

CHAPTER 4

Agricultural Extension Services in Nepal

PAST, PRESENT & FUTURE

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Introduction

Speeding up agricultural production and productivity, employing demand-driven and participatory extension services, mobilizing competent extension professionals that Nepal should strive on, moving forward to address food insecurity and ensuring our country's progress and prosperity: How could this happen? Publications analyzing past efforts, deciphering the current status, and foreseeing future paths and needs of agricultural extension services have been a necessity.

Situated in the Hindukush Himalayan plateau, Nepal is a tiny Asian country with a unique weather pattern ranging from tropical in the south to temperate and arid in the north, with an altitude from as low as 60 meters above sea level (masl) to the tallest peak in the world. Endowed with several valleys and freshwater river systems, Nepal's agricultural potential is high. Contributing about one-third to the national gross domestic product (Asian Development Bank, 2019), agriculture is an important means for Nepal's development. Over 66% of Nepal's population takes part in agriculture and a similar proportion of people depend on it for their livelihoods. Nonetheless, in 2018, Nepal produced 10.3 million tons of cereals but imported 1.2 million tons of cereals in the same period, which indicates that domestic food production is not sufficient to feed its population (Food and Agriculture Organization of the United Nations, 2019). About 15% of the country's population, particularly in western and northern Nepal, are food insecure. Approximately 36% of Nepali children under 5 are stunted, while 27% are underweight and 10% suffer from wasting due to acute malnutrition (World Food Programme, 2019). Population growth has outpaced the agricultural growth for many years now. The state of food shortages and malnutrition will prevail if proper actions are not taken. This is contrary to the fact that until the 1990s, Nepal was a net exporter of cereals (Baral, 2000; Pyakuryal et al., 2010) and the government plans have bestowed a high priority to the agriculture sector for many decades now.

Several factors have affected Nepal's agricultural growth. The country went through a decade-long civil war (1996–2006), which took more than 10,000 lives, ruined many infrastructures, and disrupted public services and development projects. Thousands of people internally migrated from war-torn villages to cities, abandoning their farmlands. Agricultural land has been abandoned or underutilized in recent decades at an unprecedented rate. Many of those who are left behind at rural villages have access neither to farmland nor to extension services. After a peace deal in 2006, the security situation has improved but Nepal still faces several aftereffects of the conflict and development is yet to gain momentum. Additionally, Nepal frequently faces natural disasters such as flash floods, droughts, and earthquakes. These have also affected farming systems. A poor governance system and monitoring; weak linkages between research, farmer, extension, and education agencies; and poor extension services are some of the other major bottlenecks hindering adoption of new agricultural technologies.

History of the Agriculture Extension System in Nepal

The introduction of agriculture extension services (AES) in Nepal dated back to the mid-1800s when Jung Bahadur Rana imported a Jersey bull, two Jersey cows, and clover grass seeds from the United Kingdom, and initiated a cattle-breeding program. Table 4-1 lists the milestones in AES and related projects and programs in Nepal.

Table 4-1. Milestones in agricultural extension services in Nepal.

Date	Milestone
1952	Rural Development Program called Tribhuvan Gram Bikas started
1953	4-H (Charpate) Club, Rural Youth Club initiated
1956–1961	First Five-Year Development Plan (1956–61) implemented
1957	School of Agriculture under Department of Agriculture (DOA) at Kathmandu
1959	Extension offices opened in 25 districts
1962–1965	Second Development Plan implemented
1963	Extension offices opened in 50 districts
1965–1970	Third Five-Year Development Plan implemented
1966	DOA was restructured and formed five separate departments, under Ministry of Agriculture (MOA)
1968	School of Agriculture upgraded to College of Agriculture
1970–1975	Fourth Five-Year Development Plan implemented
1972	Institute of Agriculture and Animal Science (IAAS) established
1972–1973	Five departments earlier formed were amalgamated into DOA, and DOA made responsible for agricultural research, extension, and training
1975–1980	Fifth Five-Year Development Plan implemented

Date	Milestone
1977	Tuki extension approach started
1980–1985	Sixth Five-Year Development Plan implemented
1981–1982	DOA transformed into DOA and Department of Livestock Services (DLS)
1985–1990	Seventh Five-Year Development Plan implemented Nepal Agricultural Research Council (NARC) established
1989	Council for Technical Education and Vocational Training established
1991	Training Institute for Technical Instruction established
1992	All agriculture-related departments, including DLS amalgamated in to a single DOA
1992–1997	Eighth Five-Year Development Plan implemented
1994–1995	Women Farmers Development Division at the Ministry of Agriculture Development (MOAD) established
1995–2015	Agricultural Perspective Plan implemented
1997–2002	Ninth Five-Year Development Plan implemented
1997	Artificial insemination centers in 45 districts started
1999	Directorate of Extension under IAAS established
2000	Himalayan college of Agricultural Science and Technologies (HICAST), a private agricultural college established
2002–2007	Tenth Five-Year Development Plan implemented
2010	Establishment of Agricultural and Forestry University, Rampur, Chitwan
2007–2010	Three-Year Interim Plan (Eleventh Plan) implemented
2010–2012	Twelfth Development Plan implemented
2011–2030	Nepal Agricultural Research Council (NARC) Vision timeline
2013–2015	Thirteenth Development Plan implemented
2013	Agriculture Development Strategy started
2016–2018	Fourteenth Five-Year Development Plan
2019–2024	Fifteenth Five-Year Development Plan
2019	Three tiers of Agricultural Extension Services at local, provincial, and federal levels started

Source. Pyakuryal & Suvedi, 2000.

The milestones presented in Table 4-1 can be broadly divided into two phases: before 1950 and after 1950. Before 1950 is the period of infrastructural development such as the establishment of veterinary hospitals, central research farms, and technical schools. During this period, extension services was centralized and top-down, farmers' awareness and ambitions were low, and farming was dominantly for subsistence. From 1950 to 1980, zonal and district offices were opened. Several physical

infrastructures were also built in this period. After 1980, human resource development in extension services kicked up.

In almost all development plans implemented by Nepal, agriculture was accorded with a priority, at least on paper, even though until recent years the budget allocated for this sector was not adequate enough to pursue the envisaged programs. Nepal has designed many agriculture-related policies, strategies, and programs in past decades. However, it lacks the effective implementation, proper monitoring, and evaluation of what, whether, and how the policies and programs have been implemented. Literature suggests that an implementation mechanism, which is directly correlated to employees' competency, is weak in Nepal (Ghimire, 2017). Moreover, as can be seen in Table 4-1, the agricultural extension system in Nepal has largely been dominated by government-sponsored services and with less representation and contribution from the private and nonprofit sector. Nonetheless, Nepal has tried many extension approaches in the past but with little success.

Figure 4-1. Murrah, a popular buffalo breed in Nepal.



Extension Approaches

Nepal has tried many different extension approaches but with mixed outcomes. They have included Training and Visit, the Integrated Rural Development Project approach, the Tuki System, the Farming System Research and Extension approach, the Block Production Program approach, the Farmer Group approach, the Pocket Package Program approach, the Projectization approach, Farmer Field School approach, Public Private Partnership, Systems Thinking approach, and Nongovernmental Organization approach. As is true in the trend in the world extension system, when extension services first started, the approaches were more top-down, technician or expert led. As the extension services has progressed to recent decades and years, efforts are on to make them participatory, accommodative, democratic, and beneficiary led.

Training and Visit (T & V): Posited by Daniel Benor in the 1970s (Howell, 1988) and promoted by the World Bank, the government first introduced this approach in the Bara and Parsa districts through the Narayani Zone Irrigation Project in 1975. The T & V approach was employed in 19 of the 20 districts of Terai, leaving out Dang. This approach is based on the principle of training technicians and mobilizing them to train farmers. T & V envisages continued visits of extension agents to farmers and envisions close links

between research and extension. Extension agents help in technology transfer. Success is manifested by increases in the production of particular crops or commodities. Some of the shortfalls of this approach include a lack of regular training sessions as well as training that lacked real content. In addition, officers appointed as subject matter specialists did not have adequate qualifications to run T & V, and extension and research linkage was weak. Village agents did not regularly visit farmers and conversely, farmers were reluctant to attend the meetings and visits. T & V is centralized, top-down, rigid, and financially unsustainable because it is costly to hire large numbers of personnel and provide continuous training and management (Davis & Sulaiman, 2016).

Integrated Rural Development Project (IRDP): The IRDP approach is based on the integration and coordinated management of resources for rural development. Agricultural development programs are planned and implemented along with local development, forest development, soil conservation, women's development, and irrigation development programs. There were eight IRDPs in operation in Nepal in the 1970s that include the Integrated Hill Development Project, the Rasuwa Nuwakot IRDP, and the Rapti IRDP, among others, covering 23 districts in total (Pradhan, 1985). IRDPs boost agricultural production and productivity through improved supply of inputs, better extension services support provided by additional temporary technical manpower, infrastructural development, and additional funding for agriculture services (Food and Agriculture Organization of the United Nations [FAO], 2010). IRDPs were greatly appreciated as they brought many different sectors together; however, lack of seriousness among sectors to implement project activities and own the outcomes remained the biggest challenge (Pradhan, 1985). The Ministry of Local Development (MLD) was the central coordinating agency and the project coordinators were appointed from there. Individual components were implemented by the respective ministries through their district level line agencies. According to FAO (2010), grassroots-level extension infrastructures such as agriculture service center buildings, market yards, trails, rural roads, and small irrigation projects built during IRDPs proved useful.

The Tuki System: Started in 1977 in the Sindhupalchok and Dolakha districts and financed by Asian Development Bank, the Tuki System focused on assigning extension functions to locally rooted volunteer farmers. Those farmers were also working as agriculture input dealers, so that the technological message could go along with inputs required. This was in contrast to other extension approaches that depend on professionally trained, external extension workers who often came from other ethnic groups and were frequently transferred from other areas.

Farming System Research and Extension (FSRE): FSRE is an action-oriented approach embracing rapid design, evaluation, and implementation of relevant and realistic solutions to farm problems. Involving farmers, extension workers, and researchers, the FSRE approach to technological improvement has evolved as an efficient means to develop farming systems that are uniquely suited to specific biophysical and socioeconomic conditions (Francis & Hildebrand, 1989). Since researchers and extension practitioners work closely with farm families and in the local settings, they understand the surrounding environments and the ways farmers are influenced by the farming practices and systems and vice versa. Farmers participate in the development and testing of alternative practices and

technologies. This participation boosts the efficiency and effectiveness of the technology development and adoption process. Farmer-centered and cost-effective, the FSER approach leads to a sustainable farming system. In Nepal, FSER was first employed in the Lumle Agriculture Research Centre and the Pakhribas Agriculture Research Centre.

Block Production Program: This approach is based on the principle that intensive use of resources consolidated together in an area called a *block* could increase the farm productivity. About 1,000 hectares of land within a specified location constituted a block, which were then divided into subblocks of a minimum of 100 hectares in Terai and 20–25 hectares in hills. Initially it was implemented in the Parsa and Chitwan districts and later expanded in 20 Terai districts and eight hill districts that covered 510 hectares under the Integrated Cereal Project (1982–83). The focus of the Block Production Program was intensive farming.

Farmer Group Approach: The principle of the group approach is to put farmers of similar interests together and carry out the agricultural development and associated activities on a group basis. The group approach has been effective to bring innovation to the groups and expand to other farmers in their command area. The group approach promotes resource sharing and better utilizes the limited manpower and other resources. In Nepal, the group approach has been successful in many sectors, including livestock, horticulture, crops, small irrigation, and forestry. It is now being tried in women’s development, marketing, and the health sector as well.

Figure 4-2. Women farmers seated in the front row at a farming group meeting. (Photo courtesy Ramjee Ghimire)



Pocket Package Program: The Pocket Package Program approach refers to the production focusing on a particular area (or pocket). The pockets for commodities are selected based on feasibility and projects are developed through a bottom-up process. This approach is effective to introduce new demand-driven technologies. It has also been instrumental in commercializing agricultural commodities such as crops, dairy, and off-season vegetables as it helps with increasing the scale of production.

Projectization Approach: Commodity-based production programs have been implemented on the basis of project design within the framework of time duration, budget expenditure, and expected output. The package of activities that are required to achieve the outputs are identified and included in the project plan. The Projectization Approach has been adopted in all the

75 districts with a priority on the pocket areas of production. While it has helped with giving continuity to the activities associated with or required for a project to accomplish its goals and objectives, ignorance of extension staff and senior officers about the approach has affected the outcomes.

Farmer Field School (FFS): FFS is based on the principles of *adult learning*, *learning by observing*, and *learning by doing*. FFS promotes peer learning. Rogers (2003) posits that individuals with similar sociocultural, educational, economic, and geographic backgrounds find themselves comfortable communicating with each other, and such communication is more effective than other casual communication. By observing fellow farmers' work, an observer farmer can learn new strategies and gain confidence to try those strategies on the farm. FFS has been effective in reaching out to less educated and smallholder farmers and helping them to have access to the knowledge and skills required for crop management, for example, integrated pest management. Importantly, FFS is a democratic and participatory approach (Sharma & Bhandari, 2005).

Public Private Partnership: Public Private Partnership has been ongoing in Nepal for the past several years, but not much was visible until the Third Livestock Development Project started providing support to the livestock sector in developing milk processing centers, meat shops, veterinary drug stores, veterinary paraprofessionals, and artificial insemination programs, among others. In this approach, the government provides seeds (cash, in-kind, training, and more) to needy private parties (private milk processing plants, meat shops, private veterinary paraprofessionals, and others). Private parties also invest their share in the program, in cash or in-kind and provide services to needy farmers or groups. It has the potential to lead to synergistic effects or outcomes in the agricultural sector.

Systems Thinking: Asian Development Bank-Funded Third Livestock Development Project introduced the Systems Thinking approach in livestock extension services in its project districts. The Systems Thinking approach posits that a system (for example, buffalo production farm) consists of many subsystems (for example, human activity, natural resource management, business, and others) and to effectively run a system, its subsystems have to be vibrant and in harmony. Experiential learning and soft skills among human activity systems are integral to the Systems Thinking approach. When subsystems work well it leads to synergetic results. Participatory program planning, implementation, and monitoring with involvement of beneficiary farmers and valuing beneficiary's knowledge and skills are salient features of Systems Thinking.

Nongovernmental Organization (NGO): There are about 5,000 NGOs (nonprofits) working on different aspects of agricultural development in various parts of Nepal. NGOs are found to be more effective in social mobilization, but they work in a limited area and many of them lack technical expertise. Since NGOs are project or donor sponsored, they exist and work for a certain period of time and leave once the projects phase out; therefore, the sustainability of NGO-led programs is always in question. Besides NGOs, many international nongovernment organizations (INGOs) offer many different agricultural development programs. The Food and Agriculture Organization, the Asian Development Bank, the United States Agency for International Development, and the United Nations Development Fund are some of the INGOs operating in Nepal for the past several decades. Support for these agencies to improve agricultural productivity and reduce

food insecurity and hunger has been crucial. These agencies are supposed to follow the Government of Nepal's plan and policies while they choose the program that they would like to pursue, but lack of coordination between government agencies and these INGOs is not uncommon in Nepal.

The Concept of Agriculture Extension

Agricultural extension provides research-based educational and informational programs typically for rural populations. Historically, agricultural extension assisted farm people through educational procedures aimed at improving farming methods and techniques, increasing production efficiency and income, and improving standards of living. However, increasingly extension serves both the rural and urban populations with a wide range of programs aimed at helping to improve beneficiaries' quality of life. "The role of extension is to help people to help themselves through educational means to improve their level of living" (Mauder, 1972, p. 5). The following definition of extension is even more practical and applied:

Agricultural extension is a system that facilitates access of farmers or their organizations to new knowledge, information and technologies and promotes interaction with research, education, agri-business, and other relevant institutions to assist them in developing their own technical, organizational and management skills and practices.
(Christoplos, 2010, p. 3)

Agriculture extension is the process of providing the information about new or improved technologies to farmers to enable them to improve their farming. Extension is a dynamic process of getting useful information to people (the communication dimension) and then in assisting those people in acquiring the necessary knowledge, skills, and attitudes to effectively utilize this information or technology (the educational dimension); and it is critical in the agriculture development process, both in terms of technology transfer and human resources development (Sharma & Bhandari, 2005). Sharma and Bhandari (2005) further provided the synthesis of extension as transferring knowledge from researchers to farmers, advising farmers in their decision-making, educating farmers to make appropriate decisions in the future, enabling farmers to clarify their goals and possibilities and to realize them, and stimulating desirable agricultural development. These definitions underscore that extension's roles are to enable farmers to help themselves, to better examine their current farming systems, to better foresee the future of their farming, and to better plan and act to get more profit from their farming. It means extension facilitates to meet the farmers' demand (demand-driven) and with their own participation (participatory) and with public, private, and nonprofit agencies partnering and collaborating to help farmers (pluralistic). Extension services may not always include public goods and services free of cost. As in many developed places such as in Europe, wherever feasible, extension services should be privatized, and farmers have to pay fees to get such services (privatization).

Provisions for Agriculture Development in Nepal's New Constitution

Article 25(4) in the new constitution of Nepal issued on 2015 has envisioned land reforms, management, and regulation in accordance with law for the purposes of enhancement of product and productivity of lands, modernization, and commercialization of agriculture, environment protection, and planned housing and urban development. Per the new constitution, many of the roles for development and services are devolved to local government.

Restructuring of Agriculture Institutions: The creation of local level political entities in Nepal marks a major restructuring of local bodies. As per the new arrangement, Nepal has 481 rural municipalities, 246 municipalities, 13 submetropolitan cities, and six metropolitan cities. These local entities are divided into 6,680 wards. One of the objectives of local level restructuring is to provide qualitative services to local people and that covers agricultural services as well.

The “Roles of Federal, Provincial, and Local Levels” section presents the roles of the three levels of government as they relate to agriculture. As can be seen in the list, provincial government units are responsible for agricultural research while local level units are responsible for developing and implementing crop and livestock extension services, among others. Under current scenarios, both of these governments require additional training and technical support to execute the assigned roles.

Roles of Federal, Provincial & Local Levels on Agricultural Development

According to the Global Sustainable Research and Development Center (2018), the federal, provincial, and local roles in agricultural development include:

Federal Level

- Policies development and its implementation
- International trade, exchange, port, and quarantine
- International agreements, negotiation between various international organizations, its implementation, and monitoring
- Assist, facilitate, and monitor interstate trade-related policies and laws
- Develop physical infrastructure relating to international trade, regulate, and coordinate it
- Implementation and monitoring of policies, laws, and standards of food quality and quarantine
- Implementation of pesticides and micronutrient usage and management-related acts and regulations
- Collection and dissemination of information-related internationally banned pesticides

Provincial Level

- Formulation of state-level policies, plans, and regulations, its implementation and monitoring
- Control of agriculture and livestock-related diseases, pests, and epidemics
- Development and promotion of agribusiness and industrialization
- State-level laboratories, regulation, and management
- Quality determination of agro-products
- Seed quality determination and genetic improvement
- Food security

- Agriculture-related research, data system, source conservation, and cooperative farming system
- Price determination of agro-products
- Infrastructure development and management (agri-roads, agri-markets, farm centers)

Local Level

- Policymaking for local level agriculture extension
- Human resource management and distribution in local level
- Capacity building, technical assistance, skill development, and empowerment of farmers
- Supply and usage of seeds, fertilizers, chemicals, and pesticides
- Coordination between farmers' group, cooperatives, and local bodies
- Agriculture-related information and communication
- Technology adoption and dissemination
- Development and management of farm centers
- Crop and livestock insurance-related planning and implementation
- Infrastructure development for agro-market

Extension, research, and education are three pillars of agriculture. Without one, the other would not be able to function properly. For example, research undertakes investigation on issues or problems facing farmers. Recommendations or technologies that research comes up with must reach farmers (the end users) through extension. Education is key to produce a workforce that can contribute to research and extension. Extension should also be able to complement research and extension's work. This being said, extension is the bridge connecting farmers, research, and education, thus a critical component for sustainable agricultural development. Countries with effective extension services can achieve much in agriculture. Therefore, in Nepal too, restructured extension units should be proactive to connect to and get new technologies from research and disseminate those technologies to farmers and vice versa.

Issues & Challenges

Various challenges facing AES have been highlighted in Sharma and Bhandari (2005), which are still relevant and are discussed here.

Low Service Coverage and Negative Impression About Public

Agriculture Extension: Coverage of extension in Nepal is low (about 25%). This is a serious issue as 75% of the farmers in the country are still unable to access extension services. A vast majority of farmers and other stakeholders feel that agriculture extension is not efficient and is ineffective despite employing a large number of staff.

Extension Services Not Adequately Addressing Diversities: Nepal is diverse socially and ecologically, as well as in crop and livestock production systems. The crops and commodities feasible in Terai are not feasible in hills and mountains. Accordingly, farmers in different regions have different advisory needs. Technicians should be able to cater diversified services as per the need of the area. This is a difficult job and it goes unmet most of the time. Farmers have high socioeconomic diversities as well. Some farmers are resourceful enough to invest in high-cost technologies, whereas many others cannot. Marginal and small farmers require and demand low-cost technologies. The extension staff and services system is yet to be prepared to address these diversities.

Lagging to Adapt to Increasing Globalization: Globalization aims at creating more interactions and linkages among countries in the matters of trade, information flow, and technology dissemination. It encourages open competition under fair and relatively equal conditions. Nepal is lagging in many areas to understand and adapt to the changes happening around the globe. For example, Nepal has a long way to go to ensure quality of agricultural products and services employing competent, ethical, and equitable laws, standards, protocols, and employees, and accredited laboratories.

Inadequate Infrastructures and a Weak Supply System: Infrastructures such as roads, market centers, information and communication technologies, warehouses, and others are necessary to sustain agricultural growth. Transportation of agricultural inputs to the production pockets help increase the production in a cost-effective way. Similarly, roads are needed to transport the produce from the production pockets to the market centers. Road networks can also attract traders to have direct contact with producers, resulting in farmers' initiatives toward commercial production. In addition, many other infrastructures essential to promoting overall agriculture development are yet to be established in the country. Similar is the case with the supply system. Insufficient local production, a weak transportation system, and poor intra- and interagency communication and coordination has further constrained the agricultural system.

Figure 4-3. Live animal market in southern Nepal. (Photo courtesy Ramjee Ghimire)



Gender and Disadvantaged Groups: Agriculture extension has clearly manifested the importance of women farmers in agriculture, and therefore, a policy of involving at least 40% of women farmers in agriculture programs has been in effect for several years. However, more attention has to be given to formulate women farmer specific programs and increase their participation. Women farmers should be provided with opportunities for more trainings, visits, and interactions, so that they can build their capacity to carry out agriculture programs efficiently. Similarly, priority has to be given to women to be in leadership positions. Additionally, disadvantaged groups are either marginal farmers or landless, so the normal extension program has difficulty in benefitting them.

Figure 4-4. Agrovet (supply store for farmers selling seed, fertilizer, animal feed, veterinary supplies, etc.) operated by a female technician. (Photo courtesy Ramjee Ghimire)



Weak Monitoring and Evaluation: Nepal is yet to realize the importance of monitoring and evaluation in agricultural development including extension services (Ghimire & Suvedi, 2017). Extension activities are rarely monitored as a result. When done, they are a ritual. Relying on output monitoring to gauge success or failures of any extension program or services is a fallacy that is misleading the whole extension value chain. For example, in the quarterly and annual review workshops that the Department of Agriculture and Department of Livestock Services and other MOALD departments organize, if an extension office is able to distribute 100 improved maize kits as stated in its program target, the implementors rejoice as if it's a 100-percent accomplishment. This is so adjudged irrespective of whether farmers sow those seeds, and the crops perform fairly and so on. In the same vein, another example to note is the annual progress reports of the ministry and the associated departments do not document program outcome and impact and instead report outputs only.

Ritual Communication Methods: Communication is an integral part of extension. Extension should use communication methods that suit its beneficiaries. Although a small country geographically, Nepal has many cultures and languages and not all people understand or speak the Nepali language. Much variation exists in the economic and educational level of farmers and agri-entrepreneurs, leading to vastly different information and educational needs. Extension workers may have to employ different communication strategies to reach out and educate them. Extension messages are only available in one language and mostly in paper forms that many users do not have access to or do not understand.

Poor Database: The following is critical to planning and implementing agricultural development programs: having a sound and updated database and profile of agricultural and allied industries that include but is not limited to arable and cultivated lands, crop types, livestock raised, production and productivity, farmer population in different ecozones, crop and livestock disease profile, market infrastructures, price of agricultural commodities, market operators, value chain of production systems and their players and their roles in the chain. However, data management and data updating have often been overlooked at all levels of agricultural services from the grassroots to the national levels, and by farmers and field workers to policymakers, which is affecting the entire agricultural planning.

Restructuring of Extension Organization: After the promulgation of the new constitution in 2015, agricultural extension services have been restructured into federal, provincial, and local levels. This restructuring was meant to streamline agricultural development. On the contrary, implementation of many agricultural development programs including those envisioned by Agriculture Development Strategy (ADS) 2015, has been affected. It is because ADS envisioned working through district offices that no longer exist. Further, ADS was supposed to support the implementation of the Local Self-Governance Act of 1999, which has since been replaced by the Local Government Operation Act 2017 (Devkota & Thapa, 2019). In the same way, District Agriculture Development offices and District Livestock Service offices do not exist anymore, the responsibilities of agriculture services delivery have been transferred to local agriculture units at municipalities and rural municipalities, which were not envisioned in the ADS.

Newly established institutions such as Knowledge Centers, units in villages and municipalities, seem to be understaffed. Staffs working in those offices also seem to be confused as nobody gives them clear guidelines about agricultural programs. Being new to the restructured system, local elected leaders also appear to be less effective in providing vision to their local services units. Resources there are also either limited or are not properly channeled. This could be the reason that many of the staff members who are asked to work in those offices are hesitant to go there. Hence, the numbers of extension agents deputed to these local units are far less than required for quality service delivery. The report of the 2018–2019 fiscal year showed that the major chunk of the budget allocated for agricultural programs could not be spent.

Weak Human Resource Capacity: Nepalese people have high expectations of elected officials as local government came into existence after a gap of more than a decade. Civil services should be strengthened in a timely manner to be effective to serve needy people. For this, public services have to be effective. None of this seems to be happening. First, newly elected people themselves seem to be less aware of their responsibilities, and they may have adequate knowledge to provide policy advice. Second, there appears to be a lack of culture of mutual respect, collaboration, and information and knowledge sharing between elected officials and public servants. Third, extension professionals from the senior level to those working in the field have basic degrees in a technical field but lack training on soft skills. Soft skills are critically important to connect with and effectively train beneficiaries. Fourth, there are minimal opportunities for refresher and in-service training or opportunities for higher education for extension professionals. This prevents them from updating their knowledge base that would otherwise be a catalyst to boost their performance.

Weak Implementation: First, there are over 100 plans, policies, strategies, and working procedures related to agricultural extension in Nepal, but only a few of them are being implemented. Implementation has been weak for all sectors including agricultural extension. It could be because sufficient preparation is not done about what, who, when, how, and where to implement the program. Second, individuals who are responsible for leading the implementation are not made accountable for any failure or slow implementation. Third, since there is no effective monitoring in place, if some issues arise during the implementation, they go unidentified and are not corrected.

Poor Coordination Between Extension, Research, Education, Farmers, and Private Sectors: Extension should be complemented by research and education, and research and education should get feedback from extension. Similarly, linkages of extension with the private sector including farmers, farmer organizations, and nonprofit sectors is essential for effective extension services. Such linkages are nicely mentioned in the planning documents but are rarely practiced. If at all practiced, such practices depend on individual extension workers' interest and initiation. There is a lack of a system that pushes and pursues such linkages. Linkages here mean functional linkages where all the parties meet, not necessarily in person, and share their knowledge and information and experiences. They give something and take something, fostering reciprocity among those involved.

Conclusions & Way Forward

The world is changing fast. Technologies are advancing and the world is being digitalized at a faster rate. Within a few seconds, development and changes happening in one corner of the world can reach the other corner. Countries, people, and markets are affected and influenced by those changes, technologies, and communication and information, no matter where they originate. Nepal, Nepalese, and Nepalese markets are affected and influenced too. Likewise, demands and needs of Nepalese farmers and agri-entrepreneurs are changing and they need improved technologies to improve their efficiency. This warrants new approaches, methods, and tools in extension and development. For example, climate change was not a big issue in the past, but it is the most pressing issue now. Similarly, food insecurity, migration, youth mobilization, gender equality, agribusiness and marketing, information and communication technologies (ICTs), animal welfare, and quality control are becoming more important than ever in agricultural systems. Extension professionals in Nepal who are the frontline workers should be competent to handle these agendas. Extension services must keep examining stakeholder needs and demands and be prepared to advise them accordingly. AES authority in Nepal should initiate a discussion inviting all agricultural stakeholders, farmers in particular, and assess what worked in the past and what did not work. If some activities did not work, extension professionals must identify why they did not, and what could be and should be done to address the needs and demands of the current and upcoming farmers.

The discussion leads to the conclusion that first and foremost, AES should train its extension personnel with new competencies. Poor performance of the extension services system is also attributed to the attitude of the extension staff. Factors contributing to the attitude of the staff members include incentives, training, rewards, housing facilities, office environment, workload, office supplies and office aids, among many. Second, extension professionals should be made accountable to their clients, the farmers, the entrepreneurs for their work. Those who are serving effectively should be rewarded.

Nepal should bestow high priority to demand-driven, decentralized, pluralistic extension services, and ICTs. Decentralized units have decision-making authority and are physically close to their beneficiaries. They plan and implement development programs with their beneficiaries' participation, making them sustainable.

ICT has virtually narrowed the world and has affected almost every walk of life. It is a power that could be harnessed by every services system including extension. The potential of this technology can be exploited to strengthen the capacity for educating rural farmers who have access to media. Information technology can address the difficulty in making face-to-face contact with the farmers and the problems with transportation.

Privatization of services is gaining momentum worldwide. The underlying reasons for privatization are the dwindling budgets of government, less productive government workforce, and discontent among people toward government services. Conversely, there are more resources, innovative ideas, and better services in the private sector. Several developed countries have fully or partially privatized their agricultural extension services through outsourcing, cost recovery, or contracting out mechanisms. Nepal can and should also try this approach at least with big and commercial farmers.

Pluralistic service delivery, the modality of using more than one organization, whether public or nonpublic for delivering extension services to farming communities, is gaining popularity. The pooling of all available resources reduces unhealthy competition, deletes redundancy of services, and compensates for low government budgets in agriculture. The main challenge is in ensuring effective coordination among various agencies. The government should take the responsibility for coordination, technical supervision, support, and quality control.

Nepal should give high priority to research, training and education, effective implementation and effective monitoring and evaluation of extension services. Research leads to creativity and innovation, helps diagnose problems hindering development, and foresees the future. Information important today may not be so a few weeks from now. Constant research and exploration must examine what is changing, how it is changing, who is involved or affected by it, and how to adapt to such changes.

Monitoring and evaluating the program is necessary to know how the program is running and what outcomes and impacts result. Output monitoring is essential, but more important and critical are the outcome and impact monitoring. Every extension staff member from senior officials in the ministry to those working in the field should be trained to monitor and evaluate the program they execute and then do it. External monitoring and evaluation through outsourcing are also suggested because it is more transparent and reliable.

Training and education are inevitable to hone knowledge, skills, and competence. Newly recruited extension professionals should get induction training where they will learn the basics of administrative procedures and processes to implement the program they are assigned to. New staff members should, as public servants, receive training on integrity and ethics. They should be taught how they will be evaluated and how they should behave with and be accountable to service seekers. Staff members already in service need in-service and refresher training on both technical and soft skills.

Extension is no longer just extension only. Extension is the umbrella or core area every technical professional whether in the field or in the regional or central office should be aware of. All personnel within agricultural services

should attend sessions on extension theory, approaches, methods, and tools in basic induction and refresher training.

Importantly, an institution grows, succeeds, and sustains, and is applauded and appreciated by both staff and beneficiaries if there is a proper learning environment, which is defined as “learning organization” and “organizational learning” (Merriam et al., 2007). Thus, extension management should underscore and understand the urgency of motivation and capacity development of extension staff. For this to happen, AES should provide working environment that is employee and learning friendly.

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