

Strengthening Farmers' Seed System in Western Nepal: How can it be sustainable in the poor households?

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Abstract

Seed replacement rate of new maize variety is less than 10% in Nepal. An effective seed supply system is necessary to make good quality seed available to farmers at right time and at low cost. Given the critical role played by improved varieties in increasing production of food, feed, and fodder the agriculture decision-makers have the challenges of developing an integrated and cost-effective seed system that is capable of generating and delivering improved seed varieties to the farmers. Such a system would be an important step toward ensuring livelihoods, particularly of resource poor farmers of the remote areas. This paper expresses some experiences and analysis from the local seed systems in western regions of Nepal. Using specific seed delivery models, it presents ways of strengthening seed systems to address the needs and vulnerabilities of smallholder farmers. This paper is not on all sides of summary of the seed systems in western Nepal and is not responsible to provide magical solutions to constraints encountered by poor farmers of the region. This paper however, attempts to illustrate alternative approaches to strengthen the seed systems that have become successful in poor households of some rural areas of developing countries. Some mechanisms presented in this document will help in continuous development of an appropriate seed system and contribute of enhancing the livelihoods of poor farmers in the western hills of Nepal.

Background

The barriers to development of community-based seed production systems include the generally poor roads and related infrastructure in Nepal's rural hilly areas. These situations constrain the distribution of seed along with other farm inputs and produce. Farmers need a broad range of modern varieties to choose from, detailed information on those varieties, and training to help them produce seed efficiently themselves with modern technologies. Linking small-scale farmers to institutions offering credit would support the majority of the farmers who purchase seed. An inventory of varietal traits would be useful to many farmers as would production of varieties with preferred traits for their evaluation and selection. Also needed is production of Breeder Seed and Foundation Seed of newly released varieties and those in advanced stages of testing. This is then followed by production of Certified Seed which is usually monitored by a government agency for quality, and is then sold commercially and purchased by farmers (Reddy et al. 2007).

Field days demonstrating to local communities the utility of certain varieties grown under certain production systems and circumstances would help widen use of improved varieties. Those improved varieties adopted by communities should be monitored to assess their effectiveness and, later, to determine the factors constraining their broad adoption. Rather than focusing solely on getting more improved seed to more local communities, local seed exchange networks could also be exchanged by increasing local production and multiplication of seeds and by facilitating farmers' access to formal as well as informal seed supply systems (Gurung et al. 2007). In this context, the concept of seed villages, which advocates self-sufficiency in production and distribution of good quality seed, is fast gaining ground. Seed villages and/or banks; operate under supervision and utmost transparency, inculcating mutual trust and social responsibility among farmers, thereby reducing their dependence on external inputs.

Review and analysis of the maize seed production system

This paper reviews seed production initiatives of the improved varieties in the past by the government and/or non-government organizations and analyses their pro and cons and also the sustainability of the program. This paper is basically focused to the western hills of Nepal. The western part of Nepal is poorer than the eastern part and all the developmental indices are lower than the eastern parts and educational status is very poor. The western part is dry and receives lower rainfall than the eastern parts and the production environment is almost different. All the information used in this paper are secondary and are collected from different books, journals and research papers from different governmental and non-governmental organizations working in the western Nepal.

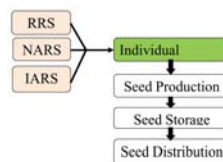
Several initiatives have been launched to facilitate the easy supply of improved seed to the farming communities of rural areas of Nepal since the early seventies. Projects like Seed Sector Support Project (SSSP), District Seed Sufficiency Project (DISSPRO), the USAID funded Seed Production and Input Storage Project (SPISP), Action-aid funded Rural Development Project for Seed Production (1984-85), Private Producer Seller Project (1980-88), Mechi/Koshi Hill Development Project (1987-97) etc., worked in Nepal, but their sustainability always became a big problem. In the past, most of the programs followed the traditional way of regulatory and legal framework governing seed production that hampered the development of informal seed system. In this system, the seed regulations are mostly based on international standards, which often are incompatible with or irrelevant to the realities of farmers' seed system and could not become sustainable (Karki et al. 2007). Participatory approaches to crop improvement like participatory plant breeding and participatory variety selection are emerging and have been tested by government and non-government organizations partnership. Integration of participatory approaches into conventional methods hold the potential of making public sector plant breeding more effective and efficient and farmers responsive. Increasing farmers' participation in variety selection, development, and verification would help address the need for increasing varietal choices. This could significantly cut research costs, improve varietal diversification, and enhance local seed systems and adoption rates (Joshi, 2002). After selecting the appropriate varieties through PVS method, the following seed production and distribution models would be helpful for sustainability of seed production and supply of the seeds in the rural poor farming communities.

Some interventions required for improving local seed system

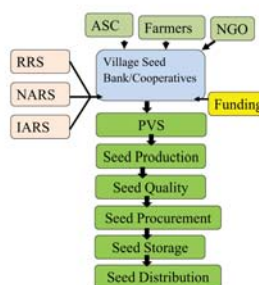
1. Facilitating farmers' access to seed through:
 - a) awareness, b) Training, and c) Capacity building
2. Introduction of appropriate agricultural technologies:
 - a) crop diversification possibilities, b) Crop production aspects, c) Improved cropping systems, d) Integrated pest and disease management, e) Introduction of improved varieties of fodder and food-feed crops, f) Seed health and storage management etc.

Village-Based Seed System Models

1. Individual farmer as seed bank

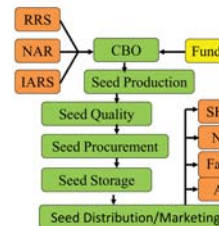


2. Village-based Seed Bank

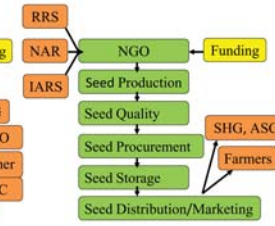


Small-Scale Seed Enterprise Model

3. Community Based Seed Production System



4. NGO Mediated System



All models may not work everywhere. The model should be chosen based on the funding source, number of households in the locality, road access, related infrastructures, and market size. Regarding the quality control mechanism, the Seed Quality Control Centre of Nepal can become flexible and it may provide facility of Quality Declared Seed and Truthful Labeled Seed marketing facilities. The function of production and distribution of source seed should be decentralized to the private sector and farmers' group. Nevertheless, the role of the public sector becomes important both in providing source seeds and in overseeing the quality of the seeds. Marketing of seed is an important concern for sustainability of the program. The public sector can act as a mediator in bringing together the farmers' seed producer group and the seed distributors like private company, merchants, local vendors and NGOs (Joshi, 2002).

Conclusion

An effective means of improving seed distribution is farmer-to-farmer seed exchange. This may be primed to a limited extent by supplies of improved seed from public agencies, agricultural research stations and non-governmental organizations to farmers in easily accessible villages. However, such a system would be very slow. To speed up the flow of adapted improved varieties to farmers, there is a need to form a network of formal and informal or integrated seed system, community based organizations and research and/or extension institutions, public and private seed multiplication agencies. This network will identify bottlenecks in the seed production chain, and catalyze or bring about applied and adaptive research and policy changes that may be required to ensure rapid movement of new cultivars into the local seed delivery system benefitting small and resource-poor farmers. This approach will require continued interaction between the various institutions, policy makers and stakeholders.

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