

A SOCIOECONOMIC VIEW OF STATUS AND PROSPECTS OF GOAT FARMING IN RURAL AREAS OF NEPAL

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ABSTRACT

As Nepal is agriculture based country, 65% of people are engaged in agriculture Nepal. Moreover, the contribution of livestock to national GDP is significant. In this regard, an attempt has been made to review the prevailing situation of goat farming and various socio economic dynamics related to goat farming in Nepal. Various reports revealed the importance of livestock and furthermore small ruminants have situational advantages in context of rural areas of Nepal where many farmers are poor to afford bigger animals. Moreover, internal and international migration is worsening the availability of male youths which is further explaining the suitability of small ruminants in our context. Goat is the most popular small ruminant which can be handled by women and children in absence of young male members. It not only provides employment to the rural poor, it also acts as a security against the crop failure and has religious importance. Since supply is far behind the demand which is fulfilled through import, sufficient effort is necessary to increase the goat production in order to reduce the import and improve trade deficit of the country.

Keywords: Nepal, goat, employment, production, trade

INTRODUCTION

Nepal is an agrarian based country where about 65.6 percent of population is based in agriculture which contributes about 35 percent of GDP. The Nepalese agriculture system comprises of crop, livestock and fodder trees where livestock provides milk, meat, manure, hide draught power, fertilizer, household fuel and fiber (Kattel, 2016). According to MoAD (2012), the livestock sector contributes 14% of the national GDP and 32% of the AGDP, which shows significant role of the livestock sector in the country's economy. The data showed that in total contribution of livestock the contribution of goat meat is 20 percent. Small ruminant especially goat has a significant role in the total livestock contribution. According to MoAC (2004), Goat constitutes a considerable proportion of total ruminants in hills (49.66% of total ruminants in hills) and terai (36.47% of total ruminant population) of Nepal, however in case of mountain sheep is more dominated. Thus the sector of goat provides a robust support in the livelihood of Nepalese farmers of hills and terai which constitute the higher proportion of land area and population of the country.

According to MOAC (2011), around 75 percent of household are rearing goat which is percent) households. This shows preference of goat over other livestock species for the farm household. They serve as a complement to crop production along with supply of milk and meat. Goat farming is a major part of livestock sector and is mainly adopted by the small as well as marginal farmers whose primary and stable source of income is agriculture. Nepal has long been based on subsistence farming, where the farmers secure their livelihood from fragmented plots of land cultivated in difficult conditions mostly rainfed where only 28% of the total agricultural land (4.21 million ha) is irrigated

(World Bank, 2018). These farmers are characterized by socio-economic vulnerability due to their inability to withstand adverse economic as well as social risk. Goat rearing provides insurance for them in case of failure of crop under this insecure situation. Goat is a significant source of capital storage, income and employment generation for such households.

A study by Maharjan, Bauer, & Knerr (2013), suggested that trend of internal and international migration of youth male in search of employment has resulted to agriculture and livestock rearing to be handled by the females. The goats being small ruminants can be easily handled and taken care by the women as well as children. Goat provides milk, meat, fiber, skins and manure along with the livelihood option to the subsistence of small holders and landless rural poor. In this regard, the study aimed to document the present situation of goat farming in context of Nepalese scenario, its importance and other allied aspect in socio economic sector of Nepal.

MATERIALS AND METHODS

This paper adopted review approach to find the current status of goat farming in Nepal and seek for the possible scope to increase the goat sector in various zones of Nepal. It has made a thorough analysis on various sectors that can be affected due to goat farming, seek the opportunities to increase the development of goat farming in the overall development of the country and find the further scope relating to factors related to production.

RESULT AND DISCUSSION

Current situation of goat farming in Nepal

Goat farming in Nepal is popular among rural farmers because of low investment requirements. About 49.8 % of households (2.79 million of the 5.6 million) rear goats, with average holdings of 3.3/ household (CBS, 2012). It is mostly carried in traditional model of either in a stall feeding system or grazing system. According to Heifer International Nepal (2012), Nepal has goat population of around 9.19 million with an annual growth of just above 2%.

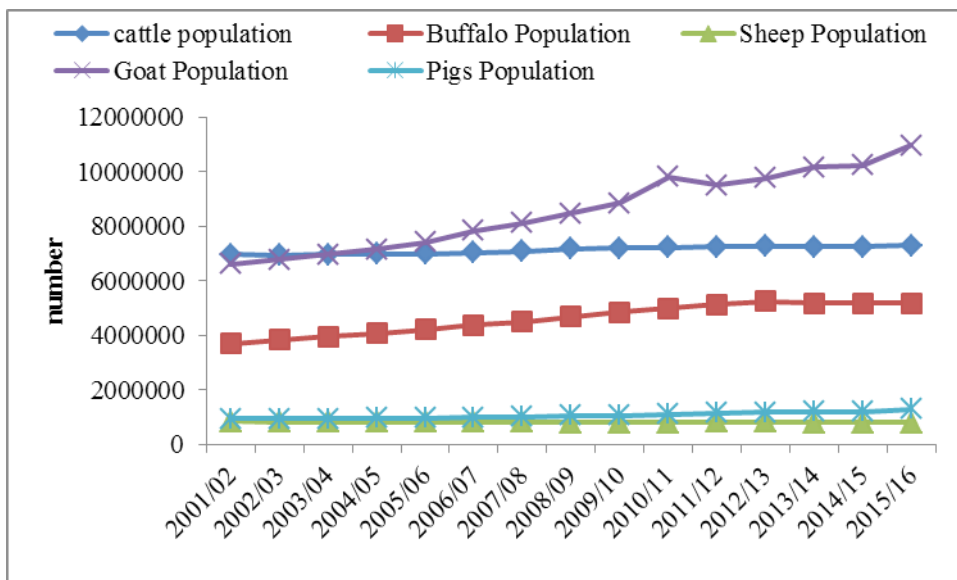


Figure 1: Population distribution of major livestock in Nepal from year 2001/02 to 2015/16

Based on the data obtained from Government of Nepal, 2017 there is increasing trend of major livestock; however, goat population is increasing much rapidly as compared to other livestock (Figure 1). The average weight of an adult goat in Nepal is 25 to 30 Kg which is very low as compared to the improved breeds. According to Devkota, Ravniyar, Kolachhapati, & Timsina (2000), the poor performance of livestock might be due to in-breeding and/or negative selection. In addition to this lack of proper management in feeding and disease control the farmers are not able to reap optimum profit from this sector. Kharel & Pradhan (1988), report the low nutritional status and poor husbandry practices for the livestock. Furthermore, there is lack of specific research and trained manpower in this sector. In many rural areas there is not even the availability of improved castration method and the castration is painful for goats (Jaisi *et al.*, 2016).

The farmers receive inputs like salt, veterinary medicines and seed of fodder and forages from private firms and agrovets suppliers whereas the district level government offices provide technical services along with necessary inputs (Poudel, 2016). In spite of high demand and initiation of Nepal Government to increase the self dependency through various policies to encourage the farmers and providing subsidies and support to the farmers, the farmers are not yet attracted for commercial cultivation in this sector which indicate the possibility of technical problem regarding goat farming.

According to Jaisi *et al.*, (2016), there is lack of veterinarian and technician to identify the disease and other technical problem. There is lack of skill and coordination between government officials and technicians is very weak. The occurrence of epidemics is often found in these areas. The technical and veterinary service is yet to be extended to the rural areas. Many times people have to depend upon consultation of the unauthorized technicians and have to bear loss of the part of their goat herd. The mortality rate of newborn kids is seen to be high in these areas and many times the adult goat also dies. Such incidences have led many farmers to give up goat farming. Policymakers, researchers and development authorities need to think and execute the goat production technology (NSGU, 2015).

Demand and supply of goat in Nepal

On the basis of data by Government of Nepal (2017), it can be stated that although population of each of the livestock type is seen to be increasing with time, the increment in goat population is visible distinct. This shows the growing demand for goat. The annual growth rate of goat in Nepal is 4% which is healthier as compared to other livestock. A concern that cannot be overseen is that although the growth is increasing in number it is not sufficient due to low productivity of animals, mainly due to poor husbandry practices by farmers, the genetic inferiority of local breeds, and the poor condition of animal health (ADS, 2014). The percentage of improved livestock accounts for only 6.1% in goats which is much lower than poultry (54.2%), swine (34.2%), buffalo (25.9%) and cattle (13%) (MoAD, 2012).

Furthermore, even though the goat population has increased with time, the domestic supply is not sufficient to meet the increasing demand. According to MoAD (2015), Nepal annually spends more than US\$40 million to meet the increasing demand for animal products and most of the product is from India. Thus it is one of the remarkable factors to increase trade deficit. Government records reveal that the import figure for 2005/06 was 274,814 live goats which rose to 475,853 in 2010-11 (DLS, 2011). Heifer International Nepal (2012), reports that the current total supply of goat meat in Nepal is 61,375 MT with the domestic production contributing 52,809 MT (86%) and import 8,566 MT. On the basis of their crude through income elasticity the demand of goat meat is around 70,307 MT which creates a gap of 8,932 MT which requires additional 565,300 goats annually. According to Saadullah *et al.* (2001), there is positive relation between national per capita income and demand

for animal products. The consumption of goat meat has been increased at the fast rate in the urban which is expected to be continuing for next few years. At present the supply of goat meat and wool come from the smallholders.

Marketing aspect of goat in Nepal

A study made by Heifer International reveals lack of organized goat market in Nepal except some weekly scheduled markets in the Narayani-east sector. Mostly the farmers are selling the products mostly on the basis of individual contact. The number of goats gathered in such weekly markets is not sufficient enough to achieve the economies of scale and thus cannot attract the large traders and importers. They report that about 3.34 million of the national flock of 9.19 million goats are annually disposed of for meat purposes among which 75 percent is consumed in village and remaining 25 percent is send to formal market. According to Poudel (2016), farmers generally sell their goats to the traders or local butchers. Mostly the traders buy from farmers and sell to the retailers, hotels, restaurants and party venues. Farmers do not have easy access to market information on price and probable market extension. Furthermore, the limited number of collection centers lack proper conditions leading to weight-loss up to 20% while handling or transporting them to the distant market. A typical smallholder farmer earns NPR 15,000 – 20,000 annually from selling their goats (NLSS, 2012).

Nepali *et al.*, (2007), stated that in western hills of Nepal farmers are dependent on middlemen to sell their products or have to search for interested people who are ready to slaughter the goat and sell in the village. There is no assuring market. Department of Livestock Service felt that live animal markets have to be strengthened so that farmers can get a reasonable price, and market never feel shortage of animals for quality meat production. Since Smallholders play important role in the production system, they need to be linked into the national production and market grid for sustainability of market supply (Gurung *et al.*, 2011).

Review of various aspects affected by goat farming

Poverty reduction, food security and livelihood: The increase in production on one hand will increase the income of the farmers and on the other hand they will have their own marketed surplus to consume. According to a report of FAO, (2010), the annual average global consumption of meat is about 42.5 Kg where the economic survey of Nepal 2073/74 shows that average intake of meat by Nepalese is only 14 Kg and it is obvious that the intake by poor and marginal farmers is far below the average national consumption. Livestock are the potential means of lifting poor form deprivation to self-sufficiency. The rearing of goat provides an employment opportunity and livelihood to the farmers which results in their satisfaction leading to confidence in social activities. The study made by Singh, Dixita, Roy, & Singha (2013) concludes that goat-rearing has tremendous potential for improving the food, employment and livelihood security of rural people.

Environment: It is said that the goats actively damage vegetation when animal density is too high and there is no supervision, this characteristics can be however utilized by allowing them to graze in the forest area where the farmers intend to fire to clean the forest. Thus the carbon emission through fire can be neutralized leading to good environment. De Haan, Steinfeld, & Blackburn (1997), state that grazing of goats and effect the ecosystem positively to improve plant species composition by removing biomass that could fuel fires, by controlling vegetative growth, and by dispersing seeds.

Land use and Soil: Goat manure is a rich source of nutrients for soil which either can be composted or mulched (Leonard, 2015). The manure of goat has greater nitrogen content as compared

to the cattle. Laboratory analysis shows that sheep and goat manures were found to contain 0.61% and 0.83% nitrogen respectively on a fresh weight basis, compared to 0.25% and 0.33% in the faeces of cattle and buffalo (Oli, 1987). It would be helpful to replace the amount of chemical fertilizer, the excess use of which has led to the poor soil health. Further, the pellets are naturally dry, and therefore easy to collect and apply. They're also virtually odorless once dried out (Leonard, 2015).

The bund of field is often uselessly left fallow. This bund can be efficiently utilized for planting fodder grasses and trees. Moreover, the leguminous grasses planted to feed goats fix nitrogen in the soil resulting to the increased availability of nitrogen in soil. Without considering the possible effects on soil fertility, a field equipped with vegetated anti-erosive structures provides more income than without, despite the loss of surface caused by the structures (RCBDIA, 2016).

Another considerable factor for goat farming is that the irrigation facility is not available in all the fields and farmers have to rely on rainfed farming and due to the changing pattern of climate frequent failure of crops has been evident for rainfed area, where goats can be reared successfully using local resources. The agriculture of Nepal is predominantly based on rainfed system and the irregular rainfall during main crop season often results in food deficit. To reduce such a harsh situation, emphasis on agriculture research is important (Poudel, 2016). Goats can be efficiently reared on available shrubs and trees in harsh environment in low fertility lands where no other crop can be grown. The adaption of goats in harsh environment represents its climax in capacity of domestic animals. The low body mass requiring low metabolic requirements are important quality which make them able to sustain in diversified climatic and managerial situation (Silanikove, 2000).

Migration: The rate of migration of rural people to the urban or abroad in search of better source of earning and employment has been seen to be in increasing trend over years. According to World Bank (2013), Kathmandu is the fastest growing towards urbanization in South Asia, other cities are also developing in same pace resulting to migration of large number of youth to cities in search of better livelihood option. The movement of out migration of youth male has resulted the labor crisis in remote areas and the households and farm are not left to be handled by the females. In this context, goats being small animals can be easily handled and reared by the females. Another possibility of minimizing the trend to migration for the purpose of employment and income generation cannot be ignored if the youths are motivated for goat farming by creation of awareness among them through various trainings, visits and other extension activities.

Development of local industry: The farmers of Syangja district of Nepal have recently adopted the Sanen breed of goat which is milch breed. This indicates the awareness among people about benefits of goat milk and thus creating demand for goat milk which was previously rare. Furthermore there is scope of export of cheese prepared from goat milk. Therefore, if milch breeds of goats are reared, country can be benefited through the export of high quality cheese which has high demand in the international market. Thus it will be a step in development of dairy industry for goat and the youth of the areas could be engaged for their livelihood (T. Neupane, Personal interview). There are evidences that many developing countries are making use of goat skin but the hide/ skin industry of Nepal has been shut down due to miscellaneous reasons. Observing high demand for goat meat and the favorable environment for expanding the goat business there is scope of establishment in a skin procurement factory in Nepal. The demand for cheese prepared from goat meat has also been increasing especially in the tourist area like Lakeside of Pokhara and Thamel Kathmandu. According to a report Anonymous (2013), the only plant for cheese preparation located in Chitlang is not getting sufficient milk to cover the growing demand of goat cheese. Formal study this regarding this aspect has not been performed. Fiber produced by goats are the raw material for warm garments and most of the fiber produced in Nepal is locally used in hill villages by the ethnic groups while very

less is sold to urban market where the carpet manufacturing industries import from New Zealand and Tibet (Ghimire, 1992).

Opportunities and implication requirements:

Livestock has been identified as an important sector for priority output by APP during the implement of 20 years Agriculture perspective Plan of Nepal (APP, 1995). According to FAO (2010), The average per capita consumption of meat in Nepal is 11.15 kg per year, which is lower than the global average consumption of 42.5 kg per year. Buffalo meat has highest demand in Nepal, followed by goat, chicken, and pork. As buffalo meat is for its cheap price (60% cheaper than mutton) and its usage to prepare dumplings. The demand of mutton ranks second as per its demand and accounts for 20% of the country's meat demand (MoAD, 2012). The average price of mutton stands at NPR700 per kg, and the ministry estimates that annual growth rate of goat is 4.02% (MoAD, 2012), which is far below to meet the current demand of the country. The increasing trend of population growth, urbanization and income growth leads to increased demand for the product of animal origin in South East Asia (Delgado, Rosegrant, Steinfeld, Ehui, & Courbois, 2001). Thus there is increasing scope of market availability for the animal product of rural poor.

Nepal government has been distributing boer goats through to the village farmers various programs implemented by Ministry of Livestock Development under the Agriculture and Food Security Program (Bhandari, 2017). Boer goats are improved breeds which could perform far better than the locally available goats. It is reported that the Khari goat can reach up to 25kg only after one year of its birth where as Boer goat gets the same weight when it is around four months (Sapkota, Kolakshyapati, Gaire, Upadhyay, & Acharya, 2016). But this breed required intensive care and management along with technical availability so a cross with local goat Khari gives off springs with an average weight of 65 Kg which is even profitable for the farmers as compared to previous practice. However this growth needs proper care and management along with balanced diet. To make availability and sufficiency of proper diet farmers need to plant improved grass and fodder trees which are specifically for goats. Farmers should be made aware about the dietary need of concentrates, fibers, vitamins and minerals for proper growth of goats. In addition to this farmers need to be aware about the benefits of proper breeding practices, periodical deworming, proper management of shed and adaption of technologies suggested through research and findings. It would be helpful for government to meet the target of poverty reduction and GDP increment. Government need to bring additional scheme of insurance facility for the goat farmers.

SUMMARY AND CONCLUSION

Being a developing country based in agriculture, goat sector is an important part of Nepalese agriculture as well as livelihood. It not only provides manure to increase the productivity of the field but also assist in livelihood of rural farmers. Goat is considered as a poor man's cow (or mini-cow) because they not only supply nutritious and easily digestible milk to their children but also regular source of additional income for poor and farmers. Being easily manageable by women and children requiring less capital investment and feeding costs it is a better alternative of employment for rural poor.

Since goat can be reared in even in small area of land and the capital investment is relatively low with higher reproductive rates due to shorter breeding interval and high prolific it can be insured source of livelihood for poor household. Goat Rearing can be managed by spare family labor and do not require any elaborated housing facilities and management skills and thus family labor is well utilized to generate income. It can be well performed by every categories of farmers whether they are poor or rich to earn income in regular basis. Thus it on one hand provides income through utilization

of household waste products and spare labour while on the other side is a source of nutrition for the poor farmers of rural area.

Small ruminant production is important due to the fact that sheep and goats are easily managed, require a relatively small initial investment and their short generation interval tends itself to a fast return on investment. Though there are numerous scope of commercialization of goat farming, Nepalese farmers are still not able to sustain in the competing market due to lack of technical knowledge and facilities. It therefore seems utmost for the policymakers to take appropriate steps to encourage rural farmers which on one hand can check urban migration and on other side improve the livelihood of the rural poor. Increased production would also fulfill the gap of demand and supply of goat meat in Nepal leading to increased GDP of the country. Thus this sector brings an overall benefit for the micro as well as macro aspect of economies of the country.

REFERENCES CITED

- ADS. (2014). Agriculture Development Strategy. (M. of A. Development, Ed.). Singhdurbar, Kathmandu, Nepal.
- Anonymous. (2013). Consumption of meat rises by seven times. Retrieved from <http://www.karobardaily.com/news/2013/10/consumption-of-meat-rises-by-seven-times>
- APP. (1995). Summary Document. Agriculture Perspective Plan. (N. P. Commission, Ed.). Kathmandu: His Majesty Governments of Nepal.
- Bhandari, G. P. (2017). Boer goats distributed ot farmers in Pyuthan. Retrived: *Kathmandu Post*. Retrieved from <http://kathmandupost.ekantipur.com/printedition/news/2017-09-08/boer-goats-distributed-to-farmers-in-pyuthan.html>
- CBS. (2012). National Population Census. In: Nepal Planning Commission. (C. B. of Statistics, Ed.). Kathmandu, Nepal: GoN.
- De Haan, C., Steinfeld, H., & Blackburn, H. (1997). *Livestock & The Environment: Finding a Balance*. FAO, USAID and the World Bank.
- Delgado, C., Rosegrant, M., Steinfeld, H., Ehui, S., & Courbois, C. (2001). Livestock to 2020: The Next Food Revolution. *Outlook on Agriculture*. <https://doi.org/10.5367/000000001101293427>
- Devkota, N. R., Ravniyar, G. E., Kolachhapati, M. R., & Timsina, J. (2000). Production pblems and potentials of livestock sub-system in the Makalu Barun conservation area of eastern Nepal: A system Analysis. *16 Th Symposium of the International L. Fanning Systems Association and 4 Latm American Farming Systems Research and Extension Symposia*. Santiago, Chile, 27-29 NOK 2000.
- DLS. (2011). Annual Progress and Livestock Marketing Promotion Technical report . (D. for L. Services, Ed.). Kathmandu: GoN.
- FAO. (2010). Market-led quality meat production and processing.
- Ghimire, S. C. (1992). The Role of Small Ruminants. Sustainable livestock production in the mountain agro-ecosystem of Nepal. (F. A. N. D. A. O. O. F. T. H. E. U. NATIONS, Ed.), *Animal Production and Health Paper*. Rome.
- Government of Nepal. (2017). Statistical Information on Nepalese Agriculture 2072/73. (M. of A. D. GON Monitorybg evaluation and statistics divisioan Singh Darbar, Ed.). Kathmandu, Nepal.
- Gurung, T. B., Magar, P. K., Upreti, C. R., Joshi, B. R., Pradhan, S. M., & Wagle, S. K. (2011). Proceedings of 8th National Workshop on Livestock and Fisheries Research (p. 336). Nepal Agricultural Research council (NARC), Nepal.
- Heifer International Nepal. (2012). A study in goat value chain. Retrieved from http://www.heifernepal.org/sites/default/files/2_Goat_value_chain_study_heifer_2012.pdf

- Jaisi, M., Subedi, R., Dhital, B., Neupane, H., Khanal, A., Kattel, P., ... Research, D. of. (2016). *Livelihood Assessment Report: Gorkha Recovery and Resilience Program, Nepal. Technical Advisory Service Project*. Kathmandu: Institute of Agriculture and Animal Science.
- Kharel, M., & Pradhan, S. L. (1988). Goat meat production in Nepal. In *Proceedings of a workshop on goat meat production in Asia* (pp. 152–160). Tando Jam, Pakistan.
- Leonard, J. (2015). 20 Reasons Why Keeping Goats Will Change Your Life For The Better. Retrieved October 7, 2018, from <https://www.naturallivingideas.com/reasons-to-keep-goats/>
- Maharjan, A., Bauer, S., & Knerr, B. (2013). *Migration for labour and its impact on farm production in Nepal. Working Paper IV*. Battisputali, Kathmandu: Centre for the Study of Labour and Mobility.
- MoAC. (2004). Statistical Information on Nepalese Agriculture 2003/2004. (Ministry of Agriculture and Cooperatives, Ed.). Kathmandu, Nepal.: Agri-Business Promotion and Statistics Division.
- MOAC. (2011). Statistical information on Nepalese Agriculture 2010/11. (M. of A. and Cooperative, Ed.). Singha Durbar, Kathmandu Nepal.
- MoAD. (2012). Statistical Information on Nepalese Agriculture. (M. of A. Development, Ed.). Singhdurbar, Kathmandu Nepal: Agribusiness Promotion and Statistics Division.
- MoAD. (2015). Economic Survey of Nepal. (A. P. and S. D. Ministry of Agricultural Development, Ed.). Singhdurbar, Kathmandu Nepal.: Agri Statistics Section.
- Nepali, M. B., Tiwari, M. R., Sapkota, S., Pourel, H. P., Acharya, R. B., & Gautam, S. (2007). Marketing Constraints to Goats in the Western Hill of Nepal. *Nepal Agricultural Research Journal*, 8, 95–102. <https://doi.org/http://dx.doi.org/10.3126/narj.v8i0.11601>
- NLSS. (2012). Nepal Living Standards Survey 2010/11.
- NSGU. (2015). Boer goat at Goettingen. Retrieved from <http://nepaleseingoettingen.blogspot.com>
- Oli, K. P. (1987). Goat breed comparison study at Hattikharka Panchayat. *PAC Technical Paper 93*. Pakhribas Agricultural Centre, Dhankuta, Nepal.
- Poudel, D. (2016). Goat Meat Industry in Nepal: Opportunities and Challenges. Retrieved from <http://biruwa.net/2018/03/goat-meat-industry-nepal-opportunities-challenges/>
- RCBDIA. (2016). Combining soil conservation and fodder production for an adaptation to climate change Southern region - Ethiopia. Retrieved from <http://www.interaide.org/pratiques/download/file/fid/2137?language=en>
- Saadullah, M., Barton, D., Sarwer, R. H., Ahmed, M. M., Ali, R. N., Miah, T. H., & Best, J. R. (2001). The role of poultry and goats in poverty alleviation in Bangladesh. *Human Development*.
- Sapkota, S., Kolakshyapati, M., Gaire, S., Upadhyay, N., & Acharya, Y. (2016). Boer Goat Production Performance, Constraints and Opportunities in Nepal. *Imperial Journal of Indisciplinary Research (IJIR)*, 2(12), 491–495.
- Silanikove, N. (2000). The physiological basis of adaptation in goats to harsh environments. *Small Ruminant Research*, 35, 181–193. Retrieved from <https://pdfs.semanticscholar.org/b68d/eaf816ee3bbbd1d2c86ad19dfc9b650f1e7e.pdf>
- Singh, M. K., Dixita, A. K., Roy, A. K., & Singha, S. K. (2013). Goat Rearing: A Pathway for Sustainable Livelihood Security in Bundelkhand Region. *Agricultural Economics Research Review*, 26, 79–88.
- World Bank. (2013). Managing Nepal's Urban Transition. Retrieved from <http://www.worldbank.org/en/news/feature/2013/04/01/managing-nepals-urban-transitionSS>
- World Bank. (2018). Employment in agriculture (% of total employment) (modeled ILO estimate). World Bank Group. Retrieved from <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>