

# International and National Dynamics of the Management of Plant Genetic Resources for Food and Agriculture in Nepal



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Management of Plant Genetic Resources for  
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## Preface

This is a research that analyses Nepal's obligations under several international regulatory instruments that govern or affect the conservation, use and management of plant genetic resources for food and agriculture (PGRFA), internationally as well as nationally. Such instruments include the Convention on Biological Diversity; the Cartagena Protocol on Bio safety; the Nagoya Protocol on Access to Genetic Resources and Benefit Sharing; the Agreement on Trade-Related Aspects of Intellectual Property Rights of the World Trade Organization; the International Treaty on Plant Genetic Resources for Food and Agriculture; the Convention No 169 of the International Labour Organisation; the International Union for the Protection of New Varieties of Plants; and the United Nations Framework on Climate Change. Providing an analysis of the state of PGRFA in Nepal and the status of the implementation of farmers' rights, this research identifies areas of concerns that Nepal needs to address while implementing these international agreements at the national level.

The research shows that Nepal needs to revise its various laws and even introduce new ones for ensuring an enabling environment for the management of PGRFA and the protection of the rights of farming communities. It also shows that Nepal has to make adequate institutional arrangements for the management of PGRFA, including to address the impacts of climate change on agriculture and seed systems. Mainly the Ministry of Agriculture, Ministry of Forests, and the Ministry of Environment need to work together for climate-friendly policies and laws on PGRFA management. Also, there is a need to collaborate with the Ministry of Industry for looking at the implications of the intellectual property system for PGRFA management and farmers' rights to seeds and traditional knowledge. The research provides a number of recommendations for actions that can be taken to benefit from PGRFA management at international, national and local levels.

I would like to thank Prakash Ghimire and Smriti Dahal for conducting this research. I would also like to thank the Fridtjof Nansen Institute (FNI) of Norway for their support for the completion of this study. This study is an outcome of the project "International objectives for adaption, access and benefit sharing: Effects on the management of plant genetic resources in India and Nepal" that SAWTEE

is implementing together with the FNI and academic scholars based in India. I am grateful for a number of useful comments and inputs from the entire research team which includes Kristin Rosendal, Tone Winge, Steinar Andresen, Anitha Pathak, Yogesh Pai, Puspa Sharma and Kamalesh Adhikari. I hope that this research will form a basis for further discussion and debate among policy makers and other concerned stakeholders.

**Posh Raj Pandey, Ph.D.**

Chairman

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## ABBREVIATIONS

<b>ABP</b>	: Agriculture Biodiversity Policy
<b>ABS</b>	: Access and Benefit Sharing
<b>ABP</b>	: Agro Biodiversity Policy
<b>CBD</b>	: Convention on Biological Diversity
<b>CBS</b>	: Central Bureau of Statistics
<b>CGIAR</b>	: Consultative Group on International Agriculture Research
<b>COP</b>	: Conferences of Parties
<b>CBOs</b>	: Community Based Organization
<b>FAO</b>	: Food and Agriculture Organisation of the United Nations
<b>FECOFUN</b>	: Federation of Community Forestry Users, Nepal
<b>FSABPE</b>	: Food Security, Agriculture Business Promotion and Environment
<b>GDP</b>	: Gross Domestic Product
<b>GRPI</b>	: Genetic Resources Policy Initiatives
<b>GHG</b>	: Greenhouse Gas
<b>GM</b>	: Genetically Modified
<b>GR</b>	: Genetic Resource
<b>GRPI</b>	: Genetic Resources Policy Initiative
<b>ILC</b>	: Indigenous and Local Communities
<b>ILO</b>	: International Labour Organization
<b>IP</b>	: Intellectual Property
<b>IPGRI</b>	: International Plant Genetic Research Institute
<b>IPRs</b>	: Intellectual Property Right
<b>ITPGRFA</b>	: International Treaty on Plant Genetic Resources for Food and Agriculture
<b>IUCN</b>	: International Union for Conservation of Nature
<b>LAPA</b>	: Local Adaptation Plans for Action
<b>LDCs</b>	: Least Developed Country
<b>LIBIRD</b>	: Local Initiatives for Biodiversity Research and Development
<b>MAT</b>	: Mutually Agreed Terms
<b>MFSC</b>	: Ministry of Forest and Soil Conservation
<b>MLS</b>	: Multilateral System
<b>MoAD</b>	: Ministry of Agriculture Development

**Mol** : Ministry of Industry  
**MoSTE** : Ministry of Science, Technology and Environment  
**NABCC** : National Agro Biodiversity Coordination Committee  
**NAGRC** : National Agriculture Genetic Resource Center  
**NAPA** : National Adaptation Program of Actions  
**NARC** : Nepal Agriculture Research Council  
**NAPA** : National Adaptation Programmes of Action ()  
**NBCC** : National Biodiversity Co-ordination Committee  
**NBS** : National Biodiversity Strategy  
**NBSAP** : National Biodiversity Strategy and Action Plan  
**NGO** : Non-Governmental Organisation  
**NPC** : National Planning Commission  
**PBR** : Plant Breeder's Right  
**PGRFA** : Plant Genetic Resources for Food and Agriculture  
**PIC** : Prior Informed Consent  
**PVP** : Patent and Plant Variety Protection  
**PVPFR** : Plant variety Protection and Farmers Right  
**SAARC** : South Asian Association of Regional Cooperation  
**SAWTEE** : South Asia Watch on Trade Economics and Environment  
**SDC** : Swiss Agency for Development and Cooperation  
**SMTA** : Standard Material Transfer Agreement  
**SQCC** : Seed Quality Control Centre  
**TK** : Traditional Knowledge  
**TRIPS** : Agreement on Trade-Related Aspects of Intellectual Property Rights  
**UNFCCC** : United Nations Framework Convention for Climate Change  
**UPOV** : International Union for the Protection of New Varieties of Plants  
**WTO** : World Trade Organisation

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# Chapter 1

## 1. BACKGROUND

### 1.1 Introduction

According to a report of the Food and Agriculture Organisation of the United Nations (FAO), by the year 2050, there will be a need to produce twice as much food as compared to the year 2000 from the same amount of land while using less water and other inputs. As globally, over 84% of human diet and nutrition comes from plants, it is necessary to understand the role and status of plant genetic resources for food and agriculture (PGRFA) for sustainable development of agriculture, food security and poverty alleviation (FAO 2010).

Farmers have been involved in the use and conservation of PGRFA over many centuries for future planting, domestication of wild plants and breeding different varieties to suit their specific conditions and needs. However, it is argued that (for example, Ruiz and Verwooy2012) more than 75% of global crop diversity has disappeared irreversibly during the 20<sup>th</sup> century due to natural and anthropogenic reasons. Major causes for the loss of PGRFA are human actions driven by increasing population pressure leading to land clearing, over grazing, deforestation, use of fertilizers and pesticides, and changes in agricultural practices. Climate change poses an added challenge to farmers' livelihood and world food security. New threats to crops emerge all the time and these genetic resources need to develop resistance to these new challenges.

The loss of genetic diversity is also taking place due to the increasing trends of replacing local landraces by a few genetically uniform and high yielding crop varieties. The human race have become dangerously reliant on these selected few crops and varieties. Out of the 10,000-12,000 known edible plant species, only 150-200 species are currently used by humans and rice, wheat and maize alone contribute to nearly 60% of calories and proteins that humans obtain from plants (Spillane et. al. 1999, FAO 2010). This has led to serious genetic erosion and has severe consequences on local livelihoods. The need for a diversity of PGRFA is essential for providing the required genetic traits needed to deal with pests and diseases as well as the changing climatic conditions experienced worldwide. As most crops grow away from their centre of origin, all countries have no choice but

to depend on each other for PGRFA. This creates interdependence between regions and countries and the need for international cooperation on the use and exchange of PGRFA.

Nepal is landlocked with a total land area of 147, 181 sq km and is divided into three physiographical zones: mountain, hills and the Terai (plain, low land). There is a varying difference between these zones in terms of land use for agricultural purposes, whereas the mountainous region consists of only 9% of agricultural land, the hills and the Terai have 42% and 66%, respectively (Chaudhary, Paudel and Koirala 2009). Although Nepal occupies only 0.02% of the world's total surface area, it is rich in biodiversity, agricultural crops and plants, genetic diversity of native as well as those PGRFA introduced from other countries. This diversity is a result of wide variation in temperature and geography of the country. Agriculture is not only a significant source of livelihood for the people of Nepal but also employs about 66% of the population and contributes about 33% to the gross domestic product (GDP) of the country (MoAD: 2014). The conservation, evaluation and use of PGRFA is all about ensuring future global food security, especially in a developing country like Nepal where millions of people are under-nourished (FAO 2010).

## 1.2 PGRFA in Nepal

About 21% of Nepal's total land area is used for cultivation (Gautam 2008, Government of Nepal/MFSC 2002). Nepal consists of a wide range of crop varieties that are mostly associated with the hill and mountain regions (Government of Nepal/MFSC 2002). Out of the 27 major crops grown in Nepal, majority of the country's population depend on rice, maize, wheat, millet and potatoes for survival. Nepal is also highly diverse in terms of important minor food crops. For example, grains like buckwheat, hog millet and barley; different kind of pulses like black gram, horse gram and green gram; green vegetables like *Amaranth*, celery, fenugreek leaves; roots and tubers like beet root, yam, sweet potato; fruits like banana, apple and pear, etc. Some of the crops that have a high genetic diversity are rice, rice bean, eggplant, buckwheat, soybean, foxtail millet, citrus, and mango (Gautam 2008). More than 95 local aromatic and fine rice landraces are grown by farmers in Nepal (Government of Nepal/MFSC 2002). It was documented that 75 local landraces grow in the Seti River Valley alone. In the Terai region, *Tilaki*, *Kenakjeera*, and *Shyamjeera* are popular high quality rice varieties. There also exist at least 4 different wild relatives of rice, namely *O nivara*, *O rufipogon*, *O granulata*, and *O officinalis*. Also two wild relatives (*Hygroryza aristata* and *leersia hexandra*) and several types of weedy rice (e.g., *O.*

sativa f. spontanea) are found in the country (Gautam 2008). Wild relatives of wheat (*Aegilops* and *Agropyron*) and greater diversity of maize have also been documented in the hilly and mountainous regions.

Not only the commonly used crops but underutilized food crops and tropical fruit species also contain high diversity. Richness in fruits and vegetables like mango variety, gourds, yam, taro, star fruit, custard apple, wild fruits like *jamun* (*Eugenia jambolan*), *kusum* (*Schleicherawallichii*) and *bael* (*Aeglemarmelos*) are present. This variability in crop species has been maintained through traditional farming systems. Due to 120 wild relatives of commonly cultivated food plants and their proximity to cultivated areas, the country has 60 listed food species and 54 wild relatives of food plants (Government of Nepal/MFSC 2002).

**Table 1: Important crops of different regions of Nepal**

Mountain	Hill	Terai
Maize	Maize	Rice
Millet	Millet	Wheat
Barley	Rice	Maize
Buckwheat	Wheat	Barley
Beans	Soybean	Lentil
Rice beans	Black gram	Pigeon pea
	Lentil	Chick pea
	Rice bean	Black gram
<i>Source: Gautam (2008).</i>		

In the context of Nepal, majority of the population depend on these crops and biodiversity for survival. However, the existing diversity of PGRFA in the country is threatened due to improved varieties of PGRFA compared to farmers' varieties (Paudel, Maharjan et al. 2008). Today, there is a decrease in the overall diversity of landraces as many of these are either lost or are under threat of extinction due to the introduction of high yielding varieties, changes in landscapes, changes in agricultural practices, increase in population, poverty, low grain yields, logging problems, and existing national policies. These landraces also possess low yield potential and are economically less profitable (Gautam 2008). This loss in genetic erosion of major crops is highest in the Terai region whereas the hills of Nepal have been able to maintain genetic diversity mainly due to specificity of landraces, undisturbed forests and its remoteness. Collection and preservation of germplasm in seed bank can lead to genetic diversity of crops. Realizing this, Nepal Agriculture Research Council (NARC) has already preserved 10,781

accessions of orthodox seeds collected from different regions of Nepal (Gautam 2008).

Although Nepal consists of various biodiversity hotspots, its overall diversity and richness of PGRFA is still unknown and undocumented (Ranjan 2009). There is a need for more research on genetic resources of the country and the knowledge related to these resources to ensure adequate conservation and sustainable use for food security (Paudel, Maharjan et al. 2008).

### 1.3 PGRFA and Climate Change Dynamics in Nepal

Observations and research have shown that human activities, mainly burning of fossil fuels and changing land covers, are contributing to warmer climates (Sivakumar and Stefanski 2011). A change in annual temperature along with changes in precipitation patterns pose a serious risk to agriculture and food production in regions that are already stressed due to a combination of other factors. Food security has become a major problem in the world today, where 13% of the world's population or approximately 900 million people are undernourished in the world (World Bank 2013). The vast majority of these people live in developing countries and are experiencing comparatively higher effect of climate change impacts on their livelihoods. Every year, increasing greenhouse gas is aiding the frequency of climatic hazards such as draught, flood and thereby landslide and loss of biodiversity. Such hazards are collectively undermining the sustainable agriculture system. Increase in the frequency of climate-related events is likely to aggravate the problem of food security worldwide (Lal 2013). Species extinction caused by climate change is another threat to the sustainable agriculture system, ultimately impacting on food security in the long run. In this context, countries have been focusing more on how to utilize the crop genetic diversity from all over the world to provide potential adaptation to climate change, maintain production systems' resilience and meet the food need of an expanding human population.

Nepal—with its varied geography, high rates of population growth, natural resource degradation, high rates of poverty, urbanization and pollution—is highly vulnerable to climate change (Gautam 2008). There is a potential increase in temperature in Nepal of 0.5-2.0 ° C by 2030, rising to a 3.0-6.3 ° C increase by 2090 (Regmi and Paudyal 2009). There is a projected increase in temperature of 1-3 ° C and 1-2 ° C in mid to high and low latitudes, respectively. In terms of precipitation, there exists a wide range of changes, especially in monsoons, of -14 to 40% by 2030 and -52 to +135% by 2090 (Government of Nepal. 2013).

Significant rise in temperature, especially in higher elevations, will lead to reduced snow and ice level in the mountain region and hence increase the frequency and intensity of floods and droughts resulting in uneven distribution and varied intensity of precipitation over the region. These negative effects will have a serious impact on agriculture and loss of biodiversity, including the yield of major cereals and other crops. For example, paddy is the main crop of Nepal. It contributes to 60% of the total cereal production and 21% in agriculture GDP. More than 50% of it is cultivated in the rain-fed condition, hence indicating high dependency on the monsoons. As more than 80% of the population depend on agriculture for their livelihoods, and mostly are subsistent farmers, these projected climatic change impacts will lead to decrease in food production and hence affect the already food insecure 3.4 million people in Nepal (Regmi and Paudyal 2009). Small scale farmers are likely to suffer more due to localized impacts of climate change.

The National Adaptation Plan of Action of Nepal suggests that PGRFA are crucial for helping farmers adapt to the current and future effects of climate change and to ensure food security sustainably. Therefore, there will be an increase in demand for PGRFA possessing characteristics that will help adapt agricultural practices to climatic change impacts like heat, drought, etc. Also, crop wild relatives are important for adaptation to climate change as they provide genes and traits for biotic and abiotic resistance. However, wild species are more vulnerable to climate change and they do not receive management interventions that help them adapt to changing climatic conditions. In this context, there will be a new and advanced demand for genetic resources in the days to come. It is more important to Nepal as it is one of the most climate-vulnerable countries. Thus, there is a need to conserve the PGRFA, maintain them as per changing climatic condition and invest in the research and development so as to improve food production and productivity (Government of Nepal 2013).

## **1.4 Nepalese Farmers and Biodiversity Management**

Approximately 81% of Nepal's population resides in rural areas (World Bank 2013). Majority of population (80%) depends on agriculture for daily subsistence (Adhikari 2008). Agriculture, after tourism, also contributes a significant portion to the GDP of Nepal's economy. Hence, it is an important sector in Nepal warranting intervention to address widespread poverty, ensuring food security and increasing the living standard of people of Nepal.

Nepal initiated its planned development after the establishment of democracy in 1950. Right from the first five year plan, modernization of agriculture has been one of the major development priorities. Nevertheless, the country’s agriculture sector is still subsistent and largely traditional (see table below): most of the farmers are cultivating small pieces of land with their traditional methods and maintaining livelihoods (Adhikari 2008). For example, in the case of few vegetable crops—such as winter potatoes, winter and summer vegetables—only 25% of total agricultural households are using improved seeds. In the case of food crops, the households using improved seeds have just reached about 15 percent. This informs that the farmer-managed traditional seed system, which relies on farmer-to-farmer network for use and exchange of local seeds, remains the main source of seeds in the country.

**Table 2: State of agriculture households and practices in Nepal**

Description		1995/96	2003/2004	2010/2011
Agriculture households with land (% of total households)		83.1	77.5	74
Average size of agriculture land (in hectares)		1.1	0.8	0.7
% of irrigated land area		39.6	54.3	54
Holding operating less than 0.5 hectares (% of total holding)		40.1	44.8	53
% of holding operating renting in land only		4.8	7.3	5
% of holdings growing main paddy		76.0	76.1	72
% of holdings growing summer vegetables		35.6	60.8	69
% agricultural household using improved seeds	Main Paddy	4.9	5.4	15
	Wheat	7.9	5.6	13.3
	Summer Maize	4.5	4.3	8.6
	Winter potato	7.6	16.3	34
	Summer Vegetables	5.6	11.9	26.3
	Winter vegetables	9.9	20.7	16.5
% agricultural household using fertilizers	Main Paddy	54.6	66.4	70.1
	Wheat	48.6	56	52.5
	Summer Maize	26.8	34	36.5

	Winter potato	13.8	21.6	30.8
	Millet		15.7	16.6
	Summer Vegetables	4.3	3.7	8
	Winter vegetables	7.4	8.1	4
% agricultural household using owning selected agricultural equipment	Plough	63.9	56.8	52.3
	Tractor/power tiller	0.7	0.6	1.0
	Thresher	0.8	0.9	1.2
	Water pumps	2.6	2.7	7.2
	Grain storage bin	15.8	28.5	33
<i>Source: Compiled from <a href="http://www.cbs.gov.np/">http://www.cbs.gov.np/</a></i>				

Dominance of the informal seed system is one of the basic features of Nepalese agriculture (Ghimire 2012). As discussed earlier, use of improved seeds is not much significant; the seed replacement rate of the food crops is about 10 percent (SQCC 2013). As conservation and exchange of seeds in Nepalese farming community is mostly done through an informal system, farmers mostly fulfil their seed needs for the following year by storing their best grains from the current year. In the case of inadequacy or sudden losses, farmers usually approach neighbours and relatives to borrow the seed. This transfer through kinship plays a critical role in exchanging seeds from one community to another. In addition, higher interdependence between cereal crop production, livestock rearing and use of forest resources from community forests and/or farm-managed trees is a common phenomenon among the farming communities. Moreover, these components of agriculture individually and collectively are an important part of life and livelihood of these people. Such traditional knowledge and practices have been critical in conserving and maintaining PGRFA, their associated knowledge, and associated wild relatives at their natural habitats. On the other hand, they are contributing to livelihood enhancement of rural poor by supplying and fulfilling the food and nutrition needs of the farmers (Adhikari 2008).

However, it is not that the use of seeds from a formal seed system is not increasing in recent years. CBS (2011) shows that the use of formal seed in vegetable farming is relatively high compared to the food crops. The use of formal seed in food crop farming is particularly high and are on the rise in the Terai region and nearby farming areas of the towns and market centres. Government of Nepal has recently adopted Seed Vision 2025 that aims to increase seed replacement rate up to 25% by 2025. But again, it is important that



the work intended for conservation and preservation of local genetic resources through the use of informal seeds system run concurrently. Therefore, a complementary policy is required to facilitate poor farmers' access to seed and conserve and maintain PGRFA in the future. Together with this, there is a need for increased investment in agriculture research and development, especially in the field of sustainable use of PGRFA. There is a need to balance research and development work in regard to the use of formal and informal seed system in Nepal.

# Chapter 2

## 2. NEPAL IN THE CONTEXT OF INTERNATIONAL GOVERNANCE OF PGRFA AND ACCESS AND BENEFIT SHARING

Due to the international nature of PGRFA and its significance in the inter-dependency among and between countries across the world, the implementation of farmers' rights to PGRFA and associated traditional knowledge in Nepal has been influenced by the obligations provided in various international and regional agreements and treaties.

### 2.1 Convention on Biological Diversity, Cartagena Protocol on Bio safety and the Nagoya Protocol on Access and Benefit Sharing

The Convention on Biological Diversity (CBD) was the first step taken by the international community at the international level to ensure conservation and protection of world's genetic resources. It was adopted on June 5, 1992 at the United Nations Conference on Environment and Development at Rio de Janeiro, Brazil. It entered into force on December 29, 1993 and until August 2016, there are altogether 196 contracting parties of the treaty. The main objective of the CBD is:

1. Conservation of biological diversity
2. Sustainable use of its components
3. Fair and equitable sharing of the benefits arising from genetic resources

Articles 1, 3, 8(j), 15 and 16 of the CBD deal with the issue of balancing the rights of countries that are resource providers with those of the users so that the providers have a share and a say in the benefits of PGRFA. Article 8(j) and Article 15 deal directly with issues of access and benefit sharing (ABS). Article 8(j) stresses on the need to preserve local knowledge and practices of local and indigenous communities and their lifestyles for the conservation and sustainable use of natural resources. It also encourages equitable sharing of benefits accruing from the utilization of such knowledge, innovations and practices of those

communities. The ABS mechanism under the CBD provides legitimate entitlement to the communities in reward and recognizes their role in conservation and sustainable use of biological resources and associated traditional knowledge. Article 15 underscores the sovereign rights of the countries on their natural resources, and hence provides a framework for the implementation of ABS by the national governments in accordance with national legislation. Article 15.4 states that access to genetic resources shall be subject to prior informed consent (PIC) of the Contracting Party providing such resources, unless otherwise determined by the Party (Adhikari 2009).

The CBD has two protocols– the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access and Benefit Sharing. The Cartagena Protocol was adopted on January 29, 2000 and entered into force on September 11, 2003. The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern technology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account the risks to human health and specifically focussing on trans-boundary movements.

The Nagoya Protocol within the CBD has been devised to ensure benefit sharing when genetic resources are exchanged between the contracting parties. It establishes a more predictable condition for access to genetic resources. The protocol covers genetic resources and traditional knowledge covered by the CBD and creates incentives (by benefit sharing) to conserve and sustainably use these genetic resources. The Nagoya Protocol was adopted on October 29, 2010 in Nagoya, Japan and entered into force 90 days after the fiftieth instrument of ratification (<http://www.cbd.int/abs/about/>)

Nepal is a party to the CBD and a non-party to both the Cartagena and Nagoya Protocols. Nepal signed the CBD in Rio at the Earth Summit on June 12, 1992. The fifth session of the country's parliament ratified the convention on September 15 1993 and the instrument of ratification was deposited with the CBD on November 23, 1993. The Ministry of Forests and Soil Conservation (MoFSC) is the focal point for the implementation of the CBD. The designated focal person from concerned division of the ministry participates regularly in the conferences of parties (COP), submits Nepal's implementation report, and raises issues that the country faces. As a party to the Convention, in line with the principle of CBD, Nepal prepared Nepal Biodiversity Strategy (NBS) in 2002 and Implementation Plan in 2006 which were integrated and revised and brought in the form of National Biodiversity Strategy and Action Plan (NBSAP) in 2014. The cardinal principles of NBS are the

conservation of biodiversity, poverty alleviation, participation and public education, fair and equitable sharing of benefits, in-situ conservation, women empowerment and capacity building (Adhikari 2008).

At national level, a high level national biodiversity coordination committee is constituted under the chairmanship of the Minister of MoFSC; and, the representatives of the committee are picked from the concerned government agencies, NGOs and the private sector. It is envisaged to steer and oversee implementation of the CBD in the country. MoFSC has also prepared draft legislation on Access to Genetic Resources and Benefit Sharing (ABS law hereafter). However, due to the lack of consensus, it has not been put forward. Lack of coordination between different ministries and Nepal's dismal performance in addressing different biodiversity issues through regional lobbying groups, currently Nepal's participation and involvement in the CBD's forum has been poor and has not achieved beneficial results.

Although this Convention is a major step in an international effort to protect biodiversity, issues of ABS are still a matter of intense and contentious debate and tough negotiation with significant problems arising in the implementation of ABS mechanisms. This is mainly due to the non-binding nature of the Convention resulting in lack of enforcement at national and global levels. The CBD makes provision for PIC of the holders to be obtained by any public or private enterprises seeking access to genetic resources. However CDB was not sufficient to address the issues related to genetic resources that were already accessed by countries pre-CBD and those genetic resources in international gene bank. Hence there was a need for the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) (Adhikari 2009).

## **2.2 The Agreement on Trade-Related Aspects of Intellectual Property Rights of the World Trade Organization**

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organisation (WTO) came into being on January 1, 1995. It is a comprehensive multilateral agreement on intellectual property rights (IPRs). The main objective of TRIPs agreement is to promote effective and adequate protection of the IPRs on a global scale. TRIPS is a minimum standard agreement that requires all WTO members to provide a more extensive protection to different types of intellectual property while complying with WTO principles.

IPR in the TRIPS is the right given to persons over the creation of their minds. It values individual ownership based on labour expended in producing new inventions and does not recognize community (traditional) rights. There are two types of IPRs– copyrights and industrial property rights. Within the industrial property rights, there are two forms of IPRs that are directly related to ABS– patent and plant variety protection (PVP). These forms provide exclusive monopoly rights over the creation of plant variety for commercial purpose over a period of time. Patent provides rights to inventors to prevent all others from making, using, and/or selling the patented invention for 20 years. Granting a patent requires the fulfilment of three tests – novelty, incentive steps and patent’s commercial viability. Traditional knowledge does not qualify for a patent since it does not fulfil these three requirements. Similarly, PVP provides patent like rights to plant breeders ensuring plant breeders’ rights over the production, reproduction, use, sell, export and import of plant variety (Adhikari and Adhikari 2004).

Article 27.3(b) of the TRIPS Agreement calls for the protection of plant varieties either by patents, or an effective *sui generis* system or a combination of both. However, undermining the principles of ABS and PIC that are recognized and legitimised by the CBD, the Article, especially in the case of developing countries, has facilitated unfair exploitation of biological and genetic resources, bio-piracy and misappropriation of traditional knowledge. It has also restricted the rights of the communities and farmers, posing threats to their livelihoods. It has thus been widely perceived that while TRIPS has provided means for multinational seed companies and commercial plant breeders to unduly utilize the biological resources and associated traditional knowledge, the Agreement fails to ensure a fair and equitable share of these benefits to local communities and farmers, and recognise their past, present and future contribution to the global pool of PGRFA (Adhikari and Adhikari 2004).

Acknowledging the weaknesses of TRIPS in protecting community rights and traditional knowledge, certain amendments to the provisions of Article 27.3 (b) have been subject to negotiations under the TRIPS review process since 1999. Among others, developing countries view that there is a need for patent applicants to disclose the source of origin of the traditional knowledge/genetic material involved and provide evidence that national laws on PIC and ABS have been complied with before obtaining the biological resources and/or traditional knowledge used in the patent claim. TRIPS, although states that it requires an ‘effective’ *sui generis* system of protection, does not define what it means by

effective and thus gives way to ambiguities vis-a-vis the *sui generis* system. Developing countries have been arguing that the provision on a *sui generis* system should empower the development of a locally owned and applicable national legislation for the protection of plant varieties and not be linked with international conventions that threaten farmers' rights such as the International Union for the Protection of New Varieties of Plants (UPOV).

Nepal has been a member of the WTO since April 2004. Fending off the international pressure to join UPOV for plant variety protection during WTO negotiations for membership in 2003 (Box 1), Nepal made a commitment to protect new plant varieties by an effective *sui generis* system, i.e., a separate free-standing act on plant variety protection by 2008. However, since the Council for TRIPS extended the transition time until 2021 for the least-developed countries like Nepal to implement TRIPS, the Government of Nepal has not yet enacted already prepared draft legislation on "Plant Variety Protection and Farmers' Rights". This draft legislation seeks to balance the plant breeders' rights and farmers' customary rights. Mainly, the legislation views that protecting farmers' traditional practices of reusing, storing, exchanging and selling seeds in a non-branded form facilitates the protection of farmers' rights and encourages conservation and sustainable use of PGRFA (Adhikari 2009).

#### Box 1: Nepal's fight against UPOV (Andersen and Winge 2013)

During Nepal's final stage of WTO accession in 2003, pressured from developed countries, WTO imposed what it termed as "WTO plus" conditions pressurizing Nepal into becoming a member of UPOV. Surprised with the recent change of course and faced with the dilemma of whether or not to accept the condition, Nepalese government consulted SAWTEE and asked it to prepare a report on the costs and benefits of UPOV membership to Nepal. Understanding the deleterious effects UPOV could have on farmers' rights, local agriculture and farming system and food security, especially for a LDC country like Nepal, SAWTEE clearly stated on the report that Nepal should not join UPOV. As the Government delegates left for Geneva to finalise the deal, SAWTEE called a National Alliance for Food Security (NAFOS) meeting where the network came up with the 'Say No to UPOV' campaign strategy. Steps were taken to hold a press conference, to public and circulate posters, to write articles for the national newspapers and to follow up trade negotiators so as to foil any pressure to join UPOV. The campaign was successful in Nepal in raising awareness among different stakeholders, including farmers, to oppose Nepal's UPOV membership. With NAFOS campaign coming down in support of anti-UPOV membership, the Nepalese delegation declined to join UPOV on August 15, 2003.

Source: Adhikari and Adhikari (2004).

## 2.3 International Treaty on Plant Genetic Resources for Food and Agriculture

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is the first legally binding agreement focussing specifically on the conservation, sustainable use and access of PGRFA. ITPGRFA was adopted by FAO on November 3, 2001 and entered into force on June 29, 2004. The Treaty covers only PGRFA and does not include other plant resources like those used for medicinal and aromatic purposes. Up to August 2016, there are a total of 131 contracting parties. Working in harmony with the CBD, the international treaty has three main objectives:

1. Conservation of PGRFA
2. Sustainable use of PGRFA
3. Fair and equitable sharing of benefits derived from the use of PGRFA sharing of benefits arising from the use of PGRFA in a fair and equitable manner.

ITPGRFA focuses on international pooling and sharing of genetic resources through a multilateral system (MLS) of ABS for agriculture research and food security. The treaty has made the provision of Standard Material Transfer Agreement (SMTA) to administer the access process. Under the MLS mechanism, PGRFA are kept in common pool as a public good that has common benefits to global community for ensuring global food security. The system aids in sharing of PGRFA materials through facilitated access rather than free or restricted access. The MLS puts 64 of the most important crops (crops that account for 80% of food derived from plants) into an easily accessible global pool of PGRFA that is freely available to potential users in the Treaty's ratifying nations for research, breeding and trading for food and agriculture. Fifteen centres of the Consultative Group on International Agriculture Research (CGIAR) maintain over 700,000 samples of PGRFA in their collection and held in FAO trust that are accessible under the terms of the MLS of the International Treaty; Every year the CGIAR centres distribute more than 600,000 seed samples of different crop species around the world (Bhatta, 2000). While the ITPGRFA is considered to have developed a mechanism to counter balance the IPRs of commercial breeders by realizing farmers' contribution in developing countries, it also promotes international cooperation and open exchange of genetic resources for conservation, agriculture research and food security.

Article 9.1 of the ITPGRFA recognizes the enormous contribution indigenous communities and farmers make to the diversity of crops that feed the world. According to Article 9.2, the responsibilities of recognizing farmers' rights lies with national governments and it lists measures that could be taken to protect and promote these rights. While formulating national legislation, governments should aim at protection of traditional knowledge, ensure equitable rights of farmers to participate in benefits accruing from the utilization of PGRFA, promote the rights of farmers to participate in decision-making process at the national level on matters related to conservation and sustainable use of PGRFA, and ensure farmer's rights to save, use and exchange, and sell farm-produced seed/propagating material.

Article 10 of the ITPGRFA deals with the MLS of ABS. According to this Article, contracting parties recognize the sovereign rights of states over their PGRFA, including the authority to determine that access to those resources rests with national government and is subject to national regulation. In addition, Article 10.2 states that contracting parties agree to establish a MLS which is efficient, effective, and transparent both to facilitate access to PGRFA and to share, in a fair and equitable way, the benefits accruing from the utilization of these resources (FAO 2009).

Those accessing genetic materials through the MLS agree to freely share any new development with others for further research or if they want to keep developments to themselves they are free to do so by paying a percentage of any commercial benefits they derive from the research into a common fund to support conservation and further development of agriculture in the developing world. The benefit sharing fund was established in 2008. These funds are complemented with voluntary contribution from countries, international foundations and private sector. The funds accumulated over the period flow primarily to farmers in developing countries who use and conserve crop biodiversity. There is also a non-monetary benefit of the MLS in terms of exchange of information, technology transfer, and capacity building, especially for developing countries (Dahal 2014).

Nepal signed the Treaty on November 3, 2001 and ratified it on January 7, 2007. The Ministry of Agricultural Development (MoAD) is the focal point for the ITPGRFA and is responsible for taking initiatives required to fulfil the commitments made as a party to the Treaty. Within the ministry, the Joint Secretary, who heads the Gender Equity and Environment Division (currently, Food Security, Agribusiness Promotion and Environment Division), represents



Nepal at conference of parties (COP) and coordinates with local stakeholders to implement the treaty in the country<sup>1</sup>. Until the fourth governing body session of the ITPGRFA Nepal was an observer but at the fifth governing body session in Oman, Muscat, Nepal participated as a member.

Since accession to the Treaty was in 2009, the country needs to develop legislation and regulations in accordance with its obligations under the Treaty. The implementation of the ITPGRFA is important to ensure the continued availability of PGRFA that Nepal needs to use for food security. By ratifying the Treaty, Nepal also agrees to make its genetic diversity and related information about crops stored in its gene banks available to all through the MLS. The MoA Dalong with the NARC and Local Initiatives for Biodiversity Research and Development (LIBIRD) were the part of a Genetic Resources Policy Initiative (GRPI-II) for the year 2012-2013. Similarly, LIBIRD, NARC and International Plant Genetic Research Institute (IPGRI) have also initiated in-situ conservation of agricultural biodiversity in different districts of Nepal (IUCN 2004). The government has established a national steering committee chaired by the joint secretary of MoAD that aims to develop mechanisms for effective implementation of the Treaty by creating governance structure and developing/revising policies and laws through broader consultation and consensus from all the key stakeholders. The committee is also responsible for setting up governance mechanisms for the implementation of the ITPGRFA, conducting policy research to identify options, disseminating research findings and concluding stakeholder agreements, developing policies/laws to facilitate the MLS, suggesting strategies for strengthening national capacity to implement the MLS, and enhancing knowledge and awareness on the MLS. Although the government of Nepal has been taking steps towards the implementation of ITPGRFA and farmers' rights in country, the process has been slow blamed at lack of expertise in the government and the continuous staff rotation within different ministries.

Although, the ITPGRFA is a major initiative taken for the conservation and use of PGRFA, the treaty still has some weaknesses that needs to be addressed. There is a need to develop more international support to developing countries in favour of an enabling environment conducive to conservation and sustainable use of PGRFA, especially in terms of capacity building. There is also a need for a detailed mapping and measuring of PGRFA flows and interdependence. There is also need to develop capacity to implement the ITPGRFA effectively by increasing research

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<sup>1</sup> <http://moad.gov.np/en/division.php?id=6> accessed on 15 August 2015.

on policy network structure, actor characteristics and coalition. There is also a need to link farmers to the ITPGRFA and the MLS, and understand the potentials and challenges of strengthening access to PGRFA through community based gene and seed banks. The implementation issues regarding the protection of farmers' rights to PGRFA and associated traditional knowledge also need special focus within the Treaty negotiations.

## **2.4 International Labor Organization, Convention No. 169**

Convention 169 under the International Labour Organization (ILO) (popularly recognized as ILO 169) is a legally binding international instrument that deals with the rights of indigenous and tribal people. It was developed in 1989, and as of 2013, has been ratified by 20 countries, Nepal being one of them. It gives opportunities to the ratifying countries to develop frameworks, partnership or other measures to protect indigenous rights. The Convention states that indigenous people should have fundamental rights to participate in decision making and implementation of the decision regarding the utilization of natural resources and associated traditional knowledge, which is deeply attached with the livelihood of the particular communities. Member countries of the Convention are obliged to protect the rights of indigenous people and their knowledge. Although ILO 169 does not specifically address PGRFA, it still contributes to the conservation and management of PGRFA based on legal and moral obligations. It aids in the implementation of indigenous rights and provides further guidance on incorporating indigenous rights in the management of PGRFA.

Nepal ratified the Convention in August 22, 2007, making it the first country to ratify in South Asia and second in the Asia-Pacific region. Protection of indigenous rights is especially important in the case of Nepal since 37% of the country is made up of 59 different groups of indigenous people. These indigenous people depend on agriculture for daily subsistence hence ILO 169 adds to the importance of protecting farmers' rights in PGRFA in the context of Nepal. Indigenous population in Nepal have been contributing to sustainable conservation of biodiversity and PGRFA, mainly in the form of in-situ conservation. However, there is lack of effective implementation of the Convention in Nepal. The ILO has provided technical support to the government for the preparation of a National Action Plan for the implementation of the Convention but the government has failed to avail the benefit blamed at political instability and uncertainties. The Ministry of Federal Affairs and Local Development is the focal ministry for ILO 169, and the National Foundation for Development of Indigenous Nationalities is

technically acting as the advisor to the ministries in implementing ILO 169 in the country. In the context of Nepal, one of the most appropriate ways to provide rights of knowledge to indigenous people would be to developing a national *sui generis* system for commercialization of potential products for the benefits of indigenous people. To develop a national *sui generis* system, there is a need to verify the available resources, their commercial potential and resource protection including management modality adopted by indigenous people. There is also a need to document indigenous knowledge, practices and skills of all 59 or more indigenous nationalities in Nepal.

Even after more than two decades many controversies still exist in regard to the Convention. ILO 169 has been mainly criticised for not fully embodying the point of view of indigenous people. There is a controversy about the very wording of the document which is taken as a direct insult to the right of indigenous people. In different countries government and many non-government organizations are actively involved in the initiation of the drafting of legal instruments to conserve natural resources along with emphasis on protection of indigenous peoples' knowledge. Within Nepal there is also a lack of common understanding about the Convention mainly due to its diverse interpretation made by different stakeholders. Hence even though, rules and regulations have been set in the country to encourage and increase the volume of participation of indigenous people, in reality the participation of indigenous people in the use, management and conservation of natural resources is below the mark.

## **2.5 The International Union for the Protection of New Varieties of Plants**

The International Union for the Protection of New Varieties of Plants (UPOV) is an international organization based in Geneva, Switzerland, established in 1961 by the UPOV Convention. The Convention was revised in 1972, 1978 and its latest version was introduced in 1991. The UPOV Convention aims to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. The Convention provides the basis for members to encourage plant breeding by granting breeders of new plant varieties an IPR: the breeder's right.

However, the adoption of UPOV rules and regulations will have an adverse impact on traditional practices followed by farmers and their ability to reuse seeds from their crops. According to Article 15.2 of the UPOV Convention, farmers are only

allowed to reuse protected materials if the “legitimate interests of the breeders” are taken care of, which in this case means payment made to the breeders at the expense of the rights of farmers.

Since adoption of UPOV would mean that the government would not have adequate space to implement farmers’ rights, Nepal declined to become a member of the UPOV. As mentioned above, majority of the population in Nepal are dependent on agriculture and are made up of small-scale farmers. These small-scale farmers depend on traditional and informal seed exchange. They have customary practices of freely saving, using, exchanging and selling farm-saved seeds and other propagating materials. UPOV 1991, on the other hand, imposes a restriction on such methods and hence seriously undermine the interest and rights of small-scale farmers. The UPOV model deals with an environment where most of the plant breeding and seed research is conducted on a private domain, through commercialized breeders. In the case of Nepal, majority of the agricultural research is conducted in public institutions like NARC. Hence, UPOV does not seem relevant in the case of Nepal, which is a least-developed country and put rights of small farming communities in jeopardy.

Unlike some other developing countries, Nepal was able to avoid the pressure to join UPOV during the WTO accession process (see box 1 for Nepal’s battle against UPOV) and made a commitment to devise a separate free-standing act for plant variety protection, which will be its own *sui generis* system.

## 2.6 The United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in May 1992. The framework aims to stabilize greenhouse gas (GHG) concentrations at a level that would prevent dangerous anthropogenic interference with the climate. In this regard, the UNFCCC provides a framework for negotiating specific international treaties and protocols that may set binding limits of GHG.

The Doha Convention on Climate Change stated the need for the selection and multiplication of the most promising crop varieties adapted or resistant to adverse conditions like droughts, flood, soil salinity, etc. in national and international laboratory as an initiative to tackle climate change in terms of PGRFA. It also stated the need to secure initiatives on climate change by

developing policies on PGRFA to assist communities as well as decision makers adapt to changes that damage ecosystems and livelihoods.

Nepal signed the Convention on June 12, 1992 and became a party on May 2, 1994. In the case of Nepal, the Ministry of Science, Technology and Environment (MoSTE) is the designated national authority for regulating climate change. Within the Ministry, it has established the climate change management division. The division is engaged in developing reduction and adaptation policies and programmes with regard to climate change impact, among others. Also, National Adaptation Program of Actions and Adaptation Programme of Action to Climate Change (NAPA) 2010 at the national level and National Framework on Local Adaptation Plans for Action (LAPA) 2011 at the local level are currently being implemented to enhance adaptation capacity against the climate change impact. Currently, Nepal is also the chair of the LDC group of countries within UNFCCC. MoSTE has been continuously involved in raising issues and concerns that the country faces in regard to climate change at international negotiation processes. Needless to say, due to its geography, population density and poverty, Nepal is vulnerable to climate change. Hence, it requires varied and complex adaptation needs to address these impacts. Therefore, it needs to focus on raising issues of technical and financial assistance at the framework of UNFCCC to improve its adaptation capacity in areas of agriculture and PGRFA management.

## **2.7 Regional Seed Bank in South Asia and Framework for Material Transfer**

Eight countries of South Asia—Afghanistan, Bangladesh, Bhutan, India, The Maldives, Nepal, Pakistan, and Sri Lanka—consist of the South Asian Association for Regional Cooperation

(SAARC). The South Asian governments have realized the importance of having a sub-regional and regional self-reliance in agriculture with respect to attaining seed security as a means for attaining food security. Although the talks to develop South Asian cooperation in favour of establishing a gene bank started as early as 1990, it was only the 16<sup>th</sup> SAARC Summit in Thimpu in 2010 that the idea of the establishment of a regional seed bank was proposed. Finally, it was during the 17<sup>th</sup> SAARC Summit in the Maldives in 2011 that countries signed the SAARC Seed Bank Agreement and the Framework for Material Transfer Agreement to help farmers have access to quality seeds from the reserve in cases of a shortage due to natural calamities. Its main objectives are (Adhikari 2012):

1. to provide regional support to national seed security
2. to address regional seed shortages through collective action
3. to foster inter-country partnership.

According to the Agreement, each country will be required to contribute 1% of their total seed requirements to the Seed Bank as reserve. The Bank will in turn provide member countries quality seeds, exchange seeds and plant genetic resources, and share practices and technologies among members to produce seeds. The Framework for Material Transfer Agreement will be applicable to the operationalization of the SAARC Seed Bank Agreement mainly for facilitating easy movements of seed and planting materials across South Asia.

However, the current policy of the Seed Bank does not state how it will help the empowerment of local farmers to benefit from local seed systems. Although it does recognize the need to preserve local and indigenous varieties, it does not clearly state how and through what mechanisms should such varieties be conserved. The Framework for Material Transfer Agreement abides with the ITPGRFA but does not mention about the CBD. South Asian governments need to take a balanced approach to safeguard the interests of farmers from the impacts of IPRs and take regional measures to protect farmers' rights to PGRFA and associated traditional knowledge. In this respect, the Seed Board, formed as the implementing institution within the Seed Bank Agreement, needs to reflect upon the equity principles of the CBD, including in relation to ABS. It should also work with community-based seed systems and assist in strengthening these local seed exchange systems with adequate policy, legal and institutional measures (Adhikari 2012).

# Chapter 3

## 3. NATIONAL POLICY AND LEGAL DIRECTION

### 3.1 Seed Policy 1999

Nepal adopted market oriented liberal policy regime in mid 80s. The ultimate goal of the policy shift was to create a conducive environment for the private sector to lead the economy. To this end, the government brought in many new policies and carried out various legal reforms as well and opened up various new economic areas to the private sector. Seed sector was one of them. Government of Nepal brought in a new Seed Act in 1988. The act was enacted basically to liberalize the seed sector. However, to address the broad need of seed sector development, National Seed Policy was introduced in 1999. The policy aims to producing, disseminating and availing quality seeds to the farmers so as to enhance the agriculture productivity in the country. So, it is largely focused on increasing seed production, and strengthening the quality control and supply management with regard to the seed supply chain.

The policy however focused on facilitating seed production and regulating the business, and is not extended up to biodiversity management. It is silent on many issues such as, access and benefit sharing mechanism, farmers' rights, technology transfer, exchange of the information and so on. Maintaining genetic character over local seeds and protecting the rights over them are touched upon in the policy<sup>2</sup>, though. The policy has opened the area of variety development to the private sector as well as NGOs. It also talks about granting variety rights to the breeders. However, the policy doesn't speak anything on how the local people engaged in the conservation of agriculture biodiversity are encouraged and how the community as a whole is benefitted by the use of PGRFA conserved by the respective community. Similarly, no policy is suggested to facilitate the access and benefit sharing with regard to variety development and commercial utilization of it made by the private sector and NGOs. Thus, the policy is focused only on promotion and regulation of seed production business, including export and

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<sup>2</sup>For example, one of the objectives of the policy is "to maintain and secure genetic characters in the seeds which have Nepal's own specificity"; and in the policy section, it is written that agro biodiversity conservation and variety rights will be established.

import, and is clueless in many issues related to sustainable management of biodiversity.

Apart from giving the direction to policy issues that are related to seed production, supply and import regulation, the Seed Policy includes many critical issues—such as regulation of import of seed, urgency of the bio-safety regulation, importance of bio-technology and other scientific advancement, such issues are not given concrete and workable direction, though. Realizing this fact and in cognizance of the changing international dynamics and local needs being emerged after the endorsement of the Seed Policy 1999, the concerned regulatory authority—Seed Quality Control Centre—is in the process of its amendment. Therefore, the amendment should recognize and acknowledge the conservation of local genetic resources done by local and farming communities; and the need of farmers’ participation in variety development, local variety registration and farmers’ rights.

### **3.2 Nepal Biodiversity Strategy 2002**

National Biodiversity Strategy (NBS) came into being in 2002. It was brought in the country in line with the principle of Convention on Biological Diversity (CBD). As Nepal ratified it in 1994, commitment at international level; the commercial utilization of such resources and equitable sharing over such benefits at national level created an opportune environment to bring it as an umbrella policy. Thus, NBS is prepared to provide strategic planning framework for next 20 years to support conservation of biological diversity, establish equitable rights of the local communities over the commercial benefits of those resources, among others<sup>3</sup>.

In principle, NBS agrees with many issues raised by CBD, and yet it is unclear on others, particularly issues related to the utilization of genetic resources. The strategy is principally liberal in providing access to the country’s biological resources and their utilization. As to illustrate this, 'wise use' of biological diversity and resources on a sustainable basis is one of the objectives; and long-term sustainable use of biological resources is one of the principles of the strategy. Realizing the roles of farmers and local communities in conservation, the strategy proposes equitable sharing with those communities over commercial

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<sup>3</sup> Also, it regards the context of Nepal where biodiversity is closely linked to agriculture biodiversity, human health, nutrition, gender equality, climate and water resources. Moreover, it also takes into account the nation’s central goal of reducing poverty while highlighting the strategy of commercialization of biological resources.



benefits of biological resources. However, it doesn't mention about the process of accessing the genetic resources in particular. According to the NBS, the identification of priority areas for bioprospecting is critical to promote the utilization of genetic resources. However, it remains silent on PIC and mutually agreed terms (MAT)—to be conducted while providing access to genetic resources—which are essential elements to realize the local, indigenous and farming communities' rights.

The strategy proposes farmer's rights on PGRFAs, particularly whose origin of diversity is within Nepal. It proposes such rights as trustee at the international level for farmers' contribution in conserving, maintaining, improving and making available PGRFAs. Therefore, it is a kind of collective rights of the farmers which can be realized only when PIC becomes legal obligation. Conversely, IPR is proposed to provide farmers and local communities on their discovery/creation. Thus, there is remarkable progress in honouring the contribution of local, indigenous and farming communities as compared to Seed Policy 1999.

The strategy is an important policy document since it has brought many critical proposals to the fore with regard to the sustainable management of the PGRFAs. However, the strategy would be effective and workable only when some missing issues were addressed. For example, *ex situ* conservation is adopted as the complementary strategy of *in situ* conservation. Particularly, gene banks are proposed for PGRFA conservation. But, the lack is that the document neither mentions about the priorities of gene banks, nor it defines the rights and responsibilities of the associated farmers<sup>4</sup>. So, National Gene Bank, which is set up at central level, is lacking proper legal base to effectively work for conservation of PGRFA. The strategy also suggests maintaining the inventory of the valuable PGRFA within the respective community but the strategy lacks the proper idea of institution for this purpose.

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<sup>4</sup> Each member country of the ITPGRFA is obliged to facilitate the access to the PGRFA of 64 crops listed in the annex one of the treaty. In this connection, multilateral system of access and benefit sharing is proposed to the listed crops. The treaty obliges contracting parties to include PGRFA of the listed crops which are under the management and control of the contracting parties and are in public domain. Additionally, parties should invite other holders to include such resources in the multilateral system. i.e., those holders are free to decide whether or not to include their resources. Moreover, multilateral system of access and benefit sharing will be followed while providing access to those resources. Therefore, the farming community which provides the particular genetic material to the gene banks is to be honored in a way.

Biodiversity registration is another strategy incorporated in the NBS. The strategy mentions, traditional knowledge related to the biological resources will be documented, shared and conserved through District Biodiversity Committee. But no idea can be found in the document regarding how such resources will be commercially utilized and how farmers will be benefitted; how the registration can be made authentic, secret; and how the conservation itself would become sustainable. Such registration has been initiated by few NGOs but their work is in question regarding authenticity and security of the gathered information. In addition, public participation is principally incorporated as a key in the strategy. But, it appears only a token representation at policy level and is not in tune with the spirit of the rights of local and indigenous people dealt in CBD and the Nagoya Protocol, and farmers' rights conceptualized in ITPGRFA. There is a National Biodiversity Co-ordination Committee (NBCC) at central level to develop policies and to provide institutional, political, and operational guidance for the implementation of NBS. There is hardly the representation of farming and local communities in the NBCC. Neither, it proposes any concrete idea to ensure the representation of those communities at policy level *vis-a-vis* biodiversity conservation and utilization.

Additionally, the strategy has made a number of proposals to enhance the institutional capacity and empower the stakeholders. There is a proposal to create District Biodiversity Committee in every district over a period to raise awareness and train authorities in biodiversity conservation and management. Idea of enhancing indigenous research capacity and engaging academic and research institutes in biodiversity conservation however doesn't seem concrete. But, initiation of participatory plant breeding and participatory variety selection would definitely help integrate local landraces into breeding strategies and enhance the indigenous research capacity in agriculture sector. On top of all, the country is lacking the legal mechanisms that open country's genetic resources for commercial utilization, institutionalize the rights of the local people over the commercial benefits of such resources.

### **3.3 Seed Act 1988, Amendment 2002**

Nepal began policy reform process to switch over to market oriented economic policy regime since mid 80s. The overall objective of the reform was to create a favourable environment for the private sector which could contribute to achieving sustainable economic growth efficiently. Seed Act was one such effort in this direction in 1988 aimed at facilitating private sector in variety development, seed production and business, and regulating quality of the seeds.

Moreover, the Act had also brought seed related activities within the purview of the Act and prescribed a process to be followed while conducting seed related activities, particularly, seed production, export-import and trading. As it was the starting point and there were many issues to be addressed and provisions to be improved, it was amended in 2002.

Though the Act was brought to facilitate and regulate the country's seed sector, it is silent on many issues critical for sustainable management of PGRFA—such as access and benefit sharing mechanism, intellectual property rights, farmers' rights. They were not factored in even in the amendment carried out after NBS was launched. At least, this could acknowledge the need of the farmers' rights and define such rights over seed.

On the contrary, the Act promises to provide right of ownership to the breeder over new variety's seed. The provision seems to be abridging arrangement to protect plant varieties in the absence of PVP law.<sup>5</sup> It is in line with the Seed Policy to promote private sector in variety development. However, it raises the possibility of misuse of the certificate which could disregard the contribution made by farmers. Therefore, in spite of various efforts, the country's policy and legal initiatives up to the point are still inadequate to create ABS mechanism. In this context, there is a need for improvement in the Act taking into account the broader need of sustainable agriculture development and food and nutrition security in the country.

### **3.4 Agriculture Biodiversity Policy 2006(revised in 2014)**

Earlier, National Biodiversity Strategy had brought some of the issues of agriculture biodiversity to the forefront. During the same period, Nepal's participation at ITPGRFA was under discussion. These two steps heated the debate on sustainable use of agriculture biodiversity in the country. It finally led to the formulation of a separate National Agriculture Biodiversity Policy (ABP) in 2006. It was a comprehensive document in the sense that it broadly aimed to facilitate conservation and sustainable use of PGRFA and associated local and traditional knowledge, and fair and equitable sharing of the use. Additionally, the policy acknowledges the link between agriculture biodiversity and food security,

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<sup>5</sup> But the conditions set for getting such ownership are softer in Seed Act compared to internationally acceptable standard criteria—distinctness, uniformity, stability and novelty—as prescribed by International Union for the Protection of New Varieties of Plants (UPOV) convention 1991. In the act, condition to get the right of ownership is that the new seed should have speciality, uniformity and permanency.

sustainable agriculture growth, poverty reduction and environmental balance. Revised version emphasized on the importance of climate change adaptation and environmental balance for sustainable agriculture.

The ABP advanced the idea of utilizing PGRFA for the first time in Nepal. Moreover, the important progress of this policy with respect to NBS is that it came up with a number of working policies including PIC, one window system of documentation and access and benefit sharing, community biodiversity registration, provision of farmers' rights, among others. In the policy, PIC is prescribed as a condition of getting access to the PGRFA<sup>6</sup>. Furthermore, principle of equitable benefit sharing with the associated community has been adopted in case of commercial use of PGRFA and associated TK. The policy principally accepted farmers' rights in the way that NBS had proposed and are promoted as a tool to achieve the broader objective of sustainable management of PGRFA.

## **Box 2: International Treaty on Plant Genetic Resources for Food and Agriculture Article 9 - Farmers' Rights**

- 9.1 The Contracting Parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.
- 9.2 The Contracting Parties agree that the responsibility for realizing Farmers' Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:
- a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
  - b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and
  - c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.
- 9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.

Source: <http://www.fao.org/documents/card/en/c/5895b670-1177-57fb-a40d-3ab534b110ad/> accessed on 5 August 2015

The obligation of PIC set down to have access to the resources will also help realize the farmers' rights. In the case of seed, the policy calls for strengthening traditional seed exchange system. Therefore, legal mechanism is required now to define the meaning of farmers' rights in the spirit of ITPGRFA (see the box), ABS provisions as well as to establish country's sovereign rights over its PGRFA.

The revised version of ABP has, however, come up with more specific strategies targeting each of its four objectives. For example, it has outlined the concept of farmers' rights, which includes farmers' freedom of traditional seed use practices, participation in decision making process, legal provision of farmer group registration, compensation rights against biopiracy. The work of national gene bank toward documentation, ex-situ conservation and increasing access to genetic resources of international gene banks also gets a mention to some extent. Additionally, the policy has brought in some new strategies as well. To include them, added strategies are devised for effective in situ conservation and sustainable use, risk analysis of genetic resources, identification and conservation of agricultural biodiversity hotspots, conservation and promotion of neglected and underutilized varieties, collaboration with related governmental and nongovernmental organizations, community groups. Yet, the revised policy is not clear about how the TK can be useful to advance domestic research capacity in the light of the fact that the earlier version mentioned about research and documentation of agriculture biodiversity and associated TK, and development of scientific technology based on farmers' knowledge and skills in the country.

### **3.5 Climate Change Policy 2011**

The government of Nepal brought in Climate Change Policy in 2011. It was formulated to implement climate change-related national and international commitments such as United Nations Framework Convention on Climate Change. The policy prescribes a low carbon emission development path to minimize the adverse impact of climate change on various sectors, including agriculture biodiversity. Therefore, it focuses on improving the situation deteriorating from excessive use of energy consumption, deforestation, melting glacier lake, and increasing emission gas production.

The policy is primarily in place to address the issues associated with climate change. Hence, issues of access and benefit sharing and farmers' rights are not covered in the policy. However, there are few other critical issues therein which could positively aid to agriculture biodiversity management. For example, there is

a policy to empower critical stakeholders—such as local communities, policy makers, media, teachers, etc.—on climate change related matters. It may eventually be supportive at all levels to carry out the work of conservation and sustainable use PGRFAs. The policy could bring a proposal to coordinate with and strengthen District Biodiversity Committee (as proposed in NBS) to this end. Promotion of technology is a new issue being accommodated in the Climate Change Policy. In particular, the policy encourages developing and transferring green technology (such as offering incentives to develop appropriate technology), improving traditional techniques, indigenous knowledge and skills. Realization of those policies at programme level would eventually contribute to the conservation of agriculture biodiversity to some extent.

Stakeholders' participation is mentioned in the Climate Change Policy for various purposes. Some of the policies with regard to documentation and conservation are however brought in a conventional way<sup>7</sup>. Additionally, some of the ideas of this policy—such as climate friendly natural resource management, low carbon emission and climate resilient development path for socio-economic growth—will directly or indirectly contribute to the management of biological resources in general in the long run.

But, since climate change is a cross-cutting issue, the Policy has been developed as a framework policy. It guides the country's development policies/strategies to become climate sensitive. Therefore, it is not precise in regard to many issues which require integrated approach and coordinated efforts at the programme level to realize the outcome. Moreover, the sectoral policies need to be reframed so as to avoid the duplication and produce synergic outcomes. Otherwise, there are a number of issues—such as ensuring peoples' participation; promoting and improving local knowledge/techniques/skills; technology transfer; documenting indigenous knowledge; opting for climate friendly development path; and empowering stakeholders—which will remain only in words.

### **3.6 Access to Genetic Resources and Benefit Sharing Bill**

The government of Nepal has drafted a bill on Access to Genetic Resources and Benefit Sharing (ABS bill hereafter). The draft is primarily prepared to fulfil the

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<sup>7</sup> For example, it proposes the identification, development and utilization of drought-tolerant varieties/species; collection, publication, dissemination and utilization of the traditional and local knowledge, skills, technologies and practices; adaptation and mitigation measures based on local knowledge and skills.

country's obligation in implementing the principles of the CBD—such as establishing country's sovereign rights over its genetic resources and traditional knowledge, facilitating access to genetic resources, and provisioning equitable rights of the local and indigenous communities, among others. However, it was put on ice for longtime. MoFSC has recently taken initiatives to push the draft through.

The bill has tried to translate many of the concepts into legal frame. As to illustrate this, the bill defines access<sup>8</sup> and designs the legal process of accessing country's genetic resources and associated TK. One of the conditions<sup>9</sup> set forth for getting access is that the accessing party should disclose the objective of accessing resources and method of utilization, and benefit offered to the associated communities. Benefit sharing mechanism is another important component of the proposed bill. It mentions that share of the benefits will be decided on mutually agreed terms between the accessing party and the negotiating committee formed by the National Genetic Resource Council<sup>10</sup>. The benefits might be both monetary (such as royalties and fees) and/or non-monetary (such as technology transfer and right to participate in end product) and that should be shared with concerned stakeholders in the prescribed manner. Moreover, the Council is supposed to serve as one stop service centre to administer all above mentioned activities.

If the legislation is pushed through, the associated local and indigenous community will hold the rights over traditional knowledge associated with the genetic resources available in a particular community. Moreover, the legislation allows not only the government but also local bodies and organizations to document biodiversity, associated components of it, and TK. In that case, it would

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<sup>8</sup> Access is defined as the permission to collect or get the biological and genetic resources; or genetic materials; and associated traditional knowledge, skills, technology, practices available in the in situ and ex situ conditions. Therefore, providing access doesn't only mean to provide the material but also to share the information regarding traditional knowledge, practices, skills, innovations associated with the particular resource

<sup>9</sup> Access seeking party should submit the details of the genetic material or associated TK in concern; methods and process of technology, innovation being used for access and utilization of those materials, biosafety measures being used for access, utilization and export; evidence of PIC and method of benefit sharing with the community, and system of community's participation at the end products; among others.

<sup>10</sup> National Genetic Resource Council will make a negotiating committee in order to negotiate with the resource seeking party. The committee will be comprised of experts and representatives of various sectors such as legal, technical, and management experts as well as associated local authority, women, dalits, indigenous nationalities.

come up with the mechanism that ensures the security and secrecy of the documented information. However, there are some issues missing in the legislation. In particular, it has not fully acknowledged specialities and addressed the issues of agricultural genetic resources. Moreover, provisions of documentation of agro genetic resources and technology transfer are weakly formed; terms of references for Biodiversity Committee and its institutional linkages with other agencies are not clear. Additionally, provision of the disclosure requirement to have IPR is missing.

### 3.7 Plant Variety Protection and Farmers' Rights Bill

While accessing in the WTO, Nepal had made a number of promises to create a conducive environment for private sector. Providing protection to plant varieties was one of those promises. The government was able to negotiate for a *sui generis* type of legal framework during the WTO accession process. Thus, utilizing the policy space available within this type, the government has prepared a draft bill on Plant Variety Protection and Farmers' Rights (PVP bill hereafter). The bill has provisioned farmers' rights while providing breeders' rights over new variety. Civil society organizations like SAWTEE have also offered many suggestions to the draft so as to balance these two rights and to control biopiracy. As the country had made commitment to bring in such legislation by 2007 and got extension until 2021, the bill is still in the draft form and is not furthered for legislative process (Adhikari 2008).

This bill is primarily prepared to protect breeders' rights, which is a kind of private intellectual property rights, over new plant variety. Yet, the draft legislation—while providing such private rights—tries to regulate the access to genetic resources. As to illustrate it, the bill asks for the disclosure while applying for PBR<sup>11</sup>. In addition, the bill protects the right of the community to provide PIC regarding the use of GRs and associated TK, to get equitable share on commercial benefits accruing from the use of the resource, and to get information about further use of accessed resources. Thus it shows how the proposed bill has adopted ABS principle and how right of the farmers' is protected as outlined in ABS.

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<sup>11</sup> Disclosure requirement is a proof to show that the breeders have taken PIC from and made agreement with resource conserving communities with regard to the access to parent materials and benefit sharing over new variety. The idea is suggested to check biopiracy, and benefit and honour the resource conserving community from new variety.



Additionally, farmers' rights to continue to engage in traditional practices of saving, reusing, exchanging and selling seeds in informal way over IPR protected varieties are a part of the bill. Moreover, compulsory licensing is provisioned to ensure access of the farming community to the new and protected varieties. These rights are not entitled to an individual farmer but to the farming community as a whole.

The civil society organizations have made some critical suggestions to the draft apart from the provisions mentioned above. They have basically helped harmonising the legislation with other policy and legal measures, and protecting vulnerable farmers from the risks of being affected after enactment of IP law. For example, a farmer/farming community can register variety developed by him/hers as a 'farmer's variety'. Farmers' groups and organizations are also recognised in the legislation. Yet, the provisions are not sufficient to institutionalize them so as to accommodate such organisations in many important activities<sup>12</sup>. Additionally, there are the provisions of regulation of import and business of the varieties having undesirable modification, and compensation to the farming communities if they are misinformed by the breeders and seed companies. In order to develop country's database, the competent authority is obliged to record, document and disseminate the advancement in the seed technology and the nationally and internationally registered and protected varieties.

### **3.8 Seed Regulation 2012**

Seed Regulation had come first in 1997 in order to implement Seed Act 1988. It was amended in 2002. As there were a number of policy changes in the areas of PGRFA, it was modified in 2012 again, considering those policy changes. The primary objective of the regulation is to implement the act by way of facilitating legal process required for seed production and trade and ensuring quality seed supply.

It is not the appropriate regulation to speak about access and benefit sharing. It needs to be harmonised with other laws and policies. However, the regulation is weak in acknowledging the policy of ABS and farmers' rights. For example, the regulation provides the certificate of ownership over new variety of seed. While applying for such certificate, one has to inform about type of crop, variety and level. However, it is not clear whether the variety in concern should qualify the

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<sup>12</sup> Such as plant variety development, awareness programme for conservation of the resources

distinctness, uniformity, and stability or not. Whereas, approval, registration, and release require to fulfil these criteria along with disclosure of parent materials and origin of the country. Additionally, such certificate is only provided to 'new variety' and is silence on farmers' variety.

However, there is a provision of the registration of seeds of local varieties in the national listing. Such provisions will ultimately strengthen country's information system on PGRFA and local varieties available in the country. The work of registration is to be tied with the ex situ conservation. Furthermore, evaluation method of compensation is subjective in the legislation. Compensation right of the famers in the case of crop failure due to misinformation should be included in the Act and Regulation properly.

### **3.9 Seed Vision 2013-25**

Seed Vision is the first official document of its kind. The broader aim of the Seed Vision is to increase crop productivity; and promote self sufficiency, import substitution and export promotion of the quality seeds. So, it assesses every component of the value chain and identifies the gaps to be bridged. Moreover, it proposes the short, medium and long-term activities—to be implemented by 2025—with the associated costs and expectations. Therefore, it is important to assess the guiding principles, strategies and proposed activities of the Seed Vision from the perspective of sustainable management of PGRFA.

The Seed Vision mentions that yielding of the crops in Nepal is far below the Asian standard. Therefore, it identifies that new crop varieties and good quality seeds are the most viable options to improve agricultural production and food security sustainably. So, framework of the vision is based on seed value chain, which is characterised by variety development and maintenance, seed multiplication, seed processing and conditioning, seed marketing and seed use.

Varietal development and maintenance breeding is one of the vital components of seed chain. The Seed Vision, under this heading, aims to increase current seed replacement rate, and registration of the open pollinated variety and development of hybrid seed. In order to promote the production and use of hybrid seed, the vision document proposes to develop the policy guidelines for research and for partnership with private sector. In addition, it encourages to expand the access to PGRFA within and outside the country and to use both exotic and local planting materials for the development of new varieties. So, it furthers the idea of increasing the linkages of national gene bank with regional

and international seed banks and community seed banks for exchange of materials and information. So, it could be observed that the direction of Seed Vision is to expand formal seed system of the country.

However, it charts some activities that could contribute to the sustainable management of PGRFA. To include, it mentions about genetic improvement and maintenance, enhancement of the capacity of institutions and human resource, development of climate resilient and nutrition, development of location specific varieties, participatory seed use plan, farmers' involvement in seed multiplication, among others. But, it is important to mention that the vision suggests to bring in the PVP law to address the "legitimate interest of breeders" but expects the protection of farmers' rights and accountable stakeholders to the interest of farmers without proposing any clear and precise legal arrangement.

### 3.10 Agriculture Development Strategy 2015

The Agriculture Development Strategy is prepared to guide the country's agriculture sector for next 10 years. It aims to achieve a tangible progress on food and nutrition security, poverty reduction, agriculture trade surplus, higher and equitable income of rural households and strengthened farmers' rights. To this end, the proposed strategies include improving governance, creating higher productivity, making profitable commercialisation and increased competitiveness in the country. Therefore, the strategy covers wide range of issues from improving input supply to marketing.

Seed is the critical input of agriculture. So, ADS proposes many legal and institutional reforms and programmes in the seed sector<sup>13</sup>. The proposed activities are mostly related to the development, production and supply of quality seeds. It attaches higher importance to modernising seed sector and sounds biased when observed from the perspective of sustainable management of PGRFA. For example, it doesn't bring in any proposal with regard to the implementation of access and benefit sharing mechanism. While proposing other numerous programmes and acknowledging earlier policies and laws<sup>14</sup>, it could

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<sup>13</sup> The focus of the reform is to encourage the private and cooperative sectors to take over the commercial production of saplings, seeds gradually; and limit the government's role in facilitation, quality control, policy and regulations formulation, information dissemination, and monitoring and evaluation.

<sup>14</sup> Seed Policy 1999, Agriculture Biodiversity Policy 2005, Seed Regulation 2069, and Seed Vision 2025.

include many ABS supportive programmes as well<sup>15</sup>. As to farmers' rights, it proposes the Farmers' Commission to advance such rights. But, it doesn't say anything about the scope of farmers' rights. At least, the strategy could acknowledge the understanding of farmers' rights as figured in the earlier policies and strategies.

The strategy, as such, doesn't propose any programme related to conservation, documentation, and registration of agriculture biodiversity. It just mentions about the need for the effective implementation of Agriculture Biodiversity Policy. Besides, few innovative programmes—restructuring national agriculture research system, bringing out NARC Vision, establishing functional linkage between academia, education institutions, and government extension services—are proposed in the strategy. But they are largely supportive to the variety development related research, optimum use of PGRFA, and seed multiplication and are not adequately tied with conservation and sustainable use of PGRFA.

### 3.11 Biodiversity Strategy and Implementation Plan 2014

Government of Nepal has brought in Biodiversity Strategy and Implementation Plan 2014. It is more realistic, comprehensive and precise compared to the previous policies and strategies. It is based on lessons learned from previous policies and strategies, identifies threats and gaps, and has a 35 year long term vision. It includes short term strategies, assigns specific activities with timeline to the implementing agencies, and sets outcomes.

The strategy is based on eight principles. It has proposed 13 broad strategic approaches, 6 biodiversity themes and 15 cross-cutting subjects. As regards agro-biodiversity management, the strategies include improving and expanding the existing community-based management of agricultural genetic resources; strengthening the national *ex-situ* conservation programme; promoting indigenous traditional knowledge, skills and practices, among others. The strategy is precise in the sense that, in order to effectively manage the biodiversity, it has identified the policy and legislative gaps to be bridged; institutions to be strengthened; biodiversity-related international conventions to be mainstreamed; national capacity to be enhanced; traditional knowledge, innovations and practices of indigenous and local communities to be conserved

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<sup>15</sup>Such as in-situ and ex-situ conservation, participatory plant breeding and variety selection, compensation strategy for conservation work, among others.

and respected; among others, with fund mobilization proposals, monitoring, evaluation and reporting schedule.

In comparison to previous Biodiversity Strategy 2002, the current strategy is precise in identifying the legal gap and bridges such legal gap by the activity. As to illustrate this, it has set the timeline to enact the legislations on access and benefit sharing with regard to the genetic resources, plant variety protection, farmers' rights. In addition, it also makes the commitment to bring an umbrella legislation for biodiversity management. Therefore, the critical question at the moment is how the work is done so as to realise the achievements.

# Chapter 4

## 4. INSTITUTIONAL CONTEXT OF THE MANAGEMENT OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

On behalf of the government, there are various ministries at the central level to prepare the plans and programmes and to coordinate their implementation for the management of PGRFA. Similarly, a number of autonomous entities are working at central level in collaboration with those ministries. In addition, there are departments and local and regional offices under those departments to implement the plans/programmes and the laws/regulations.

### 4.1 Ministry of Agriculture for the ITPGRFA

Ministry of Agricultural Development (MoAD) is responsible for management of PGRFA. There are altogether five divisions within the ministry. Food Security, Agriculture Business Promotion and Environment (FSABPE) Division is assumed to prepare and execute policies and directives related to the biodiversity conservation and climate change adaptation. It also serves as focal point of ITPGRFA. The division prepared both Agro Biodiversity Policy 2002 and Agro Biodiversity Policy 2014. At present, it is preparing ITPGRFA Implementation Action Plan and also a list of crops that the Government of Nepal considers to include in the multilateral system through an official notification to the ITPGRFA secretariat. Agro Biodiversity Policy 2014 has formed a National Agriculture Biodiversity Conservation Committee under the leadership of the secretary of the ministry; FSABPE Division serves as the secretariat to the committee. The committee comprises of the representatives from various organs within MoAD and representatives from other relevant ministries. Besides, there is Policy and International Cooperation Coordination Division which closely works with other divisions and departments while formulating policies and strategies<sup>16</sup>. And, Planning Division prepares annual programme, and coordinates with planning

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<sup>16</sup> In 2015, Agriculture Development Strategy, is a 20 year term strategy prepared to guide the agriculture development of Nepal. It is considered as the successor of Agriculture Perspective Plan.

and resource allocating agencies of the government. So, it seems that there is coordination with other entities while making plans and programmes. In order to implement the programmes, there is Department of Agriculture which mobilises regional and district level offices at local level. In addition, Crop Development Directorate assists seed producing farmers and cooperatives which contribute to the utilization and maintenance of PGRFA to some extent.

## **4.2 Ministry of Forest and Soil Conservation for the CBD**

Ministry of Forest and Soil Conservation (MoFSC) looks after forest, watershed and soil conservation. So, conservation of biodiversity, commercial utilization of genetic resources, ensuring fair and equitable share of the benefits accruing from those resources are primarily the responsibilities of MoFSC. Out of five divisions, Biodiversity and Environment Division works to prepare plans, programmes and policies and laws and regulations related to biodiversity and genetic resources. The division is the focal point for CBD. So, it has coordinated in preparing the draft of Access to Genetic Resources and Benefit Sharing Bill. It has also prepared Biodiversity Strategy 2002 and Biodiversity Strategy and Action Plan 2014. There is a 27 member National Biodiversity Coordination Committee (NBCC) under the leadership of the minister to advise the government, to conduct monitoring and evaluation, to coordinate with the NPC, Council of Ministers, and the Parliament. In addition, there is Agrobiodiversity Sub-committee under NBCC to work as a tool to coordinate on issues of agricultural biodiversity while dealing with NBSAP. Similarly, Ministry of Population and Environment is working as the focal ministry of United Nations Framework Convention for Climate Change (UNFCCC), and dealing with the issues of environment and climate change.

## **4.3 Other Entities for the Management of PGRFA**

There are a couple of autonomous (under various ministries) entities which are associated with the management of PGRFA. Seed Quality Control Centre (SQCC) regulates the seed business and provides the services of seed testing. It is only the authorised agency to perform variety release, registration, and notification in Nepal. It also provides the rights of the ownership to the breeder of a new variety. Nepal Agriculture Research Centre (NARC) conducts researches on different aspects of agriculture. For example, it does varietal development taking into account the falling agricultural growth, increased food insecurity, rising climate change effect, among others. Sometimes, NARC and its regional research stations implement the projects—like participatory plant breeding, participatory variety development—to benefit the breeders from traditional knowledge and to

benefit the farmers from the advanced scientific knowledge in the varietal development. In 2014, the government formed President ChureTaraiMadhesh Development and Conservation Board under MoFSC. Its focus is the comprehensive Chure conservation under which it aims to incorporate the conservation of ecosystem and biodiversity, use of traditional skills and knowledge, research and technology development regarding ecosystem, among others. However, one cannot find any concrete programme and method within the board to contribute directly to the PGRFA<sup>17</sup> available in the region.

National Agriculture Genetic Resources Centre (National Gene Bank) was established in 2010. In order to conserve the resources, the centre has adopted ex-situ on farm and in-situ methods of conservation. The centre was envisaged to explore, collect, manage, and characterise all kinds of PGRFA, create a single entry point to get access to those resources and associated data, manage database, among others. At the moment, the centre is engaged in conservation of various types of landraces, breeding lines, genetic stocks, exotic genetic resources, wild relatives, wild edible plants. They are conserved in its storage and tissue bank in the scientifically prescribed level of temperature and moisture. Similarly, it is providing easy access to PGRFA and databases, screening germplasm, doing pre-breeding works, tagging and mapping genes. The centre is also collaborating with a couple of community seed banks to conserve and enhance the local landraces.

Apart from the government, few nongovernmental and farmers' initiatives could be found contributing to the management of PGRFA. Community Seed Banks based in Kacharwa (Bara), Ranibas (Sindhuli), Dalchoki (Lalitpur) are working for conservation, regeneration and maintenance of local landraces. They apply the measures such as storing the seeds in the traditional pots, organising diversity fairs, and operating diversity blocks. NGOs, like LIBIRD, are encouraging community to operate Community Seed Banks and promote cultivation of endangered crops. Similarly, about 17,685 Community Forestry User Groups are formed across the country. They are conserving forests, maintaining forest areas and exploring economic opportunities. Thus, community forestry user groups are also contributing directly/indirectly to conserve some of the wild relatives and wild edible plants.

Thus, it can be concluded that there are a number of authorities which are institutionally working for the management of various components of PGRFA.

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<sup>17</sup> <http://chureboard.gov.np/en/?cat=2>



However, they are not sufficient, adequately backed by the necessary laws and regulation, functionally tied and systematically coordinated with the farming communities. For example, there isn't a comprehensive law to deal with the overall management of PGRFA. Similarly, one can hardly find an authorised agency which not only coordinate with the government agencies, local government bodies, I/NGOs and other international agencies, but also act as the guardian of these farming communities and custodian of the conserved and documented varieties. Moreover, it is difficult to find authorities working to facilitate the access process regarding PGRFAs, protect farmers' rights, address the interests of the research community in coordinated manner. In this context, it is equally important to explore further about the institutional issues and challenges in the implementation of PGRFA-related laws and policies and programmes.

# Chapter 5

## 5. ISSUES FOR THE MANAGEMENT OF PLANT GENETIC RESOURCES

Due to changes brought about in the social, environmental, political, and economic landscape, there are growing effects/challenges in the management of PGRFA. Such effects/challenges are even more complicated in the LDC economies like Nepal. This chapter seeks to explore those effects/challenges faced at various levels -local/national/ regional/international levels. The aim of this section is not to make any specific recommendation but to highlight some of the implementational challenges of PGRFA management being faced owing to various effects.

Effects for Nepal in regard to PGRFA management were explored by conducting personal interviews, focus group discussions, and meetings. During the project period (2013-2016), SAWTEE conducted a number of meetings, dialogues, focus group discussion. Moreover, it participated in many such meetings and dialogues conducted by the government, civil society organizations and private sector. In addition, few personal interviews and discussions were conducted with the issue-specific specialists, practitioners, government officials, community leaders, and farmers. This chapter summarises the issues figured in such meetings and ensuing interviews and presents them below under various headings.

### 5.1 Policies

Related policies should be adequate, clear and harmonised with each other in order to ensure effective PGRFA management. But, it is observed that conceptual confusion exists at policy level blamed at over loaded obligations, people's increased aspiration, depleting resources and changing climatic condition. As discussed, Nepal has already brought in National Biodiversity Strategy and Action Plan, National Agrobiodiversity Policy, Seed Policy, Climate Change Policy, among others. They are discussed thoroughly in the chapter 2. This section discusses about how policy initiatives are affected and ideas are confused.

ABS mechanism has been one of the contentious issues with regard to the components of natural resources discussed in the last decade. Different types of ABS mechanisms are recommended by different policies for different resources. So, one of the challenges is to harmonise those policies. Nepal, being a contracting party, needs to share PGRFA of the annex one crops with MLS. For remaining PGRFAs, MATs as envisaged in ABS law is applicable. However, for PIC purpose, it is not clear about who should be the custodian of those PGRFA outside the annex one. More precisely, it is not clear about the differences between 'local community' of ABS law and farming community considered in ITPGRFA. Applying ABS law for the PGRFA outside the annex one is justifiable only if local community and farming community represent the same community. However, the understanding of different stakeholders vary from person to person with regard to the definition of such communities and their representatives.

Intellectual Property Right is one of the important issues which need to be harmonised with all such policies. Until now, Nepal doesn't have specific IPR Policy in operation. Recently, MoI has prepared a draft. It has included the issues of IPR on plant varieties though MoAD has postponed PVP bill. Moreover, Dr. Devendra Gauchan, former head, Socioeconomic policy Division, opines that the draft of IPR Policy lacks conceptual clarity. For example, the policy has used the word 'patent' to IPR. Additionally, it doesn't mention about *sui generis* system of protection to plant varieties. i.e. it is prepared from the scratch and has not been benefitted by the understanding already developed during the discussion of PVP bill. With regard to Seed Policy 1999, it has abruptly highlighted importance of the variety rights though its focus is to increase seed production, and strengthen the quality control and supply management. At the same time, importance of farmers' rights over seed and PGRFA are not adequately realised. Mr. Ram Ekwil Prasad Yadav, National Agriculture Biodiversity Conservation Society, Kacharwa, Bara, says that it would discourage the farming communities which are contributing to the conservation and development of PGRFAs for ages through their traditional farm practices. Mr. Krishna Sanjel, Dalchoki Community Seed Bank, Lalitpur, opines that policy makers has become confused and lost the direction since they are under pressure to implement conflicting commitments at a time. Mr. Sanjel further argues that, without proper internalisation of those obligations, the policies can not be harmonised, direction can not be converged, and ownership can not be established. Therefore, there is a challenge posed by

the resource constraints to create informed discussion and wider consultation on PGRFA related policy issues.

Addressing the issues of climate change impact is one of the thrust areas of those policies. Agrobiodiversity Policy (ABP) is prepared to ensure better conservation and sustainable use of agrobiodiversity. It should cover the strategy of PGRFA management in the face of climate change impact on agriculture. Similarly, other policies should be harmonised with ABP to achieve the goals. However, policies are sailing in opposite directions in lack of coordinated strategy. For example, Dr. Krishna Prasad Pant, Senior Agricultural and Environmental Economist, argues, Climate Change Policy 2011 doesn't adequately recognise the issues of sustainable seed system and the possibility of collaboration with ABP. Similarly, ABP is far too less focused on issues of changing climatic condition. At the programme level, National Adaptation Programmes of Action (NAPA), has highlighted community based adaptation activities but has not accommodated some of the strategies of ABP—such as participatory plant breeding, participatory variety selection, community seed conservation initiatives, among others. While formulating policies to implement the relevant international initiatives (such as CBD, ITPGRFA, ILO 169), many common issues (such as ABS mechanism, stake of local communities) are taken differently by the policy makers. Therefore, Dr. Krishna Prasad Pant is of view that they need to harmonise policies in such a way that CBD takes a center stage in preparing policy to implement ITPGRFA and vice versa. Mr. Din Mani Pokharel, advocate, feels that resources are not rationally allocated and implementing agencies are overloaded due to duplication of works.

The other important effect in regard to PGRFA management is about falling national independence in policy making. PVP bill tries to balance farmers' rights with PGRFA and associated TK and breeders' rights to plant varieties. As PVP bill is postponed for the time being due to the extension provided to the LDC countries under WTO, Seed Act amended in 2001 has already provided the rights of ownership to the breeders of new varieties. Against this, legal provision is required to protect the farmers' rights. Dr. Pratap Kumar Shrestha, Senior Seed Policy Specialist, suspects that the provision of rights of ownership provided in the Seed Act could be first step taken by multinational seed companies and their local representatives to secure their IP over new varieties. He argues that delay in the

protection of farmers' rights despite the commitment of the government in ABP and Seed Vision, and the increasing interests of multinational seed companies doesn't bode well. Moreover, MoAD is in the process of preparing a list of crops that Nepal considers to include in the multilateral system as part of its obligations under the ITPGRFA. Dr. Ramita Manandhar, Under Secretary, MoAD, says that preparing such list was one of the objectives of the Genetic Resources Policy Initiatives (GRPI) II Project which was implemented by MoAD, NARC, NGRC, LIBIRD with the support of Bioversity International. Considering such covert but aggressive lobby by the external agencies, Mr. Puspa Sharma, Research Director, SAWTEE, argues that the government shouldn't delay in bringing in a free standing farmers' right law to protect the farmers from the vulnerability and safeguard their rights over their resources<sup>18</sup>.

There are few other important issues on which policy makers seem confused and so are the policies. As to illustrate, Seed Policy promotes cultivation of hybrid varieties and ABP promotes conservation of traditional varieties. So, there is absence of proper zoning for those distinct varieties and linkages of these two policies. Similarly, Seed Act 1988 has failed to acknowledge the principle of ABS and farmers' rights though it was revised during the endorsement of the first NBS and after Nepal's signature onto ITPGRFA. Clarity is lacking with regard to the genetically modified (GM) seed as well. Honorable Gagan Kumar Thapa, Chair, Parliamentary Committee on Agriculture and Energy, observes divergent opinions amongst the scientist community regarding the effect of GM seed on global food security. So, he is uncertain about GM seed whether it does good or bad for Nepal's PGRFA and food security. Discussion has not arrived at the conclusion about who would be the custodians of PGRFA and who would be entitled to the 'equitable' rights over the benefits accruing from the commercial use of those resources. There is no clear, unambiguous definition about the farming community, local and indigenous community and tribal communities. Ms Bidya Pandey, Under Secretary, FSAPE Division, MoAD, underscores that due to the resource constraints, lack of informed debate, policy makers, government officials and other stakeholders are not clear about how conservation strategies

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<sup>18</sup> particularly, farmers' rights to continue their traditional seed practices; grant PIC to other for commercial use local GRs they have been conserving and TK; get the equitable share of benefit arising from the commercial use of those resources; and get compensation from the breeders/seed companies in case of production loss when cultivated an IP protected variety due to the misinformation

could be implemented as the country is promoting hybrid seed without zoning; how farmers' rights and breeders rights could be balanced; how scientific advancement and 'fair and equitable share' could be possible at a time; how farmers' rights are addressed while availing the accessions maintained by Nepal to the multilateral system, among others.

## 5.2 Institution and Governance

While talking about institution, many issues come to the fore to be dealt with in this section. In particular, legal arrangement, competent authorities and structures, institutional linkages between such authorities, situation of institutional memory, and conceptual clarity among the authorities are some of the pertinent issues to be discussed in this section.

Currently, there are two basic laws which are dealing with the PGRFAs: Seed Act 1988 regulates the business of seed and Plant Protection Act 2007 regulates the export-import of plant varieties. Therefore, due to the commitments made at international level and the changing context at domestic level, one of the challenges on PGRFA management to Nepal is about setting up the institutions, linking them effectively, and ensuring coordinated function and institutional memory. To this end, as discussed in chapter 2, the government has to bring a number of laws: ABS law, PVPFR law, and other laws to protect rights of the tribal communities over natural resources, and to facilitate and regulate the ABS regarding the PGRFA. Therefore, one of the effects is the growing challenge to prepare all such laws which deal with similar resources in different ways. As to illustrate, since the focal authorities are different for each of all those laws, understanding the issues (such as PIC, access and benefit sharing process), contexts (such as need of conservation, scientific advancement) and primary stakeholders (such as farming community, indigenous community, scientists) might be different for different authorities. So, there might be lack of effort on the part of focal authorities and law makers to harmonise those laws.

While working for legal arrangement, conceptual clarity on the subject is a must. So, we may find the effects on the relevant authorities and stakeholders becoming confused with newly emerged issues leading to conflicting understanding. For example, scientist community, like Mr. Madan Bhatta, Chief, NAGRC, argues that access process to PGRFAs should be made easy so that variety development would be encouraged for global food security. Otherwise, researchers continue to use the PGRFAs available in the international gene bank

system instead of exploring the local varieties. However, organizations representing indigenous and local communities (ILCs) argue that components of natural resources (including PGRFAs) are the properties of ILCs and no access should be granted to outsiders without PIC of ILCs.

Availing PGRFAs to MLS under ITPGRFA is another contentious issue in Nepal. Dr. Bal Krishna Joshi, Senior Scientist, NAGRC, argues that Nepal could avail its PGRFAs to MLS even in the absence of competent law. He argues that once the country becomes a contracting party of a treaty like ITPGRFA, government could treat such treaty as domestic law. Moreover, Standard Material Transfer Agreement (SMTA) is already ratified by the parties as the mechanism of access. However, participants of a policy workshop organised by SAWTEE discussed that the government should not avail such resources without sufficient legal base, also recalling Article 10 which recognizes the sovereign rights of a country over its PGRFA, and Article 11 which obliges the parties to include PGRFA listed in the annex which is in public domain and under the control and management of contracting parties. Now the question arises: what is the legal base that allows the government to avail the resources to the outsiders, distinguishes a PGRFA whether it is under the management and control of contracting party or not, relaxes the farmers' rights to participate in such decision making process (as defined by the treaty). Without conceptual clarity on those issues, any decision could lead to a conflict between state and the community, misappropriation of resources, loss of the country's benefits, among others.

Similarly, there are few functional issues which have emerged as the effect/challenge in connection to PGRFA management. Firstly, the government has to do additional functions to set up new structures and to finance significant amount. For example, it has to facilitate and keep the record of ABS; coordinate with the farming, scientist and business communities; register and protect the new varieties; protect the rights of the local communities and farming communities; conduct documentation, characterization, conservation, utilization of PGRFAs and associated TK; ensure sustainable use of such resources. Moreover, there will be the additional work of dispute settlement on the technical issues, such as violation of IPR, act of biopiracy, abuse of farmers' rights, among others. Nepal needs to provide the financial and human resources in order to set up such organizational structures.

Secondly, Nepal needs to double the effort to improve better functional linkages in future as there is already weaker functional tie between/among agencies involved in PGRFA management. As to illustrate, Ms. Sudha Khadka, Oxfam GB Nepal, points out that Climate Change Policy 2011 does not recognise the District Biodiversity Committee, created by NBSAP, in building the capacity of local stakeholders. Similarly, ABS (2006) didn't adequately recall participatory plant breeding as was conceptualised in the earlier version of NBS (2002). Further, coordination among the authorities does not seem encouraging. Mr. Bimal Thapa, senior seed development officer, SQCC, argues that the relevant divisions across the ministries—such as Biodiversity and Environment Division of MoFSC, FSAPE Division of MoAD, Climate Change Management Division of MoSTE, Technology Transfer Section of Ministry of Industry (Mol), National Planning Commission—are not functionally tied with each other. Even the coordination between NBCC (created to implement NBSAP) and NABCC (responsible for implementation of ABS) is questioned. Mr. Thapa shares that whenever meeting of those authorities is held, the discussion and decisions are not followed institutionally. Moreover, Ministry of Federal Affairs and Local Development (focal ministry for ILO 169) and National Foundation for Development of Indigenous Nationalities are not kept in the loop during the discussion of ABP and NBS. Poor functional linkage has helped to erode the institutional memory as well.

Deteriorated institutional memory has negatively affected the negotiation as well. Mr. Uday Chandra Thakur, chief, Food Security and Environment Division (currently, Food Security, Agribusiness Promotion and Environment Division), MoAD, shares that PGRFA management authorities are already hit by the unscientific staff transfer<sup>19</sup> and unspecialised public administration system. When such authorities have to perform additional works with such unfavourable system and incentives, weak capacity, institutional memory, and knowledge and skills for

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<sup>19</sup> As per Civil Service Rule 1994, transfer of a first class officer (joint secretary level) is done by the minister level decision; whereas, special class officer can be transferred only as per the decision of ministerial council. Practices of transfer system in Nepal cause to transfer a senior officer working in extension service, under Department of Agriculture to Agribusiness Promotion Division which is supposed to serve as a technical advisor to the government while negotiating at WTO and as an in charge to implement WTO commitment.



negotiation could not improve further. As a result, Nepal's negotiation prowess has been dismal both at national and international level.

Talking about negotiation again, increased complication in PGRFA management calls for wider consultation with relevant stakeholders prior to setting the agendas. There are a couple of authorities which deal with various issues of PGRFAs and participate in the international negotiation. Highlighting the practices, Ms Yamuna Ghale, Senior Programme Officer, Swiss Agency for Development and Cooperation (SDC), shares that focal authority of CBD doesn't consult with focal authority of ITPGRFA and UNFCCC while setting negotiating agendas and vice versa. Importance of a permanent forum—which could bring together experts and practicers from civil society—in generating the informed debate on the subject is not yet realised. Even there is low level of cooperation and collaboration among the authorities within the MoAD. Thus, it is simply difficult to find the institutional collaboration and cooperation in devising policies and laws, setting agendas for international negotiation, and formulating and implementing programmes. Given the context, development of new laws, reorientation of public administration practices, investment in human resource development are urgent need for effective management of PGRFAs in future.

### **5.3 Human Resources and Infrastructures**

Growing challenges of PGRFA management has affected the associated human resources as well as infrastructures both horizontally and vertically. So, if better management is aimed at, it is necessary to add infrastructure; recruit/retain competent human resources; install new technology, skills and knowledge in the area of PGRFA in the immediate future.

There are a lot of promises that the government has made at national and international level. They need additional human resources with new skills and knowledge. For example, NBSAP promises to identify and conserve the agricultural biodiversity hotspots, conserve and promote the neglected and underutilized varieties, among others. ABP promises to do collection, characterization, documentation of PGRFA available in the countries. However, Mr. Min Nath Poudel, currently heading NAGRC, shares that the designated authorities are not being able to perform the assigned tasks as they are under

pressure to bring and retain the technical human resources. Moreover, Nepal needs higher quality of skills for programme designing, policy formulation, and negotiation in the changing context. And, it is possible only when human resources are incentivised; given local, domestic and international exposures; and provided updated knowledge, training and skills.

In the changing social and political economic contexts, role of local bodies is vital for better management of PGRFA. However, local bodies are already burdened with loads of works—such as formulating Local Development Plan, Capacity Development Plan, Revenue Forecasting, among others—after the enactment of Local Self-governance Act 1999. Moreover, the PGRFA related policies have envisaged many plans and policies—such as Biodiversity Plan, Local Adaptation Plans of Action, among others—to be formulated and implemented by local bodies. Unfortunately, they lack such kind of human resources to work and financial resources to invest. Moreover, due to the absence of such resources at local level, central agencies may face problem in performing the work, like conservation and ABS administration regarding PGRFA. Similarly, there are a number of CSBs working at community level. In the changing context, such CSBs require technical knowhow to contribute for the better management of such resources. Thus, there is a challenge to bring and maintain the adequate, informed and skilled human resources with the limited financial resources to work for local, national and international levels. Infrastructure is another vital

“Community efforts at Ranibas are exemplary. Earlier, the area was nearly desertified: forest cover had substantially fallen; Kamala river used to change its course frequently; the farming field nearby river had been covered by the stacked pebbles and sand. Against this backdrop, local community decided to ban the open grazing in 2003 in the public lands, such as forest, river bank. They announced Ranibas VDC Ward No 2 and 3 as the No-open Grazing Area. In support of Parivartan Nepal, an NGO based in Hetauda, the local people borrowed and sowed the seeds of many plants—important for flood control and soil conservation—that had disappeared from that area earlier. During the same period, community forestry user committee was formed. Now, the forest area is revived; river course is controlled; many parts of desertified farm land are recovered. Additionally, the forestry user committee has contributed to the conservation of biodiversity as well. Interestingly, other nearby communities are replicating this movement. The same village is an example of conservation of agrobiodiversity as well. The local community has established a Community Seed Bank. The seed bank has conserved various varieties of 43 crops. In the recent past, the Ranibas community has started organic farming as well.” —Mr. Indra Prasad Pokharel, a community leader, Ranibas, Sindhuli

factor required for effective management of PGRFAs. The government has already established NAGRC as the National Gene Bank of the country. But, it is difficult to an economically poor country like Nepal to pay huge amount of money for maintaining the temperature and moisture of conserved PGRF As. Dr. Madhusudan Prasad Upadhyay, former chief, NAGRC, argues that, in order to ensure the effective conservation, the centre needs field gene banks as well. Moreover, as argued by Mr. Uday Chandra Thakur, if NAGRC is to make genuine 'gene bank', capacity should be expanded in such way that it could conserve wild varieties as well as animal GRs. In order to do so, there is a need of additional amount of budget, human resources and equipments. Similarly, as Mr. Madan Bhatta argues, Nepal needs to maintain safety duplicates of its PGRFAs in various locations across the world to ensure their security during the unexpected disasters<sup>20</sup>. With regard to education infrastructure, the previous paragraph has already highlighted the need of increasing size, capacity, skills and knowledge of human resources. In order to fulfil those needs Nepal requires to, taking into account of PGRFA management, add the capacity of education institutions and training centres, provide sufficient research and training opportunities, and avail most recent knowledge and information.

The other effect is that there will be a pressing need to legally define the work of NAGRC and its relationship and partnership with the farming communities. NAGRC is supposed to work as the authority for conservation of PGRFAs in the country. So, it collects PGRFAs from farming households, CSBs and other sources across the country. Mr. Ram Ekwal Prasad Yadav questions the legal mandate of NAGRC in carrying out such works. Mr. Bhagawan Pokharel, Ranibas Community Seed Bank, Sindhuli, shares that NAGRC has collected a number of local varieties from his CSBs without any contractual agreement. Mr. Yadav argues that there is no legal guarantee that NAGRC will serve as the custodian of those PGRFAs and associated TK. The other work envisaged to be performed by NAGRC is that it will serve as the single entry point to get access to PGRFA and associated data. But, there is no clarity on how and through which mechanism it protects the rights of the concerned farming communities over those resources.

Until now, there doesn't exist any governance system to deal with ABS of PGRFAs available in the in-situ condition. Mr. Ram Ekbal Pd Yadav informs that his

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<sup>20</sup> As Mr Bhatta shares, Nepal has kept its safety duplicates of PGRs in South Korea and is planning to do so in El Salvador. He informs that Russia has maintained safety duplicates of its PGRs in five different locations within the country.

community seed bank doesn't share the resources kept in their CSB without making any contractual agreement. Moreover, they also demand to know the purpose of accessing those resources. But, it is not the same with the Ranibas CSB. Mr. Bhagawan Pokharelad mits that they have no idea whether or not it is legal to provide such access to any foreigner. They have no knowledge of any defined legal process for providing access to PGRFAs. Therefore, one of the challenges at the moment is to build the legal ground to define and to give legal identity to farming community, categorise the types of partnership between such community and NAGRC, ensure the security of the resources collected by NAGRC, among others.

## 5.4 Awareness

It is already accepted that management of PGRFA has become complex and urgent due to changing social, environmental, economic contexts. And, it is also realised that wider level of people's participation is vital for sustainable management of such resources. So, it is a challenge and pressing need to raise the awareness level of the people and their representatives and to expand the people's participation in the management of resources. In particular, work has to be done to raise the awareness level of the individual people, community organizations, and political organizations. Further delay will result in losing the benefits, and failing to cope with the the depletion of resources and bioparacy.

Awareness level of the individual people has become determining factor for the management of resources. Mr. Dinesh Kumar Shrestha, Paribartan—an NGO based in Makawanpur district working with the community—says that the resources were not much affected in the past due to the ignorance of the local people. As resources have depleted and associated TK have faded out over the time, importance of awareness is realized for better conservation. More precisely, people should be aware of the practices that could contribute to/harm conservation and sustainable use of PGRFA. As to illustrate, farmers in Rautahat used to grow a hybrid variety of maize which was not registered and not formally imported in Nepal. They suffered crop failure after two years' of use. Highlighting the consequences, Mr. Kamalesh Kushwaha, District Agriculture Development Officer, Bara, says that it affected farmers' food security and livelihood, added cost to the government, and displaced the local varieties from the farmers' field.

In the changing global IPR policy regime, farmers engaged in traditional farming system should be aware of biopiracy. Mr. Ram Kumar Adhikari Danuwar, former Chairman, Harshai VDC, Sindhuli, shares that foreigners had visited him twice at home to see his mother who used to be a traditional healer. She was not aware of the possibilities of misappropriation of TK that she had been practicing. So, she shared with them everything that she was asked about her healing system. Mr. Danuwar further mentions that those people have not come again and his family has not heard about how they used the knowledge that her mother shared with the foreigners. Thus, biopiracy might be taking place because of the resource-sharing culture of the Nepalese farming community. As the commercial use of such resources is increasing, wider awareness among people is required so that they could safeguard their resources from unscrupulous people.

Community awareness and community mobilization have proved to be effective in the management of natural resources in Nepal and in the world. As the resources are being threatened and eroded, and commercialization of the resources is increased; multi-faceted conflicts may arise if the community is not properly sensitized about the issues. Similarly, if real efforts in improving the awareness level of and collaboration with other relevant community organizations is not made, entire conservation work may suffer. For example, community forestry user groups in Nepal are active and effective actors in managing forest resources. However, they are not aware of the connection between farming practices and sustainable use of agricultural and non-agricultural genetic resources. Moreover, conservation of wild varieties is not included in the scope of work of such groups. Despite the decade-long engagement of FECOFUN on the ABS discussion, community and district level leaders are unaware of this issue. Mr. Ram Chandra Basnet, district president, FECOFUN, Sindhupalchok admits that he is not provided any training/orientation on issues of ABS, MAT, farmers' rights, rights of local and indigenous community over GRs and associated TK, biopiracy and so on. So, it is absolutely imperative to increase the awareness level of all such community organizations, and to support for collaboration and to institutionalize the coordination with the relevant local agencies for collection, documentations, development of all kinds of GRs, among others<sup>21</sup>.

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<sup>21</sup> ITPGRFA mentions that management of PGRFA are at the meeting point between agriculture, environment and commerce, and there should be synergy among these sectors.

Awareness at political level is equally important for better management of PGRFA. Dr. Krishna Prasad Pant argues that, considering the changing context of impact of climate change and new policy regime (such as IPR) in agriculture sector, political responses to the management of PGRFA have become an urgent need. More precisely, political activists could contribute to the law making process, policy and programme execution and public mobilization effectively when and if they are aware of and updated on issues of PGRFA. In Nepal, it is argued that lower level of awareness/knowledge among political activists could be one of the factors responsible for lower priority given to the issues of PGRFA management. While sharing the experiences, Mr. Dilaram Bhandari says that political people (like minister) take the issues of food supply chain as the vital part of food security and ignore issues related to the management of PGRFA. Mr. Ranjan Krishna Aryal, a senior government official working on ABS issues for long time and currently heading Nepal Law Commission, says that Parliamentary Committee on Agriculture and Energy discussed about Agriculture Development Strategy more than one time; however it was unaware of or didn't think important to discuss the initiative taken to avail country's PGRFAs to MLS.

Nepal's present-day politicians are not considered to be aware of the global debate of PGRFA management. Mr. Din Mani Pokharel—who worked with the first constitutional assembly of the country to advise on issues of natural resource management—shares that politicians have not properly understood the international treaties/conventions signed by Nepal. So they don't know the essences, importance, implications and consequences of the global initiatives like CBD, ITPGRFA, TRIPS/WTO, and participation at such initiatives have become a 'forum shopping'<sup>22</sup> to the politicians/bureaucrats. As a consequence, negotiation at international level has become much weaker and domestic policies/laws lack clarity, priority, harmonization, and institutionalization.

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<sup>22</sup> See Rosendal, K and Andresen, S (2016): Complexity of international institutions: Implications for access and benefit sharing. *Trade Insight, Vol. 11, No. 2, 2015*. Kathmandu: South Asia Watch on Trade Economics and Environment.

# Chapter 6

## 6. CONCLUSIONS AND WAY FORWARD

Nepal's policy and legal measures for PGRFA are not consistent and there are areas of conflicts arising from multiple obligations that the country must address while implementing international instruments for PGRFA management. Rosendal and Andresen (2015) discuss the countries' conflicting obligations with an analysis of the concepts and theories of "regime complexity". Due to the effect of regime complexity, there are varied ideas and issues in regard to whether and how access to PGRFA is to be provided or how PGRFA is to be managed at the national and local level. Regime complexity has also made the people and politicians confused about who would be the custodian of the PGRFA. So, it is difficult to define the right holder of PIC that is required while granting the access to PGRFA. Such confusion at policy level leads to the situation Heller's "tragedy of anticommons"<sup>23</sup>. It is one of the main reasons being responsible for weak implementation of the policies/strategies in Nepal. Continuous discussion on the issues at policy level and continuous engagement with relevant organizations could help resolve such complication at domestic level.

There is poor domestic internalization of and ownership over planning and policy making regarding PGRFA management. One could observe lack of clarity regarding the direction and priority areas of the policies and strategies. They include many issues at a time and end up becoming confused. For example, at a time, policies aim to promote the cultivation of hybrid and traditional varieties, encourage commercialization of agriculture and traditional farming system, institute community based and state led PGRFA management systems, provide MLS- and MAT-based access process over PGRFA, grant PIC rights to the farmers and local and indigenous community. In addition, policies lack contextualization of community rights and farmers' rights over PGRFA. Efforts are required to harmonise the policies/strategies and laws/regulations. Extensive policy discussion is a must for such harmonization.

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<sup>23</sup> The tragedy of the anticommons is a type of coordination breakdown, in which a single resource has numerous rightsholders who prevent others from using it, frustrating what would be a socially desirable outcome. The term was originally appeared in his article "The Tragedy of Anticommons" published on *Harvard Law Review*, January 1998.

Nepal is an underdeveloped country and is going through along political and economic transition. Hence, effective PGRFA management has been constrained by the inadequate resources, among others. Due to the lack of resources, it has not been able to work on building the institution adequately and enhancing the capacity sufficiently. Therefore, as aimed by the policies and strategies, access and benefit process is not determined, farmers' rights are not defined, conservation works are not speeded up, and scientific advancement are not promoted. Lack of resources has also affected the functional coordination within the government, between the government and the community, among others. The coordination gap has not only affected the work of PGRFA management at policy and programme level but has also affected the negotiation at international level.



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South Asia Watch on Trade, Economics and Environment (SAWTEE) is a regional network that operates through its secretariat in Kathmandu and 11 member institutions from five South Asian countries, namely Bangladesh, India, Nepal, Pakistan and Sri Lanka. The overall objective of SAWTEE is to build the capacity of concerned stakeholders in South Asia in the context of liberalization and globalization.

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