



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

STRENGTHENING THE PLURALISTIC AGRICULTURAL EXTENSION SYSTEM IN NEPAL

A MEAS Rapid Scoping Mission
carried out from December 1 to 21, 2011

March 2012





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Report on the MEAS Rapid Scoping Mission
carried out from December 1 to 21, 2011

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ACRONYMS

ADB	Asian Development Bank
AICL	Agricultural Input Company Limited
ANSAB	Asia Network of Sustainable Agriculture and Bio-resources
APP	Agricultural Perspective Plan
B.Sc. Ag.	Bachelor of Science in Agriculture
B.V.Sc. & A.H.	Bachelor of Veterinary Science and Animal Husbandry
CBS	Central Bureau of Statistics
CEAPRED	Centre for Environmental Policy, Research, Extension and Development
CTEVT	Council for Technical Education and Vocational Training
DADO	District Agriculture Development Office
DFTQC	Department of Food Technology and Quality Control
DLS	Department of Livestock Services
DLSO	District Livestock Services Office
DOA	Department of Agriculture
DATWG	District Agriculture Technical Working Group
FtF	Feed the Future
HICAST	Himalayan College of Agriculture Sciences and Technology
IAAS	Institute of Agriculture and Animal Science
ICT	Information and Communication Technology
I.Sc.	Intermediate in Science
JT	Junior Technicians
JTA	Junior Technical Assistant
M.Sc. Ag	Masters in Science Agriculture
M.V. Sc.	Masters in Veterinary Science
MOAC	Ministry of Agriculture and Cooperatives
NARC	Nepal Agriculture Research Council
NGO	Non-Governmental Organization
NPC	National Planning Commission
NTFP	Non-Timber Forest Products
RRN	Rural Reconstruction Nepal
SLC	School Leaving Certificate
SMS	Subject Matter Specialist
USAID	United States Agency for International Development
VAHW	Village Animal Health Worker
VDC	Village Development Committee

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Mr. Surya Prasad Baral, Horticultural Officer at the Ministry of Agriculture and Cooperatives, accompanied us to the field. He supported our field visits in Banke, Bardia, and Surkhet districts. Ramjee Ghimire and Bineeta Gurung assisted in compiling information from reports of MOAC, DOA, DLS, and Central Bureau of Statistics, Nepal.

We appreciate the cooperation and support of many organizations and individuals during the course of this scoping mission. Over 175 persons representing Ministry of Agriculture and Cooperatives, Department of Agriculture, Department of Livestock Services, Institute of Agriculture and Animal Science, National Agriculture Research Council, and several NGOs/INGOs contributed their perspectives on Nepal's agricultural extension service through participation in meetings and discussions. These included the national, regional and district level agricultural extension officers from the Far-Western and Mid-Western Regions, Agroveter technicians, Farmer Cooperatives, individual farmer and entrepreneurs. Similarly, 129 agricultural development professionals from governmental and non-governmental organizations participated in our online survey and offered suggestions to improve extension service.

We are grateful to Gary Alex, AOTR, Feed the Future Cooperative Agreement at USAID/EGAT/AG, for his continuous support and counsel. Additionally, we appreciate his efforts to establish contacts for us with the food security staff at USAID/Nepal.

We have summarized all discussions and observations about Nepal's agricultural extension activities—both agriculture and livestock extension services. We have presented them in the spirit of identifying areas that deserve additional investment and support from the Government of Nepal and from donors. Although many people have contributed in various ways, all errors are ours and the assessments presented do not necessarily reflect those of the supporting organizations.

Murari Suvedi, Michigan State University
Paul McNamara, University of Illinois

EXECUTIVE SUMMARY

MEAS (Modernizing Extension and Advisory Services), a U.S. Agency for International Development (USAID)-funded project, conducted a scoping mission to examine the pluralistic extension system in Nepal and to develop recommendations for strengthening its extension system. The field assessment work occurred December 1-21, 2011, and included in-depth interviews with Ministry of Agriculture and Cooperatives (MOAC) staff members, Nepal Agriculture Research Council (NARC), faculty members at Institute of Agriculture and Animal Science (IAAS) of Tribhuvan University, international and national non-governmental organization (NGO) directors, farmer cooperatives, leader farmers, freelance agricultural development professionals, and private sector representatives. The team reviewed relevant publications and reports.

The MEAS team visited farms, the District Agriculture Development Office, District Livestock Services Office, regional research and training centers, agricultural stations, as well as universities and training centers. In addition, the team conducted an online survey with mid-career and senior agricultural development professionals to identify areas needing improvements within the current extension service in Nepal.

The purpose of the scoping mission was to identify key issues within the pluralistic extension system in Nepal that will need to be addressed to develop a sustainable, farmer-led, and market-driven system of extension and advisory services. This report summarizes the findings based on literature review, personal interviews, observations, and feedback from seminar presentations followed by discussion. The scoping mission team has recommended specific actions for consideration.

SUMMARY OF FINDINGS

Consistent with the requested terms of reference of the scoping mission for extension, the MEAS team met with personnel from the National Planning Commission, the Ministry of Agriculture and Cooperatives, farmers groups and cooperatives, AgroVets, and farmers. In addition, the team met with representatives of the Nepal Agricultural Research Council, Institute of Agriculture and Animal Science, and national and international NGOs. In summary, these meetings resulted in the following impressions and conclusions:

- Agricultural extension is widely distributed and has significant footprints. Despite remoteness, the extension services of the DOA and DLS have a nationwide structure—regional and district offices, service centers, training institutes, farms, and farmers groups.
- A generalist approach to agriculture and livestock extension is followed without due regard to diverse peculiarities of different agro-ecological regions and farmer categories. However, Nepal has many education, research, and training institutions to support region-specific, need-based, and demand-driven agricultural development.
- The public extension service structure has been stable, but also stagnant. Extension service suffers from lack of suitable technology to transfer to farmers and agribusiness operators. Agricultural research and extension services are not linked well. Also, there is no formal linkage

mechanism for communication and interaction between pre-service educational institutions such as IAAS, CTEVT, HICAST, NARC research farms, centers, and extension agents in the field.

- The Agricultural Information and Communication Center disseminates information on modern farm technologies and practices through mass media. A daily 15-minute farm radio program is broadcast on Radio Nepal at 6:40 p.m. Similarly, a daily program on national TV airs at 6:40 p.m. Technical publications are distributed to district offices on a limited basis. Although limited to one market, agricultural market prices are broadcast daily in the morning on Radio Nepal. The unit needs major enhancements to serve the diverse informational needs of the farmers and agribusiness operators.
- Most agriculture extension offices have a computer, and extension professionals have personal email accounts. However, use of the Internet and communication technology is very low. Email is used infrequently for communication. Extension has not been able to use ICTs due to limited funding and lack of trained staff who can develop ICT-based messages. However, ICTs could significantly enhance communication between extension, research, and education organizations.
- Unavailability of modern inputs such as improved seed, seedlings and fertilizer are major issues. Extension workers are generalists and they are thinly spread, so the need for improved staff coverage is an important issue. Current staff are poorly equipped with technical knowledge and skills in agricultural production practices, and they are also weak in process skills, including social mobilization. Further, front-line workers do not have exposure and training in marketing and supply chain management, which is of growing importance for modernizing the agriculture sector.
- Women in Nepal are engaged actively in farming, though front-line extension workers are mostly men. There is an urgent need to train and recruit female extension workers. At the same time, there is a need to initiate a special reward and recognition system for extension workers who perform gender-sensitive work.
- Nepal has pluralistic extension services. In addition to DOA and DLS, many NGOs and CBOs offer education and training to farmers. Some national-level NGOs, such as CEPREAD, RRN, and Forward, are prominent in extending services to farmers, agribusiness operators, commercial producers, and farmer groups. However, sustainability of these services depends heavily on external funding.
- Private sector engagement in extension is limited but growing. Examples include the operation of small-scale poultry hatcheries, fruit and vegetable nurseries, animal feed and veterinary services. There are a number of agricultural service providers who sell modern inputs like seed and pesticides and also offer technical advice to farmers. Veterinarians and farm consultants are engaged in supplying improved seed, seedlings, saplings, chicks, fingerlings, animal feed, pesticides and veterinary services. Some veterinarians also offer artificial insemination (AI) on cattle and buffalo.

- There is a strong civil society movement on-going within the agriculture sector that is resulting in the formation and operation of dairy and vegetable cooperatives and the seed potato grower association. Women also have formed agricultural cooperatives. Mothers' groups also are operational in many communities. Some of the cooperatives have been very successful in serving the needs of their members, specifically in marketing of farm products such as milk, vegetables, and seed potatoes. Front-line extension workers have assisted in the formation of cooperatives and farmers' groups. However, policies and guidelines for how extension services could collaborate effectively with these groups are lacking.
- The operation and management of an agricultural extension service is funded by the Government of Nepal. However, extension services needs more funding to support educational programs for farmers and demonstration of new farming practices at the village level. At present, 60 to 70 percent of the extension budget at district extension offices is spent on staff salary and 30 to 40 percent is allocated to extension programs and activities.
- There is consensus about the need to introduce and/or strengthen performance-based funding for extension. The extension service may consider moving toward outcome- and impact-based evaluation and away from a geographic distribution/coverage of services, regardless of needs and impacts approach.
- Private sector firms such as agricultural suppliers, veterinarians, and cooperatives offer quality and timely input services to farmers. It may be time to privatize and commercialize selected inputs. The LARPs, VAHWs, and JTs/JTAs could be the input dealers for fertilizer and other inputs, including recommended practices from extension services.
- Nepal has an adequate institutional infrastructure for the agricultural education and research system. However, there is an urgent need to strengthen research and education capacity at IAAS, CTEVT, and NARC research centers and farms. There is also a need to develop "second generation" human resources to support agricultural education and research. The associated curricula and pedagogy need immediate improvement. There is also a need to strengthen research laboratories, including training human resources on how to operate and maintain lab equipment.
- The post-conflict situation continues in Nepal, and impacts the agriculture extension system as it does all other national needs. The Constitutional Assembly is working on a new constitution—it is debating on the form of government, including state restructuring. We heard that VDCs and municipalities will remain the lowest unit of government. The present structure of district level government may or may not remain intact. The current regional administrative structure may change or even abandoned. We heard that the newly formed states may have power to plan for their own development. Considering this scenario, we see a need for a decentralized, demand-driven and municipality/VDC-led extension program for Nepal.
- There have been frequent changes in the government. Civil service personnel are operating under tremendous pressure from political parties. Questions are raised about efficacy in the use of public funds. Some staff are aligned with various political groups. As a result, filling

senior positions, placing and transferring officials within government organizations, and garnering recognition for quality professional work have been difficult.

- Food security-related projects are scattered and poorly coordinated. For example, irrigation development is under the purview of the Ministry of Water Resources; agriculture credit is under the Ministry of Finance; fertilizer is under Agriculture Input Company Limited; export crops such as tea, coffee, cardamom, and ginger are under the Ministry of Commerce; non-timber forest products are handled by the Ministry of Forests and Soil Conservation; and agricultural extension is under the Ministry of Agriculture and Cooperatives. Further, many donors who are engaged in technical assistance operate almost independently in various districts. Coordination of services is difficult.
- Senior GON officials feel that investment in irrigation would be the most effective strategy for increasing local food production. Other strategies that could affect local food production in the short-term include field crop improvement, livestock improvement, and provision of fertilizer. It should be noted that provision of inputs such as improved seed and fertilizer in a timely manner was ranked as the most important service need for farmers. Equally pressing is the need for marketing of farm products.
- Nepal's public extension service needs improvement. Key extension needs are: a) a more participatory approach; b) greater specialization and focus on higher-value products; c) more marketing of extension services; and d) greater facilitation of agricultural services and input delivery at the VDC and district levels. Extension must strengthen supervision of extension field staff and building reward and recognition programs to motivate extension staff to deliver superior work. The need for training/retraining of extension staff is urgent.
- Food security requires an integrated approach to serving farmers and agribusiness operators. To offer the needed support, both public and private sector agencies must work together to:
 - improve the supply of modern inputs, e.g., improved seed and fertilizer, in a timely manner at the local level;
 - support for small-scale irrigation for crops and vegetables;
 - development of fruit and vegetable processing/packaging facilities;
 - enhanced availability of production/marketing credit for women and women's groups;
 - production and marketing of special local products such as ginger, medicinal herbs, non-timber forest products, and crafts;
 - training of research scientists to conduct applied research;
 - upgrading of agricultural research farms and laboratory facilities; and
 - support for pre- and in-service training of extension staff.

Finally, Nepal has adopted several models of agricultural extension in the past four decades. Most extension delivery models have been top-down in nature. Educational programs and services in the past were planned at the DOA or DLS headquarters. At present, most extension activities are planned at the district level. Our interviews with key officials indicated that some elements of training and interaction need to be retained, e.g., provision of agricultural assistants at the VDC level, regular training of agricultural assistants based on perceived need, and periodic interaction of subject matter

specialists with researchers. Similarly, training of local farmers to serve as “Tukis” in the villages should be continued. However, there are additional needs. Coordinated production programs with timely supply of inputs such as improved seed and fertilizer are essential to improving production. Farmers need help in marketing their farm products. Any improvements in the extension system need to consider all of these elements.

Nepal has a nationwide structure of extension offices, research farms, and education and training centers. The extension service has government support and has received funding from various donors. Institutions for agricultural research and education are also in place. However, the extension service has poor linkages with agricultural research and education systems. What messages or new technologies will extension workers take to the farmers if they are not kept current with the most recent research recommendations? How can education and training organizations teach about the latest technologies and improved farm practices at pre-service/in-service training if they do not interact with research and extension professionals on a regular basis? Improvement in extension services requires improvements in research and education and all three functions; extension, research and education/training complement each other.

Front-line extension workers such as JTs and JTAs are assigned at the service centers to serve large geographic areas, but they have no travel support. They are poorly supervised or not adequately guided by extension professionals. It was frequently mentioned that they neither have the technical skills nor motivation to serve the farmers. There were also similar complaints about extension staff at the district level. An exception is that veterinarians and/or livestock technicians charge fees for treating sick farm animals and they travel on their own to offer treatment services to farmers. Therefore, a major challenge facing extension service is how to use the current human resource and institutional infrastructure by developing and implementing appropriate policies, incentives, staff training, and supervision as well as developing a relevant system of rewards and recognition for quality performance.

RECOMMENDATIONS FOR CONSIDERATION

The Ministry of Agriculture and Cooperative may consider the following recommendations to strengthen Nepal’s agricultural extension services:

- Strengthen front-line service providers through a coherent in-service training program in partnership with existing regional training centers to offer process and technical training and to promote active learning. This may also include training on social mobilization skills.
- Develop MOAC, NGO and private sector extension leaders through targeted training opportunities – training on PRA, participatory approaches in extension, management, and technical areas (NRM, marketing, health and nutrition, agriculture, etc.).
- Amplify the ability of agriculture information and communication centers to use mass media and the Internet to deliver extension services and messages:
 - training in ICT-based extension, technical skills in editing, videography and video editing, and farm radio broadcasting; and

- capacity development of farmers' associations, cooperatives, and other groups, including VDCs, farms, and DADOs, and contracting with NGOs and private individuals for extension services.
- Decentralize extension program planning, implementation, and performance evaluation and place these functions at the VDC level. Introduce and scale up the use of Local Agricultural Resource Persons (LARPs) or Village Animal Health Workers (VAHWs) at the VDC level. The LARPs, VAHWs, and/or JTs/JTAs could be local persons having JT/JTA training or AgroVet technicians. The VDCs could use local LARPs/VAHWs to serve farmers' needs with a coherent financing strategy that involves VDC participation and control. A VDC may require LARPs/VAHWs to specialize in specific commodities such as coffee, ginger, farm animals (e.g. water buffalo), or poultry. Local candidates for LARPs/VAHWs would be identified through a participatory process and would be on fixed-term contracts, with payment based on performance and deliverables. The performance of LARPs/VAHWs may be through documentation of deliverables, which might include photos with date and time stamps, and GPS stamps of educational meetings and activities, as well as certification of performance by local VDC agriculture committees. Introduction and scale-up of the use of LARPs/VAHWs could be promoted through private sector organizations and agricultural civil society groups (cooperatives, agricultural finance organizations, and farmers associations) through partnership funding streams and technical and business support. This leads to a decentralized extension system with local control of extension program and personnel. Implementation of this strategy is described in more detail under recommendation section of the main report.
- Strengthen and deepen the use of best practice methods in monitoring and evaluating MOAC extension programs. There are many success stories of technology transfer and adoption. These need to be documented and lessons should be shared through case studies, farm radio, and TV programs.
- Assist the MOAC in increasing the use of performance criteria and programming criteria in extension human resources policy. Posting periods should be matched to time periods that accurately reflect the amount of time it takes to produce results in the field.
- Build capacity within the MOAC, private sector advisors, and NGO community for market-led and farmer-driven extension programming. Staff may need training on participatory, need-based, or demand-driven extension program development processes.
- Strengthen pre-service and in-service training of extension professionals nationwide. Many district and regional level staff need advanced graduate training. There is also a need to develop second generation faculty capacity at IAAS, CTEVT, and NARC institutions.
- Collaboration and linkages between agricultural organizations is critical. One of the main functions of the FtF project may be the coordination of services and communication between government organizations such as DOA and DLS, donor communities and DOA and DLS, autonomous agencies like NARC and IAAS/TU, and NGOs funded through donor communities.

Immediate action steps for the FtF to strengthen pluralistic extension system and to scale-up extension activities for meeting FtF goals may include strengthening AICC, expanding use of LARPs/VAHWs and AgroVet training for qualified youths, introducing and using LARPs/VAHWs through fixed-term (non-civil service) performance contracts, implementing a sustainable financing model (with VDC support) at the VDC level, and supporting internship programs for IAAS/HICAST/CTEVT B.Sc.Ag. students to work in FtF project districts.

The GON, USAID, and other leading donors are committed to improving the food and nutritional security situation in Nepal, particularly in the identified FtF districts. As outlined in our assessment of the extension situation in Nepal, a number of current assets exist that can be further harnessed to increase production of key crops, improve income of farmers and landless laborers, and augment nutritional security.

One option is for DADOs and other partner organizations at the district level to work on a coherent and explicit plan that would lead to improved food security. The main outputs of interest would be adoption of higher yielding and more robust varieties of maize, rice, lentils, and other agricultural staples, as well as implementation of appropriate best practices (e.g., small tube/well irrigation, improved storage, fertilizer use, and adoption of integrated pest management practices). District level DOA and DLS offices would benefit from training and coaching in work plans. Such proposals and statements of capacity would detail and identify key extension assets in each district, including complete staffing of the DADO and sub-district offices, as well as enhancement of partner organization capacity (farmer associations, cooperatives, private input dealers, and lead farmers).

Such an extension capacity building project would have final determination of the participating districts with input from a committee comprising a mix of MOAC staff, and representatives from key groups and organizations. The extension plan would also detail a set of actions and expected outputs that could form the basis of the M&E plan that would be jointly administered by the project management unit. Monitoring and evaluation would measure performance through means such as date, time and GPS stamped photos of training visits and farmer demonstrations, as well as through quasi-experimental evaluation research of the program impacts on participating farms (using non-participating farms as controls).

The GON continues to be very supportive of agricultural extension services. It has received generous support from various donor communities to address food security. The main issue is the efficacy in the use of public funds to address the root causes of food insecurity. It is time for Nepal and its friends to reflect on the questions, “What lessons have we learned from past food security-related projects and how can we improve the performance and impact? How can we reach the people who need the help most? What roles should public institutions such as the extension service play in food security? What roles should be delegated to NGOs and the private sector? ” Long-term food security cannot be delivered from outside. Communities and households have to be empowered to grow nutritious food sufficient to maintain healthy lives.

Some agricultural development practitioners argue for privatization of extension services to enhance efficiency and speed in enhancing food security. We agree that private firms, including NGOs, may offer timely delivery of agricultural inputs such as improved seed, pesticides, fertilizer, and farming equipment. However, considering the context of a less developed country such as Nepal, we are concerned about the timely delivery of quality input services by private firms. Therefore, cost, timeliness, and quality of services must be monitored by MOAC units such as DOA, DLS, or DFTQC. We believe that extension services contain significant public good components and thus there is an important reason for public sector involvement in a developing country’s extension system. We must remember that projects may come and go, but the extension service of DOA, DLS, NARC, and IAAS will continue to exist. Therefore, it is important for development projects and programs to engage public institutions, as well as civil society organizations and private sector firms. Building the capacity of the public institutions to plan, deliver and evaluate local food security programs is essential for sustainable development.

STRENGTHENING THE PLURALISTIC AGRICULTURAL EXTENSION SYSTEM IN NEPAL

OVERVIEW

Modernizing Extension and Advisory Services (MEAS) researchers have been carrying out Scoping Missions of agricultural extension services, looking at elements such as institutional arrangements, capacity building, and policy dialogue focused on extension services. USAID/EGAT/AG has given MEAS a global mandate to provide broader support for the Feed the Future Initiative.

In this context, and because Nepal is a Feed the Future focus (FtF) country, Michigan State University professor Dr. Murari Suvedi and MEAS Director Dr. Paul McNamara visited Nepal during December 2011 for a scoping mission to strengthen agricultural extension services in support of USAID/Nepal's planned programs. The trip was funded under the Leader with Associates Cooperative Agreement No. AID-OAA-L-10-00003.

SPECIFIC OBJECTIVES OF SCOPING MISSION

The primary goals of the mission were to develop an institutional/programmatic overview of the pluralistic extension system in Nepal and to assess the organizational structure, relationships, major activities and services, as well as the primary constraints, within the Directorate of Agriculture Extension (<http://www.agriextension.gov.np/eng/>), the Agriculture Information and Communication Center (<http://www.aicc.gov.np/index.php>), and other advisory service providers.

Specifically, the objectives were to:

- meet with the directors, officials, and key staff members of the Department of Agriculture (DOA), Department of Livestock Services (DLS), and the Agriculture Information and Communication Center (AICC), as well as other major advisory service providers in Nepal to assess the current structure, capacity, and expertise of the extension/advisory service at the field level;
- determine what these directors and key leaders perceive as their primary achievements to date, their human and financial resource constraints, and other structural or managerial constraints that may be limiting their capacity to provide improved advisory services to small-scale farm households;
- determine the primary focus of each extension service provider;
- explore opportunities and challenges of extension service providers in meeting the educational and technical assistance needs of farmers;
- explore whether women farmers are receiving technical assistance from extension workers on how to grow high value agricultural products for income purposes, or if most technical assistance focusing on women's contributions is focused only on subsistence farming;
- explore other activities (e.g., if and who is organizing producer groups for high-value crops, livestock, fisheries, etc., and linking these groups to markets) and whether the ICT capacity of AICC can be enhanced by making both technical and market information more readily available to the field extension staff and farmers; and
- find out if and how nutrition information reaches women of households and communities, and if nutrition is promoted as a family issue.

In summary, this study focuses on 1) identifying the major gaps within the Department of Agriculture, Department of Livestock Services, and other extension/advisory service providers, including institutional capacity, human competency, and policy limitations, and 2) suggesting some near- and long-term investments that may be useful in increasing the effectiveness and sustainability of these agricultural extension service providers.

METHODS AND PROCEDURES

Information for this scoping study was gathered from three procedures and their related sources:

LITERATURE REVIEW

Agricultural extension services in Nepal have a long history. A brief review of Nepal's pluralistic agricultural extension service was conducted to provide the historical development and current contexts of extension. Specifically, the review presented in this report covers various attempts and efforts of the Government of Nepal to improve food security, including its extension, research, and educational initiatives.

OFFICE VISITS AND INTERVIEWS

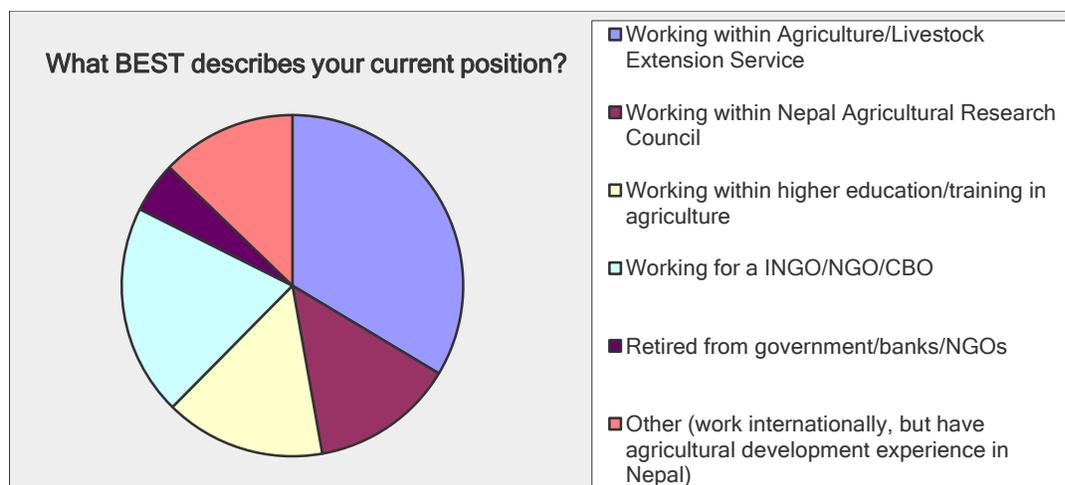
The scoping mission team met with more than 125 individuals associated with agricultural extension, research, and education/training institutions in Nepal. The team spent time in Kathmandu at the beginning and end of the trip, with seven days of field visits to Chitwan, Banke, Bardia, and Surkhet districts and neighboring areas in the middle (see Appendix A for details). Specifically, the MEAS team met with representatives of the following organizations (see Appendix B for details):

- USAID/Nepal Agriculture Officer and Feed the Future team members
- Ministry of Agriculture and Cooperatives (MOAC), Kathmandu
- Department of Agriculture (DOA) and Department of Livestock Services (DOL) representatives
- Institute of Agriculture and Animal Science (IAAS), Rampur
- Private Agribusiness Operators in Chitwan (Sulav Hatchery Pvt. Ltd., Livecare Pharmaceuticals Pvt. Ltd., Pancha Kanya Feed and Hatchery Pvt. Ltd., and Dawadi Agro Enterprises)
- District Agriculture Development Office, Banke
- Regional Agriculture Research Station, Khajura, Banke
- Regional Livestock Training Center, Nepalgunj
- District Livestock Services Office, Banke
- Regional Agriculture Training Center, Khajura, Banke
- District Livestock Services Office, Bardia
- District Agriculture Development Office, Bardia
- Agricultural Service-Center, Rajghat, Surkhet
- Agriculture Research Station, Dasharathpur, Surkhet
- Regional Directorate of Livestock and Agriculture Development, Surkhet
- District Agriculture Development and Livestock services Offices, Surkhet
- Shree Deuti Dairy, Small Farmer Cooperative Ltd. (managed by the Women's Group), vegetable farms, Kakrebihar Para Veterinary representative, and farm-markets in Surkhet
- Kohalpur Dairy Cooperative, Kohalpur, Banke

- District Agriculture Development Officers or their representatives from Far-Western and Mid-Western Region attending Seed Production Workshop organized by DOA in Dhulikhel
- Agricultural Information and Communication Center (AICC)
- Crop Development Directorate of DOA
- Hill Maize Research project
- The World Bank staff to learn from their experience in agricultural extension
- Center for Environmental & Agricultural Policy Research, Extension & Development (CEAPRED)
- FinTrac/USAID Project
- Asia Network for Sustainable Agriculture and Bio resources (ANSAB)
- Nepal Agriculture Research Council (NARC)
- National Planning Commission, Nepal

ONLINE SURVEY

We also developed an online survey to solicit suggestions for strengthening agricultural extension services in Nepal. The survey included questions about current problems facing extension services and sought opinions on how a pluralistic, participatory, and demand-driven agricultural extension service could be established in Nepal. The survey was mailed on December 10, 2011 to 287 mid-career and senior agricultural development professionals within the MOAC, IAAS faculty, and to NARC scientists members of donor communities, INGO/NGO staff, and retirees and/or freelancers currently serving agricultural development in Nepal. One person opted not to complete the survey and, as of December 28, 2011, 129 persons had responded to the online survey. The chart below displays the distribution of current positions of individuals who completed the online survey.



Data gathered from a review of relevant literature and reports, personal interviews with key officials, and observations from field visits are synthesized, analyzed, and presented under separate headings and sub-headings. Findings from online surveys are integrated throughout the report. Related data from secondary sources are presented in Tables and Annexes.

FOOD AND AGRICULTURE SITUATION IN NEPAL

Nepal is a landlocked country located between India and China. As reported by the Central Bureau of Statistics (CBS), its population reached 26.62 million (CBS, 2011).

The agriculture sector is the mainstay of the Nepalese economy, contributing more than one third of the Gross Domestic Product (GDP) and employing two-thirds of the country's labor force. Thus, the agriculture sector is pivotal to increasing incomes, alleviating poverty and uplifting the living standard of the people. Similarly, attaining food self-sufficiency and economic growth in Nepal depends crucially upon the progress of the agriculture sector.

Nepal has predominantly small farms. Forty percent of farm holdings measure less than 0.5 hectare and cover 11 percent of the total agricultural land (CBS, 2002). Land ownership and land fragmentation are high, due mainly to the customary practices of dividing and distributing farm land by parents amongst their offspring. Many people are gradually leaving agriculture, as it is hard to make a living from agriculture. As a result, rural to urban migration is increasing, and the labor force is moving away from production agriculture.

Nepal's agriculture is mostly of the subsistence type, with as high as 78 percent of farm holdings reported to be producing mainly for home consumption. The proportion of holdings that produce mainly for sale is below one percent, while a little more than 21 percent of farm families use their farm produce almost equally for sale and home consumption (CBS, WB, DFID & ADB, 2006). For 60 percent of the farm holdings, the annual farm production was not sufficient to feed the household until the next harvest; 40 percent of holdings were deficient for up to 6 months while 20 percent of holdings were deficient for more than half a year (Karkee, 2008). However, given the sizeable contribution to the national economy and the engagement of a high percent of the labor force, agriculture still remains the priority sector in Nepal's current development plan.

The Government of Nepal implemented a planned development approach beginning in 1956. The agriculture sector has been a priority in most of the national development plans since that time. The current three-year plan also recognizes that agriculture can play a vital role in reducing poverty and hunger. The agriculture sector is expected to grow by 3.9 percent by the end of this plan. The current three-year plan aims to modernize and commercialize agriculture to create jobs and income opportunities to combat poverty and reduce the trade deficit. The plan seeks to strengthen agriculture education, extension, and research in a coordinated way (NPC, 2010).

Nepal's progress in improving agricultural productivity and enhancing food security has been slow. A decade-long (1996-2006) period of political unrest in the country affected overall development, resulting in weak programs and policies throughout Nepal. Specifically, the weak agricultural education, research, and extension system is attributed to this interrupted and snail-paced agricultural development. Additionally, existing economic and social indicators underpin the inequality in development across different regions within Nepal. The Mid-Western (MW) and Far-Western (FW) regions are far below the other three regions in terms of infrastructure and agriculture development (USAID 2011).

Regional planning introduced during the Fourth Five-Year Plan (1970-75) – with objectives of fostering national economic integration, maximizing interregional development, and initiating breakthroughs in the vicious circle of the ineffective economic system and imbalances in project implementation – yielded little impact. As a result, the spatial disparity between and within regions is noticeable. Agriculture, livestock, and non-timber forestry products – particularly the high value herbal collection – are the main stays of the people in the mountain districts. Subsistence agriculture and livestock production are the main sectors in the hill districts, whereas food grain production is the main occupation in the Tarai districts. Food deficit is more severe in Mid- and Far-Western regions than in the rest of the country. People rely more on imported food. Of the 24 districts in the Far-Western and Mid-Western regions, almost 14 are food deficit districts and need external support to feed their populations. Because of limited economic activities in these regions, most youth and adults go to nearby Indian states for seasonal employment.

The United States Agency for International Development (USAID) has been instrumental in developing Nepal's capacity for agricultural development. The USAID funded the community development program in the mid-1950s. During the 1960s and 1970s, USAID funded human resource development, both short-term and degree-level trainings in agriculture and natural resource sectors through the Participant Training Program in India and the United States. It also funded institution-building projects for development of the Institute of Agriculture and Animal Science in Rampur and the Institute of Forestry, Hetauda. In addition, USAID funded several other development projects, including the Integrated Cereals Project, the Resource Conservation and Utilization Project, and the Rapti Integrated Development Project, during the 1970s and 1980s. The USAID continues to provide assistance to improve Nepal's agriculture. Some of the on-going projects include: a) Nepal Economic, Agriculture and Trade project to promote economic growth, reduce poverty, increase food security, and improve lives; b) Hill Maize research program to improve food security and income in farm households in the hills; c) Flood Recovery Program to rebuild the livelihoods of flood-affected families; and d) Hariyo Ban project to reduce the adverse impacts of climate change and threats to biodiversity.

The USAID plans to implement the Feed the Future (FtF) project in 16-20 Tarai and hill districts in Western Nepal (USAID, 2011). The proposed FtF project districts are Baitadi, Dadeldhura, Kanchanpur, Doti, Kailali, Achham, Dailekh, Jajarkot, Rukum, Surkhet, Salyan, Rolpa, Phuthan, Banke, Bardiya, Dang, Kapilbastum, Palpa, Gulmi, and Arghakhanchi. We were informed by the USAID Nepal Mission that the number and names of districts may change after consultation with the Government of Nepal and availability of funding. However, this report provides some extension service and food security-related data that can serve as baseline information for some food security indicators. It also offers insights into the scope of extension reforms needed.

The goal of the FtF project is to enhance sustainable food security in the region. An agricultural extension service that links farmers with improved farming practices to increase productivity is expected to be a major component of the FtF project. This study is conducted to suggest improvements in agricultural extension services in Nepal generally, and specifically in the proposed FtF project districts. The goal of this scoping study is to analyze the gaps in educational and informational services for farmers and suggest measures that could be applied to foster speedy development of the agriculture sector and to contain food insecurity that is looming high in the region.

HISTORICAL DEVELOPMENT OF AGRICULTURAL EXTENSION IN NEPAL

Initiatives for agricultural development in Nepal date back to the 1920s. The Department of Agriculture (DOA) came into existence in the country in 1924. Programs at that time were limited to a few extension and training activities. To provide a broader perspective on how and through what stages the agriculture sector has moved in Nepal, the histories of agricultural extension, agricultural research, and agricultural education and training are described below.

Agricultural Extension

Agricultural extension has played a key role in Nepalese agricultural development. Inception of the Department of Agriculture (DOA) and the beginning of agriculture extension in Nepal are believed to have started in the early 1920s. However, the formal agricultural extension service began in 1952-54 with the introduction of community development programs (Suvedi and Pyakuryal, 2001). The functions of Nepal's extension service have been to:

- educate farmers, youth, and local businesses and to help them make informed decisions in adopting new technologies for increasing household food production and for-sale productivity;
- maintain close linkages with the research system and farmers, and help develop appropriate technologies for Nepalese farmers;
- monitor and assess the changes in adoption and diffusion of new innovations and provide policy guidelines to better serve the farm population; and
- arrange for all the inputs and services required for the adoption of new yield-increasing technology, management of production, and marketing of farm products.

In summary, major objective of the agricultural extension program has been to disseminate modern know-how to farmers. There is common agreement on the philosophy of extension that agricultural extension is basically an educational process to help farmers make enlightened decisions to implement improved farming technology and practices.

Agricultural extension services in Nepal have mostly been delivered through public institutions. DOA has been the pioneering institution dedicated to delivering extensions services in the country. Over a period of more than eight decades, the DOA has gone through many changes. The DOA coordinated both research and extension until an autonomous research institution, the Nepal Agricultural Research Council, was established in 1991 (NARC, 2010).

The chronology of institutional development of the agriculture sector in Nepal (Table 1) reveals that many forms of institutional arrangements were adopted for the planning and delivery of agriculture research and extension programs in Nepal.

Table 1. Timeline of Establishment of Institutions for Agricultural Development in Nepal.

1921	Office of Agriculture within Singh Durbar, Kathmandu
1924	Department of Agriculture (DOA) Trial demonstration farm in Singh Durbar Kathmandu Fruit Nursery Farm in Godavari and Agriculture Farms in Janakpur, Parwanipur, and Pokhara
1937	Agriculture Council and Vocational Agriculture School
1952	Tribhuvan Village Development Program DOA supported with additional support under U.S. Point Four Program
1953	Department of Cooperatives (DOC)
1955	Research Stations
1957	School of Agriculture (now Institute of Agriculture and Animal Science)
1961	Department of Food Technology and Quality Control (DFTQC)
1965	Agricultural Input Corporation (AIC)
1966	DOA split into five departments: Department of Agricultural Extension
1968	Agricultural Development Bank (ADB)
1968	Lumle Agricultural Research Center
1972	Five Departments merged to form single DOA
1975	Agricultural Project Service Centre
1975	Pakhribas Agricultural Research Center
1977	Small Farmers' Development Program (SFDP) started.
1979	DOA and Department of Livestock Development and Animal Health formed.
1985	National Agricultural Research and Services Centre (NARSC)
1989	LARC and PARC handed over to NARSC.
1990	Department of Horticulture
1991	Departments merged again into DOA.
1991	Nepal Agricultural Research Council (NARC) established as autonomous research institution
1995	Department of Livestock Services (DLS) and DOA split from DOA
2000	Agricultural Project Service Center (APROSC) liquidated
2001	Nepal Agricultural Research and Development Fund (NARF) established

Source: FAO (2010); Suvedi and Pyakuryal (2001); Yadav (1987)

During the past 40 years, different extension approaches have been practiced in Nepal, with varying degree of success. According to Suvedi and Pyakuryal (2001), these extension approaches included:

- Conventional extension approach during 1960s and 1970s, based on trickle-down strategy of diffusion theory.

- Training and Visit (T&V) during mid-1970s-1980s in the World Bank-funded project covering Tarai and a few hill districts. The T&V approach followed a routine and disciplined program to focus on regular training to agricultural assistants and the Junior Technical/Junior Technical Assistants and, through them, to the farmers.
- Integrated Rural Development Projects during 1970s and 1980s. These assumed that existing technology of production was adequate and the major limiting factor was institutional, more specifically, of coordination.
- Tuki in 1977, also known as multi-purpose progressive leader farmer approach. “Tuki” means a kerosene lamp in the Nepali language. A Tuki was an enlightened farmer who was supplied with improved inputs to apply on his or her own farmland so that others would be motivated to do the same. Inputs were highly subsidized for a Tuki. This approach was limited to two hill districts (Sindhupalchok and Dolakha) under a Swiss government-assisted rural development program.
- Block Production Program: This approach was initiated at several cropping systems research sites to provide necessary technical support services to farmers in a coordinated way to facilitate the adoption of technologies generated through cropping systems research during 1980s.
- Farming Systems Research and Extension evolved during the 1980s out of the USAID-funded Integrated Cereals Projects implemented during the 1970s. This was a bottom-up approach that involved farmers in all the steps of technology generation.
- Groups Approach: This has emerged as a dominant approach of extension since 1990. It builds on the notion that most farmers are economically and socially weak as individuals and so cannot bargain for limited resources, but when they form a group, they become powerful. Moreover, it also becomes easier for the extension workers to reach more farmers through these groups.
- Pocket Package Strategy: This is the operational plan of the Agricultural Perspective Plan. This approach assumes that there are complementarities among the majority of production factors. Therefore, agricultural production efforts should be concentrated in a geographically defined pocket where critical services needed to boost production are made available to farmers.
- *Lumle Agricultural Research Center and Pakhribas Agricultural Research Center* had played key roles in agricultural research, training, and extension in the country. These Centers were established in the early 1970s, using the British Gurkha Welfare Fund, with the aim of training retired British army personnel. Demonstrations and applied research were the foci of these Centers. In 1989, these Centers were handed over to Nepal Agriculture Research Council.

Current Extension System: DOA and DLS, the two departments under MOAC, are mandated to deliver extension services in the country and to mobilize their networks (districts based offices, service centers and sub-service centers). Both the departments follow the pocket package approach envisaged in the Agriculture Perspective Plan (APP). Within the pockets, farmers are first organized into commodity groups. They get training and, in principle, are expected to take group action through farmers’ groups, cooperatives, and community-based organizations. Approximately 22,000 farmers’ groups are being mobilized through DOA and DLS. These farmers’ groups have savings at NRs 93 million as “group funds.” Similarly, DLS (2010) reports that there were 1,564 dairy cooperatives as of 2007 in the country, mostly located in dairy pockets. These groups and cooperatives are valuable assets of the agricultural sector, many of which may be able to run/operate local Service Centers in the future.

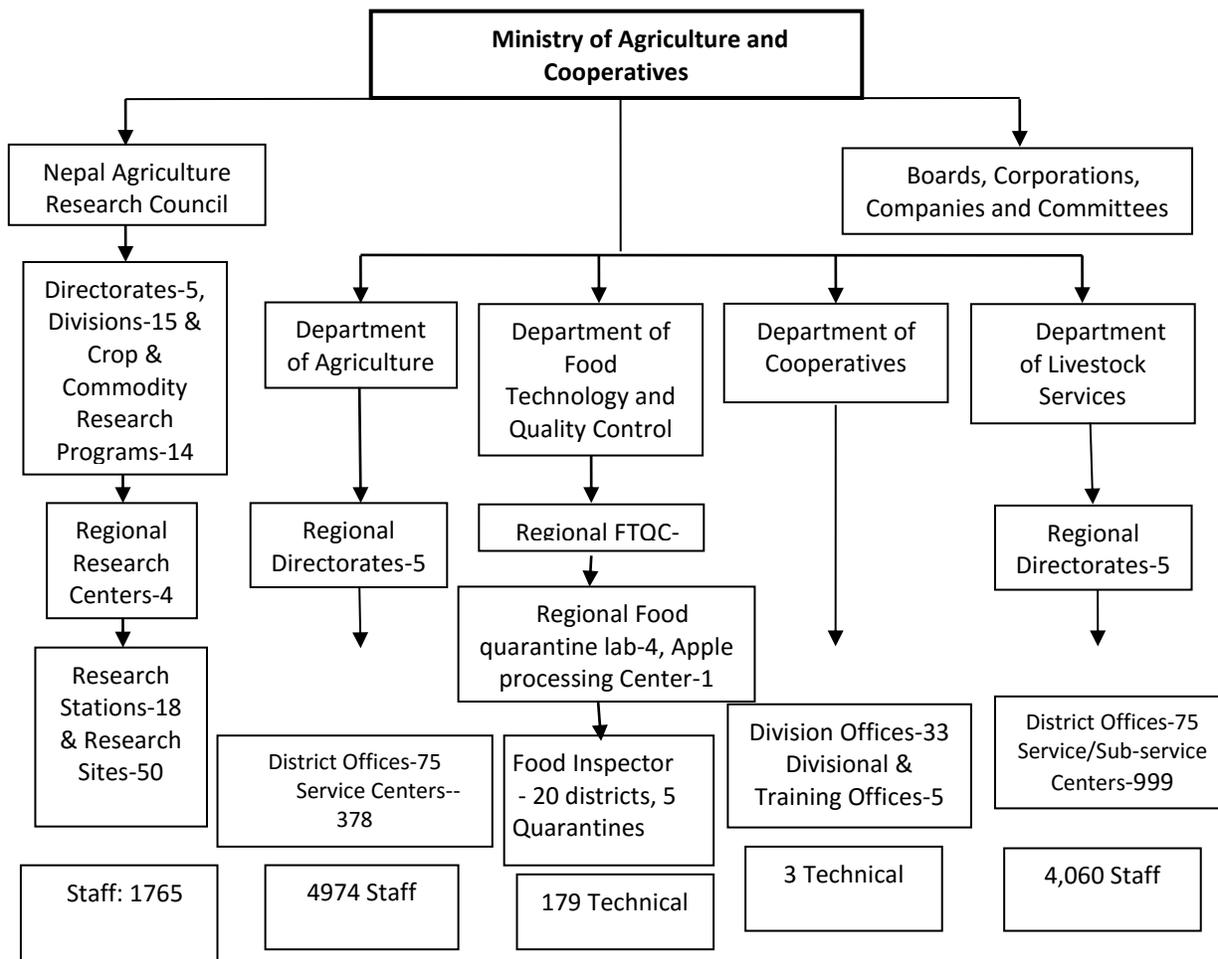
Agricultural extension in Nepal could not be effective in the past due to weak linkages between research and extension. Adoption of research innovations was low, as was the dissemination of research findings. There were separate chains of command for education, extension, and research, which seemed to be competing with each other rather than complementing each other. Most of the extension methods were imposed top down and farmers had little opportunity for input or sharing. Many of these approaches were guided by the government system rather than structured to meet farmers' needs and expectations.

Upon recognition of the above weaknesses, the Government of Nepal, with funding from the World Bank, initiated a new Agriculture Research and Extension Project (AREP). The project followed the concept of 'projectization' in agriculture services—extending coordinated research-based technology transfer to farmers to increase food production and income. It was expanded in 75 districts after piloting in 23 AREP districts. Under this approach, technicians were expected to stay in the field and be proactive to solve field problems. This project had mixed results. The majority of the programs have been aborted without letting them move through the complete cycle. Lack of commitment by collaborating and facilitating organizations, poor understanding of the concept by extension agents, and inability to replicate successful practices to other areas were some of the barriers to success, resulting in important lessons learned (Thapa and Ojha, 2004).

The Department of Livestock Services, in cooperation with the Asian Development Bank, initiated a "System Approach" within the Third Livestock Development Project (1997-2002). The main strategy was to empower and recruit farmers and farming communities, then help them become key players in program planning, implementation, and monitoring of projects that were targeted to support their livelihoods. Village and community-based program planning, with broader stakeholder participation, were initiated.

Agricultural extension at present is done through two major sister departments under the Ministry of Agriculture and Cooperatives (MOAC), namely the Department of Agriculture (DOA) and the Department of Livestock Services (DLS), which were separated from a single department, DOA, in 1995. The Department of Cooperatives (DOC), the Department of Food Technology and Quality Control (DFTQC), the Agricultural Input Company Limited (AICL), the Nepal Agriculture Research Council, and other units of MOAC play a crucial role in inputs (seed, fertilizer) supply and quality control. DOA and DLS have regional, district and field-based units distributed throughout the country. This network serves the purpose of delivering technical services to farmers and communities and linking development and research. The organizational chart (Figure 1) shows the current structure of MOAC and its constituent departments/units.

Figure 1. Organizational Structure of the Ministry of Agriculture and Cooperatives, Nepal



Source: Ministry of Agriculture and Cooperatives, Nepal

The Department of Agriculture has 12 Program Directorates, five National Programs, five Regional Directorates, five Regional Agricultural Training Centers, five Regional Seed Laboratories, five Regional Soil Testing Laboratories, one Soil Testing Laboratory, five Regional Crop Protection Laboratories, 12 Horticulture Centers, nine Vegetable Development Farms / Centers, 11 Fishery Development and Training Centers, one Central Fishery Laboratory, five Regional Plant Quarantine Offices, 75 District Agriculture Development Offices, and 378 Agricultural Services Centers distributed throughout the country. There are 4,974 technical staff members working for the department, of which about 47 percent are middle level technicians (DOA, 2011a).

Similarly, the Department of Livestock Services operates with four program directorates, five regional directorates, 75 district offices, 999 field based Service and Sub-Service Centers where approximately 4,050 staff members work. About 48 percent of the total staff are mid-level technicians (DLS, 2010). Field-based technicians are the frontline extension workers of both departments. These technicians are expected to play crucial roles in disseminating technology, facilitating input supply, providing technical

advice to farmers, and communicating farmers' needs/feedback to the departments through district and regional offices.

The Department of Food Technology and Quality Control (DFTQC) was established in 1961 to ensure availability of wholesome, safe, and nutritious food for the people of Nepal. Specifically, the objectives of FTQC are to 1) ensure the safety and quality of the food supply in the market; 2) promote food processing industries; 3) improve the nutritional status of Nepalese people; and 4) provide analytical services through best laboratory practices. DFTQC has five major programs—food/feed inspection, food industry licensing, development of new food standards, consumer awareness campaign implementation, and export/import certification. It has 231 staff members – 179 technical and 52 non-technical. The Department has two divisions, one Central Food Laboratory, one National Nutrition Program, one SPS National Equity Point, five Regional Offices, four Food Quarantine Laboratories, one Airport Custom Inspection Unit, 20 District Food Inspection Units, and one Apple Processing Center (DFTQC, 2010).

The Department of Food Technology and Quality control does not offer nutrition education due to lack of human resources and funding. The Department participates in a radio program broadcast over Radio Nepal twice each month. It has developed a few extension publications on nutritional requirements and recently has developed “weaning food,” which is considered a best practice in nutrition.

Agricultural Research

Agricultural research in Nepal was initiated in 1924 when the Department of Agriculture was established. This was followed by establishment of a trial demonstration farm in Singh Durbar, Kathmandu; a fruit nursery farm at Godavary, Lalitpur, and Agricultural Farms later at Janakpur, Parwarnipur, and Pokhara (Yadav, 1987). More agricultural research stations were established in 1955/56. The Nepal Agricultural Research Council (NARC), an autonomous agriculture research institution, came into existence in 1991.

The Nepal Agriculture Research Council currently is operating with 15 divisions, two national research institutes, 14 commodity programs, four regional agriculture research centers, and 18 agriculture research stations. It has over 1,750 staff.

The main areas of responsibility of NARC are: 1) to promote, support, coordinate, and evaluate research activities related to agriculture, natural resources, and rural development, 2) to ensure that the national research agenda and resource allocation reflect the needs and priorities of rural communities and agro-entrepreneurs, 3) to ensure that research projects are conducted with full participation of stakeholders, particularly resource-poor farmers, small entrepreneurs, stakeholders in food insecure and remote areas, 4) to promote participation of potential research partners, including government departments, university systems, non-governmental organizations (NGOs), private agencies, and individuals, 5) to mobilize national and international resources for agriculture and natural resources research, 6) to coordinate and facilitate defining a research agenda, setting priorities, and allocating resources for core and competitive research programs, 7) to encourage pluralistic regional research and development capabilities, and 8) to develop mechanisms to transfer technologies and to ensure coordination among research providers and technology delivering agencies in public, NGO, and private sectors (Thapa and Ojha, 2004).

The Nepal Agricultural Research and Development Fund (NARDF), another public institution with the aim of enhancing collaboration among the country's national research and development entities, came into existence in 2001. NARDF was established under the Ministry of Agriculture and Cooperatives to implement a competitive grant system for agricultural research and development. It does not implement research projects, but it provides grants to government and non-government organizations on a competitive basis. There is no formal coordination mechanism between NARC and NARDF, resulting in continuing risk of duplication of work (NARC, 2010) and institutional rivalry.

USAID/Nepal was instrumental in developing human resources for agricultural research through Integrated Cereal Crops, Cropping Systems, and Farming Systems Development projects. However, efforts to mainstream agricultural research have been limited to a few areas and commodities (Yadav, 1987). Agricultural research continues to be focused on food crops rather than on horticulture, livestock, non-timber forest products, fisheries, post-harvest storage, processing or packaging areas. In general, lack of funds for research on agriculture and natural resources are limiting factors. The level of funding stayed stagnant for past 10 years from 2000-2010 and research funding was increased significantly this year, i.e., in 2011. New technologies, in terms of varieties and practices, are available for food crops to increase productivity, but limited availability of inputs, credit, and markets have constrained full exploitation of technologies by agricultural producers. Likewise, the focus of research is primarily on production aspects; post-harvest research, including on the value chain, is almost non-existent.

Research planning in Nepal is done through Agriculture Technical Working Groups (ATWGs), which are the forums through which to collect, analyze, and prioritize the research issues. National The Agriculture Technical Working Group (NATWG), Regional Agriculture Technical Working Group (RATWG), and District Agriculture Technical Working Group (DATWG) exist at national, regional, and district levels, respectively. DATWGs meet once a year, RATWGs twice a year, and NATWG once a year. Farmers, extension personnel of both livestock and agriculture sectors, representatives from cooperatives, financial institutions, and research organizations participate in the meetings. Research issues originating in the field are to be brought to DATWGs through field extension staff. ATWGs were envisioned to bridge the gap between research and extension. However, linkages between research and extension remain key concerns. Researchers do not interact with extension workers on a regular basis, and research recommendations are not disseminated through vibrant extension programs. Extension staffs feel that NARC is slow to collect feedback, conduct research based on field issues, and share research findings with their extensions partners in a timely manner.

NARC has established research collaborations with select international research centers and institutes, but there is room for more collaborative work. Expanding networks with external partners is essential to updating its research base, and to be competitive in generating timely and in-demand innovations.

Agricultural Education

INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE (IAAS)

IAAS is the main institution engaged in agricultural education in Nepal. It was originally established in 1957 as the School of Agriculture to train Junior Technical Assistant's (Table 2). In 1969, the school was upgraded to the College of Agriculture. In 1972, the College was brought under Tribhuvan University

and was renamed as the Institute of Agriculture and Animal Science. In 1973, the Institute was relocated from Kathmandu to Rampur, Chitwan. During 1975-1984, USAID/Nepal provided technical assistance to develop its faculty, curriculum and infrastructures. Two branch campuses, Lamjung and Paklihawa were started in 1976 and 1978 respectively. The Institute is headed by the Dean and supported by Assistant Deans. Campuses Chief serves as administrative head at the College Campus.

Table 2. Time line of the development events of agricultural education and training:

1937	Agricultural Council and Vocational Agricultural School established
1957	School of Agriculture under MOA to train Junior Technical Assistants
1968	School of Agriculture was upgraded to College of Agriculture
1972	College of Agriculture was brought under Tribhuvan University and named "Institute of Agriculture and Animal Science"
1975	Lamjung Campus
1978	Paklihawa Campus
1989	Council for Technical Education and Vocational Training (CTEVT)
2000	Himalayan College of Agriculture Sciences and Technology (HICAST)
2011	University of Agriculture and Forestry

Source: Robson et al (1986) and personal communication

The Institute also offers B.V.Sc. & A.H. (Bachelor of Veterinary Science and Animal Husbandry), M.Sc. Agriculture, M.Sc. Animal Science, M.V.Sc., M.Sc. Aquaculture, and Doctor of Philosophy (Ph.D.) programs at Rampur. The two branch campuses at Lamjung and Paklihawa also offer the initial B. Sc. Agriculture course.

The Institute of Agriculture and Animal Science offers undergraduate and graduate courses in agriculture and animal science. Undergraduate programs are offered in plant science, animal science, veterinary science and poultry science. The annual intake in the B.Sc. Ag program is 200 students (100 on the Rampur campus, 50 on the Lamjung campus, and 50 on the Paklihawa campus). In 2011, the Institute made a major curricular change. Elective courses have been removed and a general Bachelor's degree in agriculture with integrated courses on hill agriculture, agro-ecology and agro-tourism has been started. Students are required to complete an internship of five months period (three months at the farmers' field or in a community setting and two months writing the internship report). The first group of students is expected to start their internships during March/April 2013.

The Institute also offers B.V.Sc. & A.H. (Bachelor of Veterinary Science and Animal Husbandry), M.Sc. Agriculture, M.Sc. Animal Science, M.V.Sc., M.Sc. Aquaculture, and Doctor of Philosophy (Ph.D.) programs at Rampur. At present, 96 students are pursuing Masters degrees in various disciplines. Ph.D. programs are offered by seven departments. Currently 45 students are enrolled in the Ph.D. program.

IAAS Rampur campus has 107 faculty members having a Masters or Ph.D. degree. Paklihawa and Lamjung campuses have 27 and 23 faculty members, respectively. About half of the faculty members need Ph.D. level training.

The Government of Nepal recently has established the University of Agriculture and Forestry by promulgating the University Act. The new university will be developed utilizing the physical infrastructure of Rampur Campus of IAAS and Hetauda Campus of Institute of Forestry which are currently under Tribhuvan University.

Council for Technical Education and Vocational Training (CTEVT)

The Council for Technical Education and Vocational Training (CTEVT), constituted in 1989, is a national autonomous body of Technical and Vocational Education and Training (TVET) for the production of technical and skillful human resources required by the nation. It is involved mainly in policy formulation, quality control, preparation of competency-based curricula, development of skill standards for various occupations, and testing of the skills of people, and conduct of various research studies and training needs assessment. It has an assembly consisting of 24 members and a governing board known as 'Council,' comprising nine members. The Minister of Education chairs both the Assembly and the Council. The Council has a full-time Vice-Chairperson and a Member-Secretary.

Many donors have contributed the establishment of various vocational and technical schools. The Asian Development Bank established technical schools in Lahan, Pokhara, Dhaulagiri, Rapti, Bheri, and Seti. The Bank also has supported faculty development. The CTEVT has received significant support from the Swiss Agency for Development and Cooperation, the Overseas Development Agency, and the United Mission to Nepal to establish and strengthen technical and vocational schools. The Government of Denmark contributed to the expansion of community-based vocational training by establishing Vocational Training and Community Development Centers. The Government of India established the Manmohan Polytechnic in Biratnagar and China established Banepa Polytechnic Institute.

Currently CTEVT has 21 constituted Schools, eight Annex Schools, and 147 Affiliated Schools. Each year, the CTEVT's Constituted Schools, Annex Schools, and Affiliated Schools have the capacity to offer JTA training in animal science for 1,398 students, JTA training in plant science for 456 students, JT- or I. Sc.-level agriculture training for 140 students, Diploma in Food Technology training for 96 students, and Diploma in Forestry for 40 students.

Himalayan College of Agricultural Science and Technology (HICAST)

The Himalayan College of Agricultural Science and Technology (HICAST) is the first private college offering B. Sc. Ag and B.V. Sc. & A.H. courses in Agriculture, Masters in Dairy and Meat Science, and Veterinary Science. HICAST has mostly been utilizing experts working at various departments (e.g., Department of Agriculture, Department of Livestock Services) to train the students. Annual student enrollment is 50 in B. Sc. Ag and 30 in B. V. Sc. & AH programs. About eight to 10 students are enrolled in M.Sc. programs in Dairy Technology. The Masters program in Meat Science enrolls 10 students.

Other Institutions

Apart from the institutions mentioned above, training centers of all the four Departments (Agriculture, Livestock Services, Cooperatives, and Food Technology and Quality Control) run trainings for officers, entrepreneurs, farmers, and technicians. These are non-academic training sessions of few days to a few weeks. DOA and DLS also offer field-based hands-on training to farmers, JTs/JTAs, and district-based Subject Matter Specialists. Quality of the training has often been an issue among the stakeholders.

FINDINGS FROM INTERVIEWS, OBSERVATIONS, AND ONLINE SURVEY

The overarching goal of this scoping study is to determine areas for improving and strengthening the pluralistic agricultural extension services in Nepal. Team members conducted personal and group interviews with over 100 officials under the Ministry of Agriculture and Cooperatives, for-profit and non-profit organizations, agriculture university professors, farmers, cooperative members, and select representatives of donor communities. This section describes the overall findings of the scoping study. Specifically, information gathered during personal interviews and observations is used to describe the context and issues of the pluralistic extension service and results of the online survey attempt to quantify the perceptions and opinions about Nepal's varied extension services.

Current Extension System: Organization, Participants, and Capacity

The agricultural extension system operates mainly through two departments – the Department of Agriculture (DOA) and the Department of Livestock Services (DLS). Both departments are headed by the Director General and supported by program directors. Extension programs are managed through the five regional directorates, 75 district offices, and the agriculture/livestock service centers at the sub-district (Ilaka) level. An Ilaka comprises several village development committees (VDCs) and villages. At the district level there are district offices, and within each district (at the Ilaka level) are service centers. The DOA has maintained 378 Service Centers-- four Service Centers in the Tarai and Mountain districts and six Service Centers in Middle Hill districts. The DLS has nine to 15 Service or Sub-Service Centers per district, with a total of 999 Service Centers.

Junior technical assistants/junior technicians work at the Ilaka level. They report to the District Agriculture Development Office or District Livestock Services Office. Each district office is located at the district headquarters and is staffed by a senior agriculture officer, assisted by several subject matter specialists (SMS). Each district office of the DOA has three to four SMSs in areas such plant protection, horticulture, fisheries, field crops, and extension. Most DLS district offices have a livestock officer and a veterinary doctor.

Extension services of the Department of Agriculture focus on transfer of technology. The emphasis is on dissemination of improved rice, maize, and wheat varieties. Extension has been promoting vegetable and fruit production, especially production of off-season vegetables. Extension workers are busy offering technical advice to farmers on insect pest and disease control. In vegetable production areas, extension workers also assist with marketing. Extension also offers training to farmers on various topics such as integrated pest management, beekeeping, mushroom cultivation, and fish production. In recent years, forming farmers' groups and cooperatives has been actively pursued by front-line workers. Extension workers utilize these farmers' groups to disseminate new farm technologies.

Extension services of the Department of Livestock Services have two focus areas: 1) serving farmers through training on best practices for livestock production and animal health, livestock improvement through artificial insemination services, information about forage and fodder crops, poultry keeping, etc.; and 2) treatment of farm animals against diseases.

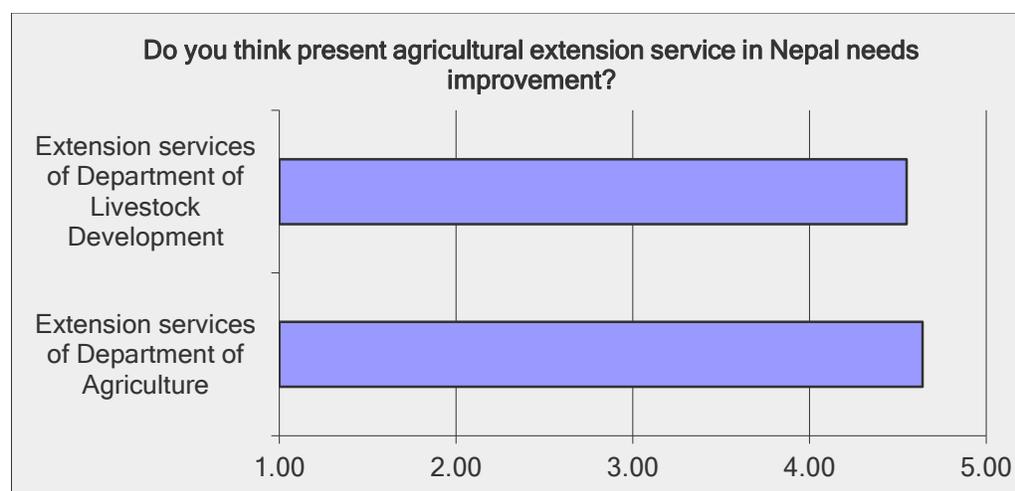
The human resources of the Ministry of Agriculture and Cooperatives is over 10,000 full-time staff and Nepal Agriculture Research Council has over 1,750 staff (see Table 3).

Table 3. Human Resources of the Ministry of Agriculture and Cooperatives

No	Organizations	MOAC Human Resources-- FTE		Total
		Technical	Non-technical	
1	Ministry of Agriculture and Cooperatives	57	75	132
2	Department of Agriculture (DoA)	2848	2126	4974
3	Department of Livestock Services (DLS)	2267	1793	4060
4	Department of Food Technology and Quality Control	179	52	231
5	Department of Cooperatives	3	591	594
6	Other central level organizations	105	109	214
	Sub-total	5402	4671	10073
7	Nepal Agriculture Research Council (NARC)			1765
	Total Staff	-	-	11838

Source: Ministry of Agriculture and Cooperatives, Nepal

The Government extension structure has been stable, but also stagnant. There are many staff and offices, but “if you look at effectiveness,” there is a gap. There is a consensus that the Government is not the sole provider of services. The Government can work more effectively with NGO and the private sector in providing extension services to farmers. The online survey asked whether present extension services need improvement. Most respondents felt that extension services of both DOA and DLS are weak and need improvement.



N=125; Response Scale: 1=definitely no, 3=not sure, 5=definitely yes

The extension service of DOA suffers from lack of suitable technology to transfer to farmers and agribusiness operators. Lack of coordination between research and extension is evident. Unavailability of improved seed and fertilizer in a timely manner are major issues. Front-line extension workers lack technical knowledge about and skills for implementing improved production practices. They also lack knowledge in marketing and supply chain management.

The key issue for livestock extension is lack of access to farming households. The breadth of the program is simply not enough given the diverse and extensive needs. This means the frequency and quality of services is not what it should be. This has been true for over 15 years, as demand for services has increased but the budget for livestock services has remained flat.

The Asian Development Bank funded and delivered a useful Community Livestock Development Project that ran for about 7 years. The project funded services delivered to farmers' groups. NGOs helped with group formation and social mobilization. The Livestock Department helped by providing technical guidance and parameters for the project. Committees that included farmers, NGOs, and Livestock officials were formed. They had a one-year contract with NGOs. The project had mixed results, with success and significant contributions in some Districts, but not all. In some areas the project did not achieve much, in part due to the host community not being well prepared for such a project and where the NGOs were not as strong. In these places the results were not satisfactory.

In terms of animal nutrition, the DLS is emphasizing village-level forage-based livestock production (ADB project). Also, the Department sees the role of private livestock technicians (AgroVets) as providing fee-based services to farmers who are willing and able to pay for privately provided services. The ADB project has provided skill and other training to AgroVets so they can provide Artificial Insemination services, basic veterinary services, and diagnostic services.

In the livestock marketing area, the Department sees an increasing amount of small-scale processing and a growing emphasis on quality. The cooperatives can be important institutions for providing marketing opportunities for farmers. In the dairy area, there are about 1,600 dairy cooperatives serving over 150,000 members. Some cooperatives are hiring technicians (JTs or JTAs) that can play an extension role with their members.

The Department has a curriculum on agricultural chemical use and safety for AgroVets. They provide face-to-face training at government training centers. The AgroVet training program also needs improvement in subject-matter coverage and pedagogy to include more practical instruction.

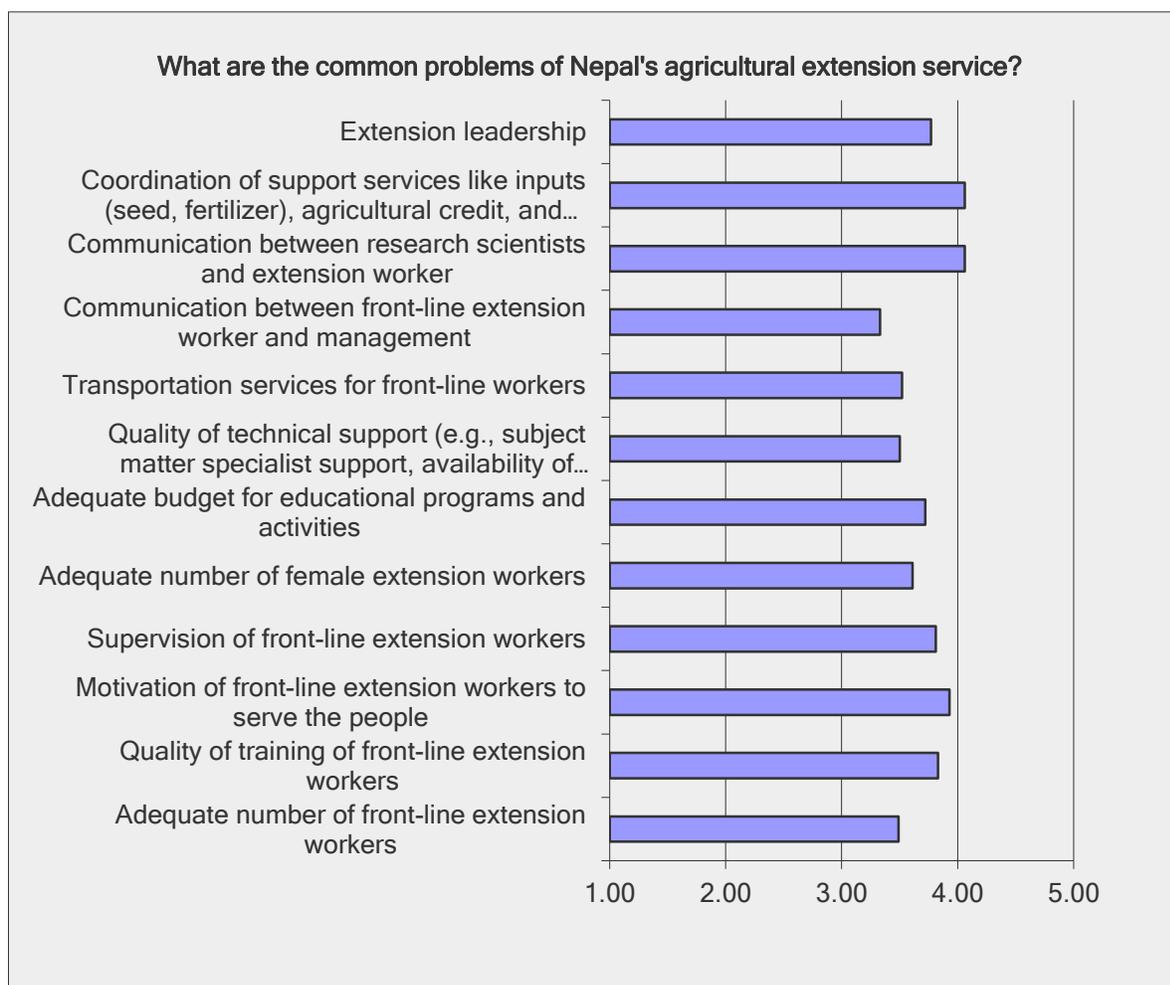
As opposed to working with individual farmers, extension agents now focus on farmers' groups. The JTs sometimes facilitate the farmers' group meetings and sometimes teach at them. However, the situation at the service centers (most local level offices) is very bad. In many cases, they are in poor shape in terms of supplies and infrastructure. Furthermore, often the JTs and JTAs are not confident in their training and skills, and he/she "doesn't like to face the farmers."

On the question of ways to improve extension, discussions started with how to increase local ownership and input into extension so that the system becomes more bottom-up and less top-down. With the situation of no local elections for about 10 years, the ability of the Village Development Committees to actually 'demand' and shape extension and agricultural programming at the local level has been limited. In some cases, District Agricultural Committees or other local agricultural steering committees meet, but these sometimes are only formalities that create a sense of 'going through the motions,' but with limited actions or outcomes. One option for increasing local control and ownership of extension programming is having the VDCs allocate some portion of their funds to agricultural programming, with a match – perhaps 1 unit from the VDC and 2 or more units from DADO. It was also

mentioned that the Civil Service structure and rules contribute to minimizing local ownership of extension and making it more top-down. For example, the frequent transfer of agricultural extension personnel around the country (posts of less than two years are common) inhibits the development of relationships and trust between the extension agent and the farmers and farmer organizations.

On the topic of market information, interviewees mentioned awareness and use of the Radio Nepal program, and the telephone toll free number, as well as some information available on FM radio stations. They stated that the real market access challenge, which is very significant, is due to infrastructure issues and high marketing margins for middlemen.

Our interviewees did not report many successful public/private partnerships with NGOs and INGOs. The lack of coordination at the local level is a problem and there is a need for greater information sharing and coordination. Some NGOs pay high allowances to farmers to attend meetings and this makes it difficult for the DADO to deliver its programs because people begin to expect handouts and generous travel expenses for participation. Donor-funded projects work for a year or two, then personnel leave without notice. So projects often create a situation in which farmers' expectations of handout services are high, and the regular budgets of DADO and DLS are not able to meet them.



N=119; Response Scale: 1=Not a problem, 2=Some, 3=Moderate, 4=Major, 5=Critical problem

The DADO representatives and other agricultural staff present discussed the possibility of front-line extension personnel, using the Local Agricultural Resource Person approach (LARP). The LARP would be administratively responsible to the Village Development Committee and the VDC might contribute funds to the position, perhaps through contractual arrangements. The LARPs; technical responsibilities would be to the MOAC through the DADO/DLSO. LARPs would receive training and technical support from the DADO/DLSO and Subject Matter Specialists. The terms of engagement could be a fixed-term contract, with specific performance measures identified, tracked and reported. A one- to two-year contract is one way to structure this. The LARPs could serve as the interface between public and private sector efforts. This approach would get at the issue, as reported by one person, that 33% of the JTs and JTAs work hard and are well motivated, while the rest are low productivity employees who are protected by political allies within the agricultural bureaucracy.

The online survey asked respondents to rate common problems within Nepal's extension services. As seen in the chart above, coordination of input delivery and communication between research and extension are perceived to be the most serious problems facing extension services. Respondents also listed many other problems and issues. A sample of the comments follow:

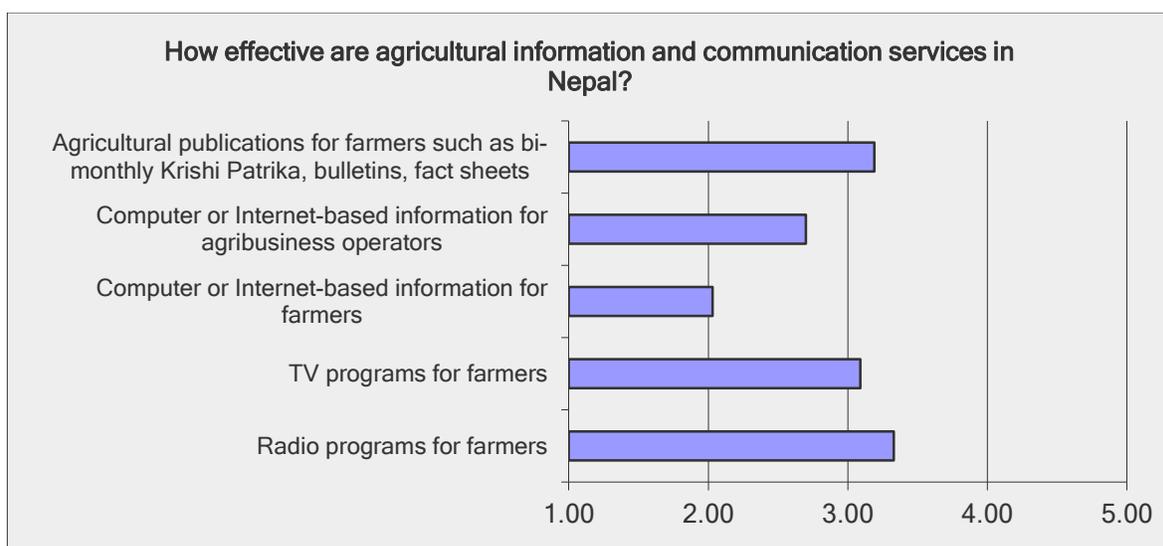
- "Poor coordination between real farmers and extension officer. Poor accountability of government officers/NGO/INGO persons to improve agriculture. Local farmers' knowledge is not recognized by extension officer/training person. Motivation of farmers on innovative activities is never in priority."
- "Agriculture and livestock research and extension systems lack of a clear vision about correct path way to follow. There is a lack of internal capability for formulating correct policies and lack of political will and committed bureaucracy to implementing them through. The Ministry lacks a clear vision as to how to transform subsistence agriculture to a more business and market oriented agriculture to make it more attractive also to address the acute problem of out-migration of youths in search of petty jobs abroad."
- "Central service must be dismantled and community service strengthened."
- "Coordination among extension, education and research is major problem."
- "Extension staffs lack motivation. There is not accountability. Worst performing staffs are rewarded and the best ones are neglected."
- "Frequent transfer of officers from extension unit to farms or technical directorate. Our officers are jack of all and master of none. On the other hand there is increasing need of specialized services by the clients especially commercial operators."
- "Highly bureaucratic set-up in the Ministry of Agriculture and other government organization is a critical problem (need decentralization)."
- "Involve private sector in agriculture/livestock extension service."
- "It does not reach to village level."
- "Mindset to work for the poor farmers, poor farmers' access to technology and inputs, research back up."
- "The field level technicians are limited and they have to provide technical services to a large number of farmers, which is not practical."

Agricultural Information and Communication Center (AICC)

The AICC Unit was formed (transformed) in 2000. Its objective is to disseminate agricultural technologies and techniques through mass media. It has three Units: Radio Unit (six technical staff); Video Unit (six technical staff); and, the Publication Unit (between six and 10 technical staff). The entire unit has 35 staff.

The Radio Unit develops and disseminates mostly 15-minute broadcast segments that are heard daily on Radio Nepal at 6.40 p.m. They also work with local FM stations and disseminate local spots in local languages. The Video Unit has a daily show on national TV that airs at 6.40 p.m. The staff travel around the country to get stories, the ideas for which are suggested through Ministry channels or obtained by writing to technical people to get their input on story ideas. They also produce video documentaries on a variety of topics, including recent videos on marketing, beekeeping, mushroom growing, and cheese making (market-oriented and value-added topics).

The Publications Unit prints a bi-monthly magazine that is sent to Districts and other readers (6,000 copies per issue are printed). They also print booklets on crops, technologies, and techniques for distribution (usually 6,000 are printed at a time). In addition, they print an Agricultural Diary (10,000 copies per annual issue are printed) and an Agricultural Calendar (20,000 per year are printed). Both the Diary and the Calendar contain lots of information for growers and producers.



N=124, Scale: Scale: 1=Not at all effective; 3=Somewhat, 5=Very effective

Some opportunities to strengthen the AICC include working with the Unit to include more stories on private sector and commercial farming, as well as more stories on group processes, marketing, market access, group functioning and governance, and facilitation.

The market price information that is broadcast daily in the morning on Radio Nepal is from Kalimati Fruits and Vegetable Market in Kathmandu. There is an opportunity for more price information to be made available.

Needs for strengthening AICC include technical training in videography, non-linear video editing, magazine design, and copy editing. They also require equipment.

In summary, AICC has radio services, a television program, programs that teach the public. AICC produces materials, but there is a question about how well they are distributed and utilized. Many staff felt that AICC's radio service and television program may have a good reach, but the level of distribution of technical publications is low. These publications are not well distributed and, thus, don't have enough impact.

Interviewees mentioned the key issue is the limited technical capacity of the staff. The staff require training in new methodologies, and also need books and reference materials.

Communication and ICT – The staff reported that the Internet connections within the MOAC tend to be not very good. Use of ICT in extension is very minimum. Although most offices have a computer, connectivity is an issue, as there is very little 3G coverage in the country. Computer use is also limited during the dry season due to frequent power outages and load-shedding. Although FM stations are everywhere, the links and level of agricultural programming on local FM stations is limited. The telephone call center concept did not work out well.

Online survey results indicate that the effectiveness of AICC's publications, radio, and TV programs farmers are "somewhat effective."

NGOs and Private Sector Involvement in Extension

We noticed three kinds of NGOs operating in Nepal: a) NGOs with strong international presence such as Winrock International--Nepal, Heifer International--Nepal, ANSAB, Helvatas, and Helen-Keller International--Nepal; b) National-level NGOs such as CEPREAD and Forward; and c) local NGOs operating within a district or VDCs. Many of these NGOs provide training for farmers and agribusiness operators, with funding made available from donors such as USAID, SDC, JICA, and others. These organizations have helped form cooperatives and farmers' groups for production and marketing of farm products.

There is a strong civil society movement that has resulted in formation of dairy cooperatives, vegetable farmer cooperatives, and the seed potato grower association. Women farmers have formed cooperatives to serve their members. Mothers' groups also are operational in many communities. Both the agricultural and livestock extension systems have tremendous potential to work with these grass-roots organizations. However, policies and guidelines on how to collaborate effectively with these groups currently are lacking.

Private sector service providers such as AgroVets and farm consultants are engaged in extension-type work. They supply improved seed, seedlings, saplings, baby chicks, fingerlings, animal feed, pesticides, and veterinary services. Some AgroVets also offer artificial insemination (AI) on cattle and buffalo. We had an opportunity to meet and interact with three private service providers. They all seemed professional and ethical, and operators belonged to the local communities. They offer inputs to farmers such as seed, pesticides, and veterinary medicines in a timely manner, and they are content with their earnings from their businesses. A senior agriculture officer opined that "DOA or DLS may no longer

need JTA/JT positions – instead their responsibilities can be transferred to LARPs/VAHWs or AgroVets using some contractual agreement. The DADO/DLSO and SMSs can focus on training of LARPs and upgrading the technical skills of LARPs, VAHWs and AgroVets.

Many national level not-for-profit NGOs are prominent in extending services to individual farmers, agribusiness operators, commercial producers, and farmers’ groups. Forward Nepal, CEPREAD Nepal, PLAN Nepal, LIBIRD Nepal, and Rural Reconstruction Nepal are some NGOs that offer services to farmers and community groups. In addition, there are many district and community-level NGOs/CBOs offering agriculture-related training and technical assistance to farmers.

The national-level NGOs tend to utilize agricultural graduates as employees. Some of them have utilized retired extension professionals as managers of extension programs/projects. Staff performance was not a concern because they are hired on a contractual basis. MOAC’s field staff were not very happy with the style of operation of these NGOs at the district and VDC levels – “these NGOs come for a year or two, they make big promises or raise expectations, and they leave.”

Table 4 below lists some prominent NGOs operating in the proposed FtF districts.

Table 4. Major Non-Governmental Organizations Providing Agricultural Extension and Service in Proposed FtF Districts

Name of district	Name of major NGO/CBO in the district and type of service offered
Baitadi	Rural Environment Development Center (REDC)
	Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED)
	ICARDS Nepal
Dadeldhura	Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED)
	Micro-Enterprise Development Program (MEDP)
	USAID/Fintrac
Kanchanpur	Rural Reconstruction Nepal (RRN)
	Support Foundation
	Local Initiatives for Biodiversity, Research and Development (LIBIRD) Nepal
Kailali	Lutheran Nepal
	CEAPRED Nepal; ICARDS Nepal
Doti	Center for Disease Control and Prevention (CDC) Nepal
	CEAPRED
	CYMMIT/Hill Maize Research program
Achham	Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED)
	Sebak Nepal, ECARDS Nepal
	Rural Development Center (RUDEC)
Bardia	PLAN Nepal
	Rural Reconstruction Nepal (RRN)
	EIG/USAID
Surkhet	CEPREAD, EIG/USAID

Name of district	Name of major NGO/CBO in the district and type of service offered
	Rural Reconstruction Nepal (RRN)
	Micro-Enterprise Development Program (MEDP)
Dailekh	Everest Club
	Sebak Nepal, HRDC, Forward, Link Helvetas
Jajarkot	GTZ (PASRA), Nepal
	Link Helvetas
	CEPREAD, Nepal
Banke	Forward Nepal
	Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED)
	Plan International
Salyan	Micro-Enterprise Development Program (MEDP)
	EIG/USAID
	Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED)
Rukum	United Mission to Nepal (UMN) Rukum Cluster
	Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED)
	NEAT/USAID
Dang	Li-BIRD Nepal
	EIG/USAID, NEAT/USAID
	Rural Women Development Association
Kapilbastu	Forward Nepal, LIBIRD Nepal
	Green Savings and Credit Cooperative Ltd.
Palpa	Rural Economic Development association (REDA), SRCD
	International Development Enterprise (IDE) Nepal
Gulmi	International Development Enterprise (IDE), Nepal
	LIBIRD Nepal
	Naba Prabhat Youth Association
Arghakhanchi	Sustainable Community Development Center (SCDC)
	District Coffee Producers Association (DCPA); CEPREAD

Source: Agriculture-related Non-governmental and Community Organizations Operating in Districts (Trans.), Department of Agriculture, 2011b.

Funding for Current Extension

The operation and management of agricultural extension service is funded by the Government of Nepal. The DOA and DLS are the two major extension service providers in Nepal, and their operations are funded by the Government. They allocate their extension budgets to respective Districts as per the Devolution Act of 1999. The Local Development Office in each district allocates funds to agricultural and livestock extension activities based on recommendations from the District Agriculture Technical Working Group. Table 5 shows the budget and expenditure for proposed FtF project districts for DOA and DLS.

Table 5. Approved Budget and Actual Expenditures for DOA and DLS Extension Services in Select Districts of Western Nepal (In '000 Rupees) FY 2067/68

Name of District	Dept. of Agriculture			Dept. of Livestock Development Services		
	Planned Budget	Actual Expenditure	Percentage of Budget Actual Expenditure	Planned Budget	Actual Expenditure	Percentage of Budget Actual Expenditure
Baitadi	13,140	12,449	95.12	9,405	9,360	99.52
Dadeldhura	12,100	12,293	95.22	8,570	8,563	99.92
Kanchanpur	95,000	93,348	93.82	9,595	9,468	98.68
Kailali	13,540	13,504	99.74	10,667	10,657	99.91
Doti	12,920	11,836	91.61	9,129	8,490	93.00
Achham	13,160	11,971	90.96	10,038	10,126	100.88
Bardia	12,190	11,774	96.34	10,650	9,850	92.49
Surkhet	12,780	11,699	91.54	8,805	8,799	99.93
Dailekh	12,920	12,203	94.45	9,025	8,844	97.99
Jajarkot	12,259	12,100	98.70	9,827	9,791	99.63
Banke	13,350	12,550	94.01	10,275	9,548	92.92
Salyan	12,905	11,685	90.54	9,525	9,046	94.97
Rukum	12,755	12,304	96.46	9,450	8,897	94.15
Rolpa	14,575	14,077	96.58	9,975	8,510	85.31
Dang	13,260	12,197	91.98	12,178	12,149	99.76
Pyuthan	12,170	11,927	92.67	9,025	8,442	93.54
Kapilbastu	14,170	13,729	96.89	11,522	11,326	98.30
Palpa	13,515	12,819	94.85	8,620	8,528	98.93
Gulmi	14,165	14,115	99.65	8,640	8,586	99.38
Arghakhanchi	12,315	11,316	91.88	8,440	8,250	97.75
Average	12,315	11,316	91.88	9,668	9,362	96.85

Source: Personal communication with Department of Agriculture and Department of Livestock Services

In general, about 60-70 percent of the extension budgets at district extension office go to pay staff salaries and 30-40 percent is allocated to extension programs and activities. Field staff do not have adequate transportation. Due to lack of funds, front-line extension workers are not receiving periodic training from subject-matter specialists. The extension service is unable to provide front-line extension workers with cell phones or Internet access.

The inadequacy of funding for agricultural extension activities has been a major issue. The department of Food Technology has not been able to start nutrition education due to lack of funds, and has no nutrition educators who can perform food safety and nutrition education roles.

Local Village Development Committees (VDCs) receive annual development grants from the Government of Nepal, with amounts ranging from Rs.1,500,000 to Rs.3,000,000, depending on the size of the VDC, developmental needs, and priorities. VDCs are to spend 15% of each grant to fund agricultural projects and efforts, which could be utilized for some extension activities. In the First 1000 Days initiative, they are trying to use the funds for village-level community health workers.

Nepal receives significant external support for food security and agriculture development. Major supporters and donors include the World Bank, Asian Development Bank, European Union, USAID, DFID, JICA, SDC, World Food Program, and GTZ. The two most significant external support programs in the past have been the World Bank's investment in the implementation of the Training and Visit Extension and Agriculture Research and Education Project, and the Asian Development Bank's support for Livestock Development.

The World Bank's main investments in agriculture and the food system include the Global Agricultural Food Security Program for Nepal (GAFSP), an irrigation project, the Poverty Alleviation Fund (PAF), and a social safety net project. Prior to about three years ago, the amount of donor funding going into agriculture (or directly into the MOAC) was minimal. There is/was a tension between the importance of the sector and the reputation and past history of the MOAC as being one where significant corruption occurred. Previously, the experience of DFID, which did participate in the Agriculture Perspective Plan (APP) in late 1990s or early 2000s, was that they found the fiduciary risk too high. The World Bank reengaged in agriculture as a result of high food prices.

The World Bank has several primary strategies in the agricultural sector of Nepal. First, they have irrigation investments and now are directly including agriculture in these projects (separate Ministry of Irrigation in Nepal) so that agricultural extension activities can occur prior to an irrigation project's completion. Second, they have a social safety net project that involves WFP and the Ministry of Local Development, through which it implements projects such as cleaning irrigation channels, and constructing and rehabilitating feeder roads. Third, the World Bank (along with the ADB) supports agricultural commercialization projects and has looked at agricultural value chains. The World Bank now sponsors the Project for Agricultural Commercialization and Trade (PACT). Also, it has the Poverty Alleviation Fund, from which an average of 75% of investments are allocated to agriculture and livestock through loans at the grassroots level through a revolving fund.

In the PACT, the World Bank involves the DLS, DOA, Cooperatives, and FTQC departments. The project includes matching grant system and allows for fees to be charged for services. The World Bank is able to record demand through this mechanism, and can monitor impacts. So far PACT has funded 49 private sector projects, with a second round scheduled for January 2012. The MOAC is the implementing agency.

Within the MOAC and for extension, the amount of funding is not the problem. The issue of most concern is about the agency's reach and breadth of service delivery. The MOAC doesn't have a good grasp on demand and how much work is yet to be done. Also, the issue of 'projectization' has hindered MOAC because it can distract from a broad and direct agricultural extension program. The DADOs often take coordination to mean 'you tell me what you are doing and I'll tell you what I am doing.' Instead, they could be working with local partners, NGOs and other agencies in the manner of how they can work together to meet agricultural goals. The management issue is to focus leadership attention on how the MOAC can be more responsive to farmers' needs and demands, and how to improve the quality of agricultural extension services.

The World Bank is making an education investment in the CTEVTs and the IAAS (now being transitioned into a stand-alone university—the University of Agriculture and Forestry). Some other issues were

noted in the discussion. First, there is a need for capacity training in the MOAC that would help create and train the next generation of agricultural extension leaders. Also, there appears to be a need for mechanisms such as livestock insurance and crop insurance, perhaps delivered through groups or cooperatives and associations. The feminization of agriculture and associated issues must be addressed, as males tend to migrate abroad and to the cities. This may raise the need for more small scale mechanization and tools, such as small power tillers and shallow tube wells for irrigation.

The proposed “FtF” project districts in Nepal are expected to receive significant aid from other bi-lateral and multilateral agencies. The following agencies have on-going projects in some of the proposed FtF project districts (USAID 2011):

World Bank: Project for Agriculture Commercialization and Trade (PACT), Nepal Social Safety Nets Project, Poverty Alleviation Fund II, and Enhanced Vocational Education and Training (EVENT);

Asian Development Bank: Community Irrigation Program, Support for Targeted and Sustainable Development Programs for Highly Marginalized Groups, Raising Income for Small and Medium Farmers (RISMF) Project;

World Food Program: Food for Asset/ Cash for Asset, Mother and Child Health Care/ School Feeding Program, and NeKSAP;

International Fund for Agricultural Development (IFAD): High Value Agriculture Project, Leasehold Forestry and Livestock Program, and Western Uplands Poverty Alleviation Project;

Department for International Development (DFID): Rural Access Program 2 (RAP);

Government of Finland: Rural Village Water Resources Management Project, Phase II (RVWRMP II);

Government of Japan: Food aid in remote hill and mountain districts of Far- and Mid-Western regions.

It should be noted that donor-funded projects do not pay for regular salaries of civil service personnel of the Government of Nepal. Most of these projects utilize consultants or resource persons through some form of service contracts. The consultants or resource persons do not approach the DOA and DLS district offices for collaboration and team work. Rather, the contracted staff members operate independently. Outcomes include poor communication and coordination.

Despite some issues related to poor communication and coordination, the Government of Nepal has been supportive of agricultural extension services. About three percent of the national budget goes to support agriculture development. The Government also receives support from various donor communities to combat food insecurity. Coordination of donor-funded projects and management of scarce resources to address the root cause of food insecurity is an issue. Critics argue that it is time to reflect on “whose interests are being served by food aid or numerous investments in food security-related development projects.” Obviously, food security cannot be delivered from outside. Outsiders can only facilitate the process of bringing about food security, but the local communities and households themselves have to be empowered to grow food sufficient to maintain healthy lives.

Information and Advisory Service Needs

Agriculture is the mainstay of the Nepalese economy. Most farms operate at the subsistence level. Farmers follow a crop-dominated farming system. Cereal crops occupy an important place. Such systems predominate in Tarai, but also exist in the Mid-hills. Crops are grown either under rain-fed or irrigated conditions, with or without fertilizer use. Cropping systems are based on two land types. In the lowlands, rice and wheat are grown in rotation. Other patterns include rice-fallow, rice-mustard-maize, rice-lentil-maize, and rice-wheat-maize. In the uplands, upland rice is grown. Maize, mustard, peanuts, cowpeas, and soybeans are other crops grown in the uplands.

In the Mid-hills, horticulture occupies a major place. In sloping areas of the hills (in homesteads as well as in farmlands), horticultural trees (citrus, apples, plum, pear, peach) are grown in different scales, depending on the agro-ecological and socioeconomic environments. In many Tarai villages, orchards of mango, banana, and jackfruit are popular.

In high altitude mountains as well as in the Mid-hills areas, livestock occupies a major place. Because of low temperatures in the High Hills, crops are either not grown or grown with very low yields. In such hills, livestock are raised, either stall-fed or grazed.

Livestock is an integral part of all farming systems. Some systems are crop, livestock, and horticulture integrated; some are crop and livestock integrated; others are crop, livestock, and horticultural tree integrated. The degree and type of integration varies according to agro-ecological and socioeconomic environments. In general, integration is higher in the Mid-hills than in the Tarai. In both the Hills and the Tarai, crops, livestock, trees, pasture, and markets are integral components of farming systems. Table 6 shows major crops grown and livestock raised in the proposed FtF project districts.

Table 6. Crops Grown and Livestock Tended in the Proposed FtF Project Districts

Name of district	Major Livestock Raised	Major Cereal Crops Grown	Major Horticultural Crops/NTFPs
Baitadi	Buffalo, Cow, Goat, Sheep, Poultry, Swine	Maize, Wheat, Oat, Millet, Paddy	Citrus, Apple, Walnut, Plum, Peach, Vegetable, vegetable seed, Potato
Dadeldhura	Buffalo, Goat, Cow, Sheep, Poultry, Swine	Maize, Wheat, Oat, Millet, Paddy	Citrus, Plum, Peach, Seasonal/off season vegetable, Potato
Kanchanpur	Buffalo, Goat, Cow, Poultry, Swine, Fish	Paddy, Maize, Wheat	Seasonal/off season vegetable, Potato, Mango, Litchi, Banana
Kailali	Cow, Buffalo, Poultry, Goat, Swine, Sheep, Fish	Paddy, Maize, Wheat, Pulses	Seasonal/off season vegetable, Potato, Mango, Litchi, Banana, Citrus
Doti	Goat, Buffalo, Cow, Poultry, Swine	Maize, Wheat, Paddy, Millet, Pulses	Citrus, Plum, Peach, Seasonal season vegetable, Vegetable Seed, Potato
Achham	Goat, Cow, Buffalo, Poultry, Swine	Maize, Wheat, Paddy, Millet, Pulses	Citrus, Plum, Peach, Vegetables, Vegetable Seed, Potato
Bardia	Buffalo, Cow, Poultry, Goat, Swine, Sheep, Fish	Paddy, Maize, Wheat, Pulses	Vegetable, Potato, Mango, Litchi, Banana

Name of district	Major Livestock Raised	Major Cereal Crops Grown	Major Horticultural Crops/NTFPs
Surkhet	Goat, Buffalo, Poultry, Cow, Swine,	Maize, Wheat, Paddy, Millet	Citrus, Vegetables, Potato, Mango, Litchi
Dailekh	Goat, Buffalo, Cow, Poultry, Swine	Maize, Wheat, Paddy, Millet, Buckwheat	Citrus, Vegetable, Vegetable Seed, Potato, Peach, Plum
Jajarkot	Goat, Buffalo, Poultry, Cow, Sheep, Swine	Maize, Wheat, Paddy, Millet, Buckwheat	Citrus, Vegetable, Apple, Peach, Plum
Banke	Cow, Buffalo, Poultry, Goat, Sheep, Swine	Paddy, Maize, Wheat, Pulses	Vegetable, Mango, Litchi, Banana, Pineapple, Jackfruit
Salyan	Buffalo, Cow, Poultry, Goat, Swine	Maize, Wheat, Paddy, Millet	Vegetable, Vegetable Seed, Potato, Citrus, Banana, Peach, Plum
Rukum	Goat, Buffalo, Sheep, Poultry, Swine	Maize, Wheat, Paddy, Millet	Vegetable, Vegetable Seed, Potato, Citrus, Banana, Peach, Plum, Walnut, Apple, Timur
Rolpa	Goat, Buffalo, Sheep, Swine, Poultry	Maize, Wheat, Paddy, Millet, Barley	Vegetable, Vegetable Seed, Potato, Citrus, Banana, Apple, Peach, Plum, Walnut
Dang	Buffalo, Cow, Goat, Sheep, Poultry, Swine, Fish	Paddy, Maize, Wheat, Millet, Pulses, Oil Seeds	Vegetables, Potato, Litchi Mango, Banana, Papaya
Pyuthan	Buffalo, Goat, Sheep, Poultry, Swine	Maize, Wheat, Paddy, Millet	Vegetables, Vegetable Seed, Potato, Citrus, Banana, Peach
Kapilbastu	Cow, Buffalo, Poultry, Swine	Paddy, Wheat, Maize, Pulses	Vegetable, Potato, Mango, Litchi, Banana, Pineapple, Jackfruit
Palpa	Goat, Cow, Buffalo, Sheep, Swine, Poultry	Paddy, Maize, Wheat, Millet	Vegetable, Vegetable Seed, Potato, Citrus, Coffee, Banana, Peach, Plum
Gulmi	Cow, Goat, Buffalo, Sheep, Swine, Poultry	Paddy, Maize, Wheat, Millet	Vegetable, Potato, Citrus, Banana, Peach, Plum
Arghakhanchi	Buffalo, Cow, Goat, Sheep, Poultry, Swine	Paddy, Maize, Wheat, Millet	Vegetables, Vegetable Seed, Potato, Citrus, Banana, Coffee

Source: Personal communication with Mr. Lila Ram Paudel, Deputy Director General of DOA.

Nepalese farmers in general, and those in the proposed FtF project districts in particular, grow local varieties of crops and raise local breeds of livestock. Use of improved varieties of rice, maize, and wheat is low. Use of chemical fertilizer is also very low. Table 7 shows the yield (Kilogram/Hectare, or Kg/Ha) of major food crops in the proposed FtF project districts. Compared with other Tarai and Middle Hill districts, the productivity of cereal crops in these districts is low. More importantly, many of these districts do not have sufficient cereal production to feed their populations contributing to insufficient supply of food year-round and poor nutritional status (USAID, 2010).

The data in Table 7 could serve as the baseline for major cereal crops in the proposed FtF districts and could be used for impact assessment.

Table 7. Yield of Major Cereal Crops in the Proposed FtF Districts (Kg/Hectare) in 2009/10)

Name of district	Rice Area (Yield in Kg/Ha)	Maize Area (Yield in Kg/Ha)	Millet Area (Yield in Kg/Ha)	Wheat Area (Yield in Kg/Ha)
Baitadi	5,300 (1,890)	9,500 (1,800)	850 (1,118)	5,100 (1,043)
Dadeldhura	6,221 (2,100)	3,744 (1,500)	318 (1,129)	7,464 (1,500)
Kanchanpur	45,400 (2,557)	5,950 (1,932)	170 (1,059)	32,250 (1,861)
Kailali	58,500 (2,503)	16,500 (1,727)	300 (1,033)	35,000 (1,800)
Doti	7,570 (2,378)	2,545 (1,664)	4,953 (1,081)	16,150 (1,665)
Achham	7,450 (1,839)	6,346 (1,300)	2,843 (1,176)	7,151 (1,017)
Bardia	39,500 (3,210)	8,100 (1,700)	—	17,900 (2,560)
Surkhet	13,800 (3,200)	16,100 (2,650)	2,095 (1,290)	16,255 (1,892)
Dailekh	8,507 (2,910)	19,950 (1,860)	2,422 (1,174)	7,100 (1,311)
Jajarkot	3,573 (2,800)	8,412 (2,360)	2,445 (1,217)	10,670 (1,213)
Banke	34,500 (2,963)	6,600 (1,200)	—	16,856 (2,574)
Salyan	6,961 (2,900)	20,500 (1,916)	1,920 (1,204)	11,575 (1,561)
Rukum	6,540 (1,800)	12,058 (1,130)	1,985 (1,010)	8,650 (1,801)
Rolpa	4,715 (2,900)	11,665 (1,672)	1,060 (1,000)	8,538 (1,367)
Dang	35,050 (3,211)	25,200 (1,140)	170 (1,076)	12,700 (2,165)
Pyuthan	3,750 (2,980)	18,650 (1,900)	960 (1,104)	11,800 (1,153)
Kapilbastu	69,950 (2,291)	1,390 (2,178)	140 (1,000)	31,000 (3,097)
Palpa	8,575 (2,450)	20,210 (2,164)	2,540 (1,020)	6,235 (2,150)
Gulmi	9,958 (2,486)	21,034 (1,895)	2,915 (1,362)	8,098 (1,950)
Arghakhanchi	8,720 (2,204)	16,509 (2,199)	800 (1,225)	7,340 (1,839)

Source: Statistical Information on Nepalese Agriculture 2009/2010, MOAC, 2010.

A very generalist approach to agriculture and livestock extension is followed without due regard to diverse peculiarities of different agro-ecological regions and farmer categories. Technical service and input delivery mechanisms have been weak. Moreover, the grass-roots extension agents are technically ill prepared to help farmers. Although they possess good technical knowledge, they are weak in process skills such as group formation and social mobilization skills. There is a need for quality manpower to provide improved veterinary and livestock extension services.

Performance of field agents has been a concern. Some agents are very dedicated and will deliver services. Others are just interested in the quickest and easiest opportunity to keep the job for living. The issue of frequent and untimely transfer of extension staff has been raised at all levels. Another major issue is that of substandard working conditions for many field staff. They might have a room provided at a Service Center, or they might rent a room. Often the quarters are deficient in terms of quality.

Helvetas is a Swiss Company involved in this sector. Its staff work with Local Resource Persons (LRPs) in the project districts. LRPs are leader farmers or persons with JTA/JT training who can assist with input supply, market information, and market situation reports. Many districts have AgroVet technicians who provide extension-type services, including input delivery on a fee-for-service basis. Often, AgroVet technicians serve as sales agents for agro-chemical companies. It should be noted that not all AgroVets have agricultural training. In the proposed FtF project areas, we estimate some six to ten AgroVets

operating in the Tarai districts whereas the number is much lower in the hill districts, excluding LARPs in Helvetas project areas.

Social Capital Formation and Producer Groups

A considerable asset in agriculture is the strong civil society organizations in agriculture, such as dairy cooperatives, potato growers' cooperatives, and farmers' groups. Extension services in Nepal have been active in developing farmers' groups and cooperatives. The Extension Service under DOA encourages the group approach to reach and teach farmers. Table 8 shows the populations, household size, and numbers of farmers' groups organized by DOA in each of the proposed FtF project districts.

Table 8. Number of Farmers Groups or Marketing Organizations Organized by DOA Extension in the Proposed FtF Project Districts

Name of District	Population in 2011	Number of Households (Average HH size)	DOA: Farmers groups	
			Women only	Total
Baitadi	252,116	46,807 (5.39)	20	235
Dadeldhura	141,543	27,659 (5.12)	27	226
Kanchanpur	444,315	83,042 (5.35)	167	415
Kailali	770,279	146,431 (5.26)	260	948
Doti	211,827	42,414 (4.99)	70	351
Achham	250,022	50,264 (5.13)	62	250
Bardia	426,946	84,207 (5.07)	109	468
Surkhet	360,104	75,294 (4.78)	50	359
Dailekh	360,104	51,301 (5.14)	102	289
Jajarkot	172,565	31,334 (5.51)	14	164
Banke	493,017	96,330 (5.12)	191	770
Salyan	243,575	46,813 (5.20)	68	308
Rukum	210,878	42,333 (4.89)	91	312
Rolpa	227,075	44,377 (5.12)	43	362
Dang	557,852	122,614 (4.55)	68	448
Pyuthan	235,165	49,472 (4.75)	47	307
Kapilbastu	570,612	94,571 (6.03)	74	577
Palpa	269,372	67,920 (4.18)	66	241
Gulmi	283,577	62,967 (4.28)	87	344
Arghakhanchi	200,446	49,472 (4.75)	279	713

Source: CBS Population Census 2011 and Department of Agriculture, Nepal

Many farmers' groups and cooperatives have accumulated significant savings. Due to time constraints, we were not able to survey the farmers' groups about their plans to utilize the savings to improve farming or livelihood activities. However, we feel that extension service providers can utilize these institutions to transfer yield-increasing agricultural technologies and educational and informational programs to improve family nutrition and health. Some of the farmers' groups and cooperatives indicated that they have generated savings from the sale of their produce, including milk and

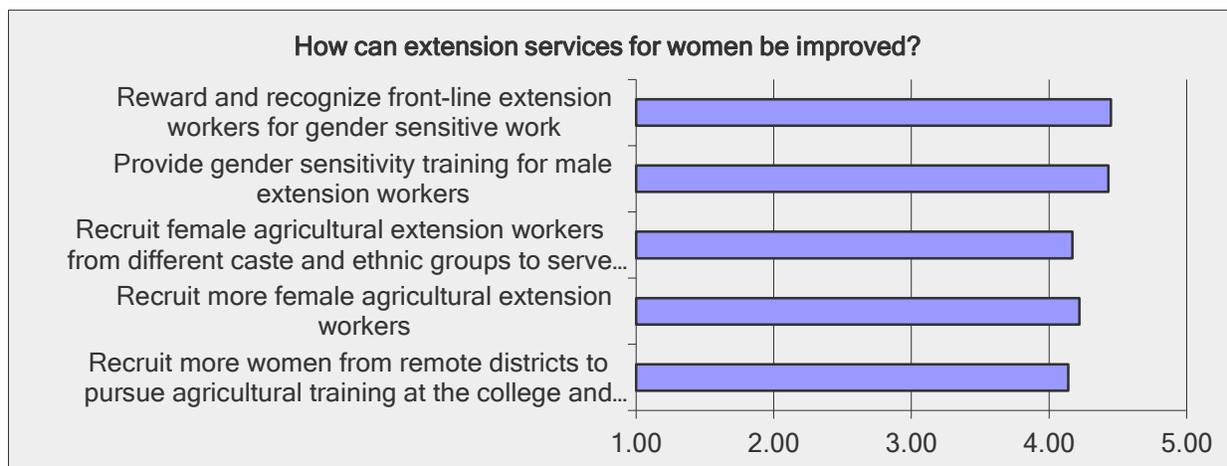
vegetables. These cooperatives can afford to pay for services or contribute funds to support local extension workers.

Gender Equity

Women in Nepal are engaged actively in farming. Most agricultural tasks are performed by women. In recent years, there has been a significant increase in seasonal migration of male labor to India and Arab countries, adding the burden of farming to women members of the families. Some people call this “feminization” of farming. Although the majority of farmers are women, extension workers are mostly men.

During the field visit, questions were asked if female farmers have been the recipients of agricultural extension services offered by DOA and DLS. DADOs, DLSOs, Subject Matter Specialists, and JTs indicated that women in Western Nepal have been equally served by extension services. Women are active in social groups, they attend training programs, and they follow new practices. However, women having no education, unmarried women, and those with young children may not want to leave home to attend programs that are offered away from their villages. In some situations and locales, extension may need to implement outreach methods (farmers’ groups, train the trainer, female LARPs, etc.) to reach women and youth who are isolated at home or who do not have the ability to travel to training events. Extension needs to establish contact offices under local VDCs to fully serve women farmers.

Although we met with many women officers in Kathmandu, fewer women have taken extension positions in the field. Considering the need to reach and teach predominantly women farmers and the unavailability of female extension workers, the online survey asked a series of questions focusing on how extension services for women can be improved. Findings are shown in the chart below.



N=117; Scale: 1=Strongly Disagree, 2=Disagree, 3=Neither, 4=Agree 5=Strongly Agree

Respondents agree with all statements about how extension services for women can be improved. Respondents agreed the most strongly with two strategies – 1) provision of rewards and recognition for extension workers who perform gender sensitive work, and 2) provision of gender sensitivity training for male extension workers. It seems these could be considered as short-term strategies. Training of female extension workers and recruiting them to serve in the profession may be a more effective long-term strategy.

Extension Support Services and Training Centers

There are many education, research and training institutions to support agricultural development program in Nepal. Table 9 below lists the name of institutions providing such services in the proposed FtF project districts.

Table 9. Crops, Livestock, Educational, and Research Institutions in Proposed FtF Project Districts

Name of District	Agriculture and Livestock Training Institutions including (CTEVT/JTA)	Name of Agriculture Research or Demonstration Farm(s)
Baitadi	Agriculture Science College affiliated with TU	Temperate Fruit Development Centre/DOA, Satbajh
Dadeldhura		Vegetable Seed Development Centre/DOA Dadeldhura
Kanchanpur	Regional Agriculture Training Centre, Sundarpur	Cereal Seed Production Center/DOA Sundarpur
Kailali	Regional Livestock Training Centre, Dhangadhi	Fish Dev. Centre Geta/DOA, Goat Dev. Cen./DLSO Budhitola, Kailali Regional Laboratory of Food Technology and Quality Control
Doti	Seti Technical School/CTEVT	Ag. Research Station/NARC Bhagetada, Rajpur
Achham	CTEVT Annex Program	
Bardia		Cotton Farm
Surkhet		Ag. Research station, Dashrathpur/NARC
Dailekh		Agriculture Research Station, Dailekh/NARC
Jajarkot		
Banke	Regional Livestock Training Centre, Nepalgunj Regional Agriculture Training Centre, Khajura	Regional Agriculture Research Station/NARC Khajura; Fishery Development Center, Samsargunj/DOA; Poultry Dev. Center/DLSO Khajura; Regional Laboratory of Food Technology and Quality Control
Salyan		Ginger Research Center/NARC, Kapurkot
Rukum		Vegetable Seed Dev. Centre/DOA Musikot, Rukum
Dang	Technical school/CTEVT	
Palpa		Citrus Fruit Development Centre/DOA
Gulmi		Coffee Development Centre/DOA Aapnchaur

Source: Krishi Diary 2068 published by Agriculture Information and Communication Center, MOAC.

The training institutions identified in Table 9 provide pre-service and in-service professional development services for front-line extension workers. Some of them offer training to Village Animal Health Workers. Specifically, there are four regional training centers (two each for DOA and DLS). These institutions need key investment in staff training, curriculum, and facilities.

In addition to the above education/training and research institutions, the proposed FtF project regions have offices of the following organizations:

Regional Directorates:

- Regional Agricultural Directorates : Surkhet, Dipayal Doti, Pokhara
- Regional Livestock Services Directorates: Surkhet, Dipayal Doti, Pokhara
- Regional Irrigation Directorates: Surkhet, Dhangadhi, Pokhara
- Regional Offices-Agriculture Development Bank (ADB): Dhangadi, Nepalganj, Ghorahi-Dang, Bhairahawa, Pokhara
- Regional Offices--Agricultural Input Company Limited: Dipayal, Nepalgunj, Pokhara
- Regional Agriculture Research Stations: Khajura-Banke, Bhairahawa-Rupandehi

Training Centers

- Cooperative Training and Division Offices – Kailali, Banke, Kaski.
- Regional Training Centers-Agricultural Development Bank: Birendranagar-Surkhet, Manglapur-Rupandehi

Division Cooperative Offices

- Far-west: Kanchanpur, Kailali, Baitadi, Doti.
- Mid-west: Dang, Banke, Bardiya, Surkhet.
- West: Palpa, Kapilbastu.

Quarantine Offices

- Regional/Plant Quarantine Office and Check-posts: Nepalganj-Banke, Gadachauki – Kanchanpur, Jhulaghat – Baitadi, Bhairahawa, Krishnanagar-Kapilbastu
- Animal Quarantine Office and Check-posts: Gadachauki – Kanchanpur, Dhangadi, Darchula Bhansar Road – Nepalganj, Gulariya – Baridya.
- Food Quarantine Laboratory: Mahendranagar- Kanchanpur

Agricultural Input Company Limited

- Branch Offices: Bhairahawa, Dang , Nepalginj, Dhangadi, Mahendranagar
- Sub-branch offices: Bahadurgunj, Lamahii
- Sales Centers: Taulihawa, Palpa, Tulsipur, Gularia

Irrigation Development/Management Sub-Division Offices

- Western Region: 13
- Mid-western Region: 6
- Far-Western Region: 7

Agricultural Development Bank Branch Offices

- Agricultural Development Bank-Branch Offices: Krishnanagar, Butwal, Ghorahi, Surkhet, Tansen, Taulihawa, Tulsipur, Gulariya, Mahendranagar (There is at least one branch office in each district of the twenty FtF districts.)

District Offices and Service Centers

District Agriculture Development Offices-- one in each in 20 proposed FtF districts

Agriculture Service Centers – 108 in 20 proposed FtF districts

District Livestock Service Offices – one each of the 20 proposed FtF districts

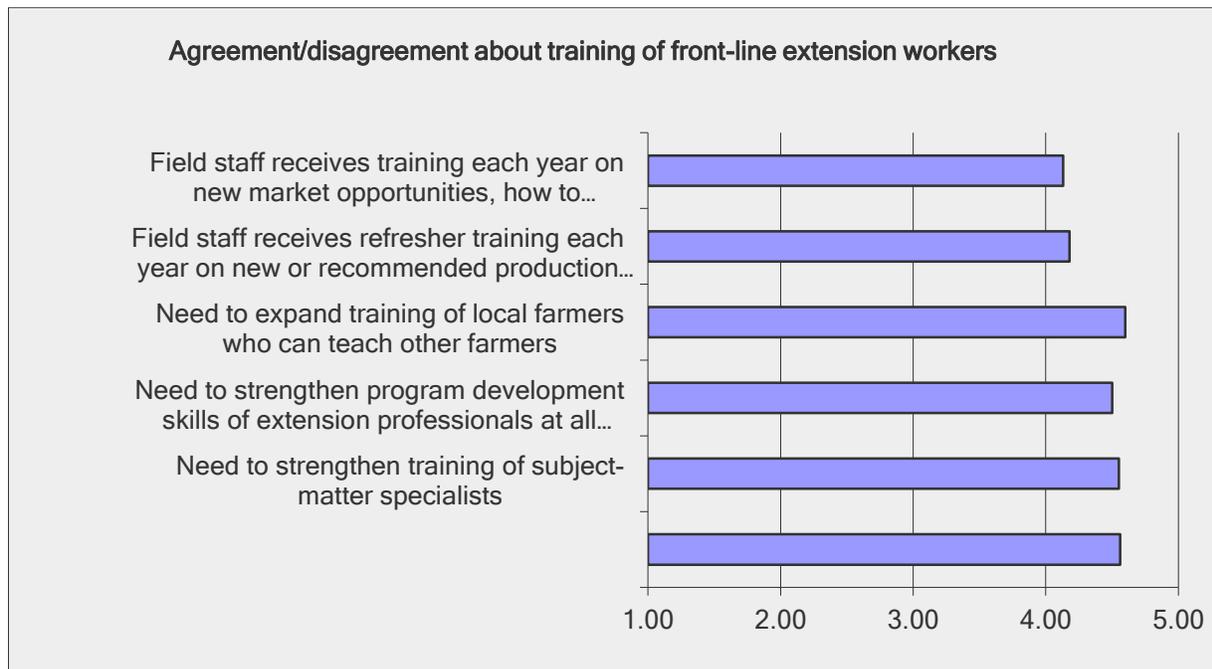
Livestock Service Centers – 89 in 20 proposed FtF districts

Livestock Service Sub-centers -161 in 20 proposed FtF districts

District Food Inspection Units: Kapilbastu, Bardiya, Dang, Surkhet, Kanchanpur

Lack of linkages between extension and research organizations has been a major concern. At present, there is no formal mechanism for communication and interaction between pre-service educational institutions, NARC research farms and centers, and extension agents in the field. Each organization operates independently. Unless there is a personal effort, professional opportunities such as national conferences or seminars are seldom organized for professional interaction and communication.

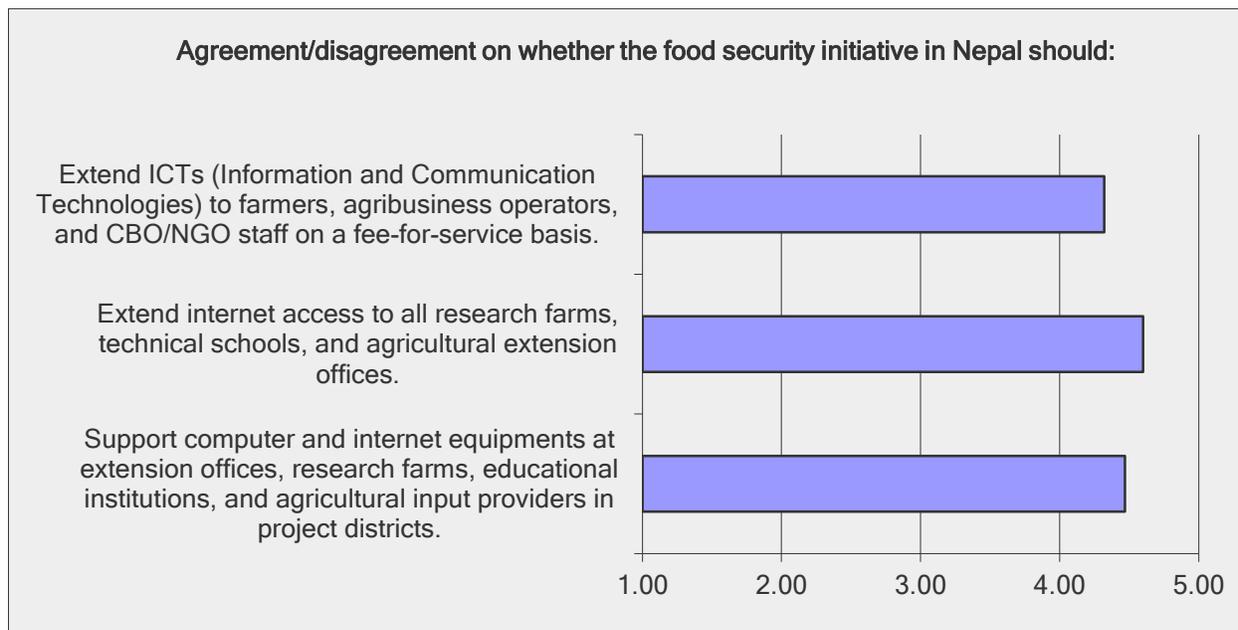
The online survey asked few questions about the need to strengthen technical training and extension teaching skills for front-line extension workers. Respondents were asked to indicate their level of agreement or disagreement on statements pertaining to training on a scale with 1=Strongly Disagree, 2=Disagree, 3=Neither, 4=Agree, and 5=Strongly Agree. Findings are presented below:



The online survey indicated that training of field staff is a major need. There is a need for training on technical skills in agriculture, information technology, natural resources management, and monitoring of food security systems.

A key difficulty facing Nepal’s extension efforts is the limited technical capacity of the staff. They require training in up-to-date extension methodologies as well as livestock issues and production practices. They need up-to-date information from fact sheets or bulletins and access to reference materials such as a farm resource person book, as well as basic and application skills for information technology. On paper and in the field they have a lot, but if you look at the effectiveness and the real ability of the staff to educate, train, and deliver services, there is a significant gap. “Are the training centers able to provide adequate training?” Four Regional Training Centers are located in the FtF project areas, representing a key investment by GON in training capacity.

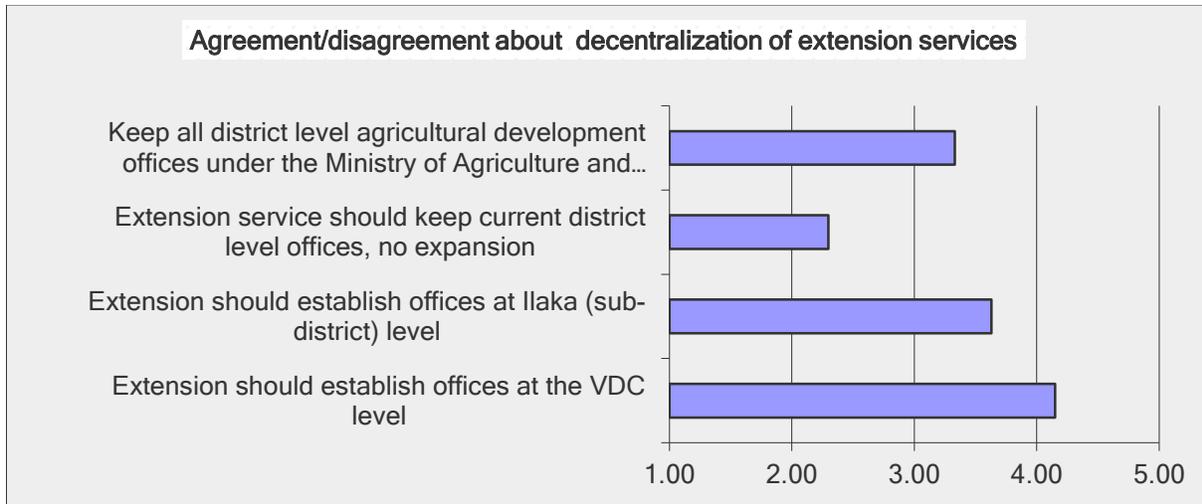
The online survey asked respondents on a 1-5 scale with 1=Strongly Disagree, 3=Neither, 5=Strongly Agree, whether ICT services would strengthen extension service.



Findings suggest that there is agreement among respondents (N=114) that the FtF project needs to extend ICTs in its project districts. Specifically, respondents indicated strong agreement for extending Internet access to all research farms, CTEVT schools, and extension offices.

Decentralization of Extension Services

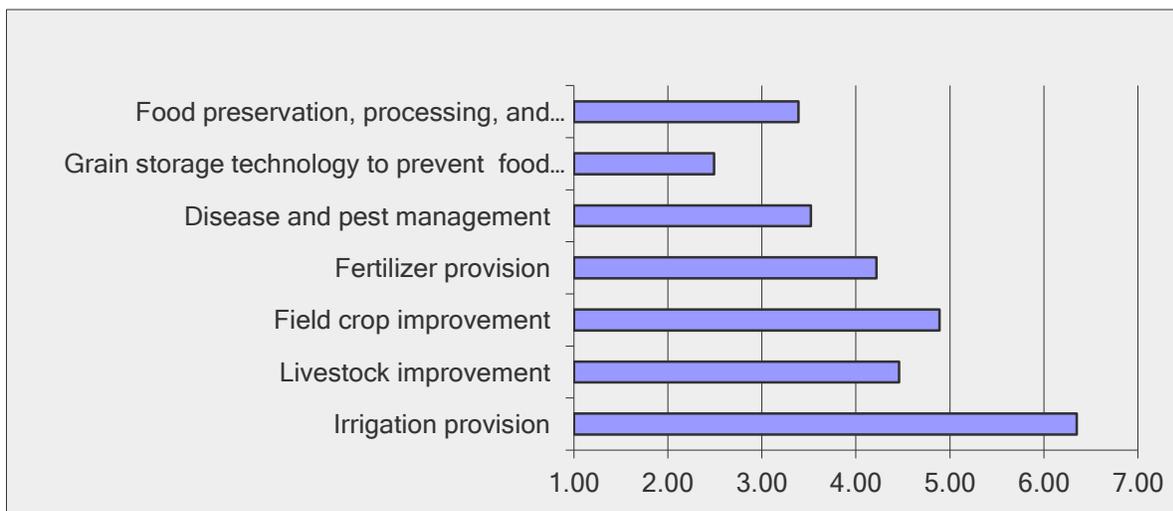
The Government of Nepal passed the Devolution Act in 1999. Since then development programs have been planned and implemented by local government units such as Village Development Committees (VDCs) and District Development Committees (DDCs). Some government departments, such as community health and forests, also have established offices at the VDC or Service Center levels. The budget funds for extension services of DOA and DLS are transferred to the District Development Committees; the Local Development Officer at the district level coordinates implementation of development programs, including agriculture and livestock extension services, based on feedback from the District Agriculture Working Group. The online survey asked respondents a few questions about the decentralization of extension program and services. Findings shown in Chart below indicate that respondents are in agreement about having extension's presence at the VDC level.



Considering the coverage issue of current extension services, JTs/JTAs have to cover large geographic areas. Thus, it is reasonable to have an extension presence under the VDC offices. Because all VDCs are required to allocate 15 percent of development grants to support agriculture, VDCs may hire or contract out extension services to trained local farmers or AgroVets who could extend extension services to fellow farmers. The current SMS and JTs/JTAs at the Service Centers could provide monthly training and supervision of LRPs/AgroVets in a timely manner. Having such a local persons as front-line extension worker could address many issues, such as the need for local ownership of programs. Such an approach also is cost effective and leads to community management of development programs.

Strategies to Improve Local Food Production

The online survey included seven inter-related strategies for increasing agricultural productivity and/or improving food availability. Respondents were asked to rank the strategies from "1=least impacting" "4=moderate" and "7=most impacting" strategy to improve local food production within the next 4-5 years. Results are shown in Figure below.



As shown in the above chart, investment in irrigation is perceived to provide the greatest impact for increasing local food production. Other strategies impacting local food production in the short-term include field crop improvement, livestock improvement, and provision of fertilizer. It should be noted that provision of inputs such as improved seed and fertilizer in a timely manner was ranked as the most important service need for farmers.

Strategies to Improve Extension

Nepal has operated under many different models and types of agricultural extension service. During the 1960s and 1970s, the conventional extension model was based on the trickle-down strategy of diffusion theory. The Training and Visit approach was adopted during the mid-1970s. Integrated Rural Development Projects (IRDPs) during the 1970s and 1980s assumed that existing technology of production was adequate and that the major limiting factor was institutional. Thus, coordination of services was the focus.

Local leader farmers known as “Tukis” were utilized in some districts. “Tuki” means a kerosene lamp in the Nepali language. A Tuki was an enlightened farmer who was supplied with improved inputs to apply on his or her own farmland so that others would be motivated to implement the same practices. In the 1980s, the Block Production Program approach was initiated at several cropping systems research sites to provide necessary technical support services to farmers in a coordinated way to facilitate the adoption of technologies generated through cropping systems research.

The group approach emerged as a dominant extension approach since 1990. It builds on the notion that most farmers are economically and socially weak as individuals, and so cannot bargain for the limited resources. However, when they form a group, they become powerful. Moreover, it also becomes easier for the extension workers to reach more farmers frequently.

The “Pocket Package Strategy” was the operational approach of the Agricultural Perspective Plan. This approach assumed that there is complementariness among the majority of production. Therefore, agricultural production efforts should be concentrated in a geographically defined pocket area where critical services needed to boost production are made available to farmers (Suvedi and Pyakuryal, 2001).

During the first decade of 2000s, no new model of agricultural extension service was adopted, and conventional technology transfer methods such as demonstrations, farmers’ training, and technical support to farmers and agribusinesses were provided. Because many strategies could be used to improve local food security through agricultural extension services, the online survey listed 24 different strategies. The survey asked respondents to assign a priority rating to each strategy on a 1-5 scale with 1=very low, 2=low, 3=medium, 4=high, and 5=very high.

Table 10. Priority Rating to Enhance Local Food Security and Agricultural Extension Service (N=111)

Strategies to Enhance Local Food Production and Extension Services	Rating Average*
Promote privatization of agricultural extension	3.12
Improve supply of inputs such as improved seed and fertilizer in a timely manner	4.49
Support small scale irrigation for crops and vegetables	4.46
Train extension workers on participatory extension services	4.06
Train research scientists to conduct basic and applied research	4.02
Upgrade agricultural research farms and laboratory facilities	4.11
Provide transportation services for front-line extension workers	3.65
Develop/construct Ilaka level agricultural office facilities	3.70
Develop/construct housing facilities for extension workers	3.13
Support marketing of farm products (e.g., crops, vegetables, fruits, meat animals)	4.37
Construct granaries and storage facilities	3.74
Support development of fruit and vegetable processing and packaging facilities	4.05
Support research and extension program to promote pulses (Dal-Bali)	3.69
Provide computers and internet access to all agricultural development offices	3.70
Support development of computer and internet based extension materials	3.57
Provide timely market information to farmers and producers	4.32
Initiate food and nutrition education for healthy living	3.97
Strengthen availability of production/marketing credit for women and women's groups	4.09
Initiate production/marketing credit program for landless laborers	3.87
Support marketing of agricultural and natural resource products	4.05
Increase salaries and benefits for extension workers	3.81
Strengthen supervision of extension field staff	4.11
Strengthen reward/recognition to motivate extension staff to deliver superior work	4.25
Promote production and marketing of special local products	4.23

Findings in Table 10 indicate that there is a need for an integrated service approach to enhance local food security. Note that not all the strategies listed relate to agricultural extension. The highly rated strategies include improving supply of inputs (e.g., improved seed and fertilizer) in a timely manner, supporting small scale irrigation for crops and vegetables, training extension workers on participatory extension services, training research scientists to conduct basic and applied research, upgrading agricultural research farms and laboratory facilities, supporting marketing of farm products, supporting development of fruit and vegetable processing/packaging facilities, providing timely market information to farmers and producers, strengthening availability of production/marketing credit for women and women's groups, supporting the marketing of agricultural products, strengthening

supervision of extension field staff, strengthening reward and recognition programs to motivate extension staff to deliver superior work, promoting production and marketing of special local products such as ginger, medicinal herbs, non-timber forest products, and crafts, and supporting small-scale artisans and micro-enterprises. In this context, the role of extension services may include the coordination of these services at the local level. Annex G lists specific suggestions.

OVERALL FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The primary objective of this scoping mission was to develop an institutional/programmatic overview of the pluralistic extension system in Nepal and to assess the organizational structure, relationships, major activities and services, as well as to identify the primary constraints within the Department of Agriculture, Department of Livestock Services, the Agricultural Information and Communication Center, and other advisory service providers in Nepal. Information for the scoping study was gathered through personal interviews, review of related reports, observations, and an online survey.

Major Findings

Agricultural extension in Nepal has significant footprints in Nepal. Both DOA and DLS have nationwide structures, including regional, district and service center level offices, training institutes, farms and farmers/producer groups. DOA has a longer history and more technical staff. In the proposed FtF project districts, DOA and DLS have 568 and 400 extension positions respectively. Under DOA, each district has a District Agriculture Development Office, and a total of 108 Agriculture Service Centers. Under DOL, each district has District Livestock Service Offices, with a total of 89 Livestock Service Centers and 161 Livestock Service Sub-Centers. Further, DFTQC has five District Food Inspection Units operating in the five proposed FtF project districts.

Extension services of DOA have strong cereal crop and vegetable production foci. Livestock extension services focus mainly on treatment of animal diseases and artificial insemination (AI) services. Although nutrition may be included under vegetable production, current extension programs do not cover nutrition education in their educational and informational programs, and DFTQC does not have its own extension field staff. Some people thought nutrition is covered by the Ministry of Health, which has an extensive presence at district and VDC levels.

A generalist approach to agriculture and livestock extension is followed in Nepal, without due regard to the diverse peculiarities of different agro-ecological regions and farmer categories. For example, DOA has established four service centers in the Tarai districts, all with similar staffing structures, no specialization or expertise of staff on specific crops or animals, and all following uniform extension policies and guidelines. Similarly, hill districts have six service centers. DLS, however, has established more service centers and sub-service centers in both Tarai and hill districts.

Front-line extension workers for DOA and DLS have different pre-service training. Under DOA, JTs and JTAs are all generalists. Similarly, JTs and JTAs under DLA have received animal science training, but they are also generalists. The front-line workers are thinly spread. They receive training in technical agriculture from CTEVT schools and are poorly trained in process skills such as group formation, social mobilization, and leadership development. Most front-line extension workers do not have adequate exposure and training in marketing and supply chain management, which are of growing importance in modernizing the agriculture sector. Extension staffs receive technical training from respective departments and they may be transferred from one district to another.

Agricultural extension services in Nepal have been stable, but also stagnant. Agricultural research, education, and training institutes and extension services are not linked very well. There is no mechanism for regular communication and interaction among these institutions.

The Agricultural Information and Communication Center is charged with dissemination of new information on modern farm technologies and practices through mass media. Internet and communication technology use is very low despite the fact that most regional and district extension offices do have access to computers. E-mail is infrequently used for communication. All proposed FtF project districts have access to modern communication media, including telephone, Internet, radio, and TV. Therefore, CICC has tremendous potential to serve the region if CICC staff receive advanced training in the use of ICTs and radio, TV, and computer facilities. ICTs could significantly enhance communication between extension, research, and education or training organizations.

Nepal has pluralistic extension services. In addition to DOA and DLS, many NGOs and CBOs offer education and training to farmers. Private sector engagement in extension is limited but growing. AgroVets and farm consultants are engaged in the supply of hybrid seed, seedlings, saplings, baby chicks, fingerlings, animal feed, pesticides, and veterinary services. Some AgroVets also offer AI for cattle and buffalo. Although not all AgroVets are equally trained and effective, they tend to work harder than the local extension workers to stay in business. Private sector firms such as AgroVets and dairy cooperatives tend to offer quality and timely services to farmers. Possibly, it is time to privatize and commercialize distribution of selected inputs (such as fertilizer, improved seed) and provision of services (such as AI services) through these firms under close monitoring and supervision from DOA and DLS district offices.

Women in Nepal are actively engaged in farming. Most extension workers under DOA or DLS are male. Extension services have reached both male and female farmers. They have formed farmers' groups having only women farmers. However, there is a need to improve extension services for women farmers by training rural women as extension workers. It is encouraging to hear that there has been an increase in women's enrollment at IAAs and CTEVT schools and that women have entered into the extension profession. We also noted that women, mostly from middle class families, have entered into the agriculture profession in recent years. They tend to take positions in city locations. To better serve the needs of women farmers, Nepal may consider training and recruiting women having rural backgrounds within the FtF districts to serve as extension workers.

There is a strong civil society movement on-going within the agriculture sector, resulting in organizations such as dairy cooperatives, vegetable farmer cooperatives, and the seed potato growers' association. Women farmers have formed cooperatives to serve their members. Mothers' groups also are operational in many communities. Some of the cooperatives have been very successful in serving the needs of their members, specifically in marketing of farm products, e.g., milk, vegetables, and seed potatoes. Front-line extension workers have assisted in the formation of cooperatives and farmers' groups. However, policies and guidelines on how extension services could collaborate effectively with these groups are lacking.

The operation and management of agricultural extension services is funded by the Government of Nepal. In the proposed FtF project districts, DOA district offices received more funds (average expenditure for the fiscal year 2009/10 was NRs. 113.16 million) than DLS district offices (average expenditure for the fiscal year 2009/10 was NRs. 9.36 million). Administrators feel that both DOA and DLS extension need more funding to support educational programs for farmers. At present, 60-70 percent of the extension budget at each district extension office is spent on staff salaries and 30-40

percent is allocated to extension programs and activities. Poor staff motivation and job performance have been frequent complaints with extension.

The research capacity of NARC and pre-service training at IAAS and CTEVT schools needs immediate attention. There is a need to develop second-generation human resources to support agricultural education and research. The curricula and pedagogy need immediate improvement. Also, there is a need to strengthen research laboratories, including training human resources on how to operate and maintain the lab equipment.

Nepal is transitioning through a post-conflict situation and experiencing political instability. There have been frequent changes in the government. Civil service tends to operate under tremendous pressure from political parties. Some staff have aligned with various political groups. As a result, filling senior positions, placing and transferring officials within the organizations, and recognizing staff for quality professional work have been extremely difficult.

Our online survey indicated that investment in irrigation would have the greatest impacting in increasing local food production. Other strategies impacting local food production in the short-term include field crop improvement, livestock improvement, and provision of fertilizer. It should be noted that provision of inputs (such as improved seed and fertilizer) in a timely manner was ranked as the most important service need for farmers. An equally pressing need is for marketing of farm products.

Conclusions

Over the past several decades, Nepal has adopted several models of agricultural extension. Most extension delivery models have been top-down in nature. Educational programs and services in the past were planned at the DOA or DLS headquarters. At present, most extension activities are planned at the district level.

Nepal has developed the basic institutional infrastructure needed for agricultural extension services, including extension offices, research stations, and training centers located throughout the country. The Ministry of Agriculture and Cooperatives has over 5,400 technical staff under different departments. The Nepal Agriculture Research Council has over 1,700 researchers working at different research stations and centers. Similarly, higher educational institutions such as IAAS and CTEVT have teaching faculty and training facilities spread throughout the country. Despite these institutional resources, the agricultural extension services as such are weak. Most front-line extension workers have poor technical skills and have not received training on group process skills. Staff supervision is weak and the system does not recognize and reward hard work. Farmers do not have access to new and improved agricultural practices. Extension messages and information do not reach small farmers, mainly women, living in remote areas. Modern agricultural inputs, resources, and services (such as fertilizer, improved seed, institutional credit, water for irrigation, and improved breeds of animals) are not readily available to farmers. Obviously, crop yields are low. Livestock productivity is poor. Last, but not least, extension services are not assisting farmers in marketing their farm products.

Extension services in Nepal need major changes. The current top-down approach needs reversal. Local level organizations such as VDCs, farmers' cooperatives, and the private sector need to play key roles in planning, implementing, monitoring, and evaluating extension programs and services. The decision

making power about what should be done – why, when, how, and by whom—needs decentralization. Farmers and agribusiness leaders who are fully aware of felt needs within VDCs and municipalities must lead such efforts. Extension programs should pay more attention to promoting technologies and farm products that have excellent market opportunities. At present, extension does not cover food and nutrition education. Nepal’s diverse geographic and climatic conditions offer opportunities to produce specialty crops such as ginger, coffee, oranges, lentils, flowers, aromatic plants, vegetable seeds, and non-timber forest products. Although the focus of extension on staple food crops and improvement of farm animals should continue, the production, processing, and marketing of these specialty products could contribute to increased household incomes.

There is a need to re-energize the extension profession by strengthening institutional capacity through advanced degree training, short-term training in extension process skills, and building the morale of field extension staff through monetary and non-monetary rewards. The DOA and DLS may not need hundreds of mid-level extension professionals in the headquarters; rather, these staff must be placed in districts where there is a shortage of staff. The roles and responsibilities of extension personnel at all levels need to be clearly defined, and district level managers may need training on modern techniques of monitoring and mentoring of staff. Extension must initiate and enforce performance-based rewards, recognition, and promotion through an integrated system. Many scattered and poorly coordinated food security-related projects need to be consolidated and managed by sincere and dedicated leaders. Of course, this requires strong political will and commitment at the national, district, and VDC levels.

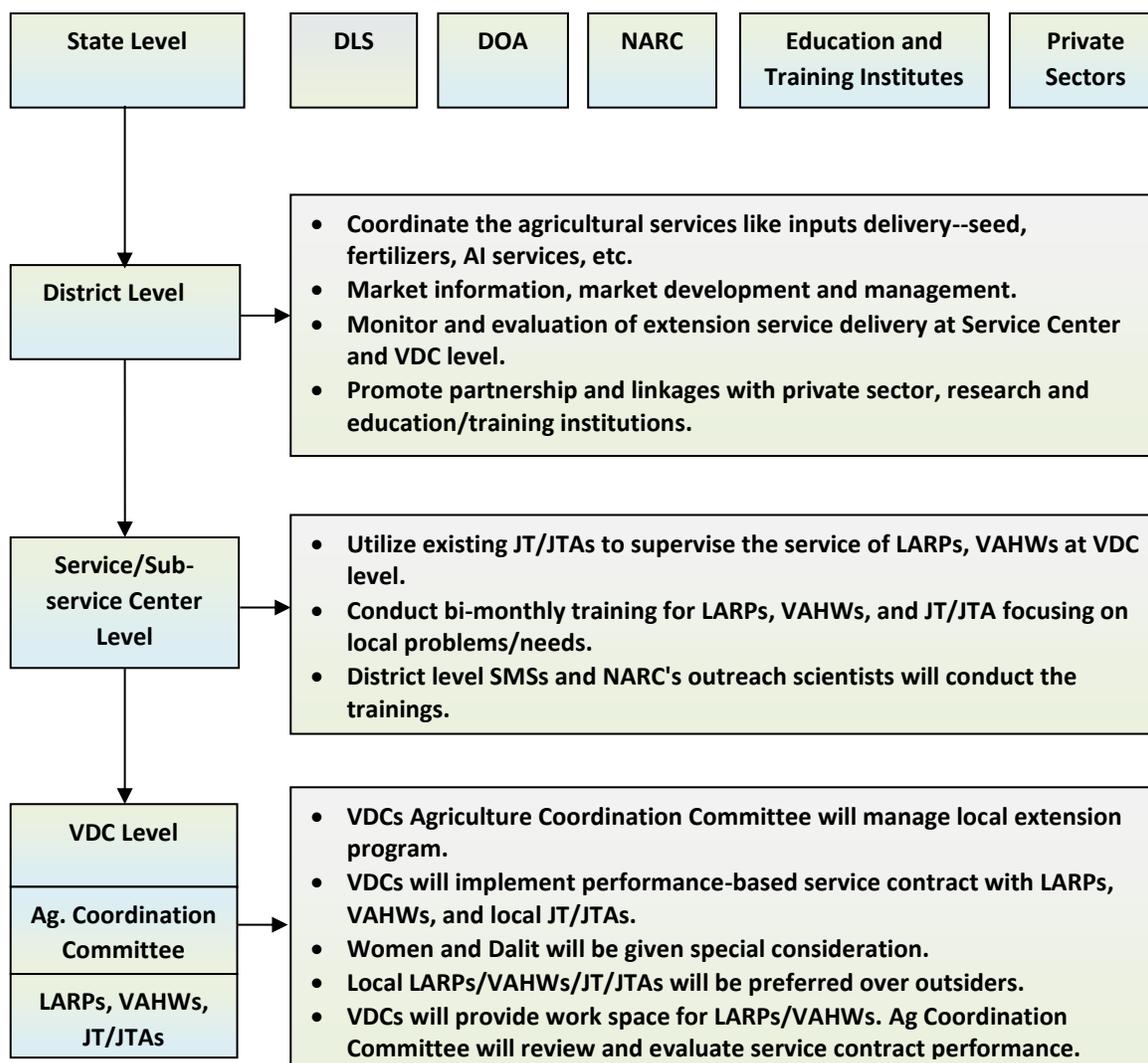
Recommendations for Consideration

A post-conflict situation continues to prevail in Nepal. The Constitution Assembly is working on the new constitution – it is debating the form of government to be created, including state restructuring. We heard that VDCs and municipalities will remain intact as the lowest units of government. The present structure of districts may or may not remain intact. The current regional administrative structure could change or even be abandoned. We heard that the newly formed states may have power to plan for their own development. In light of the present state-restructuring scenario, we recommend a decentralized, market-driven, and VDC-led extension program for Nepal. The main features of the proposed improvements are shown in Figure 3 in the next page.

Key features of the suggested improvements for strengthening extension services are as follows:

- Agricultural extension programs should be planned and implemented at the VDC level. Extension services at the VDC level should be contracted out to local service providers.
- Current service centers and Sub-Service Center should continue. Bi-monthly training for LARPs, VAHWs, JTs/JTAs, and interested farmers and input dealers should be conducted by DADO/DLSO and SMSs at the Service Centers.
- District level offices of DOA and DLS should coordinate input supply and services and maintain linkages with research and training institutions.
- State level offices of MOAC must ensure the linkages between extension, research, and education / training programs. The state office also should coordinate donor-funded projects related to food security and enforce policies for privatizing input supply.

Figure 3: Extension Service Delivery Mechanism for Nepal



Specific action steps may include the following:

- Introduce and utilize Local Agriculture Resource Persons (LARPs/VAHWs/JT/JTA) on a fixed-term (non-Civil Service) performance contract. This could serve as a sustainable financing model. The VDCs should fund the LARP positions, and they must be involved in the recruitment, supervision, and evaluation of LARPs/VAHWs/JTs/JTAs. The newly contracted LARPs/VAHWs/JTs/JTAs could serve as the interface between public extension and private agribusiness service providers.
- Align HR policies with programmatic objectives in MOAC extension, including time in post, transfer policies, and training policies.
- Recruit local extension staff from key groups (women, vulnerable and low income farmers, and the landless).

- Reward performance and merit of VDC-level LARPs, VAWSs, JTs/JTAs, and service center and district level extension professionals.
- Strengthen M&E – use a performance approach to extension, thus moving toward an outcomes and impact approach and away from a coverage approach.
- Privatize and commercialize input supply.
- Further develop and support the technical capacity of LARPs, VAHWs, AgroVets, and other input supply dealers.
- Possibly launch a program for LARPs, VAHWs and JTs/JTAs to serve as input dealers for fertilizer and other modern agricultural inputs.
- Utilize AICC capacity more strategically for extension.

Recommendations for Capacity Building

- Strengthen front-line service providers through a coherent in-service training program widely available through existing regional training centers. Specifically, offer training on group process skills and market development skills for front-line workers.
- Develop MOAC, NGO and Private Sector extension leaders through targeted training opportunities – training on PRA, participatory approaches in extension, management, and technical areas (NRM, marketing, health and nutrition and agriculture, etc.).
- Amplify the ability of AICC to use media and the Internet to deliver extension services and messages. Specifically, strengthen AICC by providing technical assistance and training in ICT-based extension, develop technical skills in advanced editing, videography and video editing, and farm radio approaches.
- Develop the capacity of farmers' associations, cooperatives, and other groups, including VDCs, Agriculture Farms, and DADO, to contract with NGOs and private individuals for extension services.
- Provide higher level training (MS and PhD degrees) for selected next-generation agricultural extension and policy leaders. The newly formed University of Agriculture and Forestry may take this role, in cooperation with international partner universities.
- Enhance and strengthen agricultural extension, agricultural marketing, and agribusiness training at IAAS, CTEVT and HICAST. Food security projects may also support extension and agribusiness experiential education through internship placements.

Recommendations for Implementation

- Make VDCs the focal point of extension program development. Work with VDCs and other groups to hire and utilize LARPs, VAHWs, JTs/JTAs. On average, a district has about 50 VDCs, four to six Service Centers under DOA, and nine to 15 Service/Sub-service Centers under DOL. So, there is a need to train a cadre of LARPs and VAHWs to serve in these offices and centers.
- Build local participation and ownership of extension programming by engaging local Village Development Committees in planning and priority setting of extension programs. Encourage VDCs and other groups such as Farmers' Cooperatives to hire LARPs/VAHWs/JTs/JTAs utilizing the required 15% investment for agriculture from their respective Village Development Fund.

- Promote collaboration and real coordination at the District and sub-District levels.
- Work with pluralistic extension – develop contracting capabilities and implement contracted extension services.
- Establish VDC-level Ag Coordination Committees and empower them to have real input into extension programming.
- Utilize action research approaches (quasi-experimental or before-after/pre-post designs) to assess and measure impacts of extension system reforms and changes.
- Support extension approaches that vary based upon a District’s or sub-district’s agro-ecological and social situation, using a best-fit approach.
- Strengthen M&E – using a performance approach to extension – moving toward an outcomes and impact approach and away from coverage approach.
- Privatize and commercialize input supply:
 - Support technical capacity of LARPs, VAHWs, AgroVets and input supply dealers
 - Possibly launch a program for LARPs, VAHWs and AgroVets to serve as input dealers for fertilizer and other modern agriculture inputs and services.

In addition to the above recommendations to improve agricultural extension services, we feel that Nepal needs to build broader institutional capacity for food security. The following are the near- and long-term investments that may be useful in increasing the effectiveness and sustainability of agricultural extension services vis-à-vis food security:

- There is a need to provide training and technical assistance in support of impact assessments of agricultural development programs in Nepal, including the impact of extension services. This would include establishing outcome indicators, gathering baseline data to establish benchmarks, and monitoring progress toward food security goals.
- There is a critical need for strengthening Nepal’s capacity in higher education and/or training in agriculture, animal science, natural resources, and agribusiness management. The role of education/training institutions is a vital long-term investment, given the role of those institutions in creating the human resources needed for food security and poverty alleviation in Nepal.
- Nepal’s capacity for agricultural research, including food and nutrition, could be enhanced through collaborative research with universities abroad. Short-term visits of NARC’s research scientists to the U.S. land grant universities would greatly enhance their scholarship and motivation to succeed in their careers.

ANNEX A: TERMS OF REFERENCE AND SCOPE OF WORK

Terms of Reference for the Scoping Mission of Nepal's Pluralistic Agricultural Extension System for Two Members of the MEAS Team

The primary objective of the mission will be to develop an institutional/programmatic overview of the pluralistic extension system in Nepal and to assess the organizational structure, relationships, major activities and services, as well as the primary constraints within the Directorate of Agriculture Extension (<http://www.agriextension.gov.np/eng>), the Agricultural Information and Communication Center (<http://www.aicc.gov.np/index.php>), as well as other advisory service providers. Specifically, the mission will:

- Meet with the directors, officials and key staff members of the Directorate of Agricultural Extension (DAE) and the Agriculture Information and Communication Center (AICC), as well as the other major advisory service providers in Nepal. The purpose of these meetings will be to assess the current structure, capacity and expertise of the DAE at all levels (e.g. number, sex, educational qualifications and areas of expertise, including both subject matter specialists and front-line extension staff) as well as to determine how they carry out extension/advisory service activities at the field level. In addition, the mission will determine what these directors and key leaders perceive as their primary achievements to date, as well as their human and financial resource constraints, as well as other structural or management constraints that may be limiting their capacity to provide improved advisory services to small-scale farm households.
For example, are the field staff receiving training each year on new or recommended production practices, new market opportunities, how to organize producer groups and to link farmers to markets, as so forth. Do the field extension staff have sufficient financial and other resources (extension/ training materials, etc.) to allow them to access (i.e. from AICC) and then deliver needed services to the different groups of farmers that need to be served (e.g. landless, small and medium size farmers, including both men and women farmers)?
- What strategy/activities are in place by the DOA to recruit more female/male extension workers?
- To determine the primary focus of each extension service provider. For example, are they primarily focusing on increasing the productivity of staple food crops and/or are they also helping men and women farmers learn to diversify/intensify their farming systems so they can help them increase their farm income and improve household nutrition. For example, how much attention is being given to specific high-value crops, livestock and other products (e.g. mushrooms) within different parts of Nepal that can help different farm households to increase incomes and improve family nutrition?
- What opportunities and challenges to extension service providers have in meeting the education/technical assistance needs of male farmers? Female farmers? How are these challenges being addressed? Are the educational materials provided by extension workers appropriate in terms of the education/literacy levels of men and women in the communities they serve?
- Small scale women farmers represent the majority of rural poor populations in developing countries. To what extent does this describe the situation in Nepal? What efforts are extension service workers making to target small scale women farmers?
- To what extent are women farmers receiving technical assistance from extension workers on how to grow high value agricultural products for income purposes, or is most technical assistance focusing on women's contribution to subsistence-only farming?
- In addition, this assessment will look at other activities (e.g. who is organizing the producer groups for high-value crop, livestock, fisheries, etc. and linking these groups to markets) and can the ICT capacity of AICC be enhanced by making both technical and market information more readily available to the field extension staff and farmers. Also nutrition is likely to be a serious problem among the rural poor in Nepal, so an assessment will be made of the DOA and other service providers about the type of information being shared with rural households about human nutrition.

- Do men and women farmers have equal access to ICT technologies? What efforts are needed to ensure women benefit equally from technical innovation used by the AICC?
- Does nutrition information target just the women of the household/community, or is nutrition promoted as a family issue that all members should be aware about and contribute to?

The rapid scoping study team will visit to the FtF districts:

- 7-10 day field visit to 2-3 Midwestern districts (suggested- Banke, Bardiya, Surkhet) to talk directly with field level extension/research service providers (DADOs, junior extension officers, NARC researchers, etc.) and female and male farmers.
- The team will meet with non-GON service providers such as AgroVets and lead farmers to assess their role and capacity.
- Include questions about the training/information provided to farmers regarding accessing credit for inputs or commercializing production/marketing. Our initial analysis is that this is a large gap in the service provided.
- Include questions regarding the specific training/information provided to farmers regarding storage potential and practices.
- Team will provide an out-brief of initial major findings before leaving Nepal and, if at all possible, a draft report within 2 weeks of returning to the US.

In summary, this study will focus on 1) identifying the major gaps within the Department of Agriculture, Department of Livestock, and other extension/advisory service providers, including institutional capacity, human competency and policy limitations and 2) to suggest some near- and long-term investments that may be useful in increasing the effectiveness and sustainability of these agricultural extension service providers. A draft scoping report will be shared with the USAID Mission within one month after the team returns home. Then, after the USAID Mission reviews this draft (i.e. Kipp Sutton, Agriculture Officer and Ravinder Aulakh) about these proposed recommendations that would strengthen the pluralistic extension system in Nepal, then the final report will be finalized and then submitted to the USAID Mission within the next two weeks after receiving their comments and feedback.

Please note that prior to the MEAS Team leaving Nepal, if the USAID Mission, as well as the Directorate of Agricultural Extension and/or the Agricultural Information and Communication Center are interested, the team members would be willing to share information about key issues in creating a more decentralized, farmer-led and market-driven extension system have been addressed in other countries.

Kipp Sutton, Agriculture Officer
USAID/Nepal

Paul McNamara, Director
MEAS

ANNEX B: VISIT ITINERARY AND MEETING SCHEDULE

- December 1, 2011: Meeting with USAID
Meeting with Planning Division, Ministry of Agriculture and Cooperatives
- December 2, 2011: Meeting senior officials at Ministry of Agriculture and Cooperatives
- December 3, 2011: Institute of Agriculture and Animal Science, Rampur
Visit private Poultry Hatchery, AgroVet service providers
- December 4, 2011: Secretary of Ministry of Agriculture and Cooperatives and
Director General of Department of Livestock Services in Bharatpur
District Agriculture Development Officer, Banke
Nepal Agriculture Research Council's Agricultural Research Station, Nepalgunj
- December 5, 2011: Regional Livestock Training Center, District Livestock Service Office (Banke)

Regional Agriculture Training Center, Khajura, Nepalgunj (met with a group of
JTs from 22 districts of Far Western and Mid-Western Region attending an in-
service training session)

District Agriculture and Livestock Development Officers (Banke and Bardia)
- December 6, 2011: Agriculture Service-Center in Rajghat, Surkhet

Agriculture Research Station, Dasharathpur, Surkhet

Regional Directors of Agriculture and Livestock Services, Surkhet

District Agriculture Development and Livestock Services Officers, Surkhet
- December 7, 2011: Shree Deuti Dairy, Small Farmer Cooperative Ltd. (managed by the Women's
Group), vegetable farms, Kakrebihar Para Vetenerary representative, and farm-
markets in Surkhet
- December 8, 2011: Visit Kohalpur Dairy Cooperative
Meeting with District Agriculture Development Officers or their
representatives at the Seed Production Workshop organized by DOA in
Dhulikhel
- December 9, 2011: Department of livestock Services
Agricultural Information and Communication Center (AICC)
Crop Development Directorate of DAO
- December 10-11, 2011: Visit to Hamsapur, Kaski and Indragufa Community Development Foundation

- December 12, 2022: The World Bank, Nepal Country Office
Department of Agriculture
Center for Environmental and Agricultural Policy Research, Extension and
Development (CEAPRED)
USAID/Nepal Flood Recovery Program/ FinTrac
- December 13, 2011: USAID Mission staff (to brief on Scoping Mission findings)
- December 14, 2011: Asia Network for Sustainable Agriculture and Bioresources (ANSAB)
Dr. Paul McNamara returns to USA
- December 15-17: DOA and DLS for collection of secondary data
- December 18, 2011: Program Evaluation Workshop at Department of Agriculture
- December 19, 2011: Department of Livestock Services—secondary data collection
- December 20, 2011: Meeting with Nepal Agriculture Research Council (NARC) directors
- December 21-22, 2011: Online survey data analysis and report writing
- December 23, 2011: Sharing survey results with USAID staff
- December 24-25, 2011: Report writing
- December 26, 2011: Presented a seminar on “Strategy to Improve Agricultural extension in Nepal”
at Nepal Agriculture Research Council
- December 27-28, 2011: Exit meeting with DOA and DLS, continue with report writing
- December 30, 2011: Draft report submission to USAID/Nepal

ANNEX C: KEY PEOPLE CONSULTED WITH DURING THE RSM

Dipendra Bahadur Kshetry, Vice-Chairman, National Planning Commission, Nepal
Mr. Nathu Prasad Chaudhury, Secretary, Ministry of Agriculture and Cooperatives (MOAC)
Dr. Prabhakar Pathak, Joint Secretary, Planning Division, MOAC
Dr. Shyam Prasad Poudyal, Program Director, Training and Extension, Dept. of Livestock Services
Dr. Surya Paudel, Undersecretary, Planning and Evaluation Unit, MOAC
Mahendra Nath Poudel, Senior Agricultural Economist and Under Secretary, MOAC
Surya Prasad Baral, Agricultural Officer, Planning Division, MOAC
Khadga Jung Gurung, Program Coordinator, Market Access for Smallholder Farmers (MASF), Lalitpur
Shailendra Shrestha, Marketing Program Coordinator, International Development Enterprises, Butwal
Hema Nath Thapalia, Manager, Vegetable Farmer Cooperatives, Chaudadi, Dhading
Dr. Sundar Man Shrestha, Dean, Institute of Agriculture and Animal Science (IAAS), Rampur, Chitwan
Dr. Naba Raj Devkota, Professor of Animal Science, IAAS
Dr. Dharma Raj Dangol, Professor of Agri Botany, IAAS
Dr. Narendra Choudhary, Professor of Agronomy, IAAS
Dr. Sharada Thapalia, Assistant Campus Chief, IAAS
Dr. Ishwori Prasad Dhakal, Campus Chief, IAAS
Shyam Singh, Computer Center, IAAS, Rampur
Rishi Poudel, Sulav Hatchery Pvt. Ltd., Chitwan
Raju Poudel, Livecare Pharmaceuticals Pvt. Ltd., Mangalpur, Chitwan
Dr. Tila Chandra Bhattarai, Pancha Ratna Feed and Hatchery, Chitwan
Dr. Bishnu Kumar Shrestha, District Livestock Development Office, Chitwan
Nathu Prasad Choudhary, Secretary, Ministry of Agriculture and Cooperatives, Nepal
Dr. Nar Bahadur Rajwar, Director General, Dept. of Livestock Services (DoLS), Nepal
Mitra Raj Dawadi, Dawadi Agro Enterprises, Narayangarh, Chitwan
Yugal KumarTiwari, District Agriculture Development Officer (DADO), Nepalgunj, Banke
Dr. Krishna Kumar Mishra, Senior Scientist, Plant Breeding, NARC Farm, Khajura, Nepalgunj
Rajendra Darai, Senior Scientist, Grain Legumes Program, NARC Farm, Khajura, Nepalgunj
Deo Kanta Choudhary, NARC Farm, Khajura, Nepalgunj
Dr. Basant Manandhar, Senior Training Officer, Regional Livestock Training Center, Nepalgunj
Dr. Schid Ahmad Khan, Livestock Officer, Regional Livestock Training Center, Nepalgunj
Lalit Jung Kunwar, Livestock Technician, Regional Livestock Training Center, Nepalgunj
Dr. Janak Ram Bhandari, District Livestock Development Officer, Banke

Sagar Dhakal, Extension Training Officer, Regional Agriculture Training Center, Khajura, Nepalgunj
Krishna Kanta Neupane, District Livestock Development Officer, Bardia
Pushpa Raj Belbase, District Agriculture Development Officer, Bardia
Jhalak Dhakal, Agronomist, NARC Agricultural Research Station, Dasharathpur, Surkhet
Govinda K.C., Hill Maize Research Project, Agricultural Research Station, Dasharathpur, Surkhet
Dr. Kisan Lal Bhatt, District Livestock Development Officer, Surkhet
Dr. Amar Bahadur Shah, Regional Director, Dept. of Livestock Services, Surkhet
Dambar S. Nepali, Agriculture Officer, Regional Agriculture Development Directorate, Surkhet
Ram Prasad Gautam, District Agriculture Development Officer, Surkhet
Jib raj Paudel, District Livestock Services Officer, Surkhet
Umit Pyakuryal, Manager, Shree Deuti Dairy, Uttar Ganga 9, Surkhet
Pushpa Devkota, Asst Manager, Small Farmer Cooperative Limited, Uttar Ganga, Surkhet
Gyume Budha, Vegetable Farmer, Uttarganga, Surkhet
Karna Bahadur Budha, Vegetable Farmer Cooperative, Uttarganga
Sarju Lama, Manager, Kakrebihar Para Veterinary, Birendra Nagar, Surkhet
Chandra Lal Tiwari, Manager, Sirjana dairy Cooperative Ltd., Kolhapur, Banke
Ganga Acharya, Senior Planning Officer, PACT Project, MOAC
Priyambada Joshi, Cooperative Development Directorate, MOAC
Birendra Raj Parajuli, National Industrial Crop Development Program, DOA, Hariharbhawan
Dhan Bahadur Thapa Magar, Regional Agriculture Training Centre, Kanchanpur
Tanka Pd. Rizal, DADO, Dadeldhura
Totha Raj Dhakal, DADO, Salyan
Chandra Bahadur Budha, CDD, DOA, Hariharbhawan
Shovakhar Acharya, Crop Development Directorate, DOA
Shankar Datta Awasthi, DADO, Achham
Pawan Giri, Crop Development Officer
Maheshor Lamichane, Seed Quality Coordination Committee, DOA, Hariharbhawan
Dunga Prasad Panthi, DADO, Kanchanpur
Bishnu Bahadur Adhikari, DADO, Darchula
Chiranjibi Adhixari , Marketing Development Directorate
Raghu Nath Neupane, Crop Development Officer, Regional Seed Testing Laboratory, Kanchanpur
Birendra Sharma, DADO, Doti
Suresh Kumar Thapa, DADO, Dailekh

Dev Raj Bhusal, Regional Directorate of Agriculture, Surkhet
Hari Prasad Pandit, DADO, Rukum
Tej Prasad Dawadi, DADO, Jajarkot
Deepak Sapkota, Crop Development Directorate
Ramesh Humagain, S.C.D. Officer
Raju Ghimire, Agriculture Officer, Agriculture Information and Communication Center (AICC)
Dr. G. Ortiz-Ferrara, Principal Scientist & Leader HMRP, Country Representative, CIMMYT South Asia
Dr. Suraj Pokharel, Program Director, Crop Development Directorate, DOA
Kausal Kishor Lal, Ret. Joint Secretary, Ministry of agriculture and Cooperatives
Eka Bahadur Gurung, Indragufa Community Development Foundation, Kaski
Krishna Mani Subedi, Krishna B. Bhujel and Ganesh Bishwokarma, Kaski
Bhishma Raj Subedi, Indragufa Community Development Foundation
Shukra Raj Sapkota, Headmaster, Ramkot Higher Secondary School, Hamsapur, Kaski
Gayatri Acharya, Senior Economist, The World Bank, Nepal Country Office
Purna B. Chhetri, Senior Rural Development Specialist, The World Bank, Nepal Country Office
Dr. Shyam Kishor Shah, Director General, Department of Agriculture, Hariharbhawan, Lalitpur
Lila Ram Paudel, Deputy Director General, Department of Agriculture, Hariharbhawan, Lalitpur
Jagadish Bhakta Shrestha, Program Director, Directorate of Industrial Entomology Development
Dr. Hari Krishna Upadhyay, Executive Chairperson, CEAPRED Nepal
Bharat Prasad Upadhyay, Executive Director, CEAPRED Nepal
Joe Sanders, Chief of Party, USAID contractor for the USAID/Nepal Flood Recovery Program
Dr. Bhishma P. Subedi, Executive Director, Asia Network for Sustainable Agriculture and Bioresources (ANSAB)
Kiran Chandra Adhikary, Manager-Finance and Administration, ANSAB
Dr. Kailash N. Pyakuryal, Vice Chancellor, University of Agriculture and Forestry
Dr. Tek Bahadur Gurung, Acting Director General, Nepal Agriculture Research Council
Dr. Niranjana Adhikari, Director of Crops and Horticulture, NARC
Dr. Baidya Nath Mahato, Director of Planning and Coordination, NARC
Jiwan Prabha Lama, Director General, Dept. of Food Technology and Quality Control
Pramod Koirala, Senior Research Officer, DFTQC
Ganesh Dawadi, Deputy Director General, DFTQC
Pushpa Lal Rai, Research officer, DFTQC
Dr. Narayan Prasad Ghimire, Senior Veterinary Surgeon, Directorate of Animal Health, Nepal Veterinary Council

Uday Chandra Thakur, Program Director, Livestock Production, DLS
Bimal Kumar Nirmal, Chief Livestock Development Officer, National Livestock Breeding Center, DLS
Arun Shankar Ranjit, Deputy Director General,
Ganesh Bahadur Bista, Junior Technician, DADO, Salyan
Lal Bahadur Khadka, Junior Technician, DADO, Jajarkot
Shashindra Shahi, Junior Technician, DADO, Surkhet
Mahendra Pun, Junior Technician, DADO, Rukum
Shanti Maya Adhikary, Junior Technician, DADO, Rukum
Prem Kumar Chaudhary, Junior Technician, DADO, Dang
Hum Bahadur Thapa, Junior Technician, DADO, Gulmi
Chop Narayan Khanal, Junior Technician, DADO, Rolpa
Min Bahadur Shahi, Junior Technician, DADO, Dailekh
Purna Bahadur Thapa, Junior Technician, Regional Agriculture Directorate, Surkhet
Krishna Prasad Pandey, Junior Technician, DADO, Bardiya
Anita Shrestha, Junior Technician, DADO, Dadeldhura
Ramchandra Bhatta, Junior Technician, DADO, Dadeldhura
Amar Bista, Junior Technician, DADO, Rolpa
Sher Bahadur Bhandari, Junior Technician, DADO, Mugu
Chuman Singh Giri, Junior Technician, DADO, Kalikot
Ratna Prasad Pandey, Junior Technician, DADO, Kalikot
Chandra Bahadur Shahi, Junior Technician, DADO, Jumla
Sharad Lama, Junior Technician, DADO, Dolpa
Shyam Raj Joshi, Junior Technician, DADO, Humla
Dinesh Pathak, Junior Technician, DADO, Banke

USAID/Nepal

John Stamm, Director, General Development Office
Kipp Sutton, Agriculture Officer, USAID/Nepal
Luis E. Guzman, Feed the Future Team Leader, USAID/Nepal
Navin Hada, AID Project Development Specialist, USAID/Nepal
Dr. Rave Aulakh, Economist, USAID/Nepal

ANNEX D: LIST OF PERSONS WHO PARTICIPATED IN THE ONLINE SURVEY

Dhruba Pd	Acharya	
Ganga	Acharya	
Shiba	Acharya	Livestock Officer
Birendra	Adhikari	Rural Reconstruction Nepal
Niranjan P.	Adhikari	Director, NARC
Rishi Raj	Adhikari	Ambassador, Embassy of Nepal in Malaysia
Shrawan	Adhikary	Program Officer, FAO-N
Tufail	Akhtar	Sr. Scientist, NARC
Ananda Ratna	Bajracharya	Joint Secretary
Madan Raj	Bhatta	Ret. DOA
Pradip	Bhattarai	DLS
Bishnu	Chapagain	Freelancer
Kailash	Chaudhari	Sr. Agricultural Economist
Purna	Chhetri	Senior Rural Development Specialist, The World Bank Nepal
Hari	Dahal	Joint Secretary
Ngamindra	Dahal	NGO
Dharma R.	Dangol	Professor, IAAS
Abhoy K.	Das	Professor, Institute of Forestry
Durga	Devkota	Lecturer, IAAS
Krishna Prasad	Devkota	CARE Nepal
Naba Raj	Devkota	Professor
Ishwori P.	Dhakar	Campus Chief, IAAS
Madan Singh	Dhami	Veterinary Officer
Sujan	Dhungel	Ag Extension Officer, DOA
Ravi	Dongol	Agriculture Economist
Yubak Dhoj	G.C.	Program Director, DOA
Nirmal	Gadal	Agronomist
Kamal	Gautam	Program Director, DOA
Laxman K.	Gautam	Freelancer
Madhu Sudhan	Ghale	NARC
Ms. Yamuna	Ghale	SDC Nepal
Puspa Lal	Ghimire	DOA
Raju	Ghimire	Agriculture Information Officer, AICC
Ramjee P.	Ghimire	Student, MSU
Yagya Prasad	Giri	NARC
Bineeta	Gurung	Helping Hands, Nepal
Tek Bahadur	Gurung	Director, NARC
Navin	Hada	USAID Nepal
Bhoj Raj	Joshi	NARC
Krishna	Joshi	CIMMYT Nepal
Nanda Prakash	Joshi	Professor, MSU
Neeraj Narayan	Joshi	RRN Nepal/Freelancer
Samundra Lal	Joshi	DOA
Ganesh Kumar	K.C.	Former GON Secretary
Krishna Bahadur	Karki	DOA
Madhav	Karki	ICIMOD Kathmandu

Ratna	Karki	RRN Nepal
Kishor Prasad	Kayastha	Senior Livestock Development Officer
Yajna Gajadhar	Khadka	NARC
Sanjaya	Khanal	Professor, Kathmandu University
Prasanna Kumar	Koirala	Former SLDO, DLS
Rajendra	Koirala	DADO Rolpa
Tara Lal	Lama	FAO Lama
Madhab Prasad	Lamsal	DOA
Bui Thi	Lan	FAO Country Representative
Purushottam P.	Mainali	Former Joint Secretary, MOAC
Vijay Kumar	Mallick	MOAC
Basant	Manandhar	Director, DOL Regional Training Center
Andrew J.	McDonald	Hill Maize Project/NARC
Binod Kumar	Mishra	
Santosh	Nepal	WWF Nepal
Fanindra P.	Neupane	Professor
Krishna Kant	Neupane	Senior Livestock Development Officer
Gana Pati	Ojha	Former DOA officer
Pushkar Bahadur	Pal	Professor, IAAS
Kanchan Raj	Pandey	DOA
Shiva S.	Pandey	ANSAB Nepal
Sunil	Pandey	
Tara	Pandey	
Yam R.	Pandey	NARC/RARC Lumle, Kaski
Hari Krishna	Panta	IAAS Lamjung Campus
Bishwo Kallyan	Parajuli	TU/PN Campus Pokahra
Krishna C.	Paudel	MOFSC Nepal
Krishna Prasad	Paudel	Professor
Loka Nath	Paudel	Senior Livestock Development Officer
Mina Nath	Paudel	Scientist, NARC
Shyam Prasad	Paudel	Program Director, DLS
Tulsi	Paudel	Scientist, NARC
Lila Ram	Paudyal	Deputy Director General
Prakash Raj	Pokhrel	Scientist, NARC
Suroj	Pokhrel	Program Director, DOA
Krishna P.	Poudel	
Laxman Prasad	Poudel	Agriculture Products Export Promotion Program
Shyam	Poudel	University of British Columbia
Dala Ram	Pradhan	Former DG, DLS
Rabindra Bd.	Pradhan	DOA
Subarna Man	Pradhan	NARC
Amy	Prevatt	USAID Nepal
Kailash N.	Pyakuryal	Vice Chancellor, Univ. of Agriculture and Forestry
Madan	Rai	Ret. DOA
Nar B	Rajwar	Director General, DLS
Mr Arun Sankar	Ranjit	Deputy Director General, DLS
Susma	Rasaily	Agriculture Communication Officer
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Basu Dev	Regmi	NDRI
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Netra Pratap	Sen	Forward Nepal
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Subal	Shah	Senior Livestock Development Officer
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Devendra Prasad	Yadav	Chief Livestock Development Officer, DLS

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ANNEX F: ONLINE SURVEY QUESTIONNAIRE

NEPAL AGRICULTURAL EXTENSION SURVEY-2011

We need your input. We are conducting a study to improve/strengthen agricultural extension services to enhance food security in Nepal. Please provide your candid opinions about current agricultural extension services, how extension services can be strengthened, and which programs or activities should get priority. Your opinions and responses will be treated with strict confidentiality and only group responses will be presented in our report.

1. What BEST describes your current position?

Working within Agriculture/Livestock Extension Service	
Working within Nepal Agricultural Research Council	
Working within higher education/training in agriculture	
Working for a INGO/NGO/CBO	
Retired from government/banks/NGOs	
Other (work internationally, but have agricultural development experience in Nepal)	

2. Many models of agricultural extension have been tested in Nepal. Do you think present agricultural extension service in Nepal needs improvement?

	Definitely No	No	Not Sure	Yes	Definitely Yes
Extension services of Department of Agriculture					
Extension services of Department of Livestock Development					

3. How effective are agricultural information and communication services in Nepal?

	Not at all Effective	Not Effective	Somewhat Effective	Very Effective	Outstanding
Radio programs for farmers					
TV programs for farmers					
Computer or Internet-based information for farmers					
Computer or Internet-based information for agribusiness operators					
Agricultural publications for farmers such as bimonthly Krishi Patrika, bulletins, fact-sheets					

4. What are the common problems of Nepal's agricultural extension service?

	Not a problem	Some problem	Moderate problem	Major problem	Critical problem
Adequate number of frontline extension workers					
Quality of training of frontline extension workers					
Motivation of frontline extension workers to serve the people					
Supervision of frontline extension workers					
Adequate number of female extension workers					
Adequate budget for educational programs and activities					
Quality of technical support (e.g., subject matter specialist support, availability of training materials like bulletins, etc.)					
Transportation services for frontline workers					
Communication between frontline extension worker and management					
Communication between research scientists and extension worker					
Coordination of support services like inputs (seed, fertilizer), agricultural credit, and marketing services					
Extension leadership					
Other (please specify)					

5. Please indicate your agreement or disagreement with the following statements about agricultural extension strategies to enhance food security in these districts.

<u>Statements</u>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Extension should support marketing of farm products (e.g., crops, vegetables, flowers, fruits, meat animals, and medicinal plant products)					
Extension should collaborate with local NGOs as they can provide effective services					
Extension should focus on dissemination of new field crop varieties (rice, maize, millet, etc.)					
Extension should focus on dissemination of improved breeds of livestock					
Extension should focus on production of fruits and vegetables					
Extension should integrate food safety and nutrition education					
Select services like seed production and distribution, soil testing, artificial insemination, etc. should be privatized					
Extension should monitor the quality of services provided by NGOs and agribusinesses					

6. How can extension services for women be improved?

<u>Statements</u>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Recruit more women from remote districts to pursue agricultural training at the college and university level					
Recruit more female agricultural extension workers					
Recruit female agricultural extension workers from different caste and ethnic groups to serve their respective communities.					
Provide gender sensitivity training for male extension workers					
Reward and recognize frontline extension workers for gender sensitive work					

7. Please indicate your agreement/disagreement about the need for demand driven and participatory agricultural extension service:

<u>Statements</u>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Each district may need a unique agricultural extension service based on local needs and demands					
Some of the extension services should be provided on a fee-for-service basis (i.e., farmers should pay for the service)					
Farmers will be better served if local NGOs partner with extension					
Extension programs should be developed in collaboration with local groups such as Coffee Grower Association, Forest Users Group, and Mother's Group					
Representatives of local organizations and groups should decide the nature of extension programming in a community					

8. Please indicate your agreement/disagreement about decentralization of extension services:

<u>Statements</u>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Extension should establish offices at the VDC level					
Extension should establish offices at Ilaka (sub-district) level					
Extension service should keep current district level offices, no expansion					
Keep all district level agricultural development offices under the Ministry of Agriculture and Cooperatives under one unit (consolidation)					

9. Please indicate your agreement/disagreement about training of frontline extension workers:

<u>Statements</u>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Need to strengthen pre-service education (i.e., JTA/JT level) of frontline extension workers					
Need to strengthen training of subject matter specialists					
Need to strengthen program development skills of extension professionals at all levels					
Need to expand training of local farmers who can teach other farmers					
Field staff receives refresher training each year on new or recommended production practices					
Field staff receives training each year on new market opportunities, how to organize producer groups, and how to link them to markets, or other nonproduction practices					
Field staff has sufficient resources to serve the people – the landless, small and medium size farmers					

10. Please indicate your agreement/disagreement about the need for new investment to strengthen extension service.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Improve new technology generation so invest in agricultural research to upgrade research skills, research laboratories, and research farms/fields.					
Improve two way communication between researchers and extension professionals so hold periodic meetings/workshops between agricultural extension, agricultural research, agricultural education, and NGO/CBO professionals					
Improve training of research and extension professionals – so invest in agricultural education (technical schools, colleges and university level)					

11. Please indicate your agreement/disagreement whether [food security] projects should:

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Support computer and internet equipment at extension offices, research farms, educational institutions, and agricultural input providers in project districts.					
Extend internet access to all research farms, technical schools, and agricultural extension offices.					
Extend ICTs (Information and Communication Technologies) to farmers, agribusiness operators, and CBO/NGO staff on a fee-for-service basis.					

12. Below are seven interrelated strategies for increasing agricultural productivity and/or improving food availability. Please rank the strategies from "least impacting" to "most impacting" to improve local food production within the next 4-5 years.

Strategies for Increasing Agricultural Productivity	1-Least Impacting	2	3	4-Moderate	5	6	7-Most Impacting
Irrigation provision							
Livestock improvement							
Field crop improvement							
Fertilizer provision							
Disease and pest management							
Grain storage technology to prevent food loss							
Food preservation, processing, and marketing services							

13. There could be many areas of new investment to improve agricultural extension for food security. Please assign a priority rating to each strategy below:

Areas of New Investment	Very Low	Low	Medium	High	Very High
Promote privatization of agricultural extension					
Improve supply of inputs such as improved seed and fertilizer in a timely manner					
Support small scale irrigation for crops and vegetables					
Train extension workers on participatory extension services					
Train research scientists to conduct basic and applied research					
Upgrade agricultural research farms and laboratory facilities					
Provide transportation services like motorbikes and bicycles for frontline extension workers					
Develop/construct Ilaka level agricultural office facilities					
Develop/construct housing facilities for extension workers					
Support marketing of farm products (e.g., crops, vegetables, flowers, fruits, meat animals, and medicinal plant products)					
Construct granaries and storage facilities					
Support development of fruit and vegetable processing and packaging facilities					
Support research and extension program to promote pulses (Dal-Bali)					
Provide computers and internet access to all agricultural development offices/service centers					
Support development of computer and internet based extension materials					
Provide timely market information to farmers and producers					
Initiate food and nutrition education for healthy living					
Strengthen availability of production/ marketing credit for women and women's groups					

Areas of New Investment	Very Low	Low	Medium	High	Very High
Initiate production/marketing credit program for landless laborers					
Support marketing of agricultural and natural resource products					
Increase salaries and benefits for extension workers					
Strengthen supervision of extension field staff					
Strengthen reward and recognition program to motivate extension staff to deliver superior work					
Promote production and marketing of special local products					
Promote ecotourism/Agri-tourism for income generation					
Support small-scale artisans and microenterprises					
Other (please specify):					

14. How can [food security] projects provide assistance to poor and landless households gain access to food on a sustainable basis? Please list specific suggestions.

Thank you for your cooperation!

ANNEX G: SUGGESTIONS FOR IMPROVING EXTENSION SERVICES

Online survey respondents listed additional strategies for improving food security and strengthening extension services. Following is a list of selected strategies:

- “Agricultural road, involvement and coordination of public and non-public extension agencies.”
- “Agriculture subject matter specialists should be encouraged to develop special extension package.”
- “Assurance of improved quality seed.”
- “Cooperative farming scheme.”
- “Develop a model farm in each Ilaka (or Service Center) by using local resources for effective technology transfer from farmer to farmer.”
- “Discourage bias based on caste, creed and gender.”
- “Drastically reduce the frequency of transfer of extension workers and develop professionalism among researchers.”
- “Educating farmers should be an important strategy which is missing in this survey. Whatever hardware provided will be consumed one day but once they get knowledge and skill will remain with them and will try something better in future too.”
- “Focus on income generation program.”
- “Food security program for rural Nepal is the important but the establishment of practical training center is most important.”
- “Hire and Fire; No pension to extension workers unless there is increase in productivity of land.”
- “Institutional reform and accountability are some of the major issues to be considered.”
- “Make NGOs responsible, monitor them and use them in extension.”
- “Mechanism to promote working relation between extension and research.”
- “The major problem of the extension is lack of willingness of the extension workers and lack of exposure with modern amenities such as computers and internet etc. for the junior technicians.”

The last question on the online survey was open-ended and asked “How can the poor and landless be served?” Respondents offered several suggestions. Following are examples of suggestions offered:

- “By providing training to the entrepreneurs. Education of girls compulsorily and formation of women's group. Quality food production. Scholarship to Girl students for higher education. Off season vegetable production.”
- “Legal provision of cultivation land, pond etc. for landless farmers in a contract basis. Provision of credit in reasonable interest to buy farmland for cultivation. Support for small irrigation infrastructures.”

- “Make provision to update the knowledge of extension workers in research stations through senior researchers, so the research and extension system could be internalized as an initiative to be self-sufficiency. Till now the agriculture system in Nepal is extension-led as a result present food insecurity has been occurred, make it market and research led for improving the food security situation.”
- “Promotion of high value crops – Increase micro-finance access to poor and landless – Promote integrated and community farming system with ultra-poor families. Promote small livestock raising activities for the poor.”
- “Categorize farmers on their land holding and available recourses. Provide extension services according to category to commercialize agriculture by commercializing technology. Provide extension services in package from farmer’s field to consumption at national and international level. Agriculture extension provider should be from extension faculty.”
- “Special and targeted extension services (inclusive extension services). Special provision of inputs (seeds, irrigation, fertilizers). Production capability development of these farmers. Provision of appropriate farm technology.”
- “Government intervention on processing and marketing of products.”
- “Close all government offices in districts and villages and allocate the money directly to the farmers every year on the basis of good idea projects. Construct motor road to all agriculturally potential area. Provide Internet facility in all villages. Promote organic farming and agro-centric tourism by giving incentives. Change land policy – do not give land to landless. Give JOB to landless and give land to those who can invest money for higher production-commercial farming- give tax incentives to those who provide more jobs to landless and job seekers.”
- “Avoid unnecessary repetition of training for FLEWs; creates only wastage of time and resources 2. Need based training for the front line extension worker is needed for effective extension service 3. Effective monitoring of FLEWs from the respective division is needed for better extension service.”
- “Develop linkages between farming-livestock and labor market within a single chain. Poor and landless households can link through marketing of the agro product for this extension service needs to link the producers-marketing chain.”
- “Education to farmer and build their confidence (Do not think about formal training). Conservation of resources at ecosystem level. Promote local innovations. For landless provide support (Technical and amp. financial) till they go by themselves. There are many success stories on this in Nepal. Farmer-led extension service (For enhanced ownership, commitment and dedication).”
- “Generate high rate of local employment in the community. Enhance education level in the community. Develop tourism opportunity in the region.”
- “GIVE TRAINING and skills for income generation 2. Provide enterprises that do not require much land (for landless), 3. Give employment opportunities in local farms 4. Help get off farm employment 5. Distribute Kissan Card for the poor to access government subsidized inputs.”
- “Government/N should manage subsidy program to provide agriculture inputs for the poor farmers. 2. Extension program should be linked with research organization such as NARC 3.

Approved and economical viable agriculture technologies should be disseminated properly 4. Site specific nutrient management and crop varieties should be specified so on.”

- “Identify the potentials of poor and landless households to develop the particular works for them. 2. Most of the works should be oriented for “work for food”. 3. Food should be locally produced and supplied.”
- “Land reform is important to link with agriculture extension 2. Distributional justice in agriculture.”
- “Make poor and landless mapping at VDC level. 2. Assign extension workers at VDC level 3. Make and implement policy to involve private sector for extension.”
- “Provide guarantee of land use for a longer period. 2. Provide all services such as credit, raw materials, training, marketing services to these people as done for land owners at subsidized rates. 3. Arrange to buy their products.”
- “Provide poor and landless farmers subsidized credit and farm inputs (Livestock and vegetable seeds) and leasehold lands on collective farming basis. 2. They should be trained on how to manage the resources and inputs efficiently.”
- “Provision of basic training and credit for lease-hold farming. 2. Include in agricultural marketing services. 3. Provision of high skill training to the landless so that other farmers will pay for their services.”
- “Support required quantity (with quality) inputs covering seeds (of cereals, vegetables and cash crop), fertilizer and technology 2. Emphasize small and medium scale irrigation project 3. Develop market network and guarantee farm gate price for the commodity that farmers want to sell.”
- “There is animal exchange program such as goats, buffalo to the poor and landless in a limited area. 2. Leasing forestry area to landless for herbal plants production. 3. Limited loan.”
- “Agricultural extension service can act as a bridge for flow of information to the farmers from research stations (promoting suitable agricultural technologies suitable for them) and vice versa. Farmers' access to market information as well as awareness about other services available for them can be made easier with the help of extension service.”
- “Agriculture should be the policy issue of GoN. Food security should be supported through science led innovation giving utmost attention to research to generate technology suited to varied agro-ecological domains of hill agriculture systems in particular and across the country in general. Technology generated by research systems should be effectively disseminated by all service providers including public, private concept which is not happening in Nepal. Present Research and Extension model of agriculture system should be overhauled thoroughly to serve for farmers and sustain food security in Nepal.”
- “As you know the government has provided priority on the access to training and education including incentives to the subsistence farmers (farmers- cannot produce food for more than three months in a year) for more than 3-4 decades, and we make them dependent on Agriculture. We never think for the farmers, who can give surplus production for distribution and can produce food as per the government requirement. The other need is to reduce cost of production and we do not have any incentives from the Government for farm mechanization.”
- “Awareness creation about food and nutrition through the extension services.”

- “Awareness, technical support on production and post-harvest activities, and market link.”
- “Community level livelihood improvement programs for resource poor farmers may be through cooperatives could be helpful in increasing income and eventually improving access to food. In Nepal, food security or self-sufficiency is very narrowly defined in terms to availability or consumption in Calorie which needs to be understood and interpreted for nutrition security mainly protein, vitamin and mineral deficiencies which is very rampant in some parts of the country. In section five, there is a question of unified extension approach under MOAC which outdated, tested and failure strategy and is not relevant as this is the era of swift and specialized services.”
- “Country should be divided into agricultural zoning and give maximum priority to certain crops in certain location and develop processing/marketing facilities in those locations.”
- “Focus more on landless and poor households on their livelihoods through food for work, farm labor and leased farming. Train them in food processing, farming, livestock farming and marketing.”
- “Form group and provide training on offseason vegetable farming, small ruminant raising like goat. Provide microcredit on group basis. Support the marketing of their product.”
- “Formation of farmers groups. Working with the group members. Credit Facilities. Supply of inputs in time. Access to markets. Training to the farmers.”
- “High Value crops and Livestock and poultry. Off farm activities. Small agribusinesses. Small ruminant.”
- “I find that the questions listed above have already captured the response to this question. I was unable to address question number 12 properly as some boxes refused to take responses at the level already ticked above. E.g. ticking strongly agree twice is not accepted.”
- “Need to improve on framing technologies (tillage, intercultural operations); ii. Introduce appropriate processing schemes of local agro-products; iii. Market-led production schemes; iv. Identification of pocket areas for different agriculture products and provision of necessary supports; v. Provision of agriculture infrastructures (e.g. roads, irrigation schemes, etc.)”
- “Increase access to land through lease or contract, community farming.”
- “Initiative for change of mind set up of extension professionals. Close linkage of Extension with Education and Research Organizations Strong Supervision, Reward and Punishment, Provision of mobility, Periodic Training for knowledge update.”
- “Intensive technical backup to farmers. Value chain approach Marketing both input and output to be strengthen. PPP Approach should be followed. Mechanical farming.”
- “Representation of poor and landless in community and developmental program. Educating and training landless and poor. Providing seed money to start community based organization. Providing barren public land in lease so that they can grow foods as well as grow forest plants. Enabling them to grow something like some crops, start some enterprises on their own with little help from outside. Involve them in promoting local skill, knowledge and technologies that have been time tested and found to be working local contexts.”
- “Single-door policy to support activities or programs.”
- “Special separate extension service to poor and landless households.”

- “Strengthen skills traditional. Facilitate credit for startup shops/workshops. Link with the service users.”
- “Support with off farm income generating activities Micro-enterprises development. Post-production service Agro-tourism. Marketing services.”
- “The extension service as such does not provide food. It helps farmer acquire skill to use modern proven technologies to increase safe food production, preserve whatever is produced.”
- “This can only be achieved by developing a highly professional extension system (free from political intervention and also from proliferations along the political believes) that is accountable, responsive to the clients, honest and dedicated to its mission. Providing full support for all the necessary inputs and resources but at the same time putting very strong monitoring and evaluation and reward and punishment system place, necessary corrections can be initiated and further damage in the system could be stopped!!”

ANNEX H: INFORMATION RELEVANT TO EXTENSION SERVICE IN PROPOSED FTF PROJECT DISTRICTS

Table 11. Staffing for Agriculture and Livestock Development Departments at FTF Districts

Name of District	Department of Agriculture				Department of Livestock Services			
	Gazetted Class II or higher	Gazetted Class III	JT	JTA	Gazetted Class II or higher	Gazetted Class III	JT	JTA
Baitadi	1	4	10	14		2	7	11
Dadeldhura	1	4	8	12	1	1	5	11
Kanchanpur	1	5	8	10	1	1	6	11
Kailali	1	6	10	13	1	1	16	7
Doti	1	4	10	14		2	7	10
Achham	1	4	10	14		2	6	12
Bardia	1	6	8	10		2	9	9
Surkhet	1	4	10	14		2	9	8
Dailekh	1	4	8	12		2	8	12
Jajarkot	1	4	8	12		2	4	5
Banke	1	5	8	10	1	2	10	10
Salyan	1	4	10	14		2	5	8
Rukum	1	4	8	12		2	5	13
Rolpa	1	4	10	14		2	5	12
Dang	1	6	9	12	1	1	10	13
Pyuthan	1	4	10	14		2	10	5
Kapilbastu	1	6	10	14		2	10	9
Palpa	1	4	11	14	1	1	9	13
Gulmi	1	4	11	14		2	12	8
Arghakhanchi	1	4	10	14		2	9	10
Extension staff	21	92	189	266	6	35	162	197
Total				568				400

Source: Department of agriculture and Department of Livestock Services

Table 12. Roads and Communication Infrastructures within FTF Project Districts

Name of District	All Weather Road to District Headquarter	Gravel road up to Ilaka or Sub-Centers	Communication Access				Other	
			Telephone	Mobile/ Cell	E-mail	Internet	Radio	Tele-vision
Baitadi	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Dadeldhura	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kanchanpur	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kailali	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Doti	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Achham	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Bardia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Surkhet	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Dailekh	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Jajarkot	No	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Banke	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Salyan	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Rukum	No	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Rolpa	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Dang	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pyuthan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kapilbastu	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Palpa	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Gulmi	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Arghakhanchi	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes

Source: Interview with Lila Ram Paudel, Deputy Director General, Department of Agriculture

Table 13. Major Livestock Extension Activities in proposed FtF Districts (number of farmers receiving service in 2010/11)

Name of District	Artificial Insemination			Breeding Bull Distribution		
	Cow	Buffalo	Total	Cow	Buffalo	Total
Baitadi						
Dadeldhura	-	-	-	1		1
Kanchanpur	1,575	-	1,575	-	-	-
Kailali	1,349	493	1,842	-	-	-
Doti	14	9	25	-	9	9
Achham	0	0	0	0	11	11
Bardia	1,936	0	1,936	1	4	5
Surkhet	531	114	645	1		1
Dailekh	0	0	0	0	0	0
Jajarkot	0	0	0	0	0	0
Banke	975	325	1,300	0	0	0
Salyan	198	6	204	2	3	5
Rukum	0	0	0	0	4	4
Rolpa	50	50	100	0	4	4
Dang	360	90	450	5	0	5
Pyuthan	56	99	155	0	12	12
Kapilbastu	723	304	1,027	0	0	0
Palpa	592	364	956	0	0	0
Gulmi	208	100	308	6	13	19
Arghakhanchi	254	0	254	3	11	14

Source: Office records at Directorate of Livestock Production, Department of Livestock Services

Table 14. Estimated Number of Livestock Population in the FtF Districts

Name of District	Cow		Buffalo		Swine	Sheep	Goat	Poultry
	Milking	Total	Milking	Total	Total	Total	Total	Total
Baitadi	15,375	98,200	21,609	58,058	590	345	95,590	92,596
Dadeldhura	10,900	68,900	14,816	42,169	1,406	411	119,035	36,650
Kanchanpur	22,057	165,728	27,774	102,720	19,439	8,618	104,905	258,514
Kailali	24,601	174,600	26,380	138,502	29,630	17,200	130,317	348,500
Doti	13,981	121,977	13,553	47,617	2,084	592	113,580	84,672
Achham	12,390	102,625	17,181	60,096	872	2,935	88,451	100,481
Bardia	14,958	117,902	27,422	112,328	57,496	14,569	170,833	210,000
Surkhet	19,450	225,428	12,316	56,436	29,279	10,494	211,516	292,050
Dailekh	13,214	125,136	13,900	72,200	10,729	15,059	126,500	187,850
Jajarkot	8,036	72,655	7,750	35,900	1,900	21,400	88,490	70,649
Banke	12,034	120,370	18,540	120,168	17,050	10,290	117,048	374,600
Salyan	12,997	147,736	12,377	73,960	18,860	15,975	138,260	612,964
Rukum	6,928	47,193	9,989	51,876	20,043	37,510	104,077	166,732
Rolpa	11,377	101,542	10,939	45,562	18,316	17,082	109,444	124,254
Dang	14,819	125,313	20,226	95,413	30,700	24,800	138,319	575,000
Pyuthan	10,413	67,233	11,907	71,962	4,396	12,590	103,145	118,483
Kapilbastu	13,770	127,324	21,144	104,550	9,577	9,713	164,870	290,205
Palpa	9,624	73,757	24,634	87,196	15,835	3,042	140,750	286,814
Gulmi	8,691	50,467	15,070	43,602	6,515	6,317	86,632	271,427
Arghakhanchi	6,574	44,723	30,450	93,070	1,006	872	86,700	944,276

Source: Statistical Information of MOAC, 2010