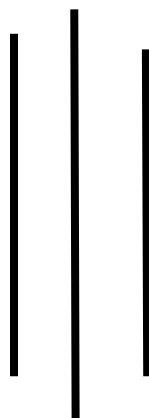


Final report on:

Operation of Community Agriculture Extension Service Center and its Management



Submitted To:

Department of Agriculture
Ministry of Agriculture, Land Management and Cooperatives
Hariharbhawan, Lalitpur, Nepal

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Abbreviations

ADS	Agriculture Development Strategy
AESSC	Agriculture Extension Service Sub-Committee
AFSP	Agriculture and Food Security Project
AGDP	Agriculture Gross Domestic Product
ALSC	Agriculture and Livestock Service Centers
ASC	Agriculture Service Center
CAESC	Community Agriculture Service Center
CBRAE	Community based Rural Agricultural Extension
DADO	District Agriculture Development Office
DESTEP	Decentralized Science, Technology and Education Flagship Program
DLS	Department of Livestock Service
DLSO	District Livestock Service Office
DoA	Department of Agriculture
DoAE	Directorate of Agricultural Extension
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FORWARD	Forum for Rural Welfare and Agricultural Reform for Development
GDP	Gross Domestic Product
GoN	Government of Nepal
HVAP	High Value Agriculture Project
ICT	Information and Communication Technology
IFAD	International Fund for Agriculture Development
IWRMP	Irrigation and Water Resources Management Project
KII	Key Informant Interview
KUBK	Kisankalagi Unnat Biubijan Karyakram
LAO	Local Agriculture Office
LSC	Livestock Service Center
MAPs	Medicinal and Aromatic Plant
MoAD	Ministry of Agricultural Development
MoALMC	Ministry of Agriculture, Land Management and Cooperatives
MoU	Memorandum of understanding
NARC	Nepal Agricultural Research Council

NTFPS	Non-timber Forest Products
PACT	Project for Agriculture Commercialization and Trade
PMAMP	Prime Minister Agriculture Modernization Project
RARS	Regional Agriculture Research Station
RISMFP	Raising Income of Small and Medium Farmers Project
RM	Rural Municipality
RWEE	Rural Women Economic Empowerment
SMS	Subject Matter Specialist
ToR	Terms of Reference
VDC	Village Development Committee
WFP	World Food Programme

Executive Summary

The majority of the Nepali people are directly involved in agricultural activities and is the source of livelihood, income and employment opportunities. Agriculture sector contributes about one-third to national GDP and has been kept in priority in periodic plans and programs, however the annual budget allocation has never exceeded 5%. Government of Nepal has launched Agriculture Development Strategy, a 20 year strategic plan to direct and guide the overall agricultural development of Nepal. The existing limited number of agriculture service centers is not able to reach and disseminate extension services to the majority of the farmers due to limited means, resources and human capacity which ultimately leads to slow agricultural development in Nepal. The ADS has targeted high agricultural growth rate and has imagined to establish separate body called as Community Agriculture Extension Service Centers in all the VDCs to accelerate agricultural development and for effective extension service system. The ADS was promulgated before the commencement of new constitution and now restructured to federal republican country with total of 753 local level units comprising 460 rural municipalities, 276 municipalities, 11 sub-metropolitan cities and 6 metropolitan cities. This appeals the need of study to identify the better way/techniques of operation and management of CAESC in local level units. The desk review was done to insight the knowledge about effective operation and management of CAESC. The field level survey on 3 districts was conducted to observe the feasibility, need and importance of CAESC at local level identifying the strength and weaknesses.

There were different approaches of extension system adopted in Nepal, however the group approach system has been found effective as compared to other approaches. The GoN has been providing extension services through various agriculture service centers and livestock service centers. The new constitution, federal republican country has ensured right to food and access to land for agri-activities for every citizen. The current restructure of Nepal has 3 tiers: central level mainly responsible for policies development, bilateral and multilateral agreement and negotiations; state level mainly responsible for development of state level policies and plans and direct for implementation; whereas local level is responsible for policy development for local level agriculture extension, implementation of programs and human resource management at local level.

In the new structure, the government's priority should be on effective management of local governance system. For effective governance and development, the existing four ministries are merged into one as 'Ministry of Agriculture, Land Management and Cooperatives. The

Decentralized Science, Technology and Education Flagship program of ADS has vision of establishment of CAESC in each VDCs. The CAESC established on Sindhuli and Rautahat districts has not been implemented effectively as thought by ADS. The infrastructures are used by RM/Municipality for their office purpose. The CAESC should be formed by local communities governed by a board representing from local level and fully managed by board and recruit manpowers for its efficient and effective implementation. The dissolution of DADOs by the fiscal year 2074/75, the majority of the farmers are worried on how to receive extension service and they focused to establish some extension units at local level for efficient and effective extension system. CAESC has its wider extension services related to agriculture and livestock for technical backstopping to farmers and agriculture staffs at local bodies. CAESC should be established with full responsibility of local government and fully managed by local community. The CAESC would generate some capitals from the sales of agri-inputs, membership fee, grant received and budget allocation by local bodies to cover operational cost.

1. Introduction

1.1 Background

Nepal is an agrarian country where majority of the people i.e. about 65.6 percent is directly involved in agriculture for livelihood, employment and income generation. The share of agriculture and forestry sector to national Gross Domestic Product (GDP) is about 28.89 percent¹. Nepal government aims to make public services accessible through the most convenient and easy way with less inputs and time in a qualitative manner to the majority of the farmers and entrepreneurs residing in rural and remote areas from the nearest possible service centers. Extension service is very much important to disseminate technology among the farmers. Various extension methods and approaches have been used in Nepal since the introduction of Gram Viskah Karyakram and establishment of Department of Agriculture (DoA).

In this context, Ministry of Agriculture, Land Management and Cooperatives (MoALMC) has been delivering agricultural extension services to provide improved technologies and services for the increase in production and yield of agricultural commodities through its District Agriculture Development Offices (DADOs) located in all 75 districts. The government has established service and sub-service centers to provide extension services to a large number of farm households at local level. Till now (until the dissolution of DADO and completely hand over of ASC/LSC/LSSC to respective local bodies), there are 378 Agriculture Service Centers under DoA and 999 Livestock Service and Sub-service Centers under Department of Livestock Services (DLS). However, a large number of farmers could not access extension service through such arrangement.

According to the Nepal's new constitution-2072, Nepal has been restructured to federal republic country. The creation of 753 local level units in line with federal structure marks a major restructuring of local bodies. As per the new arrangement, Nepal has 460 rural municipalities and 276 municipalities, 11 sub-metropolitan cities and 6 metropolitan cities. These local levels are divided into altogether 6,680 wards. The rural municipalities have 5 to 21 ward units while the municipalities including the sub-metropolises and the metropolities, have 9 to 35 ward units. In this new government structure, the DADO is going to be dissolved after the end of fiscal year 2074/75 which appeals the need of good and smooth

¹ AICC (2018). Krishi Diary. Agriculture Information and Communication Center. Government of Nepal, Ministry of Agriculture, Land Management and Cooperatives, Agriculture Information and Communication Center, Hariharbhawan, Lalitpur.

center in each local bodies (*palikas*) to provide extension services to the large number of people. The government's major priority should now be effective management of local governance system. For this, the big efforts are concentrated to restructure and reform different organizational structure of local, provincial and central level.

In view of the difficult physiographic terrain and limited number of frontline extension workers, the existing number of service and sub-service centers has been felt inadequate. More importantly, the issues and challenges due to climate change, decreasing number of agriculture labour force and increasing feminization of agriculture due to out-migration of rural youths, fast globalization due to dramatic development in information communication technology, and increasing change in tastes and preferences demand the easy access to extension services. For all such backdrop, Nepal's long term Agriculture Development Strategy (ADS) has envisaged establishment of Community Agriculture Extension Service Centers in each VDCs to increase the farmers access to agriculture extension services in Nepal. It was easy and possible to establish such CAESCs in all VDCs through existing DADOs in all 77 districts (now 77 in new federal structure) but in the new government structure (federal republic country) there is no provision of DADO. In this new context, there is need of study to identify the best way for the establishment of CAESC and to identify the way for its sustainable development. Based on these scenarios, establishment of CAESCs in each local level bodies (*palikas*) might be the better alternative. CAESC is formed by joint funding of Nepal government, private sectors, cooperatives and *palikas* and run under ownership and management of local communities. It is aimed to be governed by a board including representatives of local communities, cooperatives, farmer organizations and agro-enterprises.

1.2 Objectives of the study

The overall objective of this study was to identify the best way/techniques for the establishment of CAESC and to identify the way for its sustainable development. The specific objective of this study was:

- Identify the importance and functions of CAESC
- Identify the appropriate structure of CAESC
- Suggest and develop operational modality of CAESC

1.3 Scope and limitation of the study

The field level data were collected from only three districts due to time and budget constraints. Few FGDs and KII were done to collect data which might not represent the view of whole population. The desk review involves mainly the documents from governmental organizations. The study covers the limited area and population which might not be useful to generalize the wide area and large population. The interviewer bias was minimized as far as possible during field level data collection.

In this study, the best techniques for the establishment of community agriculture extension service centers (CAESCs) and its operation modality were identified. CAESC will be major key component for agriculture extension system in newly formed federal system. CAESC will be ground level institution to deliver research outputs to farmers and collect indigenous technologies and practices which acts as a bridge for the overall agricultural development of the country. This study will help in the implementation of CAESC and its functions.

2. Approach and methodology

The study comprised of desk review and field level study to gather the required information in order to identify the best way or techniques for the establishment of CAESC and its management. Both the primary and secondary information were collected for this study. Tools such as Focus Group Discussion (FGDs), Key Informant Interview (KII) were used to collect the necessary information.

The following desk review and field level study was conducted to collect the necessary data and are discussed below:

2.1 Desk review

The final report of agriculture development strategy 2015-2035, existing service delivery modality, structural and functional processes, programs, facts and figures, government policy and regulatory framework, private sector involvement in the development of agriculture sector and the other relevant documents published by MoAD and GoN was reviewed and analyzed to figure out and conceptualize the study. The provision of extension services delivered by governmental services was reviewed to make concept clear. Based on these information, the necessary institutional arrangement and regulation methods, design of physical and institutional structure was prepared.

2.2 Field study

In the newly government structure of federal democratic republic of Nepal, it is divided into seven Provinces. Altogether there are 753 local units which comprises 6 metropolitans, 11 sub-metropolitans, 276 municipalities and 460 rural municipalities. The MoALMC has established CAESC as a pilot study in Rautahat, Sarlahi and Sindhuli districts in cooperation with UN Women, FAO, IFAD, WFP and FORWARD. The Sindhuli district was purposively selected to observe the situation of piloting CAESC and its management mechanism. The real strength and weaknesses as well as guidelines for the establishment of CAESCs were identified through discussion in this district. The details about field study are described below in sub-headings.

2.3 Selection of site

Nepal is divided into three different agro-ecological belts namely Terai, Hill and High hill based on the land topography. In order to represent the whole areas, the three districts (each

from three different agro-ecological belts) was selected purposively and as per convenience to conduct field study. The three districts Rupandehi from Terai; Sindhuli from Hill and Dolakha from High hill was selected for this study to collect the field level information from the related stakeholder for CAESC operations. Similarly, during the time of study, the team had visited Rautahat district to observe the situation of CAESC in the terai region and interaction was made with the responsible concerned personnel to insight knowledge about its mechanism and operational structure.

2.4 Sample size and methods

There are various tools and methods that can be used to obtain primary information. For this study, FGDs and KII interview techniques were used to collect primary information. It believed that the more and reliable information can be collected from the interactions between the participants (Finch & Lewis, 2003)². The total of six FGDs (two in each district) and more than 10 KIIs were conducted to collect the necessary primary information from the study site. FGD was conducted at municipality/rural municipality level with the representatives from wards, section officers, chief executive officer and at farmers' level. Few KIIs with mayor of municipalities, president of rural municipalities, chief of DADO and DLSO and highly experienced personnel were interviewed to gather information regarding the operational and structure modality of CAESC in Terai, Hill and High hill. The FGDs and KIIs were conducted in municipality and rural municipality of each district.

2.5 Checklist preparation

The necessary objective based representative checklist was prepared and administered in the FGDs and KIIs to collect the information. The checklist had focused and mainly discussed on the need and importance of establishment of CAESC, structure and operational modality in three different agro-ecological belts, ownership and management at local level. The desk review mainly focused about the operational modality of farmers field school, establishment of demonstration plot, agriculture camps, agriculture library service, audio-visual service, e-learning, farmers identity card, farmers' pension, voucher system, mechanization tools, agriculture and livestock insurance, operation of agriculture inputs center. During FGDs and

²Finch, H., & Lewis, J. (2003). Focus groups. *Qualitative research practice: A guide for social science students and researchers*, 170-198.

KIIs, the appropriate structure and operational modality of CAESC in each belt was discussed to identify the appropriate modality.

2.6 Focus group discussion

The total of six FGDs was conducted with the group of 6 to 10 persons which includes the representative personnel from technicians of DADO, DLSO, ASCs, LSC, farmer groups, cooperatives, and so on. The FGD checklist was used to facilitate the discussion and the notes were maintained in diary.

2.7 Key informant interview

Key Informant Interview was done with the chairperson of mayor, president of rural municipality, chief of DADO and DLSO at field level and few KIIs with the first class officer at MoALMC, ADS unit at MoALMC and DoA at central level. A semi-structured questionnaire was prepared as per the task mentioned in the ToR for study and was administered to the actual respective respondents.

The FGDs, KIIs and desk review is mainly focused to identify and suggest the appropriate institutional arrangement and regulation methods with better modality of physical and institutional structure.

2.8 Analysis

The collected qualitative information from desk review and field site was analyzed appropriately to derive necessary inferences whatever needed.

2.9 Arrangement of discussion workshop

The workshop was organized at DoA hall, Hariharbhawan with the chairmanship of Director General to obtain the necessary feedbacks, comments and suggestions in the initial draft report prepared after the desk review, FGD and KII interviews to concerned stakeholders. The preliminary result and findings was presented in the presence of subject matter specialists (experts) to obtain critical comments and suggestions. The SMS comprises experts from MoALMC and DoA, flagship manager of ADS, director from different directorates. All the suggestions and comments from the workshop has been addressed and incorporated in this final report as far as possible.

3. Findings from study

3.1 Review of agriculture sector development in Nepal

3.1.1 Current status of agriculture sector

Nepal has diverse climatic zones in its three ecological belts namely mountains, hills and terai. In the north, there are alpines and tundra and sub-tropical in the south. From apples and walnuts to mango and litchi, it can be observed huge diversity in agricultural production too. Paddy is grown in high altitude as well in terai plain showing diversity in the varieties grown. Nepali agricultural system is unique due to complex nature. The elements of the system are intertwined among the multiplicity of enterprises of crops, livestock, poultry, vegetables, fruits, spices, fisheries, agro-forestry and non-timber forest products. To this day, majority of the farmers produce what they consume and consume what they produce. Rice, maize, wheat, finger millet and barley are the major cereals grown. Maize and millet are mostly grown in the non-irrigated uplands and rice-based cropping pattern is popular in the irrigated areas. Oilseeds, pulses, sugarcane and potato are the other important crops. Different fruits and vegetables are cultivated in summer and winter seasons in different physiographic regions. Aquaculture is popular in the southern Terai flat land and river systems originating mostly from the Himalayas harbor indigenous fish species. Agriculture system is moving towards commercial business but yet it is subsistence type. Livestock farming, fish farming and dairy farming has been observed to move little forward from subsistence farming showing gradual development in agriculture. In few areas, crop and vegetable production has been commercialized by private sector. Ministry of Agriculture, Land Management and Cooperatives has been planning national level as well as local level programs for commercialization in agriculture sector. For commercialization, different projects such as PACT, PMAMP, HVAP, AFSP, KUBK, IWRMP, RISMFP, etc. are the national projects under going to attain this goal.

3.1.2 Opportunities, challenges and current needs

Agriculture system being complex in nature, opportunities are amidst challenges. The single element can be challenge and opportunities at the same time. For example, topography is challenge as we do not have access of road corridor in high hills so development of agriculture has been constricted to flat lands. The productions in high hills and mountains are confined in the periphery of those areas only. The cost of transportation multiplies more than double as compared with the cost of production. Whereas, having overlook on opportunity,

we can grow unique crops in various topographic regions providing comparative advantages in production. Almonds and walnuts can be grown only in mountainous regions. Local herbs found in mountains are incredible to any medicines.

Some opportunities can be listed as;

- Diverse range of commodities grown
- Different agro-ecological belts for growing different crops
- Seasonal and off-seasonal vegetable production
- High value crops such as tea, coffee, cardamom
- Floriculture as commercial business
- Production and processing plants
- Chemical fertilizer manufacturing company
- Market linkage and regulations
- Different national level policies such as national agriculture policy-2004, tea and coffee policy, food security policy, etc.

Challenges faced are;

- Increasing population leading to decreasing agricultural land
- Land fragmentation and unmanaged town planning
- Decreasing productivity of major crops
- Use of traditional technologies for production and farm management
- Agricultural demand based research and its proper dissemination
- Systematized and clean marketing policies
- Access to agricultural credit
- Assurance of year round irrigation facility in agricultural land
- Import substitution
- Certification and quarantine

Current needs;

- Increase in production and productivity of agricultural crops
- commercialization in agriculture
- development of market hubs and linkage with farmers
- land management techniques and policies for conserving agriculture land
- promotion and value chain of high value crops
- reduce trade deficit in agricultural products

3.1.3 Government policy and strategies intervention

Being among least developed countries in the world, poverty has always remained one of the crucial development agenda for Nepal. The start of periodic plans and planned development, agriculture sector is also lined up in development plans. The different policies and programs to address land, productivity, forests and other natural resources are launched time to time. Nepal's agriculture sector has received less prioritization and investment over years in annual budget speech. The trend is of great concern for any of the stakeholder of agriculture as this is not only the key to Nepal's economic development, but also indispensable for averting a food crisis. The first four periodic plans mainly focused (prioritized) on infrastructure development and then 5th periodic plan put the agriculture at first priority for the first time and is continued in 6th and 7th plan as well which also focused on rural development through transportation, communication and other infrastructure. Likewise, 8th plan prioritized on poverty alleviation, 9th and 10th plans prioritized on agriculture, poverty alleviation, decentralization, governance and sustainable development. So, time to time, agriculture sector in Nepal has been at the top most priority but the budget allocation on this sector is very minimal which the major issues for the better agricultural development is.

Regarding land reform and management, land reform act, 1964 is major milestone with good land reform programs and policies. However, this act also prompted the unequal distribution of land to elite farmers' i.e. 19ha of land per family. Land fragmentation has always been major hindrance for agriculture development brought up by defective land ownership and inheritance pattern.

In 1997, Agriculture Perspective Plan (APP) was brought with aim of accelerating agricultural growth rate through increased factor productivity. It emphasized investments in (i) shallow tube-well irrigation in the terai; (ii) agricultural roads; (iii) fertilizer; (iv) technology development and delivery. Overall performance of APP was mixed. There was dramatic improvement in rural road infrastructure, community forest and horticulture. Irrigation expanded considerably although didn't achieve the target. Livestock, poultry and dairy sector performed well while cereal could not perform well. The mixed performance was one of the reasons for bringing another long term strategy i.e. ADS by Nepal government.

3.2 Review of agriculture extension system

Since 1950, the country has practiced several extension models and approaches, with support from donors or from the government's own resources. Some of the models or approaches adapted in Nepal are as follows:

3.2.1 Approaches adopted in the past

i. Training and visit system

This system was based on the principle 'single line of command' with continuous Training and visit. Research extension linkage was stronger though material support for adoption was quiet weak.

ii. Integrated rural development approach

This approach was based on the integration and coordinated management of resources for rural development. Technology support was not adequate in this kind of extension approach.

iii. Tuki approach

This approach had the goal of utilizing trained local farmers based on self-motivation principle. These farmers were also working as agriculture input dealer so that the technological message could go along with inputs required.

iv. Farming system research and extension approach

This approach viewed research and extension in the whole farming system perspective so that cropping system research could be done. Farmers would know the interdependencies between components and could relate to physical, biological and socio-economic factors.

v. Block production program

This program was based on the principle that intensive use of resources consolidated together in an area called "*block*" could increase the productivity. This was not effective for scattered area.

3.2.2 Existing approaches at present situation

i. Conventional educational approach

Besides the group members, the key farmers are involved in the process of motivation and education. The farmers themselves in a wider area disseminate the knowledge and skills taught to them. This approach has been effective to facilitate the adoption of new innovation by interested farmer, which eventually radiated demonstration effect to neighboring farmers.

ii. Pocket package approach

Pocket package approach refers to the production strategy on pocket area basis. The feasible pockets for a certain commodity are selected and then a project is developed through bottom up process. This has been positive to introduce the package of technologies as demanded by pockets. It has also helped to develop the crops/commodities on commercial scale.

iii. Projectization approach

Every commodity based production program has been implemented on the basis of project designed within the framework of time duration, budget expenditure and expected output package of activities which are required to achieve the output are identified and included in the project. This approach has been adopted in all the seventy-five districts with a priority in the production pockets.

iv. Farmers group approach

The principle is to put the farmers of same interest together and carry out the activities on group basis. This has been very effective to bring the innovation to the groups, which in turn expand to its command area farmers. The limited manpower and other resources can be well utilized by means of group.

v. Farmers field school approach

This is based on the principle of adult learning. This has been very effective approach in reaching farmers and helping them to have an access to the knowledge and skills required for crop management. This approach is becoming popular because of its democratic and participatory process. An effective example of this is IPM (Integrated Pest Management) classes.

vi. Partnership approach

Government organizations is undertaking partnership approach with other organizations like department of irrigation, NGOs, CBOs, private organizations etc., to effectively deliver the extension services. This strategy has encouraged relevant stakeholders to join hands in development. Challenges of the agriculture extension programs: in spite of the significant efforts made by the extension system, however, there are still several problems and issues that require due attention to be paid for more efficient and effective performance. One of the major challenges for agricultural extension system is how to serve the majority of rural poor and socially disadvantaged groups who had long been neglected by extension and other services. Other issues are inadequate linkage among research and extension, education, farmers and other stakeholders, poor infra-structural development, insufficient number of extension personnel, etc. to cater diversified agricultural services.

3.2.3 Present status of extension system

The extension service system in Nepal has been practiced since from autocratic rule by Rana regime, introduction of new technologies and techniques were solely depended on interest

and wish of ruling class people. Nepal is rich in agro-ecological diversity and investment programs should be prioritized and planned as per the different agro-ecological conditions, not only to the needs and potential of different communities. For example, in the design of appropriate farming system, the conditions of terai, hills and mountainous areas differ markedly and a technological solution is needed to be adapted. Similarly, the approach to value chain development should take consideration the geographical nature of the supply chain, from production areas to consumption or export destinations. In several areas of the hilly and mountainous areas of Nepal, commercialization of agriculture is not viable due to a number of factors including very poor infrastructure, difficult terrain, and agro-climatic conditions.

Till the date, the extension system under the management of the GoN is organized through a network of Agricultural Service Centers (ASC) under the responsibility of DoA and Livestock Service Centers (LSC) under the responsibility of Department of Livestock Services (DLS). Although there are 378 ASC and 999 LSC however the network has not been reached in all the VDCs of the country. The limited number of service centers as compared to high number of VDCs in the country is unable to provide its extension services to large number of farmers of Nepal. The limited number of service centers is aggravated by the limited resources available to carry out program and capacity building activities. Furthermore, even when farmers are reached by the existing extension system, there is no guarantee that the local needs are adequately met by the existing extension system. The agro-ecological and socioeconomic diversity of Nepal is extraordinary and represents a challenge for any specific type of extension service provider to respond effectively to the needs of different types of farmers. Government extension service providers, NGOs providers, and private sector providers are able to meet the needs of only active and lead farmers and agro-enterprises in Nepal.

The ALSCs and LSCs are often lacking in technical and operational funds to provide effective extension services and to implement the programs effectively. The improved capacity of the existing ASCs and LSCs would be the major backstopping to the successful establishment and implementation of CAESCs at the VDC level (now at *palikas* level). The ADS has envisioned for formulation of program of ICT in agricultural extension involving PCs or tablets linked to internet for agro-information centers located in CAESCs and mobile-based applications. National Agricultural Research Institutes (NARI) and Regional Agriculture Research Stations (RARS) under NARC are the existing structure which would

provide technical backstopping to local level structure such as CAESCs, cooperatives, agro-enterprises, and others for the adaptive research as well as customization of the technology as per the need of the community. The ADS suggests strengthening the seed and feed/fodder reserve system to cope with natural disasters such as flood in the terai, heavy snow fall in the high mountain areas through community managed seed banks at VDC level (now should be structured at province and local bodies), in coordination with the CAESCs.

3.2.4 Integration with the agricultural education system

The integration with the agricultural education system would include support to the Agriculture and Forestry University, Tribhuvan University, creation of a department of agribusiness in those universities, capacity building of vocational schools, inclusion of agriculture courses in school curricula and support to the establishment of agricultural colleges in the districts wherever it seems feasible. Additional measures to ensure closer integration with research and extension include joint educational and research programs with NARC institutes, joint extension programs with departments and district officers, joint educational programs with CAESC, identification of innovative ways for the Agriculture and Forestry University and the agricultural colleges to partner with the private sector (example renting/leasing facilities, training to private/community organizations), and coordination with health and medical institute to mainstream food and nutrition security into the agricultural universities, colleges, and vocational schools.

3.2.5 Issues regarding to public sector agricultural extension

Agricultural extension program in Nepal has been dominated by the activities of the two departments under the MoALMC: the Department of Agriculture (DoA) and the Department of Livestock Services (DLS) till the implementation of federal system after the promulgation of new constitution followed by formation of three tiers of government. Not with standing many encouraging evidences with regard to the performance of public sector agricultural extension in the past, Nepali public sector agricultural extension is often criticized for domination of supply driven approaches rather than demand driven; failing to cater the needs of the specialized client; demand for location specific extension services as required by the commercialization of agriculture; high cost-low impact of extension programs; insufficient face-to-face contact between extension worker and farmers; inadequate funds for operational purpose; inadequate personnel and technical qualifications of grassroots extension workers;

dilution of impact by thin coverage, that has not been satisfactory impact to contribute to sustainable agricultural growth. Along with these, some of the major issues in Agriculture extension services in Nepal are as follows:

- Lack of motivation among the rural youths, farmers
- Natural Resource degradation and climate change and sustainability issues
- Inadequate number of the extension workers and their qualification and skills
- Inadequate infrastructure and capacity for use of ICTs among the ground level extension workers
- Lack of monitoring and assessment of impact of extension activities in rural farmers
- Low level of need based extension coverage particularly for small farmers
- Ineffective and weak linkages between stakeholders at different levels
- Low level of education of farmers
- Insufficient budget and investment for extension activities
- Domination of supply driven approaches rather than demand driven
- Inadequate extension services in parts of value addition and market exposure

3.3 Constitutional arrangements in agriculture

3.3.1 Provisions for agriculture development in Nepal

In article 25(4) of constitution of Nepal, has mentioned land reforms, management and regulation in accordance with law for the purposes of enhancement of product and productivity of lands, modernization and commercialization of agriculture, environment protection and planned housing and urban development. This gives insights and legal support to launch programs for modernization and commercialization in agriculture.

The article 36 of constitution have ensured rights relating to food for every citizen. They have right to be safe from the state of being in danger of life from the scarcity of food. All shall have the right to food sovereignty in accordance with law. This creates mandatory for increasing production of agronomic and horticultural crops and its access to each and every citizen.

In article 42(4), it is mentioned that every farmer shall have the right to have access to lands for agro activities, select and protect local seeds and agro species which have been used and pursued traditionally, in accordance with law.

Likewise, there is special provision for agriculture and land management which includes

- scientific land reform policies, ending dual ownership in existing land,
- discouraging inactive land ownership by land pooling, ensuring farmer's rights
- commercialization, mechanization, modernization and diversification in agriculture
- productive land, agriculture inputs, agro-products at fair market price, access to market.

3.3.2 Approaches adopted worldwide to deliver extension services

The method known as community-based rural agricultural extension (CBRAE) method is adopted in limited arena in the world. Basically, the CBRAE is based on the idea of providing specialized and intensive technical training to one or two people in a community who then promote a variety of appropriate technologies including with occasional support and review from a supporting organization. Some periodic refresher courses should be made available to the rural extensionists for their capacity build up. These courses provides a space to discuss on their experiences and contribute to the improvement and refinement of training materials. In the case of CAESC in Nepal, refresher training or on the spot technical feedback could be provided by Krishi Gyan Kendra (Agriculture Knowledge Centre) and technicians from ASC/LSC.

CBRAE is considered as low cost technological facilitation system thus:

- facilitates farmers to experiment with new technologies on a small scale;
- use rapid, recognizable success in these experiments to motivate others to innovate;
- use technologies that rely on inexpensive, locally available resources;
- train villagers as extensionists and support them in teaching other farmers.

The report analysed the foreseeable challenge of paid service by farmers, for technical service, provided by extension worker. The institutionalization of CAESC by Palikas will helpful to make the services compulsorily payable during provisioning subsidized farm input support from government authority.

There is need of external investment for its initial establishment and to effectively implement the CBRAE. The operational cost for its implementation could be managed by internal income from different sources. In case of CAESC, it could generate some income from the operationalization of custom hiring centre, facilitation charge on agricultural training organized by other agencies, rental of training hall, fee for the certification of

agricultural related documents from local agency, investment from local government etc. for its sustainable operation and management.

3.3.3 Status of extension service delivery at community level

Till the date, services related to agriculture and livestock are provided to farmers through ASCs and LSCs, which are run by the central government, however, this network does not cater to the needs of all the farmers, as only 378 ASCs and 999 LSCs have been established throughout the country. The limited number of service centres is exasperated by the limited resources available to carry out programs and capacity building activities. As a result, most of the VDCs (now combined to become rural municipality/municipality) and farmers have been denied access to the national extension system. Furthermore, even in places where farmers have access to the service centres, there is no guarantee that the local needs are adequately met. The agro-ecological and socioeconomic diversity of Nepal is extraordinary and represents a challenge for any specific type of extension service provider to respond effectively to the needs of different types of farmers.

3.3.4 Role and responsibility for agriculture development in federal structure

As per above provisions made in constitution of Nepal, there are many role and responsibilities for government of Nepal. The roles and responsibilities are devolved from Ministry of Agriculture, Land Management and Cooperatives to respective departments and offices.

In current federal system, federation (central level) is responsible for;

- policies development and its implementation
- international trade, exchange, port and quarantine
- international agreements, negotiation between various international organizations, its implementation and monitoring
- assist, facilitate and monitor inter-state trade related policies and laws
- develop physical infrastructure relating to international trade, regulate and coordinate it
- implementation and monitoring of policies, laws and standards of food quality and quarantine
- implementation of pesticides and micronutrient usage and management related acts and regulations

- collection and dissemination of information related internationally banned pesticides

State is mainly responsible for;

- formulation of state level policies, plans and regulations, its implementation and monitoring
- control of agriculture and livestock related diseases, pests and epidemics
- development and promotion of agri-business and industrialization
- state level laboratories, its regulation and management
- quality determination of agro-products
- seed quality determination and genetic improvement
- food security
- agriculture related research, data system, source conservation and co-operative farming system
- price determination of agro-products
- infrastructure development and management (agri-roads, agri-markets, farm centers)

Local body is responsible for;

- policy making for local level agriculture extension
- human resource management and distribution in local level
- capacity building, technical assistance, skill development and empowerment of farmers
- supply and usage of seeds, fertilizers, chemicals and pesticides
- coordination between farmers' group, cooperatives and local bodies
- agriculture related information and communication
- technology adoption and dissemination
- development and management of farm centers
- crop and livestock insurance related planning and implementation
- infrastructure development for agro-market

3.4 Agriculture sector development in federal system

3.4.1 Restructuring of current agriculture institution

The creation of 753 local levels in Nepal marks a major restructuring of local bodies after six decades. This has been done in line with federal structure. As per the new arrangement, Nepal has 481 rural municipalities, 246 municipalities, 13 sub-metropolitan cities and 6 metropolitan cities. These local levels are divided into altogether 6,680 wards. The rural municipalities have 5 to 21 ward units while the municipalities including the sub-metropolises and the metropolises, have 9 to 35 ward units.

The government's priority should now be effective management of local governance system. For this, efforts are concentrated to restructure and reform different state bodies as per the constitution. Part 17 of the constitution has provisions on emerging issue of restructuring agriculture.

Needless to say, one of the objectives of local level restructuring was to provide qualitative services to local people. But this noble objective can only be met when all the concerned ministries work in coordination. Coordination remains a challenging issue in Nepal. The cabinet secretariat has already set up a division to look at the restructuring of government institutions and employees. This division is said to be looking at the coordination issues among all the ministries. Yet neither the concerned line agencies nor the concerned ministries are taking coordination seriously. This holds true to agriculture sector as well.

Ministry of Agricultural Development, Ministry of Livestock Development, Ministry of Land Reform and Management and Ministry of Cooperative and Poverty are merged into one ministry as Ministry of Agriculture, Land Management and Cooperatives for effective implementation of agricultural activities and better development of agricultural development and should work in coordination with related line ministries such as Ministry of Irrigation, Ministry of Finance, Ministry of Home Affairs and so on. These ministries are working separately which has hinder to speed up the pace of agricultural development. This appeals that all the line ministries should work in coordination for the better agricultural development in Nepal. The government needs to pay special attention to agriculture sector because this sector is different from other institutional setups in that it needs functioning institutions and more competent staff at the bottom to deliver services as per the demands of the farmers. A gazetted third class officer is required to lead agriculture work even at the rural municipality level in order to plan and implement all the agricultural activities at grassroots level. Subject

matter specialists are required to provide technical backstopping at cluster level to all the agricultural staffs deployed in rural municipality and municipality.

But Ministry of Federal Affairs and Local Development is proposing gazetted third class officer to lead the municipality team and a non-gazetted first class staff for rural municipality. This does not serve the need of the agricultural sector. Furthermore, only the officer from the administration service is going to lead the team. When junior officer from the administration service is leading the team, the senior officer from other services would feel frustrated. Thus, position creation and leadership will continue to be a thorny issue and will require a robust exercise by a team of experts to settle.

While setting up Local Agriculture Office (LAO) by integrating livestock and other closely related agencies in each local level by dissolving existing district level organizations, it may require several additional office buildings and other facilities. Similarly, there would be need of additional manpower as well. Adequate resources, in terms of knowledge, skills, experience, funding, and facilities are required for agriculture research and development. Each LAO needs one training center equipped with necessary facilities and some piece of land of its own.

There is need of one Community Agricultural Extension Service Center (CAESC) in each ward as proposed by the Agriculture Development Strategy (ADS) and the overall purpose of the centers would be to facilitate extension services at the village level and to meet the demands and needs of technical services at the grassroots.

Thus the government needs to support in establishment of several Community Agricultural Extension Service Centers (CAESCs) and equip them with all the facilities. A new act needs to be devised to make them operational.

3.5 Agriculture development strategy and extension service delivery

3.5.1 Provision of CAESC in ADS

After the completion of Agriculture Perspective Plan (APP) 1995-2015, the twenty year Agriculture Development Strategy (ADS), 2015-2035, has been launched with a vision “A self-reliant, sustainable, competitive and inclusive agriculture sector that drives economic growth and contributes to improved livelihoods and food and nutrition security leading to food sovereignty”. The ADS is a 20-year strategic plan which includes 10-year action plan and roadmap based on the current and past performance of agriculture sector which is the overall strategic guidelines to direct and guide the overall agriculture development of Nepal.

The existing very few numbers of agriculture service centers are not able to reach and disseminate extension services to the majority of the farmers. These service centers are not capable to provide sufficient services to the farmers (even when they go to ASCs themselves) due to limited means, resources and human capacity. Similarly, there is huge diversity in agriculture system and socio-economic status of Nepal. In this situation, to address the need of farmers in effective way, it is very important to adapt different strategies and methods instead of traditional extension methods. To solve these kinds of problems, Agriculture Development Strategy (ADS) has imagined a separate organizational body and committed to help for the appropriate and effective management of such body. The twenty year ADS has targeted to increase the average annual growth of AGDP by 6 percent in 2035 as compared with 2.23 percent in 2015 which helps to reduce the poverty in rural areas to 9 percent and food poverty to 6 percent. The percentage of farmers accessed to agricultural program is only about 18.2 percent and has been targeted to cover at least 32 percent farmers by 2035 in ADS. In order to increase in the access to agricultural programs, ADS has missioned to establish the community agriculture extension service center in each VDCs.

The decentralized extension system includes three main measures: (i) establishment of Community Agricultural Extension Service Centers (CAESC) in each VDC; (ii) strengthening capacity of existing and planned agricultural extension stations that will provide backstopping services to the CAESCs; and (iii) promoting a voucher system to empower farmers to access the best available extension and extension service providers.

The Decentralized Science, Technology and Education Flagship Program (DESTEP) of ADS has focused for the better delivery of agriculture extension services through the establishment of CAESC at VDC level. Although there are a number of actors involved in agricultural extension, their presence becomes even more important over time period, so rather than advocating a massive increase of human resources in the public extension service, the ADS promotes capacity building of government's existing human resources and the transformation of their role from delivery of extension services to overall facilitator of agricultural extension services.

The ADS provides institutional mechanisms to ensure farmers' participation and farmer's right in the planning, decision making, implementation and monitoring of the strategy as it ensures that farmers' representatives are part of the leading coordination mechanisms of the ADS at the center and local level including steering committee of the ADS Implementation Committee as well as in the board of CAESC. Farmers are consulted when formulating

policies for the agriculture sector, undertaking monitoring of the sector as well as they are members of the food security networks at the district level. Farmers would be able to ensure and strengthen their ownership in the ADS through their representatives in all these institutions.

ADS through its Community Agriculture Extension Service Centers (CAESC) and its market for the poor approach to value chain development emphasized to promote different approaches suitable to subsistence and commercial farmers. The ADS has focused to promote a decentralized approach to science and technology and empowers communities to reorient the extension, research and education system to meet their needs, this task would be facilitated by CAESC at community level. The services covering the small commercial farmer would be inappropriate to the subsistence farmer, and in the context of institutions targeted to the small commercial farmer, the subsistence farmers are always backward to receive services except for those few who can respond to the approaches suitable for the small commercial farmer. The landless rural households would be benefitted indirectly from the ADS through the combination of direct food and nutrition security interventions, the employment opportunities expanded in the rural non-farm sector, and the growth of agriculture-based enterprises. ADS has emphasized that the presence of CAESCs would ensure the account of agro-ecological and local level conditions for the better development of agricultural extension system. The development and dissemination of productivity enhancing technologies and systems appropriate to subsistence agriculture would be the major areas for the research and extension system.

The flagship program manager of Decentralized Science, Technology, and Education Program (DESTEP) has missioned to organize the various activities necessary to develop better agriculture extension system to meet the objectives and vision including the following contributions:

- a. Formulate general guidelines for the establishment of the CAESC
- b. Conduct awareness campaign about the initiative
- c. Carry out capacity building in supporting the establishment of the CAESC
- d. Provide seed money for the establishment of the CAESC; the seed money will be provided only under the condition that it leverages larger investment by the VDC and the community/cooperatives/private sector for the establishment of the CAESC
- e. Organize training of extension workers recruited by the CAESC

f. Provide technical backstopping of the CAESC through the network of government Agriculture and Livestock Service Centers and sub-centers (A/LSC), district offices, and regional and national training centers.

g. Carry out or commission external monitoring and evaluation of the CAESC

3.5.2 Organizational structure of CAESC proposed in ADS

The ADS has envisioned that formation of CAESCs by local communities governed by a board including representatives of local communities, cooperatives, farmer organizations, and agro-enterprises. The members of the board represent financial or in-kind contributions of different stakeholders. Initial funding of the CAESC would be supported by the existing policy of VDC level budget planning (separating 15% budget on agriculture sector), seed funding from the central government, and contributions of the different groups of stakeholders represented in the board. Each CAESCs would be fully managed by its board and recruit its own extension workers and technicians. The management of the financial and human resources of the CAESCs is totally dependent on the board of the CAESC.

The recurrent and program costs of the CAESCs would be generated by the community centers themselves. The local bodies (*palikas*) would be responsible and allocate some budget for the proper functioning and implementation of CAESCs at local level. The funding of the CAESC is also generated from other sources (farmer organizations, private sector, projects, etc.) depending on the capacity of the management of the CAESC to raise funds. The priority of agricultural extension activities is fully decided by the board meeting of CAESCs. Priorities in extension work are linked to support local programs and local programs would be in coordination with national programs under ADS. The CAESC would be in the best position to target farmers at their community and establish priorities consistent with their governance bodies. The CAESCs would be linked to the government network of A/LSC through exchange of information, training and technical backstopping. The CAESCs are fully owned and managed by the communities in each VDC/Municipality and funded by the combination of resources from the VDC/Municipality, cooperatives, private sector, and GON.

The funding of the CAESC come from different sources: (i) own funding of members; (ii) VDC budget; (iii) central government budget (as seed funding); (iv) projects; (v) service fees or other economic activities initiated by the centers themselves.

The centers might initially use the premises of local cooperatives, of VDC facilities, or any other available facility belonging to the members in order to conduct meetings. As the center grow both in membership and finance, they might acquire their own facilities.

The contribution of the ADS to the CAESC consists of an initial seed funding that is intended to leverage local resources. For each amount provided by the ADS as seed funding (up to a limit of NRs. 10 lakh) for the establishment of the CAESC, the center has to match with an equal amount and give a convincing plan that it will continue its operations in the future. This matched amount could be sourced by own sources, VDC funding or any other funding that the community center might be able to source.

The CAESC would be entirely managed by the community according to governance rules that are clearly established at the outset. The center would hire its own staff to provide extension services. The staff would be trained by the government staff either at the nearest ASC/LSC or at training centers of the DoA/DLS. The CAESC would be linked to the ASC/LSC so that activities in each district could be better coordinated. The outcome of implementation of CAESC would be a network of extension service centers that could be reached to all VDCs of the country and totally managed by the communities and therefore more likely to be responsive to the diverse needs of the farming population and be responsible for raising funds and therefore more sustainable. Each CAESC would registered at society level according to the law and memberships is opened to all farmers, agro-enterprises, and agricultural extension service providers in the VDC and their organizations; governance rules for the formation of a CAESC would be established by the DESTEP program manager to assure that representatives of different wards in each VDC and social and gender balance is assured in the board of the CAESC.

CAESC at society level would own and manage its own assets, hires its own staff, conduct, formulate business plan, open a bank account, disburse funds and audit accounts and review activities periodically. Governance rules is followed for the composition of the board and board members are elected by the members of the society. Membership fees would be decided by the general assembly of CAESC. The overall purpose of the centers would be to facilitate extension services at the village level and to meet the demands and needs of the grass root. The centers would hire their own extension service providers (agricultural and livestock technicians or village extension workers) who would receive training and technical backstopping from the government service centers in the districts or in the departments' appropriate units. The centers might also organize additional capacity building to obtain from

other providers such as agricultural university, agricultural colleges, or vocational schools. The center might initiate direct MoU or contracts with projects, NGOs, or private service providers as well.

3.6 Findings of field study

3.6.1 Current status of CAESC established in Sindhuli and Rautahat District

The Community Agriculture Extension Service Centre (CAESC) has been established by Rural Women Economic Empowerment (RWEE) project sites in Sindhuli and Rautahat, funded by UN-WOMAN, FAO, MoAD, FORWARD, WFP and other stakeholders as a pilot project of implementation of ADS. The structural design of the building and construction of integrated crop and livestock service center was not completed as per the requirement of CAESC. The proposed CASEC center of both Sindhuli and Rautahat are not providing any services to the farmers. The building for CAESC has been used by office of Municipality, Simara, Rautahat and ward office has been established in the CASEC building of Sindhuli. The community agriculture extension program which was thought to be implemented effectively has not been functional even after the establishment of the building for CASEC center.

After the cut off of the budget and program of DADO and DLSO for the service delivery, the community people are thinking about the use of the building for CAESC to implement the community extension program as provisioned in operation modality of CAESC as guided by ADS, but till now only basic services related to seed distribution are being provided from the municipality and ward office and the programs implemented by these bodies are not well managed as before implemented by DADO and DLSO.

Farmers of the community in the study areas when oriented with CAESC, requests governments help the community for the establishment of CASEC center at the local level that will be highly beneficial to the farmers. The community farmers suggested recruiting or deploying the skilled and trained technical manpower at CAESC in adequate quantity for the fast service and effective service delivery. The community people suggested the government to establish the CASEC center and formation of its executive board with a representative member from the farmers group or agriculture cooperative for effective and fair implementation of the programs in the future. Community people denied the government's plans to keep one agriculture technician at the *palika* level that is not sufficient for the effective implementation of the extension services to the farmers. The community farmers

think that after the establishment of the CASEC center at the local level, various activities of agricultural extension system should be similar to that of the existing DADO and DLSO, so that they will not suffer due to lack of technical delivery and facilitation as when required. The CASEC should address the technical, marketing as well as institutional strengthening aspect of the groups and cooperatives to address the various problems of the farmers. The SMS of DADO at the study area suggested establishing a coordinating office for the linkage of local level CAESC to the district or provincial level organization.

Senior Agriculture Development Officer and SMS of DADO suggested that block and pocket program of Prime Minister Agriculture Modernization Project (PMAMP) should be closely linked with CAESC at the community level for its successful implementation. There has been some changes in the farming culture of the community to shift to commercialization due to a certain program supported by PMAMP, where extensive use of available and affordable machines for agricultural purposes has come into practice and most of the small and subsistence farmers have started commercial agriculture. In Sindhuli district, farmers who used to apply pesticide using broom, now started to use spray tank with safety measures for spraying pesticide after the implementation of PMAMP project. Machineries like tractor, power tiller, weeding machine, spray tank, water boring, etc. are being extensively used after the implementation of the project (Rupandehi, Rutahat and Sindhuli,).

In the study area, farmers requested to manage Farmers Field School (FFS) and demonstration plot to be implemented with the involvement of skilled manpower so that farmers are able to adopt the new technology (Dolakha, Rapandehi, Sindhuli). FFS program is not being conducted frequently in all the area where there is a need of modern technology to boost up the production. In the new federal system, FFS program should be conducted frequently in all the areas where farmers are interested to shift to commercial agricultural practices. The elected representative of the municipality and rural municipality suggested that if central or provincial government wouldn't come up with concrete plan for management of skilled human resources within the end of this fiscal year, the local bodies will themselves start the recruitment process to hire technical expert in for service delivery in agriculture.

In the new federal system of government, farmers are expecting the demonstration plot to be more representative of new technology and regular demonstration should be done so that farmers will be acquainted to new technology which can enhance the overall productivity of agriculture

The farmers in the study area suggested to broadcast agriculture related information could be through audio-visual system (Sindhuli, Dolakha and Rautahat) that will be effective for the flow of information. The agriculture technicians in the rural municipality suggested the model training farm to demonstrate the technology through “seeing is believing” extension approach. Further, these farmers also suggested that poster presentation, road drama and other visual method of information dissemination will be more effective for the farmers to adopt and implement the programs. Establishment of agricultural library at the local level will be beneficial for the farmers. The youth farmers suggested for promotion of agri-library at proposed CAESC for access of agriculture related news at their convenient time and share to other farmers which will be highly beneficial to them.

Most of the farmers of the study area appreciated the government concept of distributing farmer’s identity card and farmer’s pension that will be highly beneficial for the farmers (Sindhuli, Dolakha and Rautahat). They suggested that the program should be only implemented by identification of the true farmers from the local level without any political, social, economic and religious biasness while categorizing and identification of the actual and needy farmers. People who are politically and economically strong are access to subsidies and services without implementation of such type pension program, but they believe that if local government could facilitate the central government, this type of program with proper judgment and consideration without any biasness, it could be beneficial to the farmers.

Majority of the study area, farmers group and agriculture cooperative has not used crop insurance premium subsidy program while farmers have done livestock insurance of government due to poor orientation by the insurance companies, so that local government should develop special desk for promotion of crop insurance program. Agriculture insurance companies who are responsible for the insurance are not ready to do the agriculture (crop) insurance (Rautahat). Insurance process is very difficult for the uneducated farmers and due to non-refundable system of the capital invested for the insurance; farmers find it boring and loss of money (Rupandehi and Sindhuli). Insurance companies are not ready for the agriculture insurance of small area but the area is more than the prescribed area by the insurance board (Rupandehi and Sindhuli)

Farmers in study area suggested for timely supply of agriculture inputs from the local level by forming a groups or cooperatives, where CAESC can facilitate for the quality check and monitoring of the program. Timely supply of inputs in new federal system can be done by collaborating with local agro-vets or with some other registered companies (Rautahat,

Sindhuli and Rupandehi). Provision for timely supply of inputs should be made by the local bodies such that each ward or *palika* should be supplied with required inputs by authorized company or agro-vets. Basically, availability of fertilizers like Urea, DAP and potash during the monsoon season is very difficult (Rupandehi and Rautahat). Farmers expect for the easily and timely supply of these inputs at new federal structure before planting/sowing time.

Most of the farmers and local level technicians at local bodies have serious concern about timely budget allocation in the past days as well as budget allocation based on potentiality of the specific sector due to political biasness which should not be repeated so far in the federal system with full power of local government. Most of the budgets are allocated at the end of the fiscal year which leads to misuse of the resources due to faulty implementation practices. Majority of the farmers interviewed during the study period suggested the government should prioritize in its program and budget to establish CAESC for better community level extension for the agriculture sector development at local level.

3.7 Importance, need and operation modality and management of CASEC

3.7.1 Importance and major functions of CAESC

- CAESC not only trains farmer groups directly in a range of technologies, but community extensionist under CAESC are also trained to provide advice and support services that are accessible to the wider community and would cover beyond the area due to its multiple impacts.
- CAESC conducts training to community representatives to support farmers with advice, services and inputs on an on-going basis. Private extensionists authorized by CAESC are trained on improved and scientific technology about animal health, agriculture practices, and crop protection measures. They provide advice on animal, crop or fisheries management, provides services such as vaccinations or training and sells inputs such as medicines and seeds. Community extensionists can earn an income from charging for their services or making some profit on the inputs they sell, that would be regulated and monitored by the board of CAESC.
- CAESC helps to promote and builds up crucial links between the communities and extensionists and beyond to government extension departments and private input suppliers. Extension services through CAESC would be critical in order to facilitate access to up to date information, skills and technologies that can enable communities to adopt various technologies and tools for improving the agriculture practices.

- CAESC becomes an important channel for accessing improved agricultural production technologies. However, government extension services rarely reach the poorest community members and state run services are increasingly being phased out in favour of private sector providers. As it has been observed that private providers tend not to reach farmers in remote areas and are geared towards advice relating limiting only to the sale of inputs rather than low external input technologies that are more appropriate to resource poor farmers.
- CAESC approach is a successful approach to fill the gap in existing extension services. Community agriculture extension or animal health workers under CAESC, for example, are able to provide community level training, advices on improved agriculture practices as well as animal vaccinations would ultimately support for community level that can reduce the incidence of disease outbreaks as coverage is greatly enhanced due to involvement of local extensionists in campaigns and timely notification of disease outbreaks in the community.
- CAESC supports for facilitation to implement several new approaches and programs that address the issues of land utilization, shortage of agricultural labor force, inclusive value chains, agro-entrepreneurship and competitiveness, non-trade barriers for exporting agricultural goods, development of quality assurance systems, capacity building of service providers at grass roots level, climate change and resilience building.
- CAESC helps to orient local representatives, service providers and farmers to remodel subsistence agriculture into commercial one aiming to enhance trade balance.
- CAESC plays the major role for the mobilization and utilization of subsidy program for agriculture and irrigation so that only doubling of the production within five years is possible.
- CAESC facilitates to achieve the national target indicated in policy and program followed by the annual budget keeping agriculture as an enterprise putting farmers at the center and many incentives proposed from CAESC to help them for producing more at lesser cost and to realize higher prices for their produce.

3.7.2 CAESC as a pillar for agriculture communication

- The plan transfer of farm technology from the research system to the farmers' system through extension system and media with a view to make desirable changes in respect of higher productivity, profitability and prosperity and also get feedback from clients would be possible through effective agriculture communication that should be facilitated by CAESC at the community level.
- The smooth operation of CAESC for the development of agriculture sector in a holistic approach should develop a strong framework of the three sectors viz. Research, Extension and Education at the community level as well, which can be facilitated through novel tools of agriculture communication.
- All these three sectors should then cater to the needs of the farmer, in such a way that production as well as productivity of agricultural goods would increase. Although, there is a good system set up in Nepal with establishment of autonomous agencies in all the three sectors, however the results are far behind what had been expected from them. Agricultural extension service is one of the major under taking of the government to educate, disseminate information and support the livelihoods of the Nepali farmers. CAESC will be one of the possible options for the agriculture extension at community level where community extension workers facilitate farmers about improved technologies so that they can increase agricultural production and productivity, thereby enhancing their living standard as well as the extension service supports the farming communities to empower them for making good decisions for their welfare.

3.7.3 Operation modality of CAESC

The governments aims to shift the agriculture dependent population to non-agriculture sector especially to agro-based industry and service sector would be supported by proper access to information and new technology and ideas to improve agricultural practice in small scale farmers that helps either to uplift themselves to commercial farming or quit from the farming practice to search their scope for having services in agro-based industry as this sector

provides good income as compared to small scale subsistence farming that incur high cost of production.

ADS has proposed establishment of CAESC, which is fully owned and managed by communities of each VDC or municipality and funded by VDC or municipality, cooperatives, the private sector and the government. But with respect to the current restructuring under federal system, the number of CAESC as proposed by ADS may vary as per the number of local bodies and demand of farmers of local government.

3.7.4 Working mechanism of CAESC

CAESC should work for the development of rural technology extensionists, so that these extensionists could work as ambassadors for their local communities by sharing relevant skills, information and services back in their villages. Majority of the farmers at the study area have suggested for CAESC working modality to become a bridge between the government extension service center and farmer entrepreneurs. Extensionists of CAESC should be trained in agro-processing, plant nursery management and horticulture, power tiller operation and maintenance, beekeeping, plant doctor, seed production and marketing, fish nursery management and fish entrepreneurship, buck rearing for breeding, livestock management, community nutrition and poultry vaccination. The government extension services should not overlook the extensionists of CAESC rather they should be regularly updating the community extension workers.

3.7.5 Need of CAESC in agricultural development

The supply side constraints are the major cause for increasing import of agricultural products so that the government should implement production capacity enhancement program to boost agricultural productivity of the country. Similarly, emphasis should be given on value chain development of agriculture products, food and nutrition security, agriculture extension service and agriculture research and technology to make the country self-reliant in agricultural products. The contribution of the agriculture sector in the economy has been gradually coming down, although two-third of the country's workforce is engaged in this sector. The government program targeting to invest huge grant and subsidy to make the country self-reliant in agriculture products by boosting productivity would be successful only through production enhancement program. The production program can only be enhanced through the proper extension of the novel technology at the community level; the CAESC at

the local level would act the proper channel for the mobilization of the extension staffs for disseminating the technology for its timely adoption to get the better result for the production enhancement.

3.7.6 Implementation progress to support CAESC

The government has already recruited 1500 agricultural technicians and 1500 livestock technicians on contract basis and has been deployed to rural municipalities or municipalities of different district to ensure farmers at the local level can avail better services and boost their yields.

The recruitment was done on the basis of government decision through the budget to appoint at least one agricultural or livestock technician in each of the 3,276 village development committees (VDCs) of the country in the budget for FY 2073/74, but after the implementation of the new federal system through the formation of three tiers of government viz, local government, provincial government and central government, the management of these technicians at the local body has become crucial.

Establishment of CAESC become the appropriate approach for the management of these technicians at community level of the local bodies for their deployment as extension workers on CAESC as ADS is formed by local communities governed by the board representative from the local level.

3.8 Operation management of CAESC

3.8.1 CAESC structure

Service delivery to remote areas in convenient way through CAESC due to poor service from ASC or LSC because of lack of human and financial resources needs new strategy for service delivery in place of convenient tools and method through establishment of CAESC with full responsibility of local government and the management from local community. The objectives of establishment of CAESC center at community level is to:

- Develop the capacity of farmers by their unity in terms of financial and technical aspects.
- Implementation of different extension tools and approaches for the adoption of new technology food and nutrition security, commercialization and marketing
- Service delivery to farmers for income generating work by technical backstopping from technicians at community level.

- Implementation of poverty reduction program through massive commercialization at community level
- Facilitation for the supply of agriculture inputs at local level

3.8.2 Working areas of CAESC

Activities related to Crop Husbandry, Livestock Rearing, Fishery, and Non-timber Forest Product, Herbs, Food and Nutrition, Local Agriculture Market, Awareness and Community Empowerment about new technology, Supply of Seed and Breeds, Fertilizer and Pesticide, Agri- Equipment and Machinery, Medicines and technical backstopping for its adoption and extension. Enhancement of Coordination with local farmers, farmers group, agriculture cooperatives, agri-business entrepreneurs and service providers.

3.8.3 Proposed operation committee for CAESC

The total member of operation committee of CAESC depends upon the number of CAESC that can be established within the respective periphery of local bodies. The number varies from 15 to 21 member based on the number of ward inside the local bodies. The tenure of the entire member shall be two years except Chairman, and Member Secretary. There should be female representatives either at vice chairperson or treasurer.

The criteria for the member of the CAESC should be:

- Chairman: The chairman of CAESC shall be the chairman of respective rural municipality or any of the elected member of municipality approved by municipality assembly.
- Vice-Chairperson: Representatives of one of the farmer from the farmers group or cooperatives or agri-business or traders related to crop and husbandry, non-timber forest products and herbs
- Treasurer: Representatives of one of the farmer from the farmers group or cooperatives or agri-business or traders related to crop and husbandry, non-timber forest products and herbs
- Members (...): Representative of elected member from every ward of rural municipality or municipality (At least 50 % female representative)
- Member (...): Representatives of expert or social workers who have been working to crop and livestock husbandry, non-timber forest products and herbs and its entrepreneurship since a long time (at least 50 % female representative)

- Member Secretary: Technical chief of CAESC

3.8.4 Provision on operation guidelines for CAESC

The rural municipality or municipality should develop operating guidelines based on the template provided by Ministry of Agriculture, Land Management and Cooperatives and the guidelines should be approved by the council of local government with the necessary amendments wherever necessary. The guidelines should come in to effect after its approval from respective council of local government and endorsed by office of executives of respective local government. For the first time of member for the formation of operation of CAESC committee would be selected on the mutual understanding between the council members of the local government for one years. After the endorsement of operating guidelines of CAESC, the formation of committees and selection of the committee member except chairman and member secretary as well as exchange of the members after completing of tenure should be based on the provision made on the operating guidelines. The selection of chairman and member secretary should be approved only by the council of the representatives of local government. The operating guidelines should have a provision of formation of council of CAESC. The council of CAESC should consist of members as follows:

- All the executive members of CAESC
- Two representatives one male and female members each from the ward level Agriculture Extension Service Sub-Committee (AESSC; formed at each ward)
- A member from the Agriculture, Forest and Environment committee of rural municipality and municipality
- Three members representing from the interested personnel, social workers or experts with involvement on entrepreneurships on crop and animal husbandry, MAPs, NTFPS and food and nutrition and agriculture market
- Four members from the farmers group under the National Farmers Network and National Farmer's Group Federation registered at respective local government body
- Two member representatives (one male and female) from the Forest User's Group registered at local government body.
- Two member representatives (one male and female) from the cooperative registered at respective local government body.

- Two member representatives (one male and female) from the Forest User's Group registered at local government body.
- Two member representatives (one male and female) from the Farmer's Group Coordination Committee formed in rural municipality and municipality.

3.8.5 Meeting of the CAESC council

The meeting of the council of CAESC should be conducted at least twice a year, one before the planning phase starts and another after the completion of the fiscal year program and as per necessary when Chairman realizes the need of meeting or one-third member of the CAESC cooperation committee has written demand for the council meeting. The date of the meeting of the council will be fixed by the meeting of the CAESC operation committee. The meeting of the council of CAESC will be chaired by chairperson of CAESC operation committee. The CAESC operation committee will inform the ward level Agriculture Extension Service Sub-Committee for the registration of their committee at CAESC two weeks before the council meeting. As well as the CAESC operation committee should inform the registered ward level Agriculture Extension Service Sub-Committee at CAESC, two weeks before the council meeting to nominate one male and one female representatives and send to the council for selection for the council member. The tenure of the two members from ward level AESSC will be of two years unless any new decision will be done by ward level AESSC.

3.8.6 Functions of Council of CAESC

- Revision of norms and rules of CAESC guidelines and its approval
- Revision of operating guidelines, approval and endorsement.
- Approval of annual agricultural development program and approval of report of the last year program.
- Selection of the member for CAESC operation Committee.
- Monitoring evaluation and auditing of activities of CAESC.
- Formulation of rule and regulation for the operation of CAESC, its revision, approval and endorsement.

3.8.7 Selection methods for the executive members of operation committee of CAESC

The selection of the executive members of operation committee of CAESC will be whole-approach (सर्वसम्मत) process. If whole-approach doesn't become success, election committee should be formed with the representation of the executive member of rural municipality and municipality or the election committee on chairmanship of CAESC chairman should also be done. The mode of election should be approved by CAESC.

3.8.8 Conceptual framework for CAESC Structure

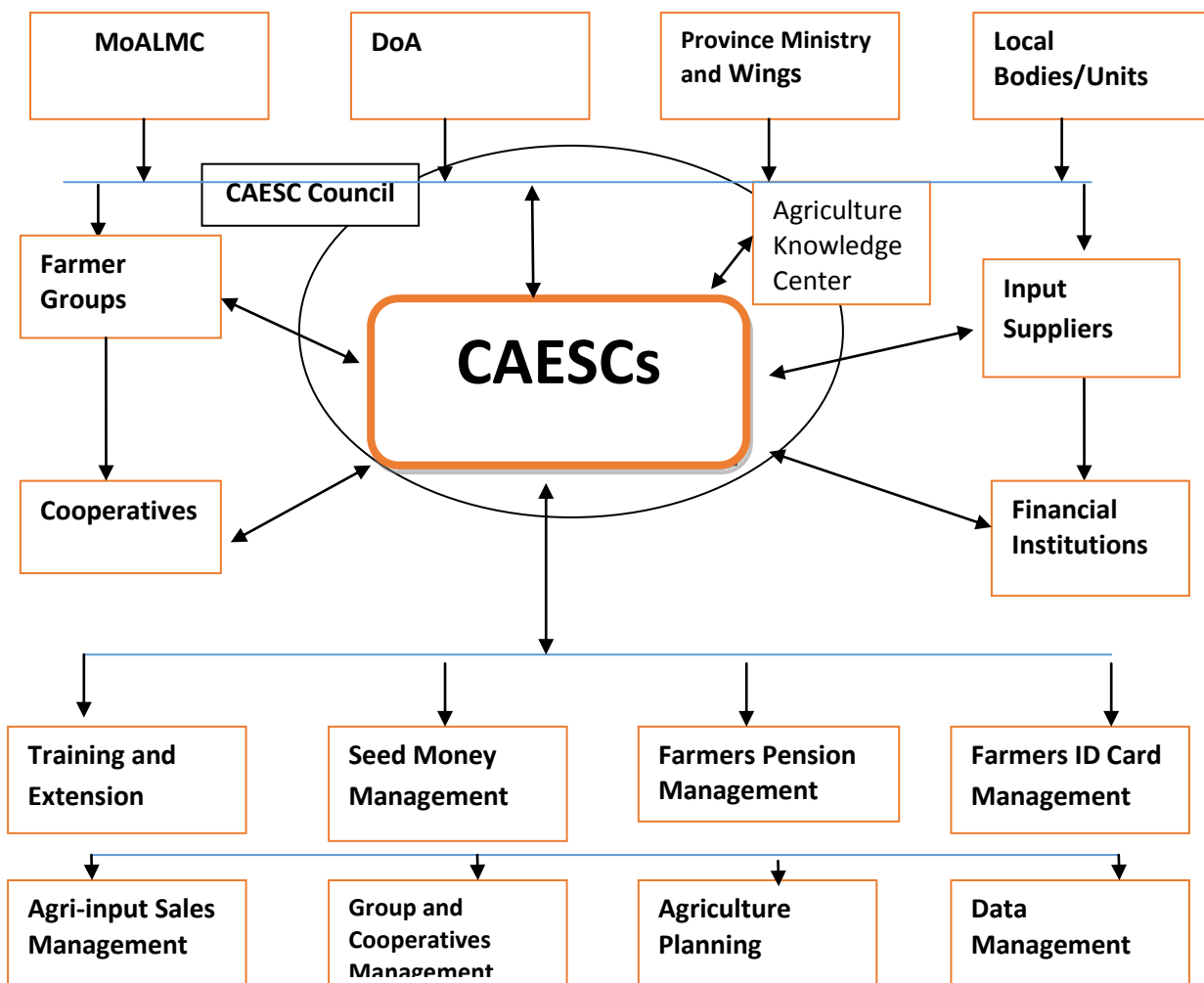


Figure 1. Conceptual framework of the operation of CAESCs and its management

3.8.9 ToR of CAESC

- Arrangement and implementation of all the activities related to crop and animal husbandry, MAPs, NTFPS and food and nutrition and agriculture market inside the local government area.
- Arrangement of bimonthly meeting
- Formulation of pre-preparation and management plan and implementation of the program.
- Strategic and process management for program implementation.
- Identification of the different organization for fund management.
- Coordination and cooperation between different stakeholders.
- Program formulation and implementation especially for small and women farmers
- Formation of new farmer's group at ward level and capacity development program both for new and old groups.
- Sales management to supply quality seed and breeds, fertilizer and pesticide, agri-equipment and machinery, medicines at CAESC
- Information sharing about crop and animal husbandry, MAPs , NTFPS and food and nutrition and agriculture market
- Effective implementation of the decision made by rural municipality or municipality or agriculture resource center for development of agriculture sector.
- Recruitment of employee and consultant as per necessary for the implementation of the program.
- Valuation of every types of resources of CAESC
- Make cost-effective, transparent and based on farmer's need and demand based service delivery.
- Preparation of necessary guidelines and rules to be approved from CAESC council
- Extension of knowledge and technology for awareness on crop and animal husbandry, MAPs, NTFPS and food and nutrition and agriculture market.
- Organizing exposure visit for farmers of community level.
- Coordination between rural municipality, municipality, NGO's and Agriculture Knowledge Center for request to organize training, workshops and seminar on the burning topics related to agriculture and its commercialization.

The CAESC operating guidelines should have provisions about the arrangement of meetings of CAESC operation committee. The meeting for CAESC operation committee should be of two types: complete meeting and simple meeting. Complete meeting should include all the elected member as well as there should be presence of about two-third majority in the meeting. Complete meeting is mainly responsible to make such type of decision which has long term effect. Simple meeting can be arranged to make any urgent and quick decision which might not need the presence of majority of the members. Simple meeting is mainly responsible to address certain emergency and the urgent need. Other provisions for the arrangement of meetings should be followed as per the operating guidelines. The roles and responsibility of each of the executive members of operation committee should be clear at the operating guidelines of CAESC. The CAESC can form the advisory board for the necessary advices and suggestion for the improvement of CAESC activities. The provision for the formation of advisory board should be clear in the operating guidelines.

3.8.10 Possible support from the CAESC

CAESC can support to the community farmers through many intervention activities and support. Some of which the farmers from field level has demanded are categorized as:

- Technological knowledge sharing and capacity development
- Farmer field school services
- Establishment of demonstration plot
- Agriculture camp
- Library services
- Audio-Visual services
- E-learning services
- Farmer's Identity card services, Farmer's pension facilitation services, implication of voucher system, Establishment of custom hiring center at community level
- Interaction program on extension methods through FFS, Farmers Market Field school, Value Chain Development, Sustainable Development Activities, Good Agricultural and Livestock Practices, Gender and Social Inclusion, Food and Nutrition and Establishment of agri-inputs sales center.

The rules and regulation should be developed for providing the support from CAESC and its effective management.

3.8.11 Financial capital development at CAESC

The financial sources for the operation of CAESC should be developed for its smooth operation to get the proper result from the establishment of CAESC. The financial capital can be generated from the following areas:

- Budget allocated by the respective rural municipality or municipality for the agriculture sector and operation of CAESC
- Profit from the sales of Agri-inputs and machinery.
- Membership fees
- Service charge from the clients
- Voluntary grant from the members
- Seed money or grant received from the provincial government or central government for the operation of CAESC

4. Conclusion and Recommendations

4.1 Conclusion

The existing poor and limited extension services to the farmers is the major bottleneck in hindering commercialization of agricultural sector. In the federal republican democratic Nepal, the existing DADOs are going to dissolve by the end of fiscal year 2074/75. At this scenario, there is need of new structure to provide extension services to the majority of the farmers. The ADS, 20 year overall agricultural strategic plan has imagined the establishment of CASEC which at now is important to establish at all local levels. The importance of CAESC has been highlighted by all the stakeholder working at the agricultural sector in the present context of federalization to deliver agricultural extension services for providing improved technologies and services for the increment in production and yield of agricultural commodities, which at now is carried out by district level offices (DADOs and DLSOs) located at all 75 districts. The promulgation of new constitution 2072 as federal republic democratic Nepal led to the establishment of 753 local bodies in Nepal which includes 481 rural municipalities, 246 municipalities, 13 sub-metropolitan cities and 6 metropolitan and the number of CAESC would vary than proposed by ADS. The major role is to facilitate farmer groups directly in a range of technologies to provide advice and support services that are accessible to the wider community for multiplier impacts. It has a role in providing the technical knowledge to the representative of respective community to support farmers with advice, services and inputs on and on-going basis on animal, crop or fisheries management, vaccinations and sales of inputs such as medicines and seeds would become the working areas for CAESC. The whole activities would be monitored by CAESC council as well as facilitate for the improvement in service delivery. As CAESC helps to promote and builds up crucial links between the communities and extensionists and beyond to government extension departments and private input suppliers. Extension services through CAESC will be critical in order to facilitate access to up to date information, skills and technologies that can enable communities to adopt various technologies and tools for improving the agriculture practices. CAESC becomes an important channel for accessing improved agricultural production technologies. However, government extension services rarely reach the poorest community members and state run services are increasingly being phased out in favor of private sector providers. As it has been observed that private providers tend not to reach farmers in remote areas and are geared towards advice relating limiting only to the sale of inputs rather than low external input technologies that are more appropriate to resource poor farmers. CAESC

approaches a successful approach to fill the gap in existing extension services. Community agriculture extension or animal health workers under CAESC, for example, are able to provide community level training, advices on improved agriculture practices as well as animal vaccinations will ultimately support for community level that can reduce the incidence of disease outbreaks as coverage is greatly enhanced due to involvement of local extensionists.

4.2 Recommendations

Regarding the operation and management of CAESC following recommendation can be drawn from the study:

- The existing poor extension services at community level is at the thirst to receive efficient extension services at their local level which prioritized the need of effective program and budget to establish CAESC at local level.
- The study recommends further study to identify the required number of CAESC at all RM/municipality level.
- CAESC should be established very soon at all local bodies in their full ownership and in an approach of public private partnership.
- The study recommends and suggests the local government to identify the actual and active farmers in order to carry out agricultural activities efficiently.
- The establishment of Agriculture Knowledge Center in future should provide technical backstopping to CAESC.

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