Understanding the Land Issues and Agrarian Reform in Post Conflict Nepal

Weak institutional interaction: Reason for poor agricultural extension services delivery in Nepal
Kamal Devkota, Dhanje Thapa and Hari Dhungana

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WEAK INSTITUTIONAL INTERACTION: REASON FOR POOR AGRICULTURAL EXTENSION SERVICES DELIVERY IN NEPAL

Kamal Devkota* Dhanej Thapa** and Hari Dhungana*

ABSTRACT

Institutional pluralism, privatisation and decentralisation of extension services are priority sectors of Nepal’s agricultural extension strategy. With the approach of public private partnership in agriculture, new actors like agro-vet, NGOs, private agro- farm, breeding centres, seed and fertilizer companies have grown considerably in the past decades. This has called a need to outline in detail how institutions communicate and cooperate with each other to forge an effective consolidation for achieving food security, livelihoods and other goals. This paper tries to see current process of agricultural institutional interaction and explore different hurdles in effectively reaching to farmers. With the review of literatures, policy documents and empirical evidences collected from local practitioners and observation of field settings from two districts of Nepal, this paper argues that the existing pattern of institutional interaction for the agricultural intensification is weak. The open political environment and incentive of selling seeds, pesticides and agriculture equipments has resulted into unprecedented rise of agro-vets, equipment vendors and dealers—and with time they are becoming more and more influential, having very close links with the farmers. Agriculture extension system remains poorly coordinated among government organisations and NGOs and also has limited communicative links to groups and associations of farmers.

Key words: agriculture; institution; extension services; interaction; productivity

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BACKGROUND

From the beginning of formal periodic plan, the government of Nepal established an extensive network of government offices for agriculture extension services to reach farmers. Over the past several decades and in recent decades, doors for the participation of autonomous government-funded and donor-funded research institutions including the involvement of private sector in service/inputs delivery in agriculture has opened. Despite of several provisions and approaches adopted after the provision of formal periodic planning process from 1956 to reach farmers, Nepalese agriculture is still struggling to feed its growing population with stagnated growth of agricultural productivity (Pandey et al., 2009). Government is unable to provide basic services like irrigation to more than 53% area of farmland (CBS, 2011), which has increased the challenge to intensify the farm efficiency. Farmers are continuously suffering from extreme shortage of chemical fertilizer during major crop growing season. Quality seed assurance and delivery to farmers is questionable as only 15% of farmers are able to use improved varieties of seeds.

Thus, increasing farm efficiency and enhancing food security continue to become major challenges in Nepalese agriculture. There has, however, been no dearth of effort in setting higher policy goals in Nepal’s agriculture sector. National Agriculture Policy 2005 for example, sets the goal of enhancing agricultural production and productivity. However productivity Nepal’s two major crops—rice and wheat is less in comparison to other South Asian countries (Pandey et al., 2009; IFPRI, 2012).

It is evident that Nepal has experienced structural adjustment, institutional reform and private sector participation in service/input delivery during the last few decades of policy implementation. However, this couldn’t bring desire outcome of agricultural transformation and ensure food security to all. Recently, Nepal has endorsed Agricultural Development Strategy 2015, which envisages a self-reliant, sustainable and competitive agriculture. Having said that, there is ongoing contestation about clear mandate and the role of the government and private sectors. There are continuing concerns on service delivery system, the role of market and institutional process to effectively reach farmers. Also the coordination within and between those institutions is poor (Darbas et al, 2015). There is absence of literatures that specifically dig out the issues of collaboration among the multiple institutions that work for the improvement of agriculture production, productivity and livelihood of farmers.

The catalytic role of institution and farmers’ perception on intensification of agriculture is highly important. To ensure socio-economic and environmentally sound production, sustainable agricultural intensification guided by good institutional system is necessary (Raut et al, 2010). Thus, it is necessary to explore how different agricultural related institution, despite its continuous reform can better reach farmers and enhance agricultural intensification. Currently, most of the researches conducted in agricultural sector are dominated by technological innovation and institutional reform to deliver services to farmers. However,
it is often ignored that how available institution can better deliver services with collaboration and coordination and bring institutional innovation. A study conducted by Khanal and Maharjan (2010) on sustainability of community-based seed production enterprises in Nepal indicated that lack of appropriate mechanisms to access business skills, financial services, quality control, and source seed from service providers, and benefit sharing process among the members/shareholders are the important institutional issues for the sustainability of these enterprises. Similarly, Chhetri et al. reveals that Nepal has developed a multilevel institutional partnership, including collaboration with farmers and other non-governmental organisations in recent years. But his study was more focused on understanding the agriculture adaptation to climate change in Nepal and the analysis are drawn from the climate change adaptation perspective rather the agriculture expansion perspective.

This paper tries to see the current process of agricultural institutional interaction and explore the different hurdles in effectively reaching to farmers. This paper argues that the existing pattern of institutional interaction for the agricultural intensification in Nepal is weak. Through the case of two eastern Tarai district from Nepal, this paper reveals that the weak institutional interaction among the related institutions has contributed to the poor agriculture extension services in Nepal.

This paper is divided into five sections. First section is the brief context which also includes the objective of the paper. Second section explains the method adopted during the study. Section three comprises of the institutional mapping related to agriculture extension in Nepal. Fourth part of the paper is about empirical cases collected from two districts of Nepal. Finally the conclusions are drawn based on the review and empirical evidences in the final section of the paper.

CONCEPTUAL FRAMEWORK

In Nepal, agriculture extension was introduced as a dissemination of knowledge and input developed by scientist to farmers. Earlier institutional setup considered vertical flow of knowledge and inputs from centre to local. Even, looking at definition of extension, it is called rural advisory services, consisting of all different activities that provide information and services needed and demanded by farmers and other actors in rural setting to assist them in developing their own technical, organisation and management skills and practices so as to improve their livelihood (GFRAS, 2010). However, with wide emergence of new actors, shift in polices and influx of multinational companies in agriculture sector, changes in the agriculture institution setup has been profound. In the light of the above, it is necessary to understand how these actors interact to bring positive change in agriculture production and productivity and improving livelihood of farmers.

Going through some literatures on agricultural innovation in extension system and institutional innovation in agriculture, we have figured out that frequent and demand based interaction of agriculture actors with systematic setup and enabling
policy environment can provide better agriculture performance. This can lead to better communication and coordination to sort out challenges faced in scaling agriculture production and productivity. Two way communication of information and sharing of pertinent issues among farmers and related actors has become vital; role of communicator as a disseminator of information has to shift towards facilitator of interaction and broker (Klerkx and Leewis, 2008). Institution as a system and process should perform better way for innovation. Institutional settings play a central role in shaping the processes critical to innovation: interacting, learning, and sharing knowledge. Here, it is necessary to be clear that institutions are different from organisations. Organisations are bodies such as co-operatives, government bodies, NGOs, while institutions are set of common habits, routines practices, rules that regulate relationships and interaction between individuals and group (Edquist, 1997).

In this paper, we identify the structure of agriculture extension system and explore the pattern of interaction among various actors. From the perspective of innovation as a strategy for enhanced production, productivity and improved livelihood of farmers, there must be a process by which new knowledge can be generated, diffused, adapted and used. This process require interaction and flow of new knowledge among actors (Hall, 2004). Further, we analyse the influencing factors to enhance interaction among actors and enabling policy environment.

METHODOLOGY

In this study, we used both literature review and field work for collecting empirical data. While reviewing literature, we consulted both the scientific papers and policy documents related to agriculture service delivery in Nepal. Limited scientific papers that focus on Nepal’s agricultural institutions were found through our web based literature search. This clearly indicates that there are very limited research done in this sector. We combined desk review with interviews and interactions with various meso-level agricultural actors in Dhanusha and Sunsari districts of Nepal.

The field visit provided an opportunity for direct interaction with several district-based actors and observation of field settings. It offered mainly qualitative information presented in the subsequent sections. Our institutional analysis in this paper pertains to the landscape of actors, their capacities and limitations, constraints and opportunities especially regarding scaling out intensification of smallholder farming systems in these eastern Tarai districts. We gave due consideration on activities, mandate, role, strength and weakness of agriculture institutions while reviewing literature. Policy documents were reviewed to assess the policy priorities and actor their roles in agricultural intensification.

We developed a checklist of questions to be posed to our respondents in each of the two districts. For data collection, we started with a category of actors around agriculture intensification at the district level. The actors were first
divided according to their institutional characters and functions—the purpose was to capture the views of the diverse actors. Altogether six categories of actors (see Table 1) were first identified and a plan was made for field visit and interview within each category. The process of data collection started with District Agriculture Development Office (DADO) and District Development Committee (DDC) officials to identify other actors who could be contacted for interview and discussion. Initial meeting with DADO/DDC officials provided an opportunity for snowballing to other actors who were then selected as key informants.

Table 1: Respondents and their organisational affiliation

<table>
<thead>
<tr>
<th>Organisations</th>
<th>Number of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dhanusha</td>
<td>Sunsari</td>
</tr>
<tr>
<td>1. Government Extension Agencies</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2. Government Research Agencies</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3. NGOs</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4. INGOs</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5. Private Enterprises/Suppliers</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6. Farmers Organisations/Community</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Organisations</td>
<td>17</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: Field Visit, 2014

In-depth interviews were taken with government officials of District Agriculture Development Office (DADO), District Development Committee Office (DDC), Nepal Agriculture Research Council (NARC), Irrigation Office and some government-funded projects primarily working in agriculture sectors. This helped us to understand their mandates and willingness including limitations with respect to collaboration with others and mobilisation of their own capacities and resources.

STRUCTURE ON AGRICULTURE EXTENSION

The establishment of institutions dealing with agriculture sector comprises one of the early initiatives taken with Nepal’s modernisation process in the 1950s. Initial efforts concentrated on developing the government institutions, and from 1970s onwards for an evolvement of the extensive network of agriculture offices that primarily played a part in extension of agriculture services and technology and agriculture research. Through the political
change of 1990, and with the adoption of liberal policies that also precipitated into the agriculture sector, the role of state agencies has been redefined with the increasing influence of the non-governmental and private sectors in agriculture. The new demands on the agriculture sector placed by reorientation in overall government policies have also led to reorganisation and restructuring of several government institutions including the level of government investment in agriculture (e.g. in subsidy). For instance, the government-owned Agriculture Inputs Corporation (AIC) was restructured into the Nepal Seed Company Limited (NSCL) and Agriculture Inputs Company Limited (AICL). These two entities now focus on different areas —crop seeds and chemical fertilizers respectively. Still, the government agriculture extension and research system is extensive and has prominent role to play in relation to other actors.

Organisational structure of agriculture extension in Nepal

Recently, Ministry of Agriculture Development has been divided into two different Ministries. Ministry of Livestock Development and Ministry of Agriculture Development. Department of Agriculture (DOA) and Department of Livestock Services (DLS) are the responsible institutions for extension services provision. The organisational structure under DOA and DLS is similar to the departments at the grassroots level in the districts. A representative and simplified structure of agricultural extension system under DOA has been presented in Figure 1. At the district, sub-district and community level, the service centres mobilises junior technicians (JTs) and Junior Technical Assistants (JTAs) for agriculture extension work down to the farm level. While these technical personnel are expected to serve as knowledge bridge between research and actual farming practice, the way they
communicate science to influence farm have changed in recent times.

While the departments under MOAD and MOLD are key players in agriculture extension, another government-funded entity closely linked with technology development and extension is Nepal Agriculture Research Council (NARC). The Council was established in 1992 by a parliamentary act as an autonomous body to coordinate agricultural research in the country. It is primarily responsible for promoting, supporting, coordinating, and evaluating research activities related to agriculture, natural resources and rural development. Its activities also include developing mechanisms to transfer technologies and ensure coordination among research providers and technology delivery agencies in public, NGO and private sectors. Since the private sector participation in agricultural research is almost non-existent, NARC is the single largest public body for agriculture research. NARC’s efforts are, however, aided by more participatory research initiatives undertaken by some NGOs.

The opening of the state to non-state and private sectors has allowed the increased role of NGOs engaged in agriculture research, such as on promotion of technology, participatory variety selection, and so on. The provision of agriculture inputs, such as pesticides, agriculture implements and machineries, fertilizers are increasingly being taken up by private entrepreneurs, small cooperatives and farmer groups. Many irrigation schemes run on the basis of indigenous system or their modification and are managed by user committees. Similarly, farmer cooperatives, saving-credit cooperatives, development banks, Agriculture Development Bank and several commercial banks have their stakes in agriculture, but at varying levels. Of late, there has been concern about the need of insurance on agriculture, but this concept has not fully gained momentum. Overall, the present landscape of actors in the agriculture sector comprises primarily the government institutions working in research and extension, and a host of private, community or community-led and civil society actors that determine the issues related to intensification of agriculture.

In the past, the extension model adopted by the service centres was conventional in nature, which was called autonomous extension approach. This approach assumed that farmers were lacking technical knowledge. Other approaches that were adopted by the DOA and DLS as well as other non-governmental agencies had slight variations in the way of engaging the local farmers and recognising local knowledge. More recent ones suggest that the farmers have considerable role to play both in technology development (such as varietal selection, animal breeding) as well as in the extension of technologies and services. Farmer to farmer exchanges (e.g, field schools) are regular part of this change in agriculture extension. Such reorientation in government policies, which is in part shaped through the actions of donors has enabled new actors to play their role in Nepal’s agriculture.

According to Local Self Governance Act of 1999, agriculture extension comprises a ‘devolved sector’, meaning that local
governments are responsible to have oversight over the plans and activities of agricultural offices in the district and sub-district levels. There is a lack of elected representatives at local bodies at present, but under the idea of devolution, agriculture extension service is expected to be more accountable to local actors and more responsive to local needs in the future. It is where the opportunities exist for diverse local actors to play their part and demand accountability and responsiveness from agriculture authorities.

Therefore it is clear that with adoption of liberal policies, private sectors have entered in agricultural field. With involvement of private sectors in agriculture and government’s approach of public private partnership, different new actors have emerged. Agro-vet, NGOs, private agro- farm, breeding centres, seed companies, fertilizer companies have grown considerably in the past decades in Nepal. Role of government is slowly getting more orientated toward monitoring and regulating activities of private firms and NGO activities.

**CURRENT PATTERNS OF INTERACTION AMONG VARIOUS AGENCIES**

There has now been the entry of new actors, which increasingly play important role in agriculture extension. The private agro-vets, cooperatives, seed companies and district level farmers’ organisation are providing extension services to farmers. Private Agro-vets are powerful extension service provider in present context and their services also provide them incentives for the same. They provide both agri-input and technical services to farmers. They are the quickest and shortest chain of technology transfer to the farmers. After the gradual increment of number of actors in agricultural service providing at local level, it was obvious to assume that agriculture services have reached to large section of farmers. This has led to increasing production and productivity of food crops and improved the food security situation of Nepal. However, based on our quick study in Sunsari and Dhanusha, there is poor delivery of services.

Currently, most of the private sector actors are engaged in agri-input distribution and sales of agro-products (Thapa, 2015). Agro-vet are providing technologies improved, hybrid seeds and pesticides as they are available through their business linkages primarily with import from India and (more recently) China. Seeds and pesticides are often the ones which are not tested in Nepal’s farms and are unregistered. Hence, it is not always certain whether they are safe. An Agro-Vet of Dhanusha claimed that more than 70 % of seeds are being imported from India. Farmers demand high-yielding varieties. If they are not available in their agro-vet, then farmers directly purchase them from India. So there is increasing pressure from the farmers themselves to agro-vet—but this demand from farmers is not reciprocated by the supply side of the government agencies and government-funded research institutions, nor addressed by INGOs/NGOs.

There is a certain degree of interaction meetings, communication, and joint collaboration in some areas among the
institutions. Organisations bounded by their institutional walls are less inclined to reach out to others. In some respect, there are competing territories, (such as mandates under central government and local government). There is also an issue of personality and leadership in the respective institutions. Following table provides a glimpse of the nature of interaction and the consequences of such interaction to agriculture development and intensification in the two districts.

Table 2: Interaction of key agencies with other actors in agriculture development

<table>
<thead>
<tr>
<th>Actors</th>
<th>Interaction (with other actors)</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>DADO</td>
<td>Private Sectors</td>
<td>Poor interaction with private sectors, farmers are not assured with quality products</td>
</tr>
<tr>
<td>DADO-</td>
<td>Research Centres</td>
<td>Poor adoption of technology developed by research centres.No collaboration in research activities, only coordination</td>
</tr>
<tr>
<td>DADO</td>
<td>Cooperatives and Farmers Groups</td>
<td>Weak relation</td>
</tr>
<tr>
<td>DADO</td>
<td>NGOs/INGOs</td>
<td>Limited within providing resource persons by DADOs,</td>
</tr>
<tr>
<td>DADO</td>
<td>Credit Agencies</td>
<td>Weak relation: No coordinating mechanism to facilitate farmers for loan, poor response to crop security programme</td>
</tr>
<tr>
<td>NGOs</td>
<td>Private Sectors</td>
<td>Weak relation: Farmers reluctant to purchase agri-inputs</td>
</tr>
<tr>
<td>NGOs</td>
<td>Credit Agencies</td>
<td>No relation: poor flow of loan in agriculture, less willingness of credit agencies toward agriculture investment</td>
</tr>
<tr>
<td>NGOs</td>
<td>Govt. Research Centres</td>
<td>No any relation</td>
</tr>
<tr>
<td>NGOs</td>
<td>Agriculture Cooperatives/Farmers</td>
<td>Close relation with their own group-dependency-sustainability issue remains problem</td>
</tr>
<tr>
<td>Private Sectors</td>
<td>Agriculture Cooperatives/Farmers</td>
<td>Close relation: fully dependent on agri-inputs where NGOs have left out.</td>
</tr>
<tr>
<td>Private Sectors</td>
<td>Credit Agencies</td>
<td>Weak relation</td>
</tr>
<tr>
<td>Private Sectors</td>
<td>Research Centre</td>
<td>No relation: None of technologies developed are adopted by farmers, except improved varieties</td>
</tr>
<tr>
<td>Credit Agencies</td>
<td>Research Centre</td>
<td>No relation</td>
</tr>
<tr>
<td>Credit Agencies</td>
<td>Agriculture Cooperative/Farmers</td>
<td>Poor access to farmers, smallholder farmers taking loan from micro-credit cooperatives</td>
</tr>
</tbody>
</table>

Source: Based on the face to face interview with multiple actors in Sunsari and Dhanusha
Other factors that come into play are the incentives for coordinating between organisations and the system of accountability and sanction related to (failure of) communication and coordination.

To a significant degree, because agriculture extension is now a devolved sector in Nepal, the kind of roles that DDC takes also matters in how DADO and research centres behave. The local governance system has been in limbo due the lack of elected representatives since 2002. Currently, local bodies are fully run by government officials centrally appointed and posted by Nepal Government. Consequently, there are no people’s representatives who can demand responsiveness and accountability from agriculture researchers and officials and there is an absence of a robust mechanism for political oversight on agriculture extension and research.

We found a weak state capacity to monitor and supervise market in providing improved seed varieties. Similarly, the role of state in the enforcement of environmental safeguards about the use of pesticides and to anticipate risks about uncontrolled adoption of pesticides was pretty dismal. Owing to this situation, farmers were at the mercy of agriculture market policies and in absence of any formal insurance market for agriculture and livestock, the welfare of farmers and their health would become increasingly uncertain.

**AGENCIES INFLUENCING PATTERNS OF INTERACTION**

The current role of the research institutes, agriculture authority (DADO), NGOs and private sectors etc demonstrate the fulfillment of formality but we found that there is less willingness to coordinate among these agencies. The effect, in general, is the gap between agriculture research and extension on one hand, and between service provision and government capacity to monitor and supervise seed and pesticide market on the other. The study also discovered that available technical solutions such as mechanical equipments catered only the needs of big landowners and anything available for small holders were limited to demonstration stage only. As a matter of fact, small holders face a shortage of appropriate technical solutions even when they would think about intensive agriculture.
Table 3: Current roles and observation

<table>
<thead>
<tr>
<th>S.N</th>
<th>Main Actors</th>
<th>Current role</th>
<th>Observation and opportunities to improve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NARC</td>
<td>Research</td>
<td>Weak demonstrative and interactive attitude thus low research uptake to technology, policy and practice, currently research institutes are working in isolation and confined on research trail, very less effective application of outreach sites.</td>
</tr>
<tr>
<td>2</td>
<td>DADO/DLSO</td>
<td>Extension</td>
<td>Less responsive to farmers, needed to organise large number of farmers interaction programmes, focused on participation and interaction while conducting research</td>
</tr>
<tr>
<td>3</td>
<td>Private Sectors/Seed Supplier/Farm Machineries</td>
<td>Input delivery</td>
<td>Less aware of new technologies, farmer friendly local technologies, necessary to interact with research organisations</td>
</tr>
<tr>
<td>4</td>
<td>Credit Agencies</td>
<td>Financial</td>
<td>Should bring interest to invest on smallholder farmers. Weak response to farmers related organisations</td>
</tr>
<tr>
<td>5</td>
<td>I/NGOs</td>
<td>Technical/financial</td>
<td>Social mobilisation is strong, should concentrate on large and medium holder farmers as well</td>
</tr>
</tbody>
</table>

Above table suggests that change in the key agencies occurred with the gaps that became evident through our discussions in the two districts. It was revealed, for example, that many of INGOs focused on smaller and marginal holders, but the technology available for mechanisation and intensification of agriculture was primarily tailored to large scale farmers. There is thus a disconnect between technology availability, support apparatus, targeting of farmers and also between oversight from government agencies. These gaps partly emerge with less communication and coordination between actors and also because of lack of strong political assertion through people’s representatives and other socially committed agencies.

In some cases, NGOs and Department of Agricultural Extension staff have worked together drawing on the strengths of both types of organisations. Still, they have not been able to break their institutional walls and government staffs do not fully acknowledge the role of NGOs although they admit that there is lack of adequate human resources in both districts.

Input services such as breeder seeds, equipment, fertilizer, credits are critical to farmers. But there is a limited mechanism to deliver these in required quantities, in time and in right quality. Government agricultural offices sometimes offer limited in-kind services, but there is very much limited governmental role in regulating and coordinating the system of service delivery in both the districts.
Extension system lacks enough scientific research backing. Some of the innovations promoted by extension based organisations could be enhanced if research system offers additional support. Agriculture extension system remains poorly coordinated among GOs and NGOs and also has limited communicative links to the groups and associations of farmers. Having said that, benefits of such coordination have been clearly seen in some cases.

It is equally important to rethink about technology disseminated by Nepal’s agriculture research council. Categorising farmers as a single entity and treating them in blanket approach has hindered the efficient and effective adoption of technologies on a wide scale. Technologies are often capital intensive, applicable largely to big holdings. However, majority of farmers are smallholders who need cheap and simple solutions. Technologies like rotavetors (smart in size) has already overcomed Zero tillage in Rupandehi district. Ojha (2012) mentioned about its limited application to smallholder farmers in fragmented land.

**ENABLING POLICY ENVIRONMENT**

Nepal’s ‘liberal’ policy outlook on agriculture which has been gradually expanding over the past two decades since its inception face the problem of concerted actions for implementation. Nepal Agricultural Extension Strategy, 2007, clearly emphasises institutional pluralism, privatisation and decentralisation of extension services. This requires detailed outline of how institutions communicate and cooperate with each other to forge an effective consolidation for achieving food security, livelihood or other goals, which are at least rhetorically asserted and agreed by range of actors. Moreover, there are still conflicting roles and responsibilities between DADO and the District Development Committee (DDC). In case of Sunsari, DDC has recruited Agriculture Development Officer to implement and look after agriculture programmes in district. However they don’t have any service centre at VDC level. Role of extension and service to farmers are to clearly defined. There are frequent tensions between DDC and DADO, the latter refusing the leadership of DDC especially as the DDC is manned quite frequently by officials junior in service years than the DADO officials. In the context of decentralisation and enforcement of LSGA 1999, the role between and DADO and DDC are to be distinct and there should be accountability and sanction for their performance. Similarly, research institutions available at district don’t have any relation with DDC office. Regulatory response has remained mixed, but failing to take into account the current and future effects in process of intensification of agriculture.
Table 4: Policy constraints and expected changes

<table>
<thead>
<tr>
<th>SN</th>
<th>Challenges/Constraints</th>
<th>Changes required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No collaboration mechanism of DADO and NARC stations</td>
<td>DADO and DDC should lead and raise the problems of farmers and collaborate with NARC office for research.</td>
</tr>
<tr>
<td>2</td>
<td>No any mechanism to coordinate with NARC Stations with DDCs</td>
<td>Defined roles of DDC and NARC stations is necessary for bring research institutions under DDC.</td>
</tr>
<tr>
<td>3</td>
<td>Policy under imported seeds and distribution mechanism</td>
<td>Seed registration process should be simplified. Control on import on unregistered seeds.</td>
</tr>
<tr>
<td>4</td>
<td>Subsidies on Petroleum production in case of heavy load shedding</td>
<td>Farmers should be provided subsidies on limited amount of petrol</td>
</tr>
</tbody>
</table>

The case studies of the two Tarai districts of Nepal offered some comparative insights into evolving innovation with respect to agriculture extension service, the interaction between different agencies in agriculture and to identify enabling factors and issues for agriculture extension. These cases also indicated some general issues around the interaction between various agencies and ways to resolve them.

CONCLUSION

Our study suggests that considerable change is ongoing in Nepal’s agriculture landscape, primarily in terms of the entry and strengthening of new actors and gradual reduction in the role of state in agriculture sector. While government’s policy has shifted towards a liberal approach, its own retreat from the subsidy regime, and gradual strengthening of market forces along with increasing monetisation of agriculture sector and incentives is shaping the way stakeholders interaction and behavioural response. Government agencies in many instances seem to resist the government’s policy shift particularly in welcoming the nongovernmental actors and devolving authority to local governments. Perhaps the legacy of agriculture extension administration which established the monopoly of agriculture knowledge has resulted in this situation.

The open political environment and incentive of selling seeds, pesticides and agriculture equipment has resulted into extraordinary rise of agro-vets, equipment vendors and dealers and with time they are becoming more influential having close links with farmers. This demands a reorientation in the way agriculture officials behave with the farmers and the approaches they adopt for support and technology transfer in defining what technology is useful for whom. We found a disconnect between available technology, support for extension of technology and adoption and a general insensitivity to the differentiated needs of farmers.

There are limited scope of coordination in operation between governmental agencies (even within government agencies) and non-governmental and private service and technology providers. New policy approaches and ground level engagements of multiple actors need to
be fully appreciated by the government staff in particular to try innovative ways to engage them towards achieving food security through intensification. As new actors grow, there has to be a system in place to recruit and engage actors in a level playing field. While we heard of ‘lack of manpower’ in government agencies, officials tend to undermine the strength of NGOs, business, farmers, academia, and civil society to achieve objectives by leveraging local capacity.

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