could be one of the best strategy for smallholder farms in Nepal.

6. REFERENCES

Adhikari J. The Record Nepal; 2020. A Future in Farming.https://www.recordnepal.com/perspective/a-future-in-farming/ [Google Scholar]

Bhattarai DR. 2022. Current Status of Outreach Agriculture Research in Nepal and New Strategies for Technology Verification and Dissemination. Proceedings of 14th National Outreach Research Workshop, 22 & 23 Feb., 2022, Khumaltar, Nepal; pp.3-9. https://www.researchgate.net/publication/359502693

Bhusal A, GC Sagar, L Khatri. 2021. A review article on role of information and communication technology in agriculture and factors affecting its dissemination in Nepal. J Appl Biotechnol Bioeng. 8(3):81-85. DOI: 10.15406/jabb.2021.08.00257

CBS, (2012). National Sample Census in Agriculture. CBS, National Planning Commission, GoN, Kathmandu

FAO and IFAD. (2019). United Nations Decade of Family Farming 2019-2028. Global Action Plan**.** Rome. License: CC BY-NC-SA 3.0 IGO.

FAO. 2020. Enabling smallholders and family farmers to access appropriate innovation, information and advisory services for sustainable agrifood systems. COAG/2020/15

Gauchan D and SP Pandey. 2004. NARC Visions and Outreach Strategy for Agricultural Technology Development in Addressing Poverty and Sustainable Livelihoods. Proceedings of 7th National Outreach Research Workshop, pp. 1-6. https://www.researchgate.net/publication/313451011

Gauchan, D. and R. Shrestha. (2021). Improve Socio-Economic Inclusion, Resilience and Wellbeing of Family Farmers, Rural Households and Communities in South Asia. Chapter 6. Regional Action Plan of the United Nation Decade of Family Farming. Formulating Strategies and Action Plans to Strengthen Family Farming in South Asia. FAO Regional Office, Bangkok, Thailand

GC, R.K. and R. P. Hall, (2020). The Commercialization of Smallholder Farming—A Case Study from the Rural Western Middle Hills of Nepal. *Agriculture* 2020, 10, 143.

Ghimire R, N Joshi, and S Ghimire. 2021. CHAPTER 4. Agricultural Extension Services in Nepal: Past, Present & Future. Innovations in Agricultural Extension. Michigan State University; pp.4.1-4.17. https://www.canr.msu.edu/extensioninternational/Innovations-in-Agricultural-Extension/files/Ch04-Ghimire_AES-Nepal_2021-01-13aa.pdf

Johann F. Kirsten and Johan van Zyl 1998. Defining Small-Scale Farmers in the South African Context. https://www.researchgate.net/publication/227365360

Joshi BK, D Gauchan, B Bhandari and D Jarvis, eds. 2020. Good Practices for Agrobiodiversity Management. NAGRC, LI-BIRD and Alliance of Bioversity International and CIAT; Kathmandu, Nepal. https://www.bioversityinternational.org/e-library/publications/detail/good-practices-for-agrobiodiversity-management/

Joshi BK, DK Ayar, KH Ghimire, KK Mishra and D Gauchan. 2020. On-farm Trials and Preferential Ranking for Facilitated Decision on Choice and Registration of Crop Cultivars (Varieties and Landraces). National Sharing Workshop. NARC/LI-BIRD/DoA/Bioversity International. Feb. 24, 2020, Lalitpur. https://www.researchgate.net/publication/340350182_On-farm_Trials_and_Preferential_Ranking_for_Facilitated_Decision_on_Choice_and_Registration_of_Crop_Cultivars_Varieties_and_Landraces

Joshi BK. 2017. Plant Breeding in Nepal: Past, Present and Future. Journal of Agriculture and Forestry University 1:1-33. http://afu.edu.np/sites/default/files/Plant_breeding_in_Nepal_Past_Present_and_Future_BK_Joshi.pdf

Khadka, D.B. 2021. Opportunities and Challenges in Irrigation Practices and Agricultural productivity scenario in Nepal: A Review. Journal of Current Trends in Agriculture, Environment and Sustainability.

Dare K., Smallholder farmers and farming practices: Challenges and Prospects: NOVA Science Publisher. Inc. Smallholder farmers and farming practices: Challenges and prospects (researchgate.net)

MI, 2022. Nepal seed sector analysis - growth, trends, COVID-19 impact, and forecasts (2022 - 2027). Mordor intelligence.

Agriculture Development Strategy (2015-2035). MoALD, GoN, Singha Darbar, Kathmandu.

MoALD 2019. Selected Indicators of Nepalese Agriculture and Population GoN. Ministry of Agriculture and Livestock Development, Planning and Development Co-operation Co-ordination Division, Statistics and Analysis Section, Singhadurbar, Kathmandu, Nepal.

MoALD. 2022. https://moald.gov.np/

NARC. 2022. https://narc.gov.np/

NPC, 2020. 15th Plan 2076/77-2080/81 GoN, National Planning Commission. Singhadurbar, Kathmandu, Nepal.

Singh S. SciDevNet; 2016. Nepali Farmers Fight to Save Indigenous Seeds. https://www.scidev.net/global/farming/multimedia/nepali-farmers-indigenous-seeds.html

Tripathi B. 2013. Knowledge management tools of rice technology in Nepal. Agronomy Journal of Nepal 2:24–30. https://doi.org/10.3126/ajn.v2i0.7518

Brekke, T. (2021). What Do We Know about the University Contribution to Regional Economic Development? A Conceptual Framework. International Regional Science Review, 44 (2) 229-261. https://doi.org/10.1177/0160017620909538

Barra, C., and R. Zotti. 2017. “Investigating the Human Capital Development– Growth Nexus: Does the Efficiency of Universities Matter?” International Regional Science Review, 40:638–78. https://doi.org/10.1177/0160017615626215

Rama Rao, D., R. Agrawal, S.K. Nanda, I.C. Awasthi, G.P. Joshi, S. Bhattacharya, & I. Kumar (2011). Assessment of future human capital requirements in agriculture and allied sectors, NAIP Project Report, NAARM & IAMR, Hyderabad, India, pp 411

Santacoloma, P, R. Suárez and H. Riveros. (2005) Strengthening agribusiness linkages with small-scale farmers: Case studies in Latin America and the Caribbean. Agricultural Management, Marketing and Finance Service. Agricultural Support Systems Division, FAO, Rome.

Vorley B. M. Lundy J. MacGregor (2008). Business models that are inclusive of small farmers and the associated. International conference ‘Inclusive Business in Agrifood Markets: Evidence and Action’. Beijing, March 5-6, 2008. http://.fao.org/3/y6001e/y6001e00.htm#Contents

Hobbs, J.E., Cooney, A., Fulton, M. (2000). *Value chains in the Agri-Food Sector: What are they? How do they work? Are they for me?* Specialized Livestock Market Research Group, College of Agriculture, Department of Agricultural Economics, University of Saskatechewan, Saskatoon, Canada.

Haarmann C., D. Haarmann (2005). Basic Income Grant in Namibia Resource Book Windhoek, Desk for Social Development of the Evangelical Lutheran Church in the Republic of Namibia

Annex 1: Program Schedule

Small Farmer Conference: Transforming and Sustaining Small Farms in Nepal
June 24, 2022
Hotel Himalaya, Kupondole, Lalitpur

Time	Activity	Activity Details	Facilitator	Methods
8:00 - 9:00 AM	Registration and tea/coffee	CRS-F2F	CRS-F2F colleagues	Registration desk
9:00 - 9:15 AM	Inauguration Session	• **Chief Guest:** Prof Punya Prasaad Regmi, Vice-Chancellor, AFU, Rampur • **Chair:** Dr. Govinda P. Sharma, Secretary, Ministry of Agriculture and Livestock Development (MoALD) • **Prof. Naba Raj Devkota**, VC Gandaki University, Pokhara • **Pro.Bhargav Dhital,** Dean, (IAAS, T.U. • **Mr. Durga Pandit,** Secretary, National Farmers' Commission, Kirtipur • **Mr. Nawa Raj Basnet**, President, National Farmers Group Federation, Baneshwor • **Dr. Durga Devkota**, Department Head, AFU, Rampur • **Sabitri Baral,** Head and Joint Secretary, Central Agriculture Laboratory, Hariharbhawan • **Bhoj Raj Sapkota,** Head and Joint Secretary, Industrial Entomology Center, Hariharbhawan • Joint inauguration by Chief Guest and Secretary	MC	
9.15 - 9.25 AM	Welcome & opening remarks	Katherine Price, Country Representative, CRS Nepal	MC	Speech
9.25 - 10:15 AM	Panel discussion on F2F in Nepal: Journey and the Impacts	• Sita Pandey, Kathmandu • Gopal Poudel, Rupandehi • Dr. Hira Kaji Manadhar • Dr. Raju Kandel, NGRP • Suprabha Acharya, Kathmandu • Roshan Subedi, Asst. Campus Chief, IAAS Lamjung • Dibya Laxmi Bajracharya, Chair, Agriculture Training Center	Moderator: Nirmal Gadal, CRS-F2F Director	Panel discussions followed by Q&A
10:15 - 10:35 AM	Experience sharing from U.S. and in-country volunteer experts	• Dr. Robert Owen, U.S. volunteer (Video presentation) • Dr. Chet Raj Upreti, country volunteer • Dr. Buddhi R. Khadgi, country volunteer • Aju Nyachhon, country volunteer	MC	Panel discussions followed by Q&A
10:35 - 10:45 AM	Open discussion, Q&A session	Q&A sessions	MC and F2F staff	Question of participants

10:35 - 11:45 AM	Educational session: Promising Research Results for Adoption by Smallholder Farmers	• NARC - Promising Research Results for Adoption by Smallholder Farmers • AFU - Promising Research Results for Adoption by Smallholder Farmers • Skill Lab, Kathmandu: Business Literacy and Skills for Sustainable Transformation of Small Farms in Nepal (Nanda Kishor Mandal) • Promoting Producers - Consumer Collaboration Through Digital Technologies to Transform Small Farms in Nepal	MC	Presentations followed by Q&A
11:45 - 11:55 AM	Open discussion	Q&A sessions	MC	Questions from participants
11:55 AM - 12:25 PM	Remarks and session closing	• Dean, IAAS • VC, Gandaki University • USAID Representative • Secretary, MoALD • Chairperson, remarks, session closing	MC	Speech
12:25 - 1:10 PM	Lunch	Guests, participants		
1:10 - 2:25 PM	Parallel discussion sessions: Advancing and Sustaining Small Farms for the Nation's Prosperity	**Group 1:** Sustainable Transformation of Small Farms in Nepal: Current Situation and the Way Forward **Group 2**: Smallholder Farmers' Access to Government Support and Subsidies: Current Situation and the Way Forward **Group 3:** Access to Innovations: Current Situation and the Way Forward **Group 4:** Smallholder Farmers' Access to Quality and Affordable Inputs (Seeds, Fertilizers, Plant Protection, Irrigation) in Nepal: Current Situation and the Way Forward **Group 5:** Smallholder Farmers' Access to Agricultural Credit in Nepal: Current Situation and the Way Forward	Mahesh Jaishi, PhD Scholar CRS F2F colleague	The group facilitator will share a brief background on the topic followed by an open discussion on the issue
2:25 - 3:00 PM	Presentation by five group facilitators	• **Group 1:** Dr. Devendra Gauchan • **Group 2:** Dr. Rajendra Mishra • **Group 3:** Dr. Bal Krishna Joshi • **Group 4:** Mr. Durga Adhikari • **Group 5:** Babu Kaji Thapa	Mahesh Jaishi, PhD Scholar	Presentations followed by Q&A
3:00 - 3:15 PM	Q & A session	Open floor discussion	Mahesh Jaishi, PhD Scholar	Discussion
3:15 - 4:00 PM	Market place	Agri-exhibitions	F2F hosts	Poster, display, brief
4:00 - 4:25 PM	Conclusion & the way forward	Dr. Mahesh Jaishi	MC	Presentation
4:25 - 4:40 PM	Feedback collection	Questionnaire	C.B. Bhattachan	Questionnaire sheet

			and P. Kattel	
4.40 - 5.00 PM	Workshop reflections & closing remarks	• Navin Hada, USAID • Nawaraj Basnet, President Farmers' Federation • Rajendra Mishra, MoALD	Moderator	Speech

Annex: 2 Guiding Questions for Parallel-Group Sessions.

Aims of parallel-group sessions:

- Diving deep into the specific details of the issues (i.e., exploring what is and is not working for smallholder farmers).
- Creating and providing environments where farmers can share their opinions and issues in an open and comfortable way (i.e., group discussion is a platform for farmers to speak out and tell policymakers [through their facilitators] their issues).
- Group facilitators use their expert knowledge while synthesizing the farmers' opinions and thoughts.

Group 1: Sustainable Transformation of Small Farms in Nepal: Current Situation and the Way Forward

- What does transformation mean for farmers? Where do they want to reach?
- What are the indicators of agricultural transformation? Input, process, output, outcome and impact
- What is working well and what is not in achieving their goals? - Gaps
- Under what conditions can they transform their agriculture, contributing to food and nutrition security?
- What are their policy and operational expectations from the federal, provincial and local government?
- How could donor-funded agencies and the private sector contribute to transformation?

Group 2: Small Farmers' Access to Government Support and Subsidies: Current Situation and the Way Forward

- What does government support mean for farmers? What do they want from the government?
- What are the best means to enhance government support (e.g., subsidy, advisory, policy, infrastructure, basic facilities)?
- What is working well and what is not in achieving their goals? - Gaps
- Under what conditions can they transform their agriculture, contributing to food and nutrition security?
- What are their expectations from the federal, provincial and local government?
- Which modalities of service delivery (support or subsidy) do they need?

Group 3: Access to Innovations: Current Situation and the Way Forward

- What do innovations mean for farmers? What kinds of innovations do they need throughout their value chain?
- What is working well and what is not in achieving their goals? - Gaps
- Under what conditions and provision of innovation can they transform their agriculture, contributing to food and nutrition security?
- What are their expectations from universities and research centers?
- How could AFU, IAAS and research institutions contribute to agricultural innovation?
- Which modalities in the innovation process could best engage the community in the innovation process?

Group 4: Smallholder Farmers' Access to Quality and Affordable Input (Seeds, Fertilizers, Plant Protection, Irrigation) in Nepal: Current Situation and the Way Forward

- What does access to inputs mean for farmers?
- What kind of inputs do they need throughout their value chain?
- What is working well and what is not in achieving their goals? - Gaps
- Under what conditions and provision of input can they transform their agriculture, contributing to food and nutrition security?
- What are their expectations from the private sector and the government?
- Which modalities of input provision do they need?

Group 5: Small Farmers' Access to Agricultural Credit in Nepal: Current Situation and the Way Forward

- What does access to finance mean for farmers?
- What kinds of financial support do they need throughout their value chain?
- What are the major financial institutions which can enhance access to credit for smallholders?
- What is working well and what is not in achieving their goals? - Gaps
- Under what conditions and provision of credit can they transform their agriculture, contributing to food and nutrition security?
- What are their expectations from financial institutions?
- What are the easiest ways of improving credit provision?

Annex 3: Parallel Group Discussion Moderators

SN	Name	Position	Office	Contact No.	Email
1	Dr. Devendra Gauchan	Honorary Research Fellow (Agricultural Economist)	Alliance of Bioversity International & CIAT	9841296595	d.gauchan@cgiar.org
2	Dr. Rajendra Mishra	Joint Secreatry, MoALD	MoALD	9851174179	rmishrarp@gmail.com
3	Dr. Bal Krishna Joshi	Chief	National Gene Bank/ NARC	9863020222	joshibalak@yahoo.com
4	Durga Adhikari	President SEAN Seed Center	SEAN Seed Center	9851066946	ssscseed@hotmail.com
5	Babu Kaji Thapa	Head, Ag Loan	ADB/N	9841306144	tbabukaji@gmail.com

Annex 4: Participant List for Group Discussions

Group 1

Name of Participant	Affiliations
Apsara Adhikari	Cooperative representative, Dhading
Maheswari Subedi	NFACLs, Nepal
Sabitri Regmi	Agricultural Cooperative
Bharat Upadhaya	KISSAN-2, USAID
Lal Kumar KC	Yak & Agroforestry - Tourism Farm, Dolakha
Suprava Acharya	Agri-Cooperative
Sitaram Shrestha	Cooperative
Sabitri Baral	Joint Secretary, Plant Protection, Department of Agriculture
Sita Pandey	MUNA Krishi
Janak Gautam	Agri-Cooperative
Uttam Paudel	Co-facilitator, CRS
Devendra Gauchan	Facilitator, Alliance of Bioversity International & CIAT

Group 2

Name of Participant	Affiliations
Darikala Mahara	Triveni Development Society (TDS)
Dhruba Prasad Bidari	SFACL - Bajrabarahi
Dr. Saran Pandey	Ministry of Agriculture, Bagmati Province
Hari Poudel	SFACL - Satakhani
Ishwor Poudel	Lumbini Hydroponics
Lok Raj Awasthi	4H Nepal
Santosh Shrestha	LI-BIRD
Rajiv Neupane	Kisan Care
Raju Kandel	National Goat Research Program, Bandipur
Rudra Bhattarai	NACCFL
Shanti Kumari Thing	SFACL - Latakoli
Shovakar Sharma	SFACL - Semlar
Dr. Rajendra Mishra	Joint Secretary, MoALD

Group 3

Name of Participant	Affiliations
Amar Deep Singh	Balambu Mushroom Cooperative Limited
Bishnu Timilsina	CCUL
Buddhi R. Khadgi, PhD	USAID F2F CRS Local volunteer
Dibya L. Bajracharya	Agricultural Technology Center
Dinesh Chepang	SFSFC - Manahari Rural Municipality - 3
Dinesh Khadka	Nepal Agricultural Research Council (NARC)
Dr. Dipak Bhandari	Nepal Agricultural Research Council (NARC)
Dr. Bhargav Dhital	IAAS-Deans Office
Dr. Durga Devkota	Head of Department of Sociology, AFU
Dr. Nirajan Bhattarai	Associate Professor, AFU
Hira Kaji Manandhar	NPDA
Komal Pradhan	iDE Nepal

Bal krishna Joshi	Group facilitator, Chief National Agriculture Genetic Resources Center (National Genebank), NARC

Group 4

Name of Participant	Affiliations
Aju Nyachhon	USAID F2F CRS Local Volunteer
Bhoj Raj Sapkota	CIED
Diwakar Rupakheti	NACCFL
Dr. Ghanshyam Bhandari	USAID F2F CRS Local Volunteer
Hari Kumar Shrestha	CIMMYT Nepal
Hemraj Banjade	BG Agro Industries
Bishow Adhikari	Uddaymsil Agricultural Multipurpose Cooperative
Muktiram Sharma	AMSACL
Nanda K. Mandal	Skill Lab
Padam Raj Rijal	SFACL - Bauniya
Phaindra Pandey	Food Enterprise Solution
Santosh Shrestha	Agricultural Technology Center
Durga Adhikari	Group facilitator, SEAN, Kathmandu

Group 5

Name of Participant	Affiliations
Ghanshyam Ghimire	MSMCL
Gopal Poudel	SFACL - Semlar, Butwal
Harish Devkota	Winrock KISAN II
Khem Pd. Gautam	LUSCUN
Lalit Sah	iDE Nepal
Meena Pokhrel	NACCFL
Om Nath Adhikari	Nepal Coffee Producers Association
Narayan Shrestha	Agriculture Knowledge Center
Naresh Acharya	District Agriculture Federation, Hetauda
Rebat Khanal	AMSACL
Shankar Gautam	Sworgadwari Silage Company Pvt. Ltd.
Suhrid Prasad Chapagain	The Locals Agro Pvt. Ltd.
Bal Kumar Thapa	Group facilitator