Importance, Scope and Status of Agriculture Insurance in Nepal

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In Nepal, agriculture sector plays a pivotal role for the overall development of a country as it contributes 31.6% to its Gross Domestic Product (GDP) (Economic Survey, 2015-16). More than 60% of the population depends on agriculture for their livelihood (Ministry of Agricultural Development [MoAD], 2013). The farming system in Nepal is an integrated type i.e. includes both the crops and livestock components. About 87% of the total population (26.6 million) lives in rural area and more than three-fourths of the population still engage in subsistence farming (Central Bureau of Statistics [CBS], 2011) with an average landholding of 0.8 hectare (ha) per household (MoAD, 2012b). This indicates that the agriculture development plays a vital role for stepping-up Nepal’s economy, but the workload of agriculture is borne mostly by the rural poor smallholder who practices subsistence farming.

INTRODUCTION

Nepalese Agriculture, Climate Change and Agricultural Insurance

Nepal, lying in Southeast Asia, is a developing country where one-fourth of the population lives below the poverty line. Agriculture is the mainstay of her economy that contributes 31.6% to its real Gross Domestic Product (GDP) (Economic Survey, 2015-16). More than 60% of the population depends on agriculture for their livelihood (Ministry of Agricultural Development [MoAD], 2013). The farming system in Nepal is an integrated type i.e. includes both the crops and livestock components. About 87% of the total population (26.6 million) lives in rural area and more than three-fourths of the population still engage in subsistence farming (Central Bureau of Statistics [CBS], 2011) with an average landholding of 0.8 hectare (ha) per household (MoAD, 2012b). This indicates that the agriculture development plays a vital role for stepping-up Nepal’s economy, but the workload of agriculture is borne mostly by the rural poor smallholder who practices subsistence farming.

Undoubtedly, agriculture development is crucial for the economic development of Nepal. But, attaining this scenario is not so straightforward due to various challenges (before, during, and after production). Some of these include, but are not limited to, majority of farmers practicing subsistence farming traditionally, lack of easy access to quality inputs (seed, fertilizer, labor, etc.) and extension services, lack of markets and marketing, financial risk, etc. Keeping these challenges aside, other crucial factor is weather as agriculture in Nepal is mostly rain-fed and relies heavily on weather patterns (Shrestha and Aryal, 2011). Miranda and Vedenov (2001) also supports that weather is the most important factor for agriculture. It is because weather plays vital role in agricultural production risks of crop and animal failure or decreased yield (Sadati et al., 2010).

Key Words: agriculture, climate associated risks, risk management, insurance, Nepal

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Unfortunately, weather is experiencing a long-term change in patterns, known as “Climate Change (CC)” that is threatening and continuing to have an impact on agricultural productivity around the world (You et al., 2005; Slingo et al., 2005). Since agriculture in Nepal is rain-fed and depends highly on suitable climatic conditions, it is thus vulnerable to any change in climatic patterns (Government of Nepal [GoN], 2004). The country has already been experiencing direct impacts of CC (temperature rise, flood, drought, incidence of disease, pests, and insects, etc.) on agricultural economy (Malla, 2008; CBS, 2017). This is corroborated by the evidences of rain deficit in eastern Terai region in 2005-06 by early monsoon declining crop production by 12.5% on a national basis (Regmi, 2007) and winter drought of 2008-09 that resulted in huge loss of agricultural production (Mishra and Tripathi, 2010; Sheikh et al., 2014). Likewise, the recent flash flood of August 2017 damaged around 80% of crops (Aljazeera, 2017) mostly paddy in southern plain (Nepal’s breadbasket) may result in food shortages and hamper the smallholders’ livelihood. According to the data released by Nepalese Ministry of Agricultural Development in 2016-17, loss to agriculture sectors (standing crops, food grains and fisheries) due to this flash flood was worth around 8.11 billion Nepali rupees (US $ 81.1 million). This is why the economy of Nepal is very sensitive to climatic variability. In this context, Knox et al. (2012) has highlighted that developing countries’ economies that rely predominantly on agriculture are affected due to productivity loss resulting from CC.

Given the agriculture sector subsistence based, rain-fed, highly vulnerable to CC as well as significant loss incurred due to its impacts, agricultural risk management associated with CC thus had become a major challenge and priority for the country (World Bank, 2009; Singh, 2011). With this background, management strategies for CC as well as other event’s risks aversion are crucial not only to safeguard smallholders, but also to prosper the country’s economy. As farmers are risk averse in nature (Binswanger, 1980) and many traditional informal approaches (crop diversification, mixed farming, intercropping, varietal change, etc.) are available for withstanding risks, though advantageous are insufficient. In this limelight, formal mechanism i.e. Agriculture Insurance (AI) is one of the widely known management options (Smit and Skinner, 2002; Warner et al., 2013) for the climate and associated agricultural risks. This eventually may safeguard smallholders’ livelihood and contribute to prosper the economy of the country.

The agriculture insurance policy in Nepal was materialized by the government very recently (2013) despite its crucial need long ago. As there is still dearth of scientific works conducted in this area, so this empirical study is conducted to comprehend the agriculture insurance scenario with sole objective to review its importance, scenario and market scope in Nepal.

METHODOLOGY

Literatures and related documents were sought from libraries, online sources and personal contact from May – September, 2017. However, for online sources the search terms were limited to “importance” OR “role”; AND “agriculture insurance”, OR “crop insurance”, OR “livestock insurance”, OR “crop and livestock insurance”, AND “Nepal” OR “Asia” OR “Africa” OR “World” OR “None”. The obtained documents from all sources were scrutinized and appropriate materials were retained for further action.

RESULTS AND DISCUSSION

Importance of Agriculture Insurance in Risk Management

Literally, AI is an agreement between insurance companies and farmers (smallholders) where the latter pay risk premiums to the former for insuring their crops and/or livestock. This way guarantees and safeguards the farmer for the financial compensation in case the insured commodity is damaged or destroyed, either from climate related risks or other that is beyond their control. Such impacts could be so costly to them that incidence of only one event is sufficient to turmoil their livelihood. For instance, Jodha (1978) highlights that drought for only one single year is enough for long-term consequences by reducing both consumption and investment expenditures in following years. As the ex-post coping strategies, smallholders may be forced to borrow money, sell their assets to sustain livelihood or to repay debts, pushing them to poverty trap as shown in Figure 1.

![Figure 1: Household (better-off and poorer) response to shock](image)

**Source:** Adapted from Carter et al. (2005)

Apart from this, smallholders may also migrate (in- or out) for better employment opportunities and the migration figure for Nepal is very aggressive. Up to 2011, out-migration population was 1,921,494 (CBS, 2011) and in 2013-14 alone, 521,878 Nepalis (mainly youth) took up
foreign employment, excluding India and Korea, of which 492,724 were male (Department of Foreign Employment [DoFE], 2014). However, this figure includes both smallholders and non-smallholders. The reasons for migration are due to poverty, limited employment opportunities, political instability, deteriorating agriculture productivity, armed conflict and culture of a community (Bhattarai, 2006). Whatsoever, migration is contributing agriculture labor shortage for Nepal (Asian Development Bank [ADB], 2014, p. 15) leaving land fallow, partly cultivated by elderly, women, and children; if fully cultivated, the return is unsatisfying due to impacts of CC, other factors remaining constant. So, agricultural risk management associated with the CC in Nepal has been given a high priority (World Bank, 2009; Singh, 2011) in order to manage these issues. In this context, AI is one of the widely known management options (Smit and Skinner, 2002; Warner et al., 2013) for the climate and associated risks of agriculture. AI improves farmers’ access to credit (Vandeveer, 2001) and range of financial services for improving livelihoods (Nepal Agriculture Research Council [NARC], 2016). Additionally, it provides an incentive for embracing production activities that are too risky, but useful (Meuwissen et al., 2001) and technologies that are capable for better quality and yield (Olubiyo et al., 2009). Hazell (1992) observed that farmers may adopt the improved technology, even if it is uncertain, in the precondition that compensation will be provided in case crop fails. Horowitz and Lichtenberg (1993) study in the US Midwest also observed that crop insurance encouraged corn producers to use pesticide and fertilizer significantly. It is seen that crop insured household invest more on improved technologies (seed, fertilizer, pesticides, etc.) that led to higher output and revenue collection when compared to their non-insured counterparts (Mishra, 1994; Mukesh, 2015). This suggests that access to AI by the farmers will encourage them to adopt technologies and activities even if they are very risky, resulting in increased productivity. Thus, AI can increase the productivity by minimizing the adverse impacts of CC and other events, and thus promoting the agriculture sector (Ghimire and Kumar, 2014). It has potential to protect against agricultural risks for safeguarding smallholder livelihood and prospering the economy of a country.

Considering these issues, Beema Samiti (Insurance Regulatory Authority of Nepal) in support of Ministry of Agriculture Development of Government of Nepal (GoN) promulgated “Crop and Livestock Insurance Directive (CLID) - 2013” from January 14, 2013, which is a milestone step in agriculture sector.

**Scenario of agriculture insurance in Nepal – Past and Present**

In Nepal, the insurance history in agriculture goes back to seven decades ago though it was implemented as a separate policy from 2013. Before they were executed by different government projects, cooperatives, non-governmental organizations, financial institutions, etc. The following table provides its brief overview.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Insurance Schemes under projects/program/corporation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock</td>
<td><strong>Deposit and Credit Guarantee Corporation</strong></td>
<td>• Established in 1974 aiming to insure deposit and lending of bank and financial institutions  &lt;br&gt; • 8% premium; 50% of the premium is subsidized by government  &lt;br&gt; • Nepali Rupees (NRS.) 4.48 million loss was compensated to farmers against the 227 cattle owners out of total 8,166 cattle insurers total amount of NRS. 235.4 million properties</td>
</tr>
<tr>
<td></td>
<td><strong>Community Livestock Development Project</strong></td>
<td>• Implemented by the Department of Livestock with technical support from Food and Agriculture Organization from 2005 – 2010  &lt;br&gt; • Farmers who get loan to purchase cattle compulsorily had to insure their cattle</td>
</tr>
<tr>
<td></td>
<td><strong>Small Farmers’ Development Limited</strong></td>
<td>• Established in 1993 as a successor of Small Farmer Development Project run by Agriculture Development Bank since mid-1970  &lt;br&gt; • Formed their own livestock insurance committees and provide individual animal mortality coverage and loss of use of the animal to their members since 1987  &lt;br&gt; • 10% premium; 50% of the premium was subsidized by government</td>
</tr>
<tr>
<td></td>
<td><strong>Community Livestock Development Program</strong></td>
<td>• Premium was 5% for goat and 3% for large animal; government subsidized 50% of premium value</td>
</tr>
<tr>
<td></td>
<td><strong>Centre for Self-Help Development</strong></td>
<td>• Provides credit linked livestock insurance and operated by non-governmental organization  &lt;br&gt; • No premium subsidy and no external reinsurance protection</td>
</tr>
<tr>
<td></td>
<td><strong>Participatory District Development Program</strong></td>
<td>• Implemented in Kavre district as livestock insurance schemes since 1998 with financial assistance of Local Development Fund Board  &lt;br&gt; • Managed by local cooperatives voluntary basis</td>
</tr>
</tbody>
</table>

**Table 1: Past scenario of crop and livestock insurance**

Importance, Scope and Status of Agriculture Insurance in Nepal
Table 1 continue: Past scenario of crop and livestock insurance

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Insurance Schemes under projects/program/corporation</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Crop        | Banana Pilot Insurance Program                      | • Local farmers of Chitwan and Nawalparasi districts established Agriculture Insurance Multipurpose Cooperative in 2006 due to strong wind damaging large area of banana plantation in 2005; later scheme was supported by Department of Agriculture Development since 2007  
• Premium of Banana was NRs. 2 per banana plant for compensation of NRs. 15 per plant @ 13.33% premium rate |
| Vegetables Pilot Insurance Program | • Vegetables farmers of Ramnagar VDC of Nawalparasi district supported by the government with insurance schemes against comprehensive hail, drought, flood, landslide and wind coverage for their vegetables and cereal crops  
• Premium of vegetable NRs. 100 per 0.033 ha for compensation of NRs. 1,500 per 0.033 ha @ 15% premium rate and premium for paddy/maize NRs. 50 per 0.033 ha for compensation of NRs. 750 per 0.033 ha @ 15% premium rate |

Source: Authors’ construct adapted from Ghimire and Kumar (2014)

After implementation of CLID – 2013 as a separate policy, various additional commodities are covered to manage the types of risks common in Nepal (Annex 1) under production cost basis for crops and estimated value for livestock, poultry and fishery (Annex 2). For that, the government has set premium rates and provided subsidy on the premium amount (Table 2). However, this subsidy is paid directly by government to respective private non-life insurance company (insurer) because the only state-owned insurance company i.e. Rastriya Beema Sansthan does not offer any agricultural insurance products. The value of each product is estimated based on its maturity stage for crops and age, type of breeds, and purpose for livestock and poultry (Annex 2).

The following table provides other detail information on existing agriculture insurance in Nepal.

Table 2: Current scenario of agriculture insurance

<table>
<thead>
<tr>
<th>Insured crop/livestock/poultry/fishery</th>
<th>Premium rate (% of total value)</th>
<th>Premium subsidy (%)</th>
<th>Compensation (% of total value)</th>
<th>Total insurers available for agricultural commodities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops (Rice, Vegetables, Fruits and Potato)</td>
<td>5</td>
<td>75</td>
<td>Up to 90</td>
<td>17</td>
</tr>
<tr>
<td>Livestock (Cattle, Buffalo, Yak/Naak, Sheep, Goat, Pig)</td>
<td>5</td>
<td>75</td>
<td>90 (death), 50 (permanent disability)</td>
<td></td>
</tr>
<tr>
<td>Poultry (Duck and Chicken)</td>
<td>6 (commercial)</td>
<td>75</td>
<td>Same as livestock</td>
<td></td>
</tr>
<tr>
<td>Fishery</td>
<td>2</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>
**Note:** If insurance is done through the member organization, there is a provision to provide 15% rebate on total premiums.  
**Source:** Authors’ construct adapted from Krishi Diary (2016)

It is inferred from the above (Table 2) that the GoN has well covered the major commodities under insurance scheme that includes crops (rice, vegetables, fruits and potato), livestock (cattle, buffalo, yak/naak, sheep, goat, pig), poultry (duck and chicken), and fishery. Further, significant subsidy (75%) has been provisioned and compensation of up to 90% of total value (Annex 2) is given depending upon the case. Additionally, many insurers (17 for now) are given authorization to sell insurance schemes throughout Nepal, reaching every farmer where possible. However, the premium rate differs for the type of business insured. For instance, premium rate is cheaper (only 2% for fishery) in comparison to others (crops, livestock, and poultry) which is 5% but 6% for poultry if raised for commercial purpose.

**Scope of Agriculture Insurance in Nepal**

More than 3.7 million households are engaged in some sort of farming and most of them own some sort of livestock too (Ghimire and Kumar, 2014). They also reported that insurance penetration and density for Nepal is only 1.10% and $7.90 respectively, as of 2009-10, which is lowest in Asian countries revealing that there are ample opportunities to sell any types of insurance. Likewise, the data from 1975–2005, according to CBS (2017, p. 1), revealed that mean annual temperature has increased by 0.06°C while the mean rainfall decreased by 3.7 mm (-3.2%) per month per decade. Also, predicted mean annual temperature could increase between 1.3°C - 3.8°C by the 2060’s and 1.8°C to 5.8°C by the 2090’s, while annual precipitation could reduce by the range of 10 to 20% across the country. It has been observed that the frequency of disasters including flash floods were increased due to change in various climatic variables (Ministry of Population and Environment [MoPE], 2012). These verify that the agriculture sector will be in high perils that eventually may hamper the smallholders’ livelihood. On this ground, a conclusion can be derived that there is a tremendous opportunity and scope for agriculture insurance to flourish in Nepal.
CONCLUSIONS

Agriculture is the backbone of economy of Nepal as it contributes 31.6% to its GDP and is the main basis for livelihood of majority smallholders who practice subsistence farming in a traditional way. This sector is however highly vulnerable to climate change as it is mostly rain-fed and relies mostly on weather patterns revealing higher climate related risks. To minimize the loss incurred by such risks as well as other associated risks, agriculture insurance is seen as a crucial factor for not only providing compensation to the farmers for commodity losses but also by encouraging them to adopt improved and useful technologies that eventually contributes to enhance productivity. The results showed that there is ever increasing trend of temperatures (0.06°C annually), decreasing mean rainfall by 3.7 mm and increasing incidence of floods and other climate related hazards affecting production, directly or indirectly. Additionally, the result revealed that prediction of mean annual temperature could increase between 1.3°C - 3.8°C by the 2060’s and 1.8°C to 5.8°C by the 2090’s while annual precipitation could reduce by 10–20% across the country. Likewise, insurance penetration (1.10%) and density ($7.90) being lowest compared to other Asian countries and more than 3.7 million households engaged in farming activities revealed that there is golden opportunity for agriculture insurance to flourish in Nepal. Thus, the government should continuously keep on prioritizing this policy for many years to come in order to ensure that each of the smallholder’s livelihood is protected from the climate and associated risks arising due to global issue of climate change as well as others.

ACKNOWLEDGEMENT

The authors are grateful to Ms. Chelsea Johnson for her support in proofreading this paper.

CONFLICT OF INTEREST STATEMENT

We declare that there is no conflict of interest in relation to this article.

REFERENCES


Accepted 11 March 2018


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ANNEX

Annex 1: Risks covered by the crop and livestock policy

<table>
<thead>
<tr>
<th>S/N</th>
<th>Risks covered</th>
<th>Paddy, vegetables, fruits, potato, livestock and poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fire, thunderstorm</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Earthquake</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Flood, Drought</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Landslides, Soil erosion</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Wind storm, hail, snow, fog, frost</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Emergency/Accidents (external reasons)</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Disease, pests and insects</td>
<td></td>
</tr>
<tr>
<td>Fishery (including following points)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Loss due to ammonia, less oxygen</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Any poisonous material</td>
<td></td>
</tr>
</tbody>
</table>

Annex 2: Value based on its maturity stage, age, type of breeds, purpose, etc.

Crops

Total production cost incurred from planting/sowing until harvesting as calculated list (for each individual crop) provided by Ministry of Agriculture Development. However, minimum area under which the crop is to be insured should be 2,738 sq. ft. in hills and mountains and 3,645 sq. ft. in Terai region.

Livestock and poultry

<table>
<thead>
<tr>
<th>S/N</th>
<th>Category</th>
<th>Sum Assured (NRs.) per number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hybrid</td>
<td>Local</td>
</tr>
</tbody>
</table>

- Cattle
  - Child she cattle (up to one year): 30,000 (Hybrid), 10,000 (Local)
  - Child she (heifer) cattle (above one year): 75,000 (Hybrid), 25,000 (Local)
  - Milking cattle: 150,000 (Hybrid), 50,000 (Local)

- Buffalo
  - She-buffalo (up to eighteen months): 30,000 (Hybrid), 15,000 (Local)
  - She-buffalo (above eighteen months): 60,000 (Hybrid), 30,000 (Local)
  - Milking buffalo: 125,000 (Hybrid), 70,000 (Local)

* Eligibility age of cattle for livestock insurance: Local and hybrid breed between 2 or after first birth to 10 years
** Eligibility aged of buffalo for livestock insurance: Between 3 or after first birth to 12 years

- When kept for breeding purpose, the maximum value is NRs. 70,000 (Eligibility age for insurance is between 3 – 7 years)
- When kept for transportation or ploughing purpose, the maximum value is NRs. 40,000 (Eligibility age for insurance is between 3 - 12 years)

Yak/Naak

<table>
<thead>
<tr>
<th>S/N</th>
<th>Category</th>
<th>Sum Assured (NRs.) per number</th>
</tr>
</thead>
</table>

- Child yak: 12,000
- Young yak (Koreli): 25,000
- Milking yak: 50,000
- Matured yak: 80,000

Sheep/Goat/Pig

Eligibility age for insurance is after three months until ready for selling.
- Young of sheep, goat and pig raised for meat purpose: NRS. 8,000 (Maximum)
- When kept for reproduction, the maximum value is NRs. 10,000 for goat, sheep and pig

Duck and poultry

<table>
<thead>
<tr>
<th>S/N</th>
<th>Category</th>
<th>Sum Assured (NRs.) per number</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tbody>
</table>

- Broiler for meat (up to eight weeks): 400
- Layers for egg: 700
- Hatchery for chicken purpose: 1,200
- Duck for egg: 700
- Duck for meat: 600

Fishery

Pond must be 200 sq. m. with 3 feet water depth (at minimum) but for rainbow trout, structures depend on the recommendation given by technician.

Source: Adapted from Krishi Diary (2016)