

## Land Use Policies in Nepal: Implications for Sustainable Agriculture and Food Security

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### Abstract

In the global context, the use of land and its resource has been considered as one of an integral part of sustainable development. The Agenda 21 — an outcome from the United Nations Conference on Environment and Development (UNCED) which was held in 1992 in Rio de Janeiro — highlighted the importance of an integrated approach to planning and management of land for achieving the goals of sustainable development. Among various goals (17 goals) of sustainable development, goal 2 “Zero Hunger” seems to have more direct linkages with the use of land resources for food production and also goal 15 “Life on Land”, which focuses on the achievement of sustainable land management and land degradation, by providing a suite of targeted, appropriate land management practices that prevent the loss of healthy land and maintain or improve the land’s productivity. The Food Agriculture Organizations (FAO) has also documented the importance of land resource planning for food security. Therefore, planning instruments like land use planning play a significant role to obtain sustainability in agriculture sectors in general thus triggering towards food security. Sustainability in agriculture refers to the planning on the production of long-term crops and livestock incorporating social and economic development with the least effect on the environment. Sustainable agriculture should provide desirable engagement and optimized land use and production based on a limited resource in the frame of agro-ecological practices.

To combat these global challenges, it is required to have land use policies that incorporate the parameters of sustainable land management such as locally adaptive, sustainable resource use, resilience system, ecological practices, etc. In this regard, this paper sets its aim to review the current land use policies in Nepal and discusses the strengths, gaps, and constraints of the same in terms of productivity. The paper adopted the Institutional and Legislative Systems (ILS) approach on three aspects: i) legal and regulatory frameworks, ii) policies and programs, and iii) organizational/institutional set-up to understand the existing legal backup to bring sustainability in the agriculture. Also, a case study related to changes in agriculture land is studied to explain the existing gaps and constraints between the land use policies and its real-world implementation. Finally, the results and analysis obtained in this paper attempts to contribute towards evidence-based policy dialogue for land use planning for sustainable agriculture and food security

Keywords: Sustainable Agriculture, Food security, Sustainable land use planning, Productivity, SDG

## 1. Introduction

At the global level, sustainable development has been a guiding principle for all economic, social, environmental including political and cultural sectors since the UN Conference on Environment and Development in Rio in 1992 also known as Earth Summit, Rio de Janeiro Earth Summit. Sustainable Development Goals (SDGs) were endorsed by world leaders in the Rio+20 Summit in June 2012. SDG was initiated to review the Millennium Development Goals (MDGs) by a special session of the UN General Assembly in September 2013. MDGs mainly focused on globalization to succeed in a set of main social concerns on poverty, hunger, disease, unmet schooling, gender inequality, and environmental degradation worldwide. It has eight goals and concentrates on global awareness, political accountability, improved metrics, social feedback, and public awareness. Hence, it was an important idea to move the world to sustainable development for human wellbeing based on 17 goals and 169 targets. Also, realizing that the MDGs had some weaknesses due to no intermediate milestones during 15 years periods, the correction measures are anticipated to improve in SDGs for its effective implementation (Sachs 2012)

The use of land and its resource has been considered as one of an integral part of sustainable development in Agenda 21. Also, there is a broad consensus that sustainable agriculture is seen as essential for global sustainable development, and the urgency of developing sustainable agricultural production systems is widely acknowledged. There are three major dimensions for sustainable agriculture which are environmental, economic, and social dimensions. The agriculture practice must be good for environmental sustainability then it can contribute to biodiversity. Some examples of sustainable agriculture are Intercropping systems, conservation tillage, organic farming, and agroforestry(MOAD 2014). Although there is a discourse about the concept of sustainable agriculture as mentioned by (Siebrecht 2020), the sustainable use of land can be prime factors needed to be considered when conceptualizing the sustainability in the agriculture.

The production in the agricultural sector depends on land and its use. Availability and use of land play a vital role in increasing as well as sustaining agricultural production (Alawode and Abegunde 2018). Since agricultural land is decreasing in a rapidly urbanizing area, it seems a necessity to intervene through some planning tools. (Yeh and Li 1999). The land use zoning and land use planning can be used as a tool for the achievement of sustainable development in general and sustainability in the agriculture sector in particular (Nigel H. Richardson 1989). For efficient implementation of land use instruments, how the land policy of the country spells for the protection of the agriculture sector is of major importance. Land policy is the set of aims and objectives of the government for dealing land issues with in the country. It mainly includes poverty reduction, sustainable agriculture, sustainable settlement, economic development, and equity in society(Williamson et al. 2009).

An integrated framework for balancing the land use and food system of a country is needed for food security as well as for efficient and resilient agricultural systems including conservation and restoration of biodiversity (FABLE 2019). According to Food, Agriculture, Biodiversity, Land-Use, and Energy (FABLE) Consortium, there are three main pillars of sustainable land use and food system. Those three pillars are a) efficient and resilient agriculture systems b) conservation and restoration of biodiversity and c) food security and healthy diets Zero (FABLE 2019). While, according to World Food Summit, 1996- 'Food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life'. The major components of food security are; food availability, food access, and food Utilization. According to (Given and Sen 1999), these components of food security are dependent on the policy environment, institutional environment, and vulnerability context. Sustainable development of the agriculture sector is necessary to

meet future challenges of food security for every country (Lier and Wrachien 2002). This development can be potentially achieved via proper intervention in land use planning.

In this regard, this paper sets its aim to review the current land use policies in Nepal and discusses the strengths, gaps, and constraints of the same in terms of sustainable agriculture. The paper has adopted the Institutional and Legislative Systems (ILS) approach on three aspects namely a) legal and regulatory frameworks, b) policies and programs, and c) organizational/institutional set-up to understand the existing legal backup to bring sustainability in the agriculture sector. Also, an explanatory case study related to changes in the use of land use in the city of Pokhara, Nepal has been considered. The underlying lapses and constraints between the land use policies and its real-world implementation has been explained through the case study.

## **2. Theoretical Framework on International Initiatives on sustainable agriculture and food security**

There are various global initiatives both in theory and practice to achieve sustainability in the agriculture sector such that long term food availability can be secured. In this context, Tisdell (2007) has mentioned about the statement of the consultative group on International Agriculture Research (IAR). The group has highlighted that *“sustainable agriculture should involve the successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural resources.”*

International initiatives like New England Food System have focused on sustainable agriculture from the perspective of the production of crops and livestock. The system includes food production, processing, distribution, consumption, and west return with its core values as food rights, healthy eating, sustainability, and community vitality (Anderson et al. 2014). Similarly, Tisdell (2007) has mentioned sustainable agriculture is the type of agriculture that can manage risk and maintain its resilience with the change and expected surprise.

The initiatives on food security, FAO in 1983 defined food security as *“ensuring that all people at all times have both physical and economic access to the basic food that they need”*. Similarly, according to FAO(2001) cited by (Macartan 2017), food security is when all the people at all times have physical, social and economic access to sufficient, safe and nutritious food for meeting their dietary needs and food choices for an active and healthy life. Whereas, food sovereignty covers the right of peoples and nations to govern food system, food culture, market, production modes, and environments.

Linking with the initiatives of United Nations general assembly of developing a 2030 agenda for sustainable development goals to end poverty, protect the planet and ensure prosperity, among seventeen goals five goals (1.No poverty, 2.Zero hunger, 5.Gender equality, 11.sustainable cities and 15.life on land) seems to have a connection with the land, agriculture, and food security. SDGs Goal 2 which focused on zero hunger is directly concerned with food security. The related targets have to end all forms of malnutrition, double the productivity, sustainable food production, and resilient agricultural practices, genetic diversity in food production, investment in research, and technology including gene bank.

## **3. Status of Land Use from Agriculture Perspective in Nepal:**

The contribution of the agriculture sector is more than one-third of national GDP (Gross Domestic Product) and the engagement of the two-third labor force indicates the livelihood of every Nepalese citizen depends on the agriculture sector(Gauchan 2008). The characteristics of the agrarian structure of Nepal is small land holding, land plots are scattered and irrigation

facility is not available or seasonal (Gauchan 2008). The current situation of the agriculture sector in Nepal is in a low expansion stage. The majority of the Nepalese population is engaged in the agricultural sector, but there exist low productivity and competitiveness due to a lack of improved technology. Although, the most cultivated area is enthusiastic to cereals the food trade deficit is growing resulting in high malnutrition. Besides, dairy processing, poultry, tea, vegetable seed, and fisheries like subsectors tends to have a good market, still, positive signs are not yet sufficient to obtain secured food availability. The government has emphasized on crop and livestock on insurance, subsidies in fertilizers and seeds, increasing research and development for topics food-grain crops, biodiversity, conservation, climate change measures, food, and seed buffer stock, and appropriate food distribution policy of the government on crop and livestock (Savadogo, Reardon, and Pietola 1998). However, improvement in such sectors has a probability to make dramatic indent in reducing malnutrition and guarantee food security of the country (MOAD 2014).

The average landholding with households area owned is shown in Table 1. The total agricultural land all over the country is around 4121 hectors of 28% (21% cultivated land 7% uncultivated) (MOALD, 2020). The total number of the parcel in Nepal is around 120 million and the average size of holding is 0.68 hector and the average size of the parcel is 0.21 hector in 2011(“- Large Scale Sample Survey \_” 2011).

Table 1: Landholding size based on household

S.N.	Holding size in hector	Percentage of holding	Percent of area (ha)
1	Less than 0.5	46.93	14.70
2	0.5 to Less than 1	27.22	24.18
3	Greater than 1	25.85	61.12

Source: CBS, 2001 (Agricultural Census)

#### 4. Status of food security in Nepal:

Looking at the global context, the population growth of the world and food habit change can be taken as an example for the increasing demand for meat products, climate change and drought, use of grains for fuel production and low investment in the agriculture sector and also a triggering factors for food insecurity. Similarly, looking at the national context, Nepal can also be considered as facing a similar situation (Bista, Amgain, and Shrestha 2013). Around 31% of households in Nepal facing inadequate food consumption levels and 40% have limited consumption of the required household. 70% of Nepal’s rural households are food insecure. Food security in Nepal seems to have improved, forty eight percent of people are food secure whereas 4.6 million peoples are still food insecure with 20% of households mainly food insecure, 22% moderately insecure and 10% severely food insecure. More people of the urban area is food secure compared to rural area (Survey 2016).

Although the Constitution of Nepal approved “Food Sovereignty” as a fundamental right for every citizen thus protecting peoples from food insecurity, unequal food distribution, and problem in food access (Bista, Amgain, and Shrestha 2013), the food security situation is still not satisfactory. In contrast, there are opportunities to improve the food insecurity situation because of rich climatic variability based on low flat land to high mountain areas suitable for a verity of food crops, pulses, oilseeds, fruits, and vegetables. Rice is the major crop of Nepal. Besides rice, maize wheat; potato, millet, and barley are produced by farmers. The southern flat part called Terai is the “breadbasket of Nepal” produces surplus food but high mountain area cannot produce sufficient food for their population (Bista, Amgain, and Shrestha 2013).

Examining the issues related to land in the agriculture sector, land ownership is the major factor for determining food security and poverty in every country. Aligning with the issues related to the availability of cultivable land, the land act, and rules 1964 spell about the authorization of the government to implement the program for control of land fragmentation and consolidating (Sharma and Khanal 1970). The national initiatives, like Nepal Agricultural Research Committee (NARC) strategies to mitigate natural disasters like drought tolerant, disease, and hybrid seeds need for sustainable agriculture.

## 5. Methodology

The methodology adopted for this study is desk review and the explanatory case study. The desk review was conducted based upon the ILC framework applied by (Khanal et.al 2018). The process includes the collection of land management policies, programs, and intutional provisions. After collection of all required documents institution and legislative system review and collection of documents followed by collection literature from the book, article, and website is carried out. Assessment of those agricultural systems and food security is carried out in a frame of three-part as legal, policies, and institutional structure. The explanatory case study is carried out for supporting those three components.

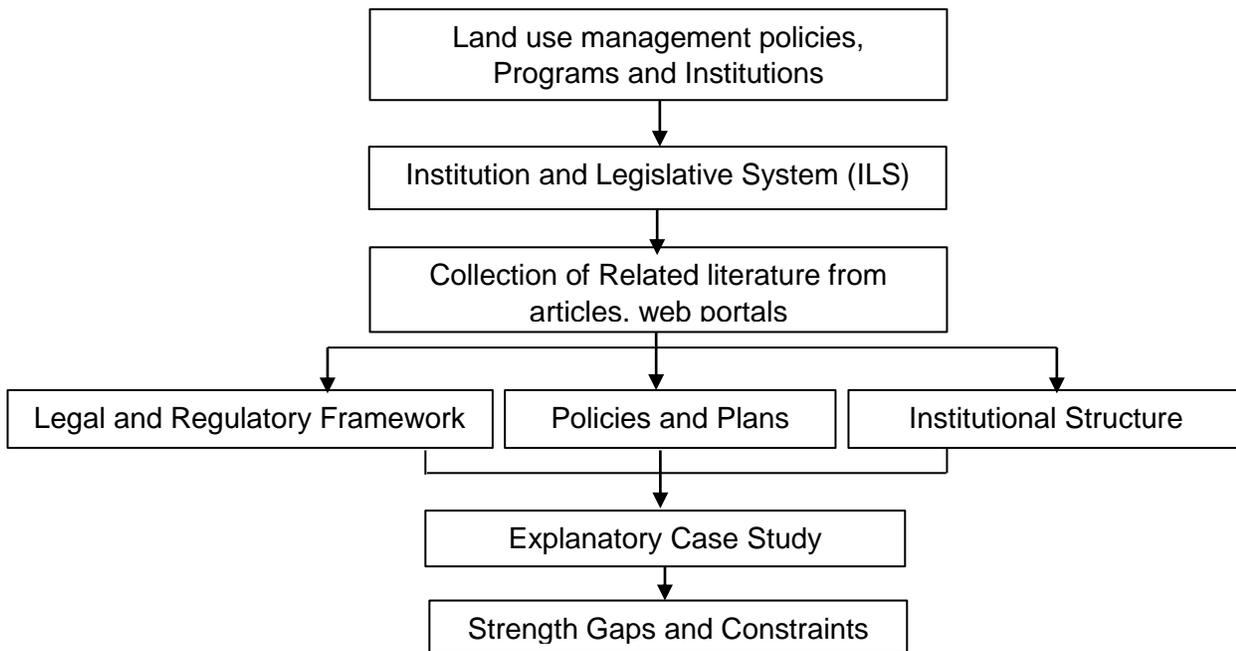


Figure 1: Conceptual framework [Adopted from (Khanal et.al 2018) and Modified by Authors]

The explanatory case of land use and land cover change of the Pokhara Municipality has been adopted. According to (Zainal 2007), the explanatory case study is applied to examine data closely to explain the phenomenon in the data. Hence, in the explanatory case adopted for this study, the reason why the cultivated land has been changed in the other land cover has been posted. The driving factors for this change are identified based on ILS parameters which are legal and regulations, policies and programs, organizations, and institutions.

## **5.1. Institutions and Legislative Framework for land use**

### **a. Legal and Regulatory Framework**

Constitution of Nepal 2015, article 36 includes citizen right to food, right to be protected from a state of starvation, resulting from lack of food kinds of stuff and right to food sovereignty based on law. Article 42 (4), includes “Right to Social Justice” it guarantees that “every farmer shall have the right to have access to lands for agricultural activities, select and protect local seeds and agro species which have been used and pursued traditionally, following the law”. The Article 51[h(12)] includes “sustainable production, supplies, storage, security, and easy and effective distribution of foods by encouraging food production in tune with climate and soil, in consonance with the concept of food sovereignty, while enhancing investment in the agricultural sector”. Article 42(4) states “Every farmer shall have the right to have access to lands for agro activities, select and protect local seeds and agro species which have been used and pursued traditionally, following the law.”

Agricultural development strategy 2014 focused on food and nutrition security, increase productivity through agricultural education, adequate size farms, improved irrigation facility and management, seed policy, fertilizer supply, agricultural market, agribusiness, agricultural product export, enhance food safety and quality (MOAD 2014).

National Climate Change Policy 2019 includes the provision of agricultural and food security by a climate-friendly agricultural system for food security, nutrients, and improvement of livelihood. The concept of food bank (Annual saving of crop by farmers and tenants) has been proposed in the Land Act 1964 for food security.

### **b. Policies and Programs**

Constitution of Nepal 2015 has given priority in article 25 right to property sub-article (4) and Article 51(e), the state in carrying out land reforms, managements, and regulation by law to increase the production and productivity through scientific land reform and ending dual ownership. Land plotting and discouraging the absentee land ownership as well as protecting and promoting the rights and interests of peasants and utilizing, productivity industrialization, diversification, and modernization of agriculture is a major agenda. Maintaining environmental balance for sustainable agriculture is necessary.

National Land policy introduced in 2019, included agenda to increase the access of agricultural land to farmers, classification of land-based on utility for sustainable use to increase food production. Land, except forest can be used for agricultural and industrial purposes based on lease for sustainable agriculture. Flexible loan provision for acquiring agricultural land and motivate for land consolidation and cooperative farming with the use of modern technologies for sustainable agriculture and food security. This policy aims to proper use of land resources for food security.

Land use policy 2015 of Nepal included classification of land in the number of zones based on suitability, preparation of federal land use plan with priority for protection of agricultural land by land consolidation, and commercial farming. It also includes subsidizing tax for agricultural land to promote sustainable agriculture.

National Climate change policy 2019 has given priority to crop diversification, protection of agricultural diversity, agroforestry with species of multipurpose tree in uncultivated agricultural land, and agroforestry to be developed in the sloppy and low-grade forest area. The policy has emphasized riverbeds affected by climate-induced risk to developing climate-friendly agricultural systems for food security, nutrients, and improvement in the livelihood of citizens.

National agricultural policy 2004 included the conversion of substantial farming to commercialize and sustainable agricultural development, scientific land use to stop fertile agricultural land to change other land use categories, provide Irrigation facility, agricultural road, proper agricultural technology development to promote agro production. The provision for local level agricultural plan preparation and implementation including promoting the private and non-government sector in agricultural research and development is included. The farmer training program for capacity development of farmer and initiation for the academic program for agricultural human resource development from University and colleges are also there. Systematic agricultural market establishment and Land Bank establishment based on local level involvement with the use of modern and hybrid seeds to increase production is the major agenda. Cooperative based agro-industry establishment, promotion for using non-chemical fertilizer and scientific land management, and control agricultural land fragmentation are mention for sustainable agriculture. Recently, the budget of fiscal year 2020/21 has prioritized the agenda of Land Bank.

The land use act of 2019 mainly focused on the implementation part of the land use plan. There is the provision of local /state/national level land use committee and implementation committee. The provision of implementing the Land Bank has been included in the policy for providing sufficient agricultural land. Land act 1964 included restriction for selling tenancy rights for utilization of agricultural land and also spell about the concept of land lease provision for providing access on land for farmers.

### **c. Organizational and Institutional**

The land related roles of various government organizations are listed as below;

- a. Ministry of Land Management, Cooperatives and Poverty Alleviation (MoLCPA)
  - Land policy formulation and implementation strategies development
  - Conduct scientific land reform for equitable access to land
  - Optimum use of land for sustainable development
  - Conservation of state and trust land for the public benefit.
- b. Ministry of Agriculture and Livestock Development (MoALD)
  - MoALD bears overall responsibility for the growth and development of the agriculture and livestock sector.
  - Formulation of need-based agricultural development policies
  - Achieve Sustainable economic growth based on commercial farming food security and poverty alleviation
- c. Department of Survey & District Survey office
  - Cadastral mapping for tenure security
  - Land administration support (parcel split and consolidation through District survey offices)
  - Preparation of land zoning maps
- d. Department of Land Management and Archive & Land Revenue offices
  - Land ownership administration through its district offices.

- Increase productivity and alleviate poverty by protecting access to land among stakeholders through guarantee land ownership
- e. Department of agriculture
  - Increase Product and productivity for the demand for internal and external
  - Production raw material for Agricultural based industry
  - Smallholding farmer and women support program
  - The balance on Agricultural development and environmental protection for sustainable agricultural development.
- f. Local Level Government including the agricultural section Order 2074 regarding local level service operation and management)
  - Land classification
  - Seed and support to increase agro production
  - Organic farming priority
  - Minimum valuation of land

## 5.2. Explanatory Case study: “Land use land cover change of Pokhara Metropolitan city”

Pokhara Metropolitan city was established in 2017 as a Metropolitan city of Kaski district, Gandaki Province, Nepal. The location of this metropolitan city is 28°12'30"N 83°59'20"E concerning equator and Prime meridian. The total area is 464.24 square kilometers and the total population of the municipality according to the 2011 Nepal census is 600,759. This area is a famous tourist place in Nepal as well as the second largest city in terms of population after Kathmandu Metropolitan City.

The explanatory case study has been applied to understand why the conversion of agricultural land into other land use especially urban area has been occurring? The change analysis was conducted using Remote Sensing imageries.

Landsat imageries for three decades interval with Remote sensing technologies have been used in this case study. Landsat imageries are freely available on the USGS website. The imageries of three decades (2000, 2010, and 2020) are taken for the case study. Table 2 shows the detail of the images used for this purpose of the study.

Table 2: Data used for change analysis

Data Used	Landsat-7 ETM	Landsat-7 ETM	Landsat-8 OLI/TIRS
Year/Month/Date	2000,December 15	2010, December 11	2020, March 17
Path/Row	142/40	142/40	142/40
Resolution	30m. (Pan-15m)	30m. (Pan-15m)	30m. (Pan-15)
Source	<a href="https://earthexplorer.usgs.gov/">(https://earthexplorer.usgs.gov/)</a>	<a href="https://earthexplorer.usgs.gov/">(https://earthexplorer.usgs.gov/)</a>	<a href="https://earthexplorer.usgs.gov/">(https://earthexplorer.usgs.gov/)</a>

Based on the analysis done using the data as explained in Table 2 and QGIS software, with some technical procedure called classification DN values as supervised image classification and change analysis techniques the results of land use change have been shown in Figure 2.

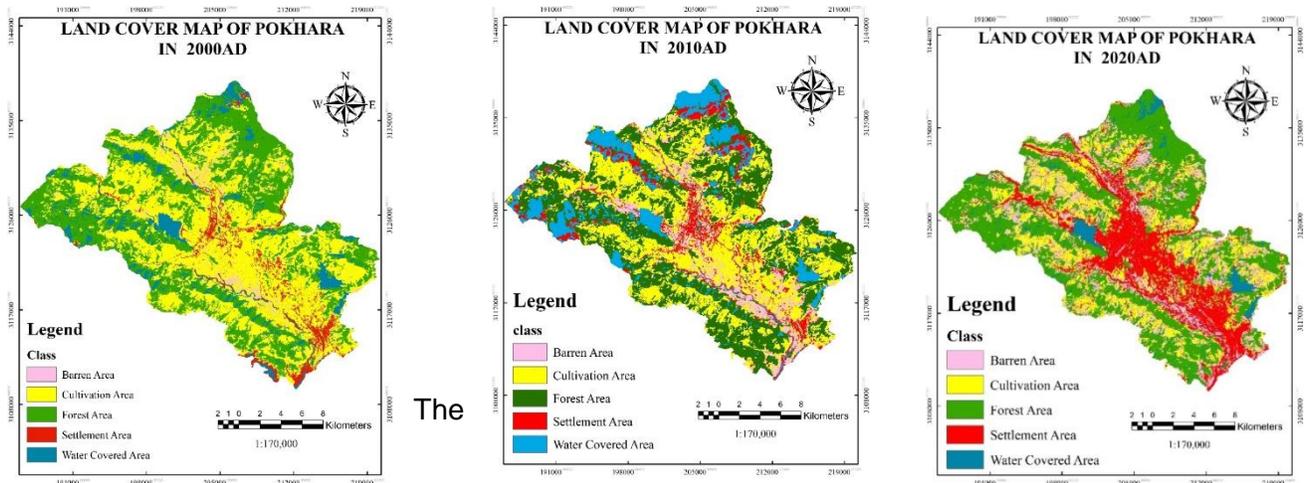


Figure 2: Land Use Change between 2000, 2010, 2020 AD

The numeric area data of classification result of settlement is 23.79, 41.51 and 98.20 square kilometer and cultivation area is 211.27, 156.77 and 87.54 in year 2000, 2010 and 2020 AD respectively. The result can be shown with following chart.

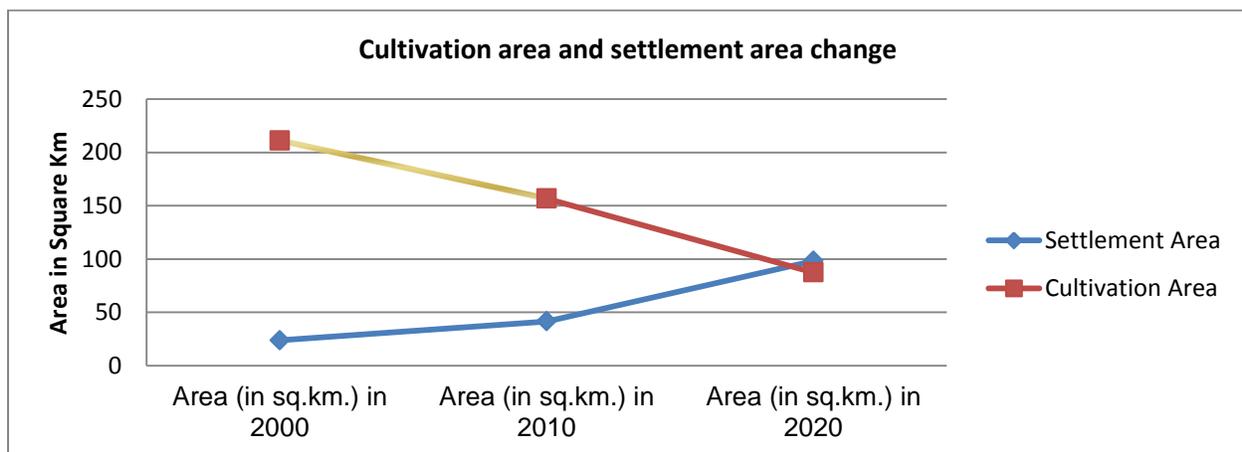


Figure 3: land use change of agricultural and urban area

Classification result shows that during three decade period, the settlement area is increasing rapidly as impacted on the reduction of cultivation land. According to Rimal (2011), the major causes behind the increase in urban area and reduction of cultivation land are migration from the rural area, population growth, centralized plan and policies of government attract rural people to the urban area, political instability, accessibility of physical infrastructures like school, college, hospital etc.in rural area, economic opportunities in the urban area. The case study also indicates that the current land use policies and institutional setup are not able to protect agricultural land.

## **6. Discussion: Underlying Strengths and Lapses in Institutions and Legislative Framework**

The legislative framework in Nepal is the strength to support the land use and sustainable agriculture because of the number of provisions in the Constitution and other legal documents also highlighted in the study conducted by LSF Nepal in 2017. However, referring to the international practice and initiatives as highlighted in Section 3, the legislative framework relating to sustainable agriculture should also incorporate the management of agriculture resources by conserving the environmental dimension as well. The overall progress made by the agriculture sector is not sufficient resulting to be further enhanced because productivity, food security, and poverty are still embedded problems. The reasons behind the lagging in the agriculture sector and its sustainability are inadequate institutional capacity, weak plan formulation, limited public and private investment in agriculture (LWF Nepal 2017).

The Nepalese context on food security reveals that the majority of peoples are dependent on agricultural sector. The enhancement and mechanization in the agriculture sector by introducing sustainability parameters can support food security in the country. Hence, international practices like New England Food systems that have adopted sustainability in production, processing, distribution with core values like food rights, healthy eating, community viability need to be integrated into the institutional set up of the food system in Nepal.

Various provisions and programs are implemented by the government of Nepal to strengthen the sustainability of the agriculture sector. Still, there are gaps for governing the land use and sustainability of the agricultural sector due to a lack of proper organizational setup. The legal provisions are scattered in the various legal document so need to integrate land use and agricultural sustainability provisions as well. The institutional weakness and lack of implementation of land use policies to protect agricultural land can be reflected in the case study. The case already has shown that agricultural land is decreasing due to urbanization. So need to control the conversion of agricultural land for food security. The decrease in agricultural land means a decrease in the productivity of food.

Moreover, various literature on land use, sustainable agriculture, food security, international practices on SDGs, and other various strategies has shown that it is possible to increase food production using technology, mechanization in an agricultural area, improved seeds, etc. Although mechanization and modernization can yield productivity, the major concern is that without the availability of land feasible for agriculture purposes, the intervention in the agriculture sector alone cannot be effective to meet the various targets of SDG 2, which is directly related to food security.

The quality of soil is degrading due to the use of chemical fertilizer, so it is necessary to convert family farming culture to organic farming. To obtain the organic farming culture, the coordination among various organizations is essential basically during the implementation of land use policies. Further, there is a requirement of the establishment of specific organizations dealing with land use, but there is a lack of such organizations in various levels of government.

The necessity for the implementation of land use policies reflected from the case study is the foundation for sustainable agricultural and food security for the achievement of SDGs Goal 1; End poverty and Goal 2; Zero hunger. In addition to the transition phase of the decentralization of land administration system towards the federal structure of the country has pretended the challenges to achieve SDGs other land and food production-related Goals, Goal 5; Gender Equality, Goal 11: sustainable Cities and communities and Goal 15: Life in Land.

## 7. Conclusion and the Way Forward

The paper has attempted to contribute towards evidence-based policy dialogue for land use planning for sustainable agriculture and food security by analyzing Institutions, legal and organizational set up related to land for agriculture purpose, and its implications in preserving land for agriculture through the case study.

The revision of current land use policies of Nepal has been carried out and discussed the strength, gaps, and constraints of the same in terms of changes in land use and its effects on agriculture production. The institutional and legislative (ILS) approach in legal and regulatory frameworks, policies and programs and organizational and institutional set-up has been used for the understanding of the existing legal backup to bring sustainability in agriculture. There are various policies and programs related to the land use plan, still the result does not seem to be positive. The changes in agricultural land have been studied for Pokhara Metropolitan City using satellite images of three decades to explain the existing gaps and constraints between the land use policies and its implementation. The study conducted for Pokhara shows that cultivation land is decreasing due to haphazard urbanization without control in its use of land.

The evidence that agricultural land is decreasing has brought the challenges to meet sustainability in agriculture thus posing the questions for obtaining food security. The protection of agricultural land through land use planning plays a vital role to improve the situation of food security. The food security is emphasized in the Constitution of Nepal, and also a commitment of the government for the food sovereignty of their citizen, however, the commitment does not reflect any influence to stop the conversion of agricultural land to other categories mostly urban areas. The ILS framework reflects that there is sufficient backup for sustainable agriculture practices like intercropping systems, conservation tillage, organic farming, and agroforestry.

Further, the Constitution of Nepal is found to be focused on the priority of food security commitment of the country while the fact that food security can be achieved only after sustainable agriculture by protecting the agriculture land is overlooked due to the non-implementation of land use policies explicitly. There are several plans and policies exist that support achieving sustainable agriculture but does not seem that effective results have been achieved. It seems that the regional imbalance of the food security situation in Nepal can be reduced by the method of upgrading the yield gap via proper land use planning. To achieve this, there is a need to coordinate local, provincial, and federal governments during the local land use planning and implementation for the protection of cultivation land. In short, it reveals that the implementation of land use policies is a prime factor that is hindering the protection of agricultural land.

Finally, this study recommends that the government should have its food resilient strategy to the local level in the newly structured federal context of Nepal. Each local government should manage marginal land in the parcel level and promote indigenous and underutilized crops to support zero hunger and to end poverty.

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