



THE ROLE OF LIVESTOCK IN RURAL HOUSEHOLDS IN NEPAL



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ABSTRACT

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This paper investigates the livestock asset positions of rural households and the contribution of livestock to their income in Nepal. The research is conducted in household of the rural areas in plain (Terai) region. The primary data is collected on the om snow ball concept and secondary data to support the research. The findings of the research shows the different perspectives of the rearing the livestock in in different households regardless of the households economy. The majority of rural households keep livestock; the rural poor, defined as those living in rural areas and belonging to the bottom expenditure quintile, are more likely to keep livestock than those in higher quintiles. Rural poor household who keeps livestock for income generating purposes whereas a bit well-off as a consuming and income enhancing purposes. There are minor differences in herd composition between households economy. Small ruminant is common in the poor economy of the rural household whereas well off households goes for both on their choice of increasing the income as well consumption. Regardless of household economy, most of the households would like to rear the livestock for their emergency funding or additional income.

Contribution/ Originality: This study contributes in existing literature by highlighting the role of the livestock in households' economy in rural areas of Nepal where formal financial services are less structured. The households' economy and their dependents on the rearing livestock will give an additional standpoint in literature.

1. INTRODUCTION

Nepal has experienced major political changes in recent years leading to the peace treaty signed in November 2006 that ended the decade long Maoist insurgency, the end of the monarchy, the election of a Constituent Assembly and activation struggle of new constitution. While the political change process is still underway, Nepal desires to continue with the country's economic and social development. Nepal is one of the world's least developed countries in South Asia and a landlocked republic country. It is surrounded to the north by China and to the south, east, and west by India. Rural Nepalese, who have for long been suffering poverty, unemployment and more recently a civil war, forced them to look for the options for their survival.

According to Central Bureau of Statistics (2011) Nepal has 28.5 million populations where a third of its population living in poverty. About 85% of the population lives from subsistence agriculture in rural areas. The agricultural sector is unable to match up with the growing demand of food because of low agricultural productivity leads to food insecurity in Nepal (Food and Agriculture Organization, 2011a). The recent down turn of the agricultural product turns rural people to depend more on the pet animals. There are 27 million people keep some

form of livestock at home (Beldangi, 2013). There are 69.36 million livestock in Nepal (Centre For Livestock Wealth Studies, 2015). Livestock becomes an essential part of Nepalese family economy in rural area for their livelihood which shapes their 'way of life'. Livestock has important role to play for disadvantage households to sustain their livelihood in Nepal. Large ruminants (Cow, buffalo) support the livelihood of the 93% of the population who are agriculture dependent (Joshi, 2000). "In pastoralist societies, people tend to be poor and often their livelihoods and food security are insubstantial" (FAO, 2011b). Livestock are used as source of family income as well as supplying nutrient food: milk and meat to rural poor families (FAO, 2011b). However, the nutritional status of mothers and children under five is extremely poor (Gurung *et al.*, 2005). Livestock and their products increases the employment, income of a family and supports the poverty alleviation. However, it is still to be recognized as an economic support industry in Nepal. Joshi (2000) explains the importance of the large ruminant on the agricultural system as well as the influential role in the local economy of rural region in Nepal. Nepal is having 5.8 livestock and poultry heads per households, which is the highest ratio of livestock to human in Asia (Beldangi, 2013). He further reports that there are less than 20% all livestock and 45% of poultry are commercially managed and rest are owned by small farmers. In the traditional Nepali practices, the number of animals inhabits in a family is also compared with the wealth of family. FAO (2011a) defines livestock dependent society by farmers who keep animals extensively on the rangelands and shows their contribution importance in supply of livestock in country.

The farmers in Nepal may have farm with some livestock i.e. cow, buffalo, goats, pigs, chicken, ducks, and other pet to support the family's food and cash income. This practice is named as a mixed farming. The intensive mixed farming systems provides an opportunity of having food-feed crops that are 'vital ruminant livestock feed resources' (Thornton, 2010). FAO (2011b) defines mixed farming as "more than 10 percent of the dry matter fed to livestock comes from crop by-products and stubble or more than 10 percent of the value of farm production comes from non-livestock activities". The norm of mixed farming is widespread in Nepal as well as in other countries in the world with a diverse portfolio of activities that includes crops, livestock, other farm enterprises and non-agricultural work (FAO, 2011b). There are 79% rural households farmers are involved in mixed farming in Nepal which is third largest after Albania and Vietnam (FAO, 2011b). Further, it reports there are two-thirds of livestock keepers are small farm holders in Terai and Hill regions and most of them are mixed farmers (Gurung *et al.*, 2005). Ghimire (2000) explains keeping small ruminants (sheep and goats) as mechanisms of the mixed farming systems in the hills as well in all parts of country of Nepal. By doing this, farmers increases the food security for their family than without having animals. Disparities of caste, gender, and geography have a great impact on poverty. Poverty, unemployment, declining natural resources, and more recently the Maoist insurgency are major reasons to push the rural people in deep poverty. However, poverty and rearing cost of livestock do not discourage people to keep rearing them regardless of their unproductiveness and uneconomic (CLWS, 2015).

The following Table 1 to 6 puts lights on the livestock in country as well as in the case study district. Table 1 explains the population of the livestock in Nepal for 12 years. The average growth rates for livestock are as follows: cattle 0.31%, Buffaloes 2.85%, sheep -0.52%, goat 3.67%, pigs 2.04%, fowl 7.81%, duck -0.37%, milking cow 1.54%, milking buffalo 2.88%, laying hen 2.18%, laying duck -1.38%. The highest growth rate of the cattle 1.19%, buffaloes 4.09%, milking buffaloes 4.59% were in 2009. Milking buffalo's recent growth in 2014 is negative -1.75%. The sheep population has shown the upward turn in 2011, 2012, 2013 and downturn in 2014 again. The goat population shows the positive growth rate and has shown the promising growth from 2007 to 2014. Pig growth is positive with ups and down throughout years. The Fowl has 55% growth in 2011 but drops to 0.25% in 2014. The duck has negative growth throughout years 2002 to 2013 but turn positive growth with 3.79% in 2014. Milking cow population growth is positive throughout years 2002 to 2013 with highest at 2011 but turns down to -0.11% in 2014. Laying hen highest population growth is 5.73% in 2012. Laying duck population growth is negative throughout years but it turns positive in 2014 with 2.71%.

Table-1. Livestock population in Nepal.

Livestock population													
Categories	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Cattle	6978690	6953584	6966436	6994463	7002916	7044279	7090714	7175198	7199260	7226050	7244944	7274022	7243916
Buffaloes	3700864	3840013	3952654	4081463	4204886	4366813	4496507	4680486	4836984	4993650	5133139	5241873	5178612
Sheep	840141	828286	824187	816727	812085	813621	809480	802993	801371	805070	807267	809536	789216
Goat	6606858	6791861	6979875	7153527	7421624	7847624	8135880	8473082	8844172	9186440	9512958	9786354	10177531
Pigs	934461	932192	935076	947711	960827	989429	1013359	1044498	1064858	1108465	1137489	1160035	1190138
Fowl	21370420	22260700	23023979	22790224	23221439	23924630	24665820	24481286	25760373	4.00E+07	45171185	47959239	48079406
Duck	408584	408311	405217	391855	392895	394798	390748	383123	379753	378050	376916	375975.2	390209
Milking Cow	852790	870589	888190	902286	903376	908712	915411	932876	954680	974122	998963	1025591	1024513
Milking Buffalo	958530	988035	1015727	1050977	1084764	1124454	1158300	1211495	1252770	1291644	1331037	1369796	1345837
Laying Hen	6453860	6622558	6676954	6643350	6769050	6962076	7153088	7124054	7290875	7478645	7907468	8233616	8350237
Laying Duck	214090	213751	211838	183208	183690	184608	182753	179187	175300	175150	174978	174714	179447
Categories	Average growth Rate												
Cattle	0.31%	-0.36%	0.18%	0.40%	0.12%	0.59%	0.66%	1.19%	0.34%	0.37%	0.26%	0.40%	-0.41%
Buffaloes	2.85%	3.76%	2.93%	3.26%	3.02%	3.85%	2.97%	4.09%	3.34%	3.24%	2.79%	2.12%	-1.21%
Sheep	-0.52%	-1.41%	-0.49%	-0.91%	-0.57%	0.19%	-0.51%	-0.80%	-0.20%	0.46%	0.27%	0.28%	-2.51%
Goat	3.67%	2.80%	2.77%	2.49%	3.75%	5.74%	3.67%	4.14%	4.38%	3.87%	3.55%	2.87%	4.00%
Pigs	2.04%	-0.24%	0.31%	1.35%	1.38%	2.98%	2.42%	3.07%	1.95%	4.10%	2.62%	1.98%	2.60%
Fowl	7.81%	4.17%	3.43%	-1.02%	1.89%	3.03%	3.10%	-0.75%	5.22%	55.28%	12.93%	6.17%	0.25%
Duck	-0.37%	-0.07%	-0.76%	-3.30%	0.27%	0.48%	-1.03%	-1.95%	-0.88%	-0.45%	-0.30%	-0.25%	3.79%
Milking Cow	1.54%	2.09%	2.02%	1.59%	0.12%	0.59%	0.74%	1.91%	2.34%	2.04%	2.55%	2.67%	-0.11%
Milking Buffalo	2.88%	3.08%	2.80%	3.47%	3.21%	3.66%	3.01%	4.59%	3.41%	3.10%	3.05%	2.91%	-1.75%
Laying Hen	2.18%	2.61%	0.82%	-0.50%	1.89%	2.85%	2.74%	-0.41%	2.34%	2.58%	5.73%	4.12%	1.42%
Laying Duck	-1.38%	-0.16%	-0.89%	-13.52%	0.26%	0.50%	-1.00%	-1.95%	-2.17%	-0.09%	-0.10%	-0.15%	2.71%

Source: Ministry of Agricultural Development Nepal (2013).

The following Table 2 shows the population of the livestock in Eastern Terai of Nepal. The average population growth rates of the livestock in eastern Terai are as follows: cattle 2.31%, buffaloes 4.78%, sheep -3.56%, goat 3.16%, pigs 5.19%, fowl 10.86%, and duck -1.70%. The buffaloes population growth is positive throughout the years, highest at 2002 and 2011 has 8.57%. The goat population growth is highest i.e.14.47% at 2002 and 4.92% in 2009. However, positive goat growth is continued with 1.03% in 2012. Duck, pig and sheep have shown the negative growth in 2012 with -1.84%, -0.45% and -13.01% consecutively. 2010, 2011, and 2012 seem good years for the fowl growth.

Table-2. Livestock population in Easter Terai

Year	Cattle	Buffaloes	Sheep	Goat	Pigs	Fowl	Duck
2000	839627	348896	9943	705834	101384	1729740	153543
2001	900886	355171	10521	759933	115473	1929655	149196
2002	977425	423714	10598	869872	138963	2175511	150840
2003	1007478	456718	10630	888572	161316	2185383	149789
2004	1007478	456718	10630	888572	161316	2185383	149789
2005	1001423	452595	7502	881542	139624	1985846	142602
2006	1001914	453090	7835	882040	140104	2086305	143056
2007	1001737	476225	7435	907571	148501	2157065	144019
2008	1020840	512125	7576	931096	153229	2279397	143634
2009	1024665	527606	7163	976932	159345	2095847	135670
2010	1121300	541396	7968	997243	177652	2907680	134320
2011	1085027	587724	6840	1005796	179162	4424111	126849
2012	1095571	601820	5950	1016136	178351	5209520	124520
Average	Cattle	Buffaloes	Sheep	Goat	Pigs	Fowl	Duck
	2.31%	4.78%	-3.56%	3.16%	5.19%	10.86%	-1.70%
2001	7.30%	1.80%	5.81%	7.66%	13.90%	11.56%	-2.83%
2002	8.50%	19.30%	0.73%	14.47%	20.34%	12.74%	1.10%
2003	3.07%	7.79%	0.30%	2.15%	16.09%	0.45%	-0.70%
2004	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2005	-0.60%	-0.90%	-29.43%	-0.79%	-13.45%	-9.13%	-4.80%
2006	0.05%	0.11%	4.44%	0.06%	0.34%	5.06%	0.32%
2007	-0.02%	5.11%	-5.11%	2.89%	5.99%	3.39%	0.67%
2008	1.91%	7.54%	1.90%	2.59%	3.18%	5.67%	-0.27%
2009	0.37%	3.02%	-5.45%	4.92%	3.99%	-8.05%	-5.54%
2010	9.43%	2.61%	11.24%	2.08%	11.49%	38.74%	-1.00%
2011	-3.23%	8.56%	-14.16%	0.86%	0.85%	52.15%	-5.56%
2012	0.97%	2.40%	-13.01%	1.03%	-0.45%	17.75%	-1.84%

Source: MADN (2013).

The following Table 3 shows the population of the livestock in Mahottari district of Nepal.

The average population growth rates of the livestock for 12 years in Mahottari are as follows: cattle -1.38%, buffaloes 10.08%, sheep 0.78%, goat 6.95%, pigs 40.96%, fowl 13.98%, and duck 0.03%. The pigs growth is promising in 2001, 2010 and also continues progress positively with 23.14% in 2012. The goat growth is better with 26.89% in 2002, 14.23% in 2003, 16.99% in 2005, 10.65% in 2006, 8.14% in 2011 and continues with 4.22% in 2012. The sheep highest growth is in 2009 with 19.08%, highest downfall is in 2010 with -17.63% and its growth continues with -2.46% in 2012. Buffaloes' growth is promising in years 2001, 2002, 2003, 2010 with 16.27%, 16.27%, 39.92%, and 22.04% and continues with 4.38% in 2012. The cattle growth in 2012 has turn up with 1.55% after -6.53% in 2011.

Table-3. Livestock at Mahottari.

Years	Livestock population of Mahottari						Duck
	Cattle	Buffaloes	Sheep	Goat	Pigs	Fowl	
2000	106169	21884	489	62272	482	127349	6086
2001	106776	25444	456	55390	2051	240000	6389
2002	92784	29583	489	70286	2690	243480	6086
2003	80626	41394	524	80286	2040	243680	5798
2004	80626	41394	524	80286	2040	243680	5798
2005	80612	41434	524	93929	1908	251788	5790
2006	80712	41534	624	103929	2002	251891	5890
2007	80900	45177	618	108510	2500	293250	5900
2008	80900	45177	618	108510	2500	293250	5900
2009	81019	47102	641	113522	2806	315528	5930
2010	92044	57481	528	118370	5490	293761	5900
2011	86033	62467	528	128010	5748	432000	5991
2012	87366	65205	515	133410	7078	475932	6083
	Cattle	Buffaloes	Sheep	Goat	Pigs	Fowl	Duck
Average	-1.38%	10.08%	0.78%	6.95%	40.96%	13.98%	0.03%
2001	0.57%	16.27%	-6.75%	-11.05%	325.52%	88.46%	4.98%
2002	-13.10%	16.27%	7.24%	26.89%	31.16%	1.45%	-4.74%
2003	-13.10%	39.92%	7.16%	14.23%	-24.16%	0.08%	-4.73%
2004	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2005	-0.02%	0.10%	0.00%	16.99%	-6.47%	3.33%	-0.14%
2006	0.12%	0.24%	19.08%	10.65%	4.93%	0.04%	1.73%
2007	0.23%	8.77%	-0.96%	4.41%	24.88%	16.42%	0.17%
2008	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2009	0.15%	4.26%	3.72%	4.62%	12.24%	7.60%	0.51%
2010	13.61%	22.04%	-17.63%	4.27%	95.65%	-6.90%	-0.51%
2011	-6.53%	8.67%	0.00%	8.14%	4.70%	47.06%	1.54%
2012	1.55%	4.38%	-2.46%	4.22%	23.14%	10.17%	1.54%

Source: MADN (2013).

Table-4. Milk animals and milk production in Mahottari

Years	Milk cow	Milk Buffalos	Cow Milk	Buffalo Milk	Total Milk
2000	8592	7078	4760	9068	13828
2001	8543	8842	4733	11327	16060
2002	8550	9280	4737	11888	16625
2003	7430	12985	4116	16634	20750
2004	7430	12985	4116	16634	20750
2005	7429	12998	4115	16651	20766
2006	7438	13029	4120	16691	20811
2007	7446	14138	4124	16250	20374
2008	7429	12998	4115	16250	20365
2009	7440	13552	4121	16943	21064
2010	10375	15012	5747	18768	24515
2011	10697	16314	5925	20396	26321
2012	10863	17029	6017	21290	27307
	Milk Cow	Milk Buffalos	Cow Milk	Buffalo Milk	Total Milk
Average	2.55%	8.22%	2.55%	7.97%	6.13%
2001	-0.57%	24.92%	-0.57%	24.91%	16.14%
2002	0.08%	4.95%	0.08%	4.95%	3.52%
2003	-13.10%	39.92%	-13.11%	39.92%	24.81%
2004	0.00%	0.00%	0.00%	0.00%	0.00%
2005	-0.01%	0.10%	-0.02%	0.10%	0.08%
2006	0.12%	0.24%	0.12%	0.24%	0.22%
2007	0.11%	8.51%	0.10%	-2.64%	-2.10%
2008	-0.23%	-8.06%	-0.22%	0.00%	-0.04%
2009	0.15%	4.26%	0.15%	4.26%	3.43%
2010	39.45%	10.77%	39.46%	10.77%	16.38%
2011	3.10%	8.67%	3.10%	8.67%	7.37%
2012	1.55%	4.38%	1.55%	4.38%	3.75%

Source: MADN (2013).

The Table 4 shows the population of cow and buffaloes and their milk product in Mahottari district of Nepal. The average population growth rates of cows and buffaloes and their milk average growth for 12 years in Mahottari are as follows: number of milk cow 2.55%, number of milk buffaloes 8.22%, Cow Milk 2.55% Buffalo Milk 7.97% and Total Milk 6.13%. The Milk cow and their milk highest growth is 39.45% in 2010 whereas buffaloes and their milk growth 10.77% in 2010. The buffalo's highest population and their milk growth is in 2003 with 39.92%. The total milk grew highest in 2003 with 24.81% as well as in 2010 with 16.38%. The population of cow and buffalo as well as their milk shown the positive growth in year 2012.

The following Table 5 shows the meat production of livestock in Mahottari district of Nepal. The average meat from livestock growth rates for 12 years in Mahottari are as follows: buffalo meat 7.72%, sheep meet 3.47%, goat meet 6.68%, pig meet 46.13%, chicken 18.64%, duck meet 0.00%, and total meet 8.27%. The chicken growth rate in 2011 reaches to 103.59% and continued with 10.08% in 2012. Duck meat has shown no growth at all. It is likely that people like to have chicken as better option than any other meat. Eating duck is not preferential in Hindu religion. Pig meat has highest growth with 333.333% in 2001 and continues with the promising growth in 2006 with 66.67 %, 2010 with 94.83% and continues 16.1% in 2012.

Table-5. Meat production in Mahottari

Meat production in Mahottari							
Years	Buff Meat	Sheep Meet	Goat Meet	Pig Meet	Chicken	Duck Meet	Total Meet
2000	1219	3	289	6	85	4	1606
2001	1417	3	257	26	160	4	1867
2002	1648	3	326	34	162	4	2177
2003	1806	3	372	26	162	4	2373
2004	1806	3	372	26	162	4	2373
2005	1808	3	444	30	173	4	2462
2006	1850	4	467	50	167	4	2542
2007	2012	4	488	52	194	4	2754
2008	2012	4	488	52	194	4	2754
2009	2098	4	511	58	209	4	2884
2010	2560	3	533	113	195	4	3408
2011	2782	3	576	118	397	4	3880
2012	2904	4	600	137	437	4	4086
	Buff Meat	Sheep Meet	Goat Meet	Pig Meet	Chicken	Duck Meet	Total Meet
Average	7.72%	3.47%	6.68%	46.13%	18.64%	0.00%	8.27%
2001	16.24%	0.00%	-11.07%	333.33%	88.24%	0.00%	16.25%
2002	16.30%	0.00%	26.85%	30.77%	1.25%	0.00%	16.60%
2003	9.59%	0.00%	14.11%	-23.53%	0.00%	0.00%	9.00%
2004	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2005	0.11%	0.00%	19.35%	15.38%	6.79%	0.00%	3.75%
2006	2.32%	33.33%	5.18%	66.67%	-3.47%	0.00%	3.25%
2007	8.76%	0.00%	4.50%	4.00%	16.17%	0.00%	8.34%
2008	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2009	4.27%	0.00%	4.71%	11.54%	7.73%	0.00%	4.72%
2010	22.02%	-25.00%	4.31%	94.83%	-6.70%	0.00%	18.17%
2011	8.67%	0.00%	8.07%	4.42%	103.59%	0.00%	13.85%
2012	4.39%	33.33%	4.17%	16.10%	10.08%	0.00%	5.31%

Source: MADN (2013).

Goat meat has highest growth in 2002 with 26.85% and continues with promising growth in 2003 with 14.11% and 2005 with 19.35% as well as 4.17% in 2012. Growth in sheep meat is minimal throughout the years except in 2006 and 2012 with 33.33%. The total meat growth is highest at 18.17% in 2010 and continues with 5.31% in 2012.

The following Table 6 shows the laying hen and duck and their egg production in Mahottari district of Nepal. The average laying hen and duck and their egg growth rates for 12 years in Mahottari are as follows: laying hen

5.18%, laying duck -0.12%, hen egg 5.17%, duck egg -0.03%, and total egg 4.77%. The average growth shows the laying duck and its egg have reduced but improves the laying hen and its egg as a result the average total egg reaches to 4.77%. Laying hen and its egg promising years are 2001 with 88.46%, 2007 with 16.36% and 2012 with 10.17%. However laying hen and its egg has drastically growth reduction in 2011 with -55.87% whereas duck and its egg have growth improvement with 1.59% in 2011.

Table-6. Egg production in Mahottari.

Egg production in Mahottari					
Years	Laying Hen	Laying Duck	Hen Egg	Duck Egg	Total Egg
2000	38837	2701	3180	199	3379
2001	73191	2835	5992	208	6200
2002	72305	2700	5919	189	6108
2003	72364	2572	5924	189	6113
2004	72364	2572	5924	189	6113
2005	74772	2569	6121	189	6310
2006	74803	2613	6124	192	6316
2007	87049	2573	7126	189	7315
2008	87100	2573	7130	189	7319
2009	93717	2586	7672	210	7882
2010	87252	2573	7143	189	7332
2011	38500	2613	3152	192	3344
2012	42415	2653	3472	195	3667
	Laying Hen	Laying Duck	Hen Egg	Duck Egg	Total Egg
Average	5.18%	-0.12%	5.17%	-0.03%	4.77%
2001	88.46%	4.96%	88.43%	4.52%	83.49%
2002	-1.21%	-4.76%	-1.22%	-9.13%	-1.48%
2003	0.08%	-4.74%	0.08%	0.00%	0.08%
2004	0.00%	0.00%	0.00%	0.00%	0.00%
2005	3.33%	-0.12%	3.33%	0.00%	3.22%
2006	0.04%	1.71%	0.05%	1.59%	0.10%
2007	16.37%	-1.53%	16.36%	-1.56%	15.82%
2008	0.06%	0.00%	0.06%	0.00%	0.05%
2009	7.60%	0.51%	7.60%	11.11%	7.69%
2010	-6.90%	-0.50%	-6.90%	-10.00%	-6.98%
2011	-55.87%	1.55%	-55.87%	1.59%	-54.39%
2012	10.17%	1.53%	10.15%	1.56%	9.66%

Source: MADN (2013).

The tables in Appendix-A show the Livestock holdings with and without land. The total number of holdings and number of heads are 9439, 36916 for landless people and 58790, 240115 with land holding people. Livestock holdings by landless people represent only 13.83% and rest of the livestock holdings have distributed on different ranges of landholders. However, landholder in range of 0.2 to 0.5 hectares tends to have more livestock than other land holders. The ratio of the livestock holding with landholders is 6.23 and 6.5 times higher in number of holdings and number of heads than livestock holding without land. There are no sheep rearing for without land holders but land holder holds 1747 sheep. However, without landholders are having almost double number of pig heads rearing than land holders. This is because pig is considered dirty and land holders does not want to make their land dirty.

As shown in Appendix-B, landless people holds 12.93% of all ages buffaloes and Less than 1 year female 4.33% and Male 9.35% of buffaloes in respect to the land holders. Nevertheless, Landless people holds 11.45% of total buffaloes in all ages and 8.55% of male and 4.15% of female buffaloes less than 1 year old. However, these ratios improves in three years and over old buffaloes for landless people. Landless holds male buffaloes at proportion of 23.38% in total and 30.48% shares in land holder. Female milk giving buffalo ratio stand at 11.5% in total and 12.99% share in landholders holdings. The highest buffalo holding ranges from 0.2 to 2 hectare land holders.

Landless people holds 13.91% in total and shares 16.16% in landholders of goat rearing. Proportion of male and female goats less than six months stands at 12.97% and 17.32% in total as well as 14.91% male and 20.95% in female to landholders rearing. However, landless people male goat rearing improves to 14.2% in total as well as 16.56% in land holders and female goat rearing drops to 12.95% as well as 14.87% in compare with landholders.

Appendix-C explains that 79.9% of livestock is rented and 8.55% is owned by landless people. However, in case of poultry, landless are holding none because it is more commercialized and needs instant cash investment. The landholders in the range of 0.2 to 2 hectares are more involved in poultry farming.

2. PROFILE OF THE VILLAGES

The case study has been done in three villages Dekaha, Banauli-Donauli, and Sahorwa Village Development Committee in Mahottari district, Janakpur Dham zone, Southern-East Nepal. The study village Dekaha is in VDC-Ekarahiya. It is situated 25 klm far from its district headquarter, Mahottari and 7klm from Janakpur. The VDC Ekarahiya consists 1,796 Households and approximately 9,958 populations in total male 4860 and female 5,098 but the village Dhekaha consists of 400-500 households (approximately) with a total population of 3,000. Most people in this village does not bear land ownership and are being depends daily basis agricultural labour income. The village economy mainly depends on agriculture labouring and livestock rearing. The land owner and farmers of neighbour village normally hire them for agricultural or domestic work every morning on daily basis. Banauli-Donauli consists 944 Households and total population is 4,577 where male is 2,232 and female 2,345. Sahorawa consists 1, 122 households and total population is 5,768 where male is 2,780 and female is 2,988 (CBS, 2012).

Though the villages have accessibility up to secondary school and post office, however does not have the proper required infrastructure such as transport, communication, health and other basic facilities. Economy of these two village depends on the agriculture and some of households having regular income from government and private job. The agriculture depends on rainfall for cultivation. Some land owner in and neighbour village do have pumping set to pump underground water for irrigation which is just enough to hire partial people of this village. Thus, the village faces frequent drought and irrigation sources are limited. The villages have some small ponds that are being used as water reserved for bathing, cleaning cloths and drinking water for live stock for the entire village which is completely dependent on rainfall. There are drinking hand pumps that have been donated by international non-government organisations (INGOs) for the villages.

Farmers grow traditional crops such as rice, wheat, paddy, jowar etc. The agricultural wages are NRs. 150 for males and NRs.100 for female labours. In the villages, the main credit supplying sources are formal or institutional like commercial banks and co-operative banks which need collateral for loans. Apart from this, informal sources of credit are also widespread and include moneylenders, traders, relatives and friends.

3. DATA COLLECTION METHODOLOGY

The data collection for this study is conducted on a face-to-face basis with poor rural people and a bit well-off in these three villages: Dekaha, Banauli-Donauli, Sahorawa. Snowball and convenience methods are used to identify additional suitable respondents. Individual contacts are made and they are requested to come in a group discussion which is commenced at the different tea stalls in these villages. The some group discussion is also done at the places of participants' recommendation for their comfort and with their convenient time which is mostly at evening. The most favourable and convenient time for group discussion is evening and night as this is the time when all participants reached home after their daily work done. Individual discussion with the participants have also taken at their home and tea stall at the morning and evening time. It is also taken care of the participants' time of viability that the morning time is the time when they get asked by neighbour village owner to work for them. The repeated attempt was made in morning time before 8:00am after failing to meet them in evening to individual participants.

Respondents are interviewed and questioned individually and in groups depending on preference and convenience factors in order to get the required information for the purpose of this study. Questions asked are part of a semi-structured research agenda which is constructed to permit respondents expressing their opinions and explore issues of particular interest and relevance to them as individuals. Each discussion varied, therefore, in duration and content. Discussions are accompanied with extensive note-taking for subsequent transcription and interpretation into English from the original Maithili (a regional dialect) used.

As far as possible, respondents are selected according to the principle of maximum variability, since it has been noted that snowball and convenience techniques are subject to the problem of homogeneity of sample (Morrow, 2005). Consequently, more than 100 respondents included in the research workers for interview. All the respondents located were male and female they tended to have a loose network with each other. The unskilled workers had received little if any education, with some having never attended skill trainings or developments. Most were illiterate or semi-literate and their writing skills in their native language: Hindi or Maithili are also limited.

4. LOCAL LANGUAGE 'MAITHALI' AS A MODE OF COMMUNICATION

It is important to say here that all most all participants in research have limited knowledge of language. The unskilled workers had received little if any education, with some having never attended school. Most were illiterate or semi-literate and their skills in their native Hindi or Maithili were also limited. Their knowledge on language is limited to speaking only; they cannot read and write even in the local language 'Maithali'. However, some of the participants are able to write their name as of called the literate. The participants are not able to communicate in the even national language Nepali. The researcher has to ask the question and note down the answers. Thus, the mode of communication was in local language 'Maithali' that the researcher can speak, read and write and also being able to translate them in English language to report writing. It is the factor above all others that has caused them to take whatever kind of work might be available on a day-to-day basis. In other factors, the sample was quite similar in demographic details. The respondents located were male and female.

5. LITERATURE ON LIVESTOCK

Livestock contributes both in the form of home production consumed within the households and agriculture cash income. Livestock is the key component in the economy of the poor families specially the rural farmers in Nepal. Lively hood of rural people depends on the agriculture and livestock. Most households in this village own the livestock; some households own the agricultural land too. Agricultural growth is a critical for the rural poverty reduction and enhancing their income through their agricultural related products. It is reported about 75 percent of the world's 1.2 billion extremely poor (< US\$ 1 a day) are estimated to live in rural areas and derive a non-negligible part of their income from agriculture and / or agriculture related activities (Ravallion *et al.*, 2007; World Bank, 2008). The pace of poverty reduction does not only depend on the overall rate of agricultural growth, but also on the ability of poor households to participate in that growth, that is on the quality or inclusiveness of the growth process (Christiaensen *et al.*, 2006; Ravallion *et al.*, 2007). However, diversify livelihoods out of livestock is limited as there is a risk of family member get lost in cities and foreign countries if they are send out for work and study (FAO, 2009a).

Given that about three quarters of the extreme poor are estimated to keep livestock as part of their livelihood portfolios, safeguarding and increasing the returns from their livestock assets is expected to help them in their endeavor to escape (Bazeley *et al.*, 1999; FAO, 2009b). "Rural families relied on livestock for their livelihood in Nepal" (CLWS, 2015). "The asset value of livestock is important to household resilience and food stability because it provides collateral to expand or diversify farming operations and gives households a capital item that can be sold in times of great need" (FAO, 2011b). The chances of getting loan increases to a family with the livestock than without it in the same income level.

Analyses of the livestock-poverty linkages are however limited, constraining the formulation of policies and investment plans intended to have a positive impact on the livelihoods of the livestock-dependent poor. Livestock is also used as one of the poverty indicator in rural Nepal by [World Food Programme Nepal \(2001\)](#). The poverty of the households gets lower with the increased livestock holdings in Nepal ([Joshi *et al.*, 2012](#)). Livestock and poverty has irrespective relation. Rural poor people who dependent on livestock for their livelihood have to have policies formulated and investment plan. [Joshi *et al.* \(2012\)](#) find the poor families are having higher number of livestock because of the different government, NGO, INGO and other institutions that provides livestock on lower interest rate or in some case with no cost at all.

Global livestock production has increased substantially since the 1960s. Chicken production increases with 10 times and beef production with more than double exerts on their higher productivity ([Thornton, 2010](#)). He further explains that the change in increased livestock production is due to the ‘expansion in the livestock numbers in developing country’. [FAO \(2011b\)](#) explains “productivity from extensive grazing systems is low in terms of output per animal and per labour unit but high in terms of output from limited resources (water and grain).” The higher productivity changes are accompanied by substantial shifts in the area of arable land, pastures and forest ([Thornton, 2010](#)).

Livestock in the rural area is important resource in the Nepalese economy and attached with economy and human life in various ways. Most of the farmers have kept number of domestic animals integrating with the agriculture ([Luitel, 2006](#)). The number of livestock and herd size in a family depends on the family wealth. The family with land may have more number of livestock or cattle. [FAO \(2011b\)](#) finds household with landownership are more likely to own more “than one tropical livestock unit, which is equivalent to 5 pigs or 2 cattle using the international measurement for South Asian livestock than those who are landless.” Livestock contribution in particularly poor developing country like Nepal is well recognized. Household income is generated on food and by-food products and non-food products by selling them in formal or informal markets. Non-food products like: wool, hides and skins are important sources of income in the high-altitude tropical regions of Nepal ([Thornton, 2010](#)).

Regardless of the household economic situation, livestock contributes 40% of income in 60% of agricultural income in the households as well as the mixed farming increases the average income of the households ([FAO, 2011b](#)). The contribution of livestock products: milk, meat, and hides, in national GDP is 15%, and 28% of the agricultural GDP ([Joshi, 2000](#)). A rural household in most cases uses the milk for home consumption with one or two dairy animal in India ([FAO, 2011b](#)). According to [FAO \(2011b\)](#) livestock plays an imperative role for food access for families. Livestock is crucial in meeting food demand of rural poor households in Nepal ([Joshi *et al.*, 2012](#)). Livestock is also used as a food serving to guest in cultural ceremonies in Nepal ([Gurung *et al.*, 2005](#); [FAO, 2011b](#)). The household with higher livestock may have considerable social importance in many parts of Africa. However, [Thornton \(2010\)](#) explains human health concerns and changing socio-cultural values may dilute the demand for livestock products. Rural household livelihood and their income depends on the livestock in Nepal. [Gurung *et al.* \(2005\)](#) find the house generate the cash income by supplying meat, milk and manure in market in his research in hilly (high and mid) and low land region in Nepal. The rural households economy depend on the sale of livestock and their products as a source of income because of having less agricultural products to sell ([Ghimire, 2000](#)). Livestock also serves as liquid assets to the poor in exchange with food items in case to secure food ([Joshi *et al.*, 2012](#)).

The disadvantaged Households use livestock mostly for home consumption, especially in the mountains and rural hills due to their remoteness ([FAO, 2011b](#)). The consuming products from livestock: milk, eggs, meat, butter, cheese, and other animal products are on the high demands in the market. Particularly, the increased urbanization has made the positive impact on the meat demand. [Heffernan \(2004\)](#) found that the poor farmers’ livelihood in Mali depends on the source of income from small ruminant. He further said that sheep and goats are used as assets for collateral, income generated from it that helps them to cope up with poverty. It has been said that livestock is

source of cash income by selling the consuming products of it or selling itself. The consuming the products as nutrition they could not be without having it. However, it is difficult to find the income proportion from it in household on whole (Moll *et al.*, 2007; Alary *et al.*, 2011). Further, the cash generation from the livestock stands at 9.7%, 19.7%, and 21.2% in Terai, Hill, and Mountain regions' household (Joshi, 2000).

According to macro perspective, livestock productivity increment has a significant impact on GDP growth; however it always depends on the good investment plans and policies for it. The livestock farming is far behind in comparing with neighbor countries because of the livestock 'genetic inferiority, poor management and less government support' (CLWS, 2015).

This paper draws livestock as a rural income generating asset of rural households.

6. LIVESTOCK AS A LIVELIHOOD, INCOME GENERATING AND INCOME ENHANCING OPTION

The study has taken rural area in consideration as the rural area is prompt to have livestock as a cash income generating and livelihood option than in urban area (Bettencourt *et al.*, 2015). The people living in the rural area is more dependable and a good composition of source of income on the livestock than urban area. It is more assumed that rural living people are poorer and excluded from getting development benefits than urban area people.

The study participants of rural households keep livestock across various levels of income. It is assumed that livestock would be: poultry form or having couple of chicken or duck, goats, buffalos, cows. Participants are keeping livestock at home and rear it till its maturity and depend on it for their cash income from it. It has been seen that level of income and poorness of a family plays the part on the type of livestock that a family will have and rear it. The view point of having livestock has also been found differently on the richness and poorness of family. Defining the scale of poorness and richness is again a difficult part. However, the poor people in this study are one who owns the land of living and some of the agricultural land or none at all, and their livelihood depends on the daily work in the some others' agricultural field. The well-off is defined in this study as the land lord who asks poorer to work for them in the agricultural or domestic help purposes.

The daily wage earner defined as a poor in the study are more likely to have the livestock in the form of: chicken, duck, goat, and pig, also found by Bettencourt *et al.* (2015) whereas a bit well-off people would like to have cow, buffalo, goat, and duck. However, ratio of rearing the livestock in poor without land is still being lesser approximately 14 % in comparison with land holders as shown in the Appendix-A. It is also seen that the people who are holding land less than 0.5 hector keeping livestock with 25% ration and more than 0.5 hector and less than 2 hector contains 37 %, and more than 2 hector land owner has shown less interest in keeping livestock. As the little well-off situation increases with land holding, people are reluctant to rear the livestock.

The finding of discussion suggests well off people are keeping duck, chicken as consumption purposes in both form of meat and egg and sale the extra eggs and excess duck for more income whereas the poor keeps them more as the income and less for consumption and they prefer to increase the number instead supports (FAO, 2011b; Bettencourt *et al.*, 2015). In the poor participants word, the more chicken and duck they have that wealthier they can be in consumption and income generating.

The landless, marginal and poor poultry farmers keep an average flock of 7-8 chickens or ducks, mainly as a source of eggs for home consumption and selling additional egg supports (Bettencourt *et al.*, 2015) for some of their household expenditures, whereas a bit wealthier farmers can keep flocks with 100-200 broilers for profit motives.

The goat is the combined forms with poor and well-off but the purposes are different. Most well-off participants exerted that they want to buy the young male goat and rear it till its maturity and sale it during the festival because this is the time they could sale it on higher price in a year. Some of well-off participant also mentioned that they want to keep it for their festival: Dashain and Holi celebration for family (Bettencourt *et al.*, 2015). However, it was seen that poor family prefer to have female goat at first so they can breed more in a year and

half and the owned family will have more numbers of goat as goat gives one and more babies. They keep and rear the newly born goat babies regardless of male or female till the maturity. However, they keep the female for breeding more babies until they have enough to take care and sale the rest. They also use the goat milk as family consumption and it is also nutrient food for their healthy growth. It were not possible for them to have milk in food as it is expensive and cannot consume regularly if one has no regular cash income, as participants Mahato and others expressed and also supported by Moll *et al.* (2007); Alary *et al.* (2011). In case of male goat, they rear it till its maturity in two ways, few people use the male goat as a breeding purposes to earn money and sale it when it cannot breed, most of them do the castration, the removal of the testes, epididymis and a portion of each spermatic cord from a ram/buck in young age (Lane *et al.*, 2012). In most cases, non-breeding males and males not slaughtered at a young age they are castrated. It is done in the purpose of reducing the goatee smell or tainted odor in the meat and also believed that castrated goat gets more weight in comparison (Lane *et al.*, 2012). Most of them sale the goat in its maturity in the festival time with higher price or at any time in case of money needed for purchasing cereals, medical treatment or medicine, any other immediate purposes. Thus, it can be exerted that the poor people are indifferent in rearing the buffalo, cow and goat. Well off family are rearing more male than female livestock as of Poor family preferably rear the female livestock particularly female goat for the income generating on the tree improvement strategies than the well-off people.

Pig is considered as a dirty so well-off and poor people are less interested in keeping it. However, some of the poor in study do keep it but again it is less preferred. It is a good source of income as it gives more babies at once and income gets multiplied in short period of time. Rearing the pig is too difficult as it is considered dirty and owners are looked down in society too. It does not have open selling market in studies area unless the owner uses it for family consumption purposes. As a result without land holders reside in 37.5% and with land in 62.5% where land holders from 0.2 to 0.5 hector contains 37.5% of rearing the Pig. Land holders more than 1 hector has 0 % participation in rearing pig. See Appendix-A.

It has also been seen that the well-off people are able to buy cow, buffalo for their consumption and income purposes (Bettencourt *et al.*, 2015). They consume the milk of them for family and sale the extra milk and earn money but consumption is a main priority. However, in case of poor people who are not able to buy the cow or buffalo they would get in debt to do so. They could ask some of the wealthier people for renting livestock mostly female goat, the cow or buffalo to rear for a year or more till they give birth as also supported by survey in Appendix-B. This type of activity is done by the landless poor people at most. In respect of their service and mode of payment of rearing livestock, the service charges are on the understanding between the owner and host to settle down as in cash or in the form of cereals. In either case poor gets befitted. Poor sees it as a source of cash income by selling milk on daily basis and collecting the income of it on daily or monthly basis. Some of them have expressed that they supply milk to the tea stalls at local place or nearby town to Janakpur at a bit higher price so they could earn more. In addition of it they could also use some of milk for self-consumption which makes them healthier as it is the best nutrient food for family also found and supported by International Livestock Research Institute (2012) report.

It is also the fact that poor people do not have money to invest in livestock and it's rearing. It is thus difficult to generalize *whether poorer or richer households are more likely to keep livestock? Whether livestock-keeping is more important for the better-off or the poor?*

It is again a question of the ultra-poor people to increase their income of source as they are not able to rear the livestock. However, regardless of their wealth: poor wants to have livestock as cash income generating to support their household livelihood, immediate need of money and little wealthier would like to have it as an income enhancing option.

7. WOMEN ROLE IN REARING LIVESTOCK AND EMPOWERMENT

It has been seen that rearing the livestock comes less hard work and less physical strength required, which goes to the women responsibility to take care of it and feed them (Bettencourt *et al.*, 2015). Feeding to livestock comes to children and women responsibilities (FAO, 2011b). Unless taking care of buffalo that is different and depends on case by case. Women of the rural poor family normally engaged in taking care of the livestock in addition of taking care of time consuming activities: like cooking, childcare and other domestic work. Women normally goes in the field cut the grass for feeding the cow or tying up the goat at field or giving the leftover food to the feed them. Feeding them in a day time is in normal practice however, they get fed at the evening when they have left over food. Mostly, they are dependent on day time feeding that could be grass in field. Thus, women workload increased in the purpose of making sure of livestock had enough food in a day for milking more in the morning to sell. This all puts burdensome workload on women to go through at daily basis. However, by doing so women gets more empowered in family as they are the one who takes care of income generating source of the family. Thus, they get more 'says' in consideration of selling or keeping it. Women knows better and are more knowledgeable when livestock gets sick in family because women spend their most time i.e. 70% of time with the livestock rearing than man (Gurung *et al.*, 2005).

8. OTHER SOURCES OF INCOME OF RURAL POOR PEOPLE

It can be seen farmer of these village who own small farm tends to have more diversified crops for different seasons about two to three agricultural product: rice, wheat, maize, vegetable than the larger farm owner. Small-scale farmers are more likely to have immediate cash generating crops like vegetable, wheat and maize. However, they intend to have wheat instead of maize as it consumes less water for irrigation than maize.

Vegetable that they can grow up in their limited land, even in a feet backyard that some of the vegetable they grow that goes on the wall and roof of the house in season for self-consumption and sale the excess for immediate cash or in exchange for other household items. For example: pumpkin, beans plants, which could be easily and immediately sold from home. The local or from the neighbor village buyers come to the host home to buy. They do not have to get in the market to sale. It gives them somehow a power to exercise the price and generate more money as per the demand of the backyard vegetable increased. It does not require any labor work or extra care. This kind of plant would be again taken cared by women in most cases at the local places of research.

They also intend to have multiple sources of income, including farm and non-farm sources: livestock as a cash income support for household expenses. However, a relatively well-off farmer tends to specialize into high value agricultural products like rice, maize, wheat, same as livestock: cows, buffalos. They often see livestock as an income-enhancing option whereas poor people see it as a survival option as it was found in the research at the local place.

9. LIVESTOCK COMPOSITION

It can be seen that they always want to take advantage of different crops and species through diversification of crops or livestock species. It can reduce the risk like animal diseases. However, the ability of the poor to acquire livestock is constrained by the capital and maintenance costs of the different species, which are typically highest for large ruminants.

It was found that the poor are keeping the duck and chicken, and goat as a small 'ruminant' but the comparative well-off keeps goat and large 'ruminant': cow and buffalo. Thus, the composition and types of livestock can also classifies as the richness. As one's the financial ability improving that also improves the keeping the livestock from chicken to small mammal ruminant to large ruminant. In contrast, there are few poor people have shown their improvement in livestock keeping and improving from small to medium and large ruminant.

There are two poultry forms that include 200-250 chickens. Most likely people in this village are having goats, cows, buffalos, and ox. They will keep female goat with them as long as they are fertile and give birth. They also keep female cows and buffalos for selling their milk and self-consumption. They keep ox and male buffalos for plough and cart service. They keep male goat for a year or two and sale it for more cash income, where weight of the goat describes the price of it. It is deadly in demand as goat meat consumption is quite popular. The goat meat is quite expensive; that is three times than chicken meat. Therefore, people are more comfortable to rear a goat than chicken as chicken is assumed as dirty maker to house and not everyone willing to have one. Goat is well accepted regionally and it also ritually accepted as its sacrifice to god will give well-being to the family whereas chicken will keep well-being away. However, this concept does not apply on the chicken farm as it is done away from home not inside the house.

10. INCOME THROUGH LIVESTOCK

Livestock income is defined as the value of sales and in exchange of livestock, plus the value of sales, and self-consumption of livestock products (such as milk, meat, eggs, honey, and so forth) minus the expenditures related to livestock rearing, may include feeding, labor and veterinary services (Pica-Ciamarra *et al.*, 2011; Gebisa, 2018). In most cases, because of uncalculated data and less information, livestock income can be calculated as the total value of production (either sold or both sold and self-consumed) net of the value of some inputs such as purchased feed, hired or self-labor and veterinary services/medicines (Pica-Ciamarra *et al.*, 2011).

There are different ways that livestock helps to the household livelihood. It is a cash generating income through the sale of livestock, or sale of consumption products like egg, milk, meat, and other kind of products (Bettencourt *et al.*, 2015). It also provides a kind of confidence to owner of their capital gain and insured to have immediate cash benefit supports (Bettencourt *et al.*, 2015) if in case of unexpected or emergency expenses rise up like: medical, daughter marriage. It is a form of currency exchange at the time needed. Most of the participant have expressed that they have sold their livestock for the daughter marriage or keeping for the same but some of them said that for medical expenses for their kids, some for their elderly ill family member but some for their medical treatment and for buying medicine supports (Bettencourt *et al.*, 2015).

Some of the participants who own livestock like buffalos and cows keeps their dung for months and sell it for quick cash, this has also been true for the poultry farming owner to keeping the manure of the small species and sell it as it gives power to earn some extra and quick cash. The dung and manure are used to increase the land fertility and as a fertilizer for crops (Bettencourt *et al.*, 2015). The dung and manure are being used as a sole in case of one cannot afford the expensive chemical fertilizer or as a mix of both. In either case the demand of the dung and manure is in high for organic production as well as to increase cultivation fertility. Therefore, the owner of livestock or herds got the opportunity to earn some addition cash.

However, it is also important of mentioning that the another use of dried dung for poor household is in cooking food on daily basis that reduce their extra work to look for cooking material, where little rich people use dung to generate biogas for cooking and light and then use the residue as fertilizer for land and crops.

Male buffalos and ox are used as the rental income from the plough and using them in cart services which is becoming less popular with the modern technology and transportation services. But it still gives an opportunity to earn money with the services.

Livestock is also used as a collateral (FAO, 2009b) for them to get in the financial services as in formal or informal markets. They use the livestock as an assurance to get the loan from local money lenders, friends, and relatives. Some of the participants have shown their happiness of getting money from the money lender as they kept goat as a collateral when their family member were seek and need to get the immediate medical attention supports (Bazeley *et al.*, 1999; FAO, 2009a). Thus, it can be said that it is being used as bank saving that they can cash it anytime in emergency by selling it or using as a guarantee for cash borrowing or loan from local investor. However,

in this process it is also found that the livestock might stay with owner or money lender would take it depends on the understanding of both parties and amount of money involved in the purpose. If the money is lesser than the live stock value then it stays with owner and owner will pay the amount with interest after selling the livestock in later case. In case of higher amount the money lender to take the ownership on it and recover his money by selling it.

It was difficult to find that the proportion of the income support for family livelihood because of its irregular income throughout a year. It depends on the quantity of livestock's products like- liters of milk a day (normally buffalos give more liters of milk than local cows) and sells on higher price than cow milk as it has more fat and more concentrated than cow milk which supports the findings of [Pica-Ciamarra et al. \(2011\)](#). Tea stall and the sweet shops demand more buffalo's milk than cow. It was mentioned that the poor participants who has the buffalos get 6-8 liters on daily basis in two times of milking it both morning and evening and they keep 1 liter for their family consumption purposes and sell the rest of milk. The other poor household who has cow they get the 3-6 liters of milk in a day both morning and evening and were able to sell 5 liters and keep 1 liter for their consumption purposes. However, it is also found that the consumption of milk in poor household was not on the regular basis. Some poor household participants consumed on regular basis but other consumed in irregular odd basis. But in either case it was clear that they consume milk and it would be not possible for them to buy instead. In case of a little well-off participants it was found that the most of the milk was for the consumption purposes and additional of consumption were for selling. After saying this all, it is also need to say that as the time passes the quantity of milk from buffalo/cow also reduces so does the income from it too. Thus, it is clear that the finding the proportion of income from it is difficult part ([Bettencourt et al., 2015](#)) but could be said that it is the reliable source of income for poor household regardless of the amount earned. Furthermore, some of the participants told that they were able to reduce and some cases paid back all of their debt by just selling of milk. Thus, it could be concluded that the well-off use livestock as a consumption and enhancing income purpose where poor household use it as survival and income generating purposes that consists with [Pica-Ciamarra et al. \(2011\)](#); [Bettencourt et al. \(2015\)](#).

Some of the participants' income depended on the number of egg they sold in day that also depends on the number of egg that they had on daily basis from chicken and ducks. Most of the participants are having livestock as either one of chicken or duck but not both. The number of chicken or duck would say that how many of egg the one can have on daily basis and sell them. Most participants are having two to six duck or chicken. They collect the eggs and sell them once in a week in the weekly market or to the buyers who come at home occasionally. It can be seen that the poor household constantly try to increase their livestock. More the livestock: duck or chicken they have the more egg they can have and so does more income from them. In case of well-off participants, it was found that they want to keep the number of duck that produce enough egg for their consumption purposes and leftover will be for selling or use them as meat consumption purpose. The duck's egg is sold on the higher prices than chicken egg. Thus, livestock with duck owner would earn higher than chicken owners. Again, here the well-off participants are having small ruminant as for consumption and income enhancing purposes and the poor house hold are having it for their income purposes.

In case of goat as a livestock form, it would be important to say that the weight of goat and kilos of meat determines the price of the goat and income from it. The rearing a goat is not as easy as duck or chicken but would not be so different to put an extra effort for it. It would be feed with the leftover food in family and grass from the field in day time. The goat at the well-off participant will have prudent food and left over food to feed it, so does the weight of goat more than the poor household. Poor households mentioned that they do not even have enough food for themselves how can they feed the goat but with the grass. Thus, Well-off participants enjoyed more income than the poor households. However, it was also found that most of well-off participants are rearing goat for their family consumption in the festival time and sell the extra meat only. However, Poor households rear it for a year or more and sell it in the festival time with a bit higher price or use it in an immediate need of money as it was found on the discussion.

The quantity and value of services provided for bullock plough and cart is another way of increasing income. The participants showed their anxiety that they could not earn enough from it as the modern technology of using to cultivate the land by tractors and other related has reduced the demand of bullock and cart which is in danger of end of this practice.

It could be concluded and obvious to say that income from livestock plays an important role and owe a significant share of income in rural poor household than in little better off family aligning with [Pica-Ciamarra et al. \(2011\)](#); [Bettencourt et al. \(2015\)](#).

11. SOCIAL STATUS WITH LIVESTOCK

Number of livestock also increases the social status. Beside these all fact, it has been seen that the social status is also tied up with the number and types of livestock one owns ([Bettencourt et al., 2015](#)). Number of cows and the buffalos that one has that well off the family is. In the rural poor case, as many as livestock they have that much confidence one has to have instant cash in immediate need. So, one enjoys the higher respect in the society. The more livestock one owns that much times the level of richness and ability of earning money has increased.

Livestock is also used as the dowry purposes in marriage where the bride family gives it to the groom family for their prosperity and the types and number of livestock giving in marriage always depends on the groom family's richness and social status. However, the trend has been reducing with modern changes but still it will be used as instant cash by selling it and buy the modern staff for dowry. Most of the participant has expressed their good feeling that they have used the livestock for their daughter marriage. This applies in both well-off and poor family in rural area.

It is also used as family connection by giving gift in the form of livestock. There is another form of using the livestock as connecting and building strong relationship between two families by giving it as a gift. It is used in the friendship, relatives, and with the bride and groom families. It is not necessary that in all cases bride gives to groom but in some cases groom family gives to the bride family in the support of income generation.

12. PROBLEM IN REARING THE LIVESTOCK

Rural poor people anxiety was that they cannot feed the livestock properly and because of poor feeding their livestock gets sick and have lesser weight. Some of them own a piece of land but not all; they have problems of feeding the livestock. Rural farmers have to rely on the local forage products to feed their animals because of the poor road connection to the market to get the feed delivery at local place ([Beldangi, 2013](#)). Goats cows, and buffalos live on grazing and forages cut from shared grazing areas and forests ([FAO, 2011b](#)). In some cases privately cultivated for animals. They could not get enough grass for the livestock and graze them in the public fields which are having less grass and even the grass is there but with poorest quality. These all affect the livestock in poor health and easily to get in sick. Because lack in human resource of animal health centers. They need to take the animal all the way to the central hospital for 5 -11 kilometers which again is the costly to travel. Then, after treatment, they had not enough money to buy the medicine for it. Again, they need to borrow the money from money lender and get in debt. However, this time they cannot exchange this for instant cash. This become as worsen situation to them. Instead of generating income they get in the debt. Most cases they get died and lost all the hope that they could earn from it. Getting another livestock would be difficult to get and keep and generate income to balance out the loss of the previous livestock and debt. However, in case of a bit well-off they could do the treatment and even in worse scenario they do not have to get in debt.

The rural poor who barely have enough or less for their own food for family could not feed the livestock properly. Feeding grains and other that help livestock to get more weight that may increase more money earning. In contrast, well-off people are having enough food and could feed them leftover food and grain that makes the livestock to get more weight and hence get more money on it. This could be expressed which is not in all case but

in most cases has been seen that the rural poor people always get less income in comparison with the well-off people with the same categories of livestock.

Some of the participant's problem was that they have pig but the pig they cannot take it out of the place for feeding them and they are not able to feed it. It also considered as a dirty so no one will allow it to go through the land. Thus, they have to stop rearing it and changing to the other livestock but they do not have enough source of money to get on another one.

Access to health services for livestock remains a major problem for farmers and animal disease has resulted in millions of dollars of economic losses in recent years. The problem is compounded by the lack of proper breeding and animal husbandry practices. There are nearly 73% of villages are not having government-supported services even though Nepal Veterinary Council has 698 veterinarians registered in the country (CLWS, 2015). There are more than 5000 village animal health workers (government employees) are deployed. However, they are technically ill and villagers are yet to get advantage of utilizing them.

13. SUMMARY

This paper discuss on the livestock as a cash asset of households in different expenditure brackets and the contribution of livestock to household income in Dekaha, Majhaura- Bishanpur, Banauli, Basahiya and Sahorawa Villages.

It can be seen that livestock is a common asset amongst households across all expenditure. The majority of households, therefore, have some motives to keep livestock, either as a risk-coping or income-enhancing strategy. Livestock are fairly equitably distributed among the livestock-keeping population, with herd size composition marginally correlated to household wealth. Poorer households are more likely to keep small ruminants than richer ones who are more likely to keep large ruminants.

Well-off is using livestock as the consumption and income enhancing purposes whereas the poor households see it as an income generating or the exchange mode of money in immediate need.

The majority of the rural poor households keep livestock to support their household's expenditure. However, it also suggests that increases in productivity or profitability of livestock are unlikely to be a direct pathway out of poverty for the majority of households. Furthermore, increasing the returns to livestock could help some households to overcome or reduce the debt that one bears. It is not a tool of overcoming the poverty for poor household.

14. RECOMMENDATION

A family who hardly manages their daily bread and butter can't afford feeding the livestock's. Due to the poor feed the livestock is likely to have different diseases. Even though a rural poor family anyhow reaches for medical attention of livestock and its medical bill would be far from their reach and deep into the debt and it would be difficult for him to payback or compensate the bill with another livestock. So, to overcome the problem it is absolutely necessary to have grasses available locally and the poor people are to get subsidy on the concentrate feeds which they feed their livestock.

Beginning is never the end. The government and international organization should come up with the project that consistent support in the whole process of livestock rearing and provide subsidy or free medicines to the rural poor family. Government Investment in market access for livestock owner may gear their potential to gain greater value from what they produce and they will able to manage risk by handling stocking levels (FAO, 2011b). There should be different plans, awareness champions, and health centres for animal that should be locally available in support of rural poor family for their livestock. It's a matter of same that the only zonal governmental veterinary hospital in Janakpur does not have enough doctor and pharmacy of its own. The government should separate enough budget annually for livestock health sector and its development for its services.

It is vital here to say that the rural poor people who are living far from towns and illiterate that they can speak only the local language but could not read or write and cannot speak national language always kept away from in taking part in development policies and services thus they need to get involved in the development services by themselves.

The required sources needs to be formulated or develop in order to make sure that the rural poor people can access to the basic resources land, water, markets, credit, health services and education to make the livestock in effective way and increase their income through.

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APPENDIX

Appendix A

Table-1. National sample census of agriculture 2011/12, Mahottari.

Total area of holding	Total		Cattle		Livestock				Sheep		Pig	
	No. of holdings	No. of heads	No. of holdings	No. of heads	Buffalo		Goat		No. of holdings	No. of heads	No. of holdings	No. of heads
					No. of holdings	No. of heads	No. of holdings	No. of heads				
Holding without land	9,439	36,916	6,095	10,149	3,683	5,251	5,732	20,019			363	1,497
Holding with land	58,790	240,115	38,016	72,760	25,551	40,603	40,276	124,131	575	1,747	604	874
Under 0.1 ha	5,051	15,346	2,600	3,969	864	1,122	3,689	10,254				
0.1 ha and under 0.2 ha	5,424	19,235	2,387	3,847	1,546	2,164	4,337	12,749	192	349	121	125
0.2 ha and under 0.5 ha	16,146	63,208	8,012	14,609	6,183	9,780	12,312	37,272	192	1,048	363	499
0.5 ha and under 1 ha	15,567	68,307	11,081	20,789	6,547	10,461	10,916	36,458	192	349	121	250
1 ha and under 2 ha	10,143	44,540	8,268	17,147	5,774	9,219	6,031	18,175				
2 ha and under 3 ha	3,933	16,633	3,367	7,284	2,682	4,249	1,794	5,100				
3 ha and under 4 ha	1,739	9,223	1,620	3,806	1,273	2,325	847	3,092				
4 ha and under 5 ha	414	1,691	384	696	364	561	150	434				
5 ha and under 10 ha	290	1,568	256	450	227	521	199	597				
10 ha and over	83	364	43	164	91	200						
Total	68,229	277,031	44,111	82,909	29,234	45,854	46,008	144,150	575	1,747	967	2,371

Source: CBS (2013).

Appendix B

Table-2. Number of holdings reporting livestock according to age, sex and breed by total area of holding.

Total area of holding	No. of holdings	Buffalo											
		All ages			Total			Under one year			Female		
		Number of heads			Number of heads			Number of heads			Number of heads		
		Total	Local	Improved	Total	Local	Improved	Total	Local	Improved	Total	Local	Improved
Holding without land	3,683	5,251	5,251	11.45%	681	681		401	401	8.55%	281	281	4.15%
Holding with land	25,551	40,603	40,603	12.93%	10,782	10,782		4,289	4,289	9.35%	6,493	6,493	4.33%
under 0.1 ha	864	1,122	1,122		281	281		40	40		240	240	
0.1 ha and under 0.2 ha	1,546	2,164	2,164		441	441		160	160		281	281	
0.2 ha and under 0.5 ha	6,183	9,780	9,780		2,405	2,405		962	962		1,443	1,443	
0.5 ha and under 1 ha	6,547	10,461	10,461		3,006	3,006		1,283	1,283		1,724	1,724	
1 ha and under 2 ha	5,774	9,219	9,219		2,645	2,645		1,002	1,002		1,643	1,643	
2 ha and under 3 ha	2,682	4,249	4,249		1,243	1,243		521	521		721	721	
3 ha and under 4 ha	1,273	2,325	2,325		561	561		200	200		361	361	
4 ha and under 5 ha	364	561	561		120	120		80	80		40	40	
5 ha and under 10 ha	227	521	521		40	40					40	40	
10 ha and over	91	200	200		40	40		40	40				
Total	29,234	45,854	45,854		11,463	11,463		4,690	4,690		6,774	6,774	

Source: CBS (2013).

Table-3. Number of holdings reporting livestock according to age, sex and breed by total area of holding (Continued).

Total area of holding	Buffalo											
	Three years and over											
	Total			Male						Female		
	Number of heads			Number of heads			Buffalo			Buffalo in milk		
	Total	Local	Improved	Total	Local	Improved	Number of head			Number of head		
Total							Local	Improved	Total	Local	Improved	
Holding without land	2,886	2,886		281	281	23.38%	1,804	1,804	10.61%	802	802	11.50%
Holding with land	22,286	22,286		922	922	30.48%	15,191	15,191	11.88%	6,173	6,173	12.99%
Under 0.1 ha	641	641					361	361		281	281	
0.1 ha and under 0.2 ha	1,243	1,243					762	762		481	481	
0.2 ha and under 0.5 ha	5,411	5,411		441	441		3,447	3,447		1,523	1,523	
0.5 ha and under 1 ha	5,772	5,772		200	200		3,768	3,768		1,804	1,804	
1 ha and under 2 ha	4,850	4,850		200	200		3,487	3,487		1,162	1,162	
2 ha and under 3 ha	2,365	2,365		40	40		1,964	1,964		361	361	
3 ha and under 4 ha	1,202	1,202					842	842		361	361	
4 ha and under 5 ha	361	361					321	321		40	40	
5 ha and under 10 ha	321	321		40	40		160	160		120	120	
10 ha and over	120	120					80	80		40	40	
Total	25,172	25,172		1,202	1,202		16,995	16,995		6,974	6,974	

Source: CBS (2013).

Table-4. Number of holdings reporting livestock according to age, sex and breed by total area of holding.

Total area of holding	No. of holdings	All ages			Goat			Under six months			Female		
		No. of heads			No. of heads			No. of heads			No. of heads		
		Total	Local	Improved	Total	Local	Improved	Total	Local	Improved	Total	Local	Improved
		Total	Local	Improved	Total	Local	Improved	Total	Local	Improved	Total	Local	Improved
Holding without land	5,732	20,019	20,019	13.91%	6,185	6,185	15.18%	2,604	2,604	12.97%	3,581	3,581	17.32%
Holding with land	40,276	124,131	123,859	271	34,559	34,559	17.90%	17,469	17,469	14.91%	17,090	17,090	20.95%
Under 0.1 ha	3,689	10,254	10,254	16.16%	3,255	3,255		1,465	1,465		1,790	1,790	
0.1 ha and under 0.2 ha	4,337	12,749	12,749		3,255	3,255		1,465	1,465		1,790	1,790	
0.2 ha and under 0.5 ha	12,312	37,272	37,109	163	9,874	9,874		5,154	5,154		4,720	4,720	
0.5 ha and under 1 ha	10,916	36,458	36,349	109	10,905	10,905		5,914	5,914		4,991	4,991	
1 ha and under 2 ha	6,031	18,175	18,175		4,937	4,937		2,116	2,116		2,821	2,821	
2 ha and under 3 ha	1,794	5,100	5,100		1,085	1,085		705	705		380	380	
3 ha and under 4 ha	847	3,092	3,092		814	814		434	434		380	380	
4 ha and under 5 ha	150	434	434		217	217		109	109		109	109	
5 ha and under 10 ha	199	597	597		217	217		109	109		109	109	
10 ha and over													
Total	46,008	144,150	143,879	271	40,744	40,744		20,074	20,074		20,670	20,670	

Source: CBS (2013).

Table-5. Number of holdings reporting livestock according to age, sex and breed by total area of holding (Continued).

Total area of holding				Goat					
				Six months and over					
	Total			Male			Female		
	No. of heads			No. of heads			No. of heads		
	Total	Local	Improved	Total	Local	Improved	Total	Local	Improved
Holding without land	13,834	13,834	13.41%	5,425	5,425	14.20%	8,409	8,409	12.95%
Holding with land	89,572	89,300	271	32,877	32,769	109	56,694	56,532	163
Under 0.1 ha	6,999	6,999		2,550	2,550	16.56%	4,449	4,449	14.87%
0.1 ha and under 0.2 ha	9,494	9,494		3,364	3,364		6,131	6,131	
0.2 ha and under 0.5 ha	27,398	27,235	163	10,145	10,037	109	17,252	17,198	54
0.5 ha and under 1 ha	25,553	25,445	109	9,114	9,114		16,439	16,330	109
1 ha and under 2 ha	13,238	13,238		5,263	5,263		7,975	7,975	
2 ha and under 3 ha	4,015	4,015		1,302	1,302		2,713	2,713	
3 ha and under 4 ha	2,279	2,279		814	814		1,465	1,465	
4 ha and under 5 ha	217	217		54	54		163	163	
5 ha and under 10 ha	380	380		271	271		109	109	
10 ha and over									
Total	103,406	103,135	271	38,303	38,194	109	65,104	64,941	163

Source: CBS (2013).

Appendix C

Table-6. Number of holdings reporting livestock according to owned, rented.

Total area of holding	For keeping livestock					No. of holdings reporting the use	For keeping poultry			
	No. of holdings reporting the use	Number by source					Total	Owned	Rented	Others
		Total	Owned	Rented	Others					
Holding without land	815	1,100 9.86%	937 8.55%	163 79.9%						
Holding with land	9,164	10,060	10,019	41		529	652	652		
Under 0.1 ha	244	244	244							
0.1 ha and under 0.2 ha	163	163	163			41	41	41		
0.2 ha and under 0.5 ha	1,263	1,385	1,385			81	81	81		
0.5 ha and under 1 ha	2,566	2,810	2,810			204	285	285		
1 ha and under 2 ha	2,159	2,444	2,444			204	244	244		
2 ha and under 3 ha	1,711	1,792	1,751	41						
3 ha and under 4 ha	733	855	855							
4 ha and under 5 ha	163	204	204							
5 ha and under 10 ha	122	122	122							
10 ha and over	41	41	41							
Total	9,978	11,159	10,956	204		529	652	652		

Source: CBS (2013).

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