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# LUKZEPAS
## A TRIBAL SOCIETIES OF ARUNACHAL PRADESH, NORTH-EAST INDIA

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***PURPOSE***
*THIS study aims to determine the feasibility of using ethnography to understand the current status of Lukzepas, a tribal society of Arunachal Pradesh, North-East India.*

***Design/Methodology/Approach:*** *We conducted ethnography in the sub-alpine zone of West Kameng, which broadly includes the area between 2700 m and 2750 m elevation. The data were collected from 2016 to 2017 with field surveys during winter and village consolation in summer.*

***Findings:*** *The economy of Lukzepa is changing from pastoralism to other primary activities like cultivation of dry rice and vegetables, fire wood supply, lodging, due to less beneficial from their livestock, they have adopted other economic activity*

***Research Limitation/Implications:*** *Observations may have introduced a Hawthorne effect, which we mitigated by triangulating data from different sources to confirm our findings.*

***Originality/Value:*** *This paper is an original paper based on the primary data.*

***Key Words:*** *Ethnography, Lukzepas, North-East India, Tribal Society.*

## Introduction
The state of Arunachal Pradesh is situated on the extreme north-eastern part of Indian Trans-Himalayan region between the longitude 91°30'E and 97°30'E and latitude 26°30'N and 29°30'N. It is spread over an area of 83,743sq.km. The land is mostly mountainous with Himalayan ranges along the northern borders criss-crossed with mountain ranges running north-south. It stretches from snow-capped mountains in the north to the plains of Brahmaputra valley in south. Average elevation of Arunachal Pradesh is 500m at foot hill and 8000m at high altitude. Due to variation in altitude the climate which is found in Arunachal ranges from sub-tropical to temperate. At high altitudes alpine type of climate are found in this regions witness's snowfall during winter. The snowfall and the alpine climate largely draw the practice of pastoralist in this area. Practicing of agriculture is not that much fruitful in this region. So mainly they are depending on livestock product like meat, fur, milk, milk product etc. which are widely use in domestic as well as for selling in market. Sheep play a vital role for high attitude human habited in Arunachal.

The area like Tawang district 4170m(13,700ft), West Kameng district 2,217m(7,274ft) and northern part of Mechuka that is west Siang district (1,932m), where rearing of Sheep is practice. The Sheep

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**Plate No. 1: Lukzepas Community of Arunachal Pradesh**

which are in western part of Arunachal that is in Tawang and West kameng district they possess trans-human pastoralist methods. The Shepherd is called by *Lukzepa.* In summer they shifted in high altitude for favorable of Sheep because in low altitude the temperature increase which is not suited for Sheep, if it kept also they did not gives productive (fleece, clip or lamb) and sometime they may die. In winter again the *Lukzepa* migrated in low altitude because at that time the temperature which is found in low altitude is favorable because temperature decreases as winter approaches. So this type of seasonal migration which is practice in high altitude by Sheep rarer in westerns side of Arunachal is known by *Lukzepa.*

**Plate No. 2: Lukzepa in Grazingland, Arunachal**

## Literature Review

Walton, C.L (1919) in his research paper "Transhumance and its survival in Great Britain" describe about Transhumance and its relation with diverse topography. Transhumance also plays an important role in sheep industry of many countries, its bridge together areas widely diverse relief, weather, farm practice, and several others details. It has been defined as "the cyclic and possibilities choice of migration of sheep/goats congregation and herds between two areas of different weather", largely conditioned by relief, is the primary cause of the phenomenon. It is a inevitability for all livestock cultivation countries, where board to board occur high hills and plains subject to drought summer. Transhumance, which may evenly be the result of extreme winter conditions, while in both it may be utterly required for the preservation of the sheep/goat and herds.

White, Langdon (1926), in his article *"Transhumance in the Sheep Industry of the Salt Lake Region*" states that the TRANSHUMANCE has been typically developed by the Mormons in the Salt Lake Region. The seasonal migration of livestock, particularly sheep under the care of shepherds, between the basin lowlands and the mountain slopes and plateaus, characterizes the industry of this region. It resembles the great annual south-north and return movement of cattle across the Great Plains during the middle of the nineteenth century, but it is more localized. The seasonal migration of entire groups with their flocks and herds, like that of the Khirgiz of the Asiatic steppes or the Russo-Scandinavian Lapps with their reindeer,' constitutes a phase of pastoral life intermediate between transhumance and nomadism This study aims to determine the feasibility of using ethnography to understand the current status of Lukzepas, a tribal society of Arunachal Pradesh, North-East India.

## Methods and Meterials

Different approaches have been used to evaluate the sustainability of Lukzepa in West Kameng district of trans-human region at high altitude. A commonly used tool is the carrying capacity, which tries to balance Sheep population and production with special reference to their environment. These studies assume livestock production to be the sole objective of Trans- Human region. Despite much information on the effects of pastoralism, only few of them resulted in direct conservation action. Recent studies have attempted to correlate the population of Sheep with climate change, including the impact of socio-economic structure changing. Here comparison techniques, including consultations with traditional resource uses, extensive field surveys, secondary data, to assess recent effect/affect of livestock population. We conducted ethnography in the sub-alpine zone of West Kameng, which broadly includes the area between 2700 m and 2750 m elevation. The data were collected from 2016 to 2017 with field surveys during winter and village consolation in summer.

## Village Consultation

Information from Lukzepa, villagers (non- lukzepa), herders and other resource users was collected using participatory questioners tools, such as household survey. Consultations were conducted in two villages in Dirang circle, and three villages in Kalaktang circle of West Kameng district. Each of village had between fifty to hundred households. There recorded information on pastoral system related to historical and current population trends, ownerships pattern, migration routes, ecological impact and incomes. Livestock composition and population data for the years 1991 to 2011 were collected in this manner village wise and were then consolidated. Cross-checked this information using field censuses. The number of households benefiting from a pastoral system was used as a measure of its equity. The interpretation tries to capture how broad based the livelihood and extent of society profiting or dependent on it and how their pattern is changing in other primary activities due to decreases the number of pastoralist as well as Sheep population.

## Results

### Changing pattern of pastoralism

The livestock of Sheep population in Arunachal have been rapidly decreasing over the last five to six decades (Table 1). Livestock of Sheep population is around 28742 in 1987 (14$^{th}$ Quinquennial

livestock census). In 2007 its records 19889(18th Quinquennial livestock census), there is 8853 Sheep have been reduced in 20 years i.e. approx 33% of decline. This challenges declining of Sheep population is due to non-availability of highland pasture, heavy grazing tax, winter feed crises, threat of trans-boundary diseases and climate change.

**Table No. 1: Sheep Population**

| Base Year | Sheep Population |
|---|---|
| 1988-89 | 28,742 |
| 1992-93 | 32,774 |
| 1997-98 | 28,472 |
| 2002-03 | 16,529 |
| 2007-08 | 19,889 |
| 2011-12 | 12,877 |

*Source: Govt. of Arunachal Pradesh, Dept. of animal husbandry and Veterinary, Nirjuli.*

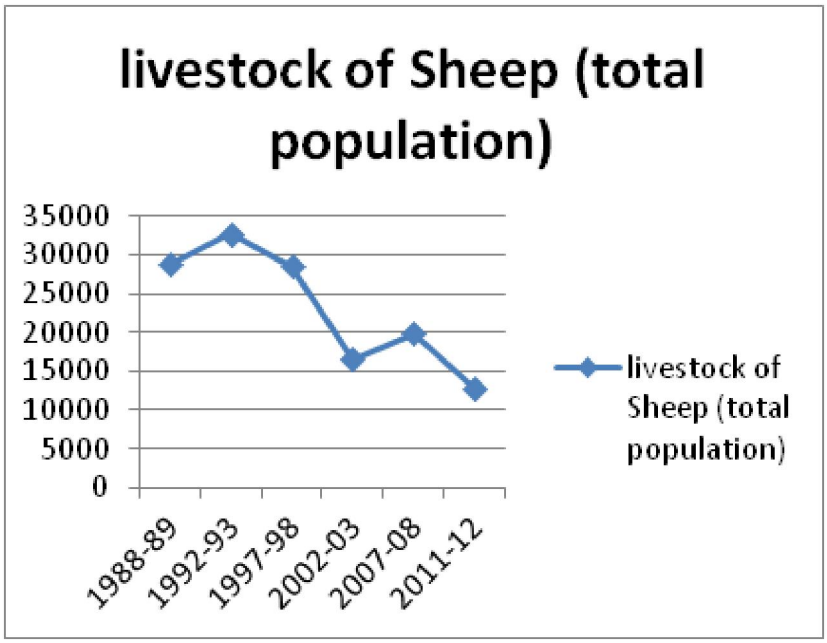



**Figure 1: Sheep Population Declined**

Climate change in recent decades observed everywhere, as in the case of mountainous region, the affect of global warming changing the pattern of their livelihood. A stressed towards the pastoralist, who are Sheep rarer (Lukzepa) also found less beneficial from their livestock as compared to early decades. They have cited that their livestock has producing less economic products. The Lukzepa also challenges in terms of absence of non-availability of highland pasture, heavy grazing tax, and winter feed crisis. The recent change in climate can be estimate from last two decades temperature records which have been increase by 1°C to 2°C, the climate over twenty(20) years recorded that there is 1°C-2°C of temperature increases this change leads to shows the change in Sheep population. The rainfall recorded over twenty (20) years also shows the great change in Sheep population. In summer low altitude of Trans-human region where Sheep is habited can't produces milk; if they give birth to new calf then

also they did not give milk, so the Lukzepa migrated towards higher altitude where the climate is favorable to Sheep. Sheep are frequently affected by diseases and they may die. The maximum mortality of Sheep was recorded during summer season followed by autumn, winter and spring. Amongst the identified causes of mortality, lamb mortality is highest because due to absence of milk feeding by their mother followed by digestive disorders due to less availability of fodder they intake poisonous plant which contain high alkaloid which is having fatal effect on Sheep. The disease status of Sheep is also correlate with seasonal prevalence.

The change in climate and change in Sheep livestock which was observed over two decades have been shown below

**Table No. 2: Sheep Population and Temperature Change**

| Base Year | Sheep Population in Thousands | Temperature Average |
|---|---|---|
| 1988-89 | 28.742 | 19.35 |
| 1992-93 | 32.774 | 19.32 |
| 1997-98 | 28.472 | 19.79 |
| 2002-03 | 16.529 | 19.83 |
| 2007-08 | 19.889 | 21.97 |
| 2012-13 | 12.877 | 22.03 |

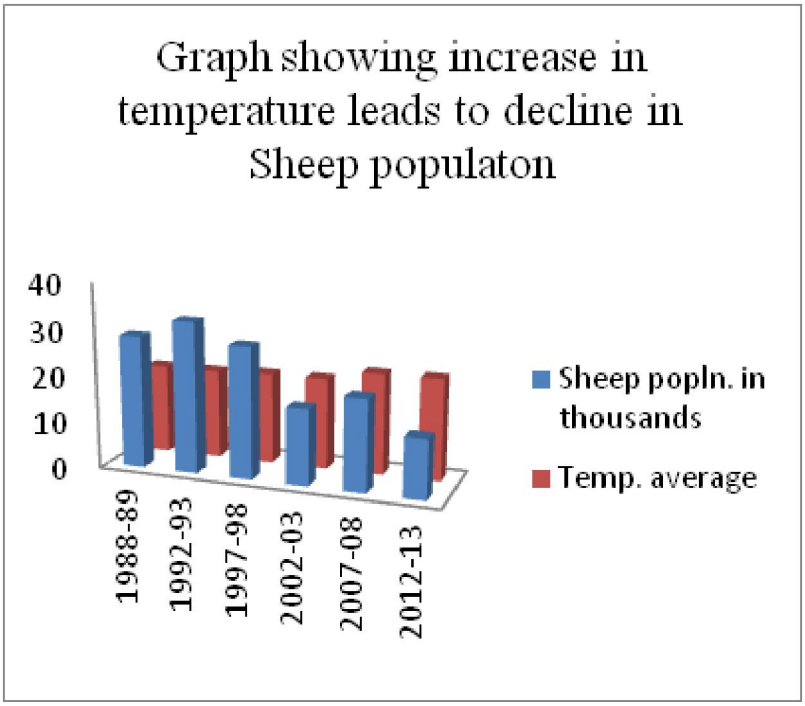



**Figure 2: Sheep Population and Temperature Change**

Here in above average temperature have been taken from six years of average annual temperature i.e. from 1985-90 the average temperature is 19.35°C and Sheep population is 28742, as in next five years the temperature is slightly decreases the Sheep population is increased as compared to early, but after that there is increased of temperature in continuous three quinquennial period and it was observed that there is contentious decline of Sheep population.

**Rainfall Data**

In summer due high temperature and high rainfall most of the Sheep was affected by diseases which result in death. In the month of June to August the rainfall touches 400mm to 500mm and consider as the highest mortality rate that is around 48%, and lowest rainfall in the season of winter that is around 12mm in which only 8% of mortality rate is found. As the data which is observed over ten years also shows that in the month of June to August the rainfall is not less than 400mm, so in this season's most of the mortality rate take place over this decades. In winter rainfall is less than 10mm which results that in this season's there is less mortality rate. So high mortality rate of Sheep can be observes in summer season due to high rainfall and high temperature. Rainfalls also play a vital role to check the Sheep population.

**Table No. 3: Rainfall Data in mm**

| Year | June to August (mm) | Sept. to Nov. (mm) | Dec. to Feb. (mm) |
|---|---|---|---|
| 1991 | 500.215 – 537.546 | 328.44 – 1.926 | 6.985 – 3.484 |
| 1992 | 371.473 – 414.945 | 211.334 – 3.429 | 9.087 – 24.14 |
| 1993 | 459.567 – 471.257 | 335.334 – 4.768 | 0.049 – 41.666 |
| 1994 | 340.074 – 367.576 | 115.902 – 11.919 | 0.01 – 17.673 |
| 1995 | 631.678 – 370.237 | 411.381 – 57.193 | 5.227 – 10.643 |
| 1996 | 336.648 – 345.749 | 189.296 – 0.2 | 0.01 – 16.869 |
| 1997 | 382.609 – 241.393 | 324.545 – 11.468 | 28.081 – 29.514 |
| 1998 | 466.141 – 412.523 | 249.29 – 5.475 | 0.01 – 12.412 |
| 1999 | 412.231 – 456.549 | 268.531 – 19.447 | 0.801 – 8.987 |
| 2000 | 420.913 – 506.771 | 266.213 – 3.685 | 0.802 – 8.495 |

*Source: Water Resource Department Meteorological Branch (WRD). Bomdila, West kameng Dirstrict (A.P).*

Bar Graph showing average annual rainfall (mm) over decades

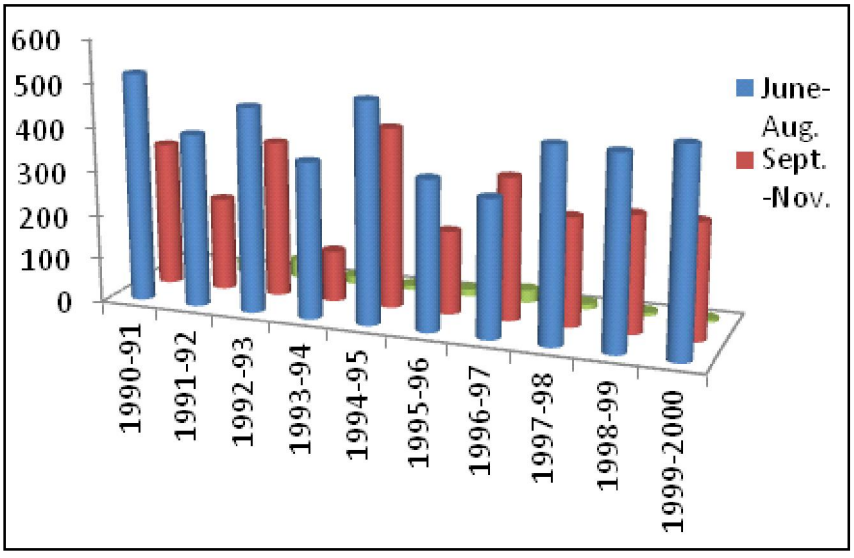



**Figure 3: Annual Rainfall over Decades**

The above data shows range of rainfalls in difference seasons. The average rainfall of the month June to August over ten years was 419.1701mm, in Sept-Nov it was 133.8485mm and in Dec-Feb it was 12.7028mm.

The average rainfall for the months of June to August over ten years is 419.1701mm which is converted into inches will be 16.502 inch; for the months of Sept.-Nov. it will be 5.269inch; and for the month of Dec.-Feb. it will be 0.5inch. The mortality rate is 48% in June-August, 44% in the month of Sept-Nov, 8% in month of Dec-Feb.

**Table No. 4: Rainfall variation and Sheep Mortality Rate**

| Months | Rainfall (inch) | Mortality (%) |
|---|---|---|
| June to Augt. | 16.502 | 48 |
| Sept. to Nov. | 5.269 | 44 |
| Dec. to Feb | 0.5 | 8 |

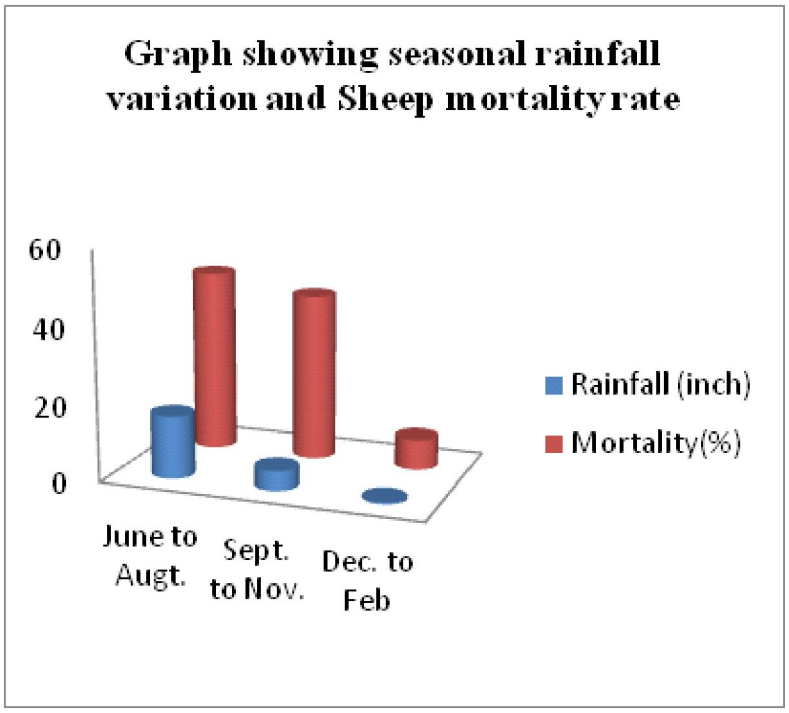
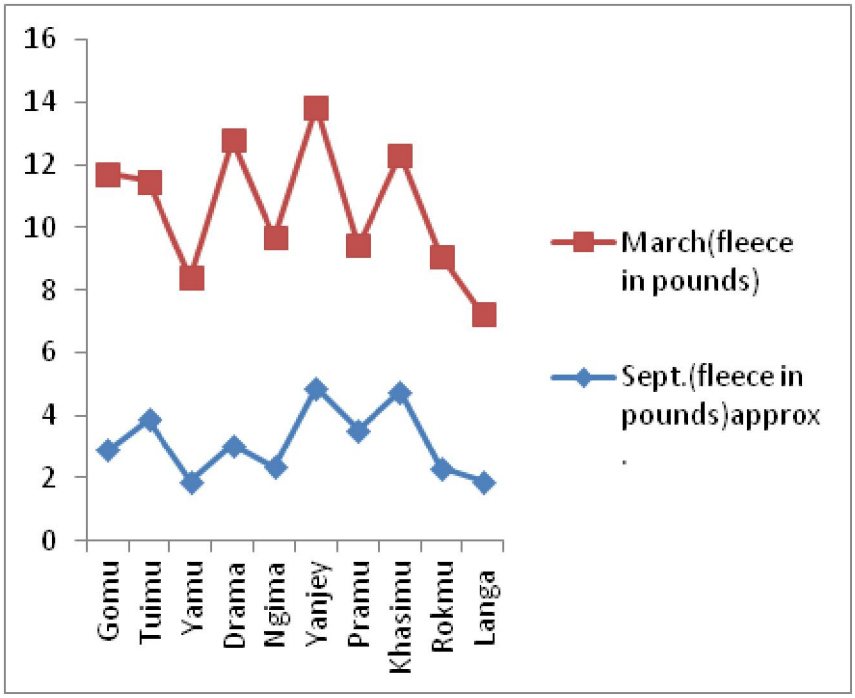



**Figure 4: Seasonal Rainfall Variability and Sheep Mortality Rate**

From study area it is traced out that how the temperature affects the fleece production and body weight of the Sheep. By taking the sample of ten Sheep it can be observed that the production of clip in summer is lower than that of winter. As the temperature increases the fleece production is decreases. This result that from last decades the rising of temperature which is affecting the production of fleece, meat production which slow down the economic status of Sheep rarer (Lukzepa) as well as less feeding to lamb result in high mortality rate of lamb. Below data shows that how the seasonal variation of fleece production will varies in summer and winter through which we concludes that in summer due to high temperature Sheep will produces less amount of clip as compared to winter where the temperature is low and favorable to Sheep habited.

**Table No. 5: Fleece in pounds (Difference in fleece production in summer and spring)**

| Sl. No. | Name of Sheep | September (fleece in pounds) approx. | March (fleece in pounds) |
|---|---|---|---|
| 1. | Gomu | 2.90 | 8.81 |
| 2. | Tuimu | 3.87 | 7.61 |
| 3. | Yamu | 1.89 | 6.51 |
| 4. | Drama | 3.06 | 9.72 |
| 5. | Ngima | 2.34 | 7.32 |
| 6. | Yanjey | 4.89 | 8.97 |
| 7. | Pramu | 3.54 | 5.90 |
| 8. | Khasimu | 4.75 | 7.56 |
| 9. | Rokmu | 2.32 | 6.78 |
| 10. | Langa | 1.90 | 5.34 |




**Firure 5 : Difference in Fleece Production (Summer & Spring)**

Now how the body weight will be affected through change in temperature. As taking summer body weight and winter body weight the comparison between them will made, and find how the body weight will loss or gain by changing temperature. In summer the body weight of Sheep is mostly losing as compared to winter body weight. In summer due to temperature high their rectal temperature is 37°C approximately, due to high temperature they lose energy, which result in difference of weight in negative way. Some time mostly due to affects of diseases in summer the Sheep lost their weight upto five to ten kilograms, which result may be death. But in winter the rectal temperature of Sheep is approximately 38°C this 1% of increase in rectal temperature in their body maintain warmness of body from cold, which may lead to increased in body weight.

**Table No. 6: In winter Bodyweight of Sheep (Dec.)**

| Sl. No. | Name of Sheep | Body Wt. (Kg) | Rectal Temp. (°C) | Previous month (Kg) | Difference (Kg) |
|---|---|---|---|---|---|
| 1. | Karmu | 45 | 37.8 | 40 | 5 |
| 2. | Seesha | 35 | 37.6 | 29 | 6 |
| 3. | Brow | 32 | 37.7 | 30 | 2 |
| 4. | Kyanzang | 41 | 37.4 | 37 | 4 |
| 5. | Yapsomu | 39 | 37.8 | 34 | 6 |
| 6. | Toka | 34 | 37.7 | 30 | 4 |
| 7. | Garah | 25 | 37.8 | 23 | 2 |

**Table No. 7: Difference of Body weight in Spring (March.)**

| Sl. No. | Name of Sheep | Body Wt. (Kg) | Rectal Temp. (°C) | Previous month (Kg) | Difference (Kg) |
|---|---|---|---|---|---|
| 1. | Karmu | 40 | 38.44 | 43 | -3 |
| 2. | Seesha | 30 | 38 | 35 | -5 |
| 3. | Brow | 38 | 38.3 | 42 | -5 |
| 4. | Kyanzang | 29 | 38.44 | 30 | -1 |
| 5. | Yapsomu | 30 | 38.5 | 34 | -4 |
| 6. | Toka | 31 | 38.6 | 33 | -2 |
| 7. | Garah | 24 | 38.5 | 27 | -3 |
| 8. | Karjan | 33 | 38 | 37 | -4 |

**Economy of Lukzepa Enviroment (Changing Pattern)**

The Lukzepa are small community of schedule tribe people residing in the high altitude of district like Tawang and West Kameng of Arunachal. They are thought to be the descendants of the ancient Mogoloids. This particular type of community from early decades practicing trans-human method for their livelihood. The rears Sheep become their economic activities from which they sustain their life.

Nyukmadung is a village situated in Dirang circle of West Kameng which is 31 km away from Dirang, at 2750m above mean sea level. The people of village particularly engaged in rearing of Sheep. Every house hold having Sheep which are engaged to look by own or sometime engaged some other person to look after. The particular person who is engaged in this work will not stay in village they will stay at hill top where Sheep is inhabited. They migrated from one hill to another with changing season. This type of migration with some groups of people is known by Lukzepa.

Nykmadung and Dirme are two villages situated in opposite hill top. The people of Nyukmadung speak Lukzepa dialect form of the Monpa language. They are originally said to have come from Mongoloid and settled in area generation ago. They are predominantly Caucasoid in contrast to the Monpa tribe's inhabitants of most of West Kameng district. They are normally Buddhist, rituals still survive.

'Lukzepa' is the name given by the Monpas person, which is combination of two words 'Luk' means Sheep and 'pa' means the 'peoples'.

**Plate No. 3: A View of Shepherd in Membachur Village**

The traditional Lukzepa diet based on locally grown foods such as wheat, rice(red in colour), barley etc. wheat, barley are prepared most often as 'pa'/bokpe (flour). It takes in different ways. Other important foods includes, potatoes, pumpkin, chilly,chaja (salt tea), a tea made of ghee, churpi, chura, and chang (local wine). Lukzepa wake up early in morning at around 3:30 to 4 a.m and take chaja(tea made of adding salt ,ghee and milk),they takes three times meals a day 'Yo tobche (Breakfast); 'Zara' (Lunch); and 'Go topche'( Dinner). Lukzepa are rarely take milk, the Yak milk are making different milk products like Churpi (loose cheese), Churkam(milk candy), chura (decomposed cheese), Ghee which are widely uses. Lukzepa take meat of in huge amount which are dry and kept in stored. Household's economic position decides the total number of Sheep present in each Lukzepa household.

The sale of Sheep will be done according to the age of Sheep; if there is new Lamb born it will sell around the price of 1000 to 2000 rupees. The price may increase according to the age of Sheep will increase. The price may touch upto 8,000 thousands in its matured stage. The price of Sheep male and Female Sheep are differ, because the male Sheep is productive in case of fleece and meat its cost higher price as compare to female Sheep. The below tables show the price of Sheep according to its age as well as its shows the variation of price of Female Sheep and Male Sheep.

**Table No. 8: Age and Price of Male and Female Sheep**

| Age of Sheep in months | Price of Male Sheep | Price of Female Sheep |
|---|---|---|
| 0-1 | 800 | 500 |
| 1-2 | 1,000 | 800 |
| 2-3 | 1,500 | 1000 |
| 3-5 | 2,000 | 1,800 |
| 5-7 | 2,600 | 2,000 |
| 7-9 | 2,800 | 2,100 |

| | | |
|---|---|---|
| 9-12 | 3,000 | 2,500 |
| 12-15 | 3,200 | 2,900 |
| 15-18 | 3,800 | 3,000 |
| 18-21 | 4,000 | 3,300 |
| 21-24 | 4,300 | 3,600 |
| 24-27 | 4,600 | 3,800 |
| 27-30 | 4,800 | 4,000 |
| 30-33 | 5,000 | 4,300 |
| 33-36 | 5,600 | 4,800 |
| 36-39 | 6,000 | 5,500 |
| 39-42 | 7,000 | 6,000 |

Through the study it was also traced out that the Sheep price can be determined according to its weight body, like if the weight range between 40-45kg its cost around 6,000 -7,000. This below table shows the weight of Sheep from new born Lamb upto its matured stage.

**Table No. 9: Age and Weight of Sheep**

| Age of Sheep in Month | Body Weight of Sheep (Kg) | Price (Sheep According to Weight) |
|---|---|---|
| 1 month | 5.00 | 500 |
| 5 months | 10.01 | 800 |
| 7 months | 14.74 | 1,000 |
| 10 months | 18.63 | 1,200 |
| 17 months | 20.95 | 1,800 |
| 18 months | 25.72 | 2,000 |
| 20 months | 28.02 | 2,500 |
| 26 months | 30.89 | 2,800 |
| 30 months | 31.77 | 3,000 |
| 31 months | 33.72 | 3,500 |
| 34 months | 35.06 | 4,000 |
| 43 months | 38.13 | 5,000 |
| 54 months | 40.99 | 6,000 |
| 56 months | 43.00 | 7,000 |
| 60 months | 45.15 | 8,000 |

Other then the selling of Sheep, Lukzepa also sale the Sheep products, like fleece or clip or wool, meat etc. The annual income is below poverty line, which leads them to insufficient income in their life, through which they can't fulfilled their basic needs, and their children are leaving as uneducated which result in low literacy rate.

Sheep fleece wool product (local cap, shawl, mat, traditional dress, traditional shoes etc.) cost very high due to less productivity and high demands in markets. The Lukzepa not directly sale the product to market, this product are sale by middle men who get most of the profit. The Lukzepa

who are the main rears of Sheep didn't get much profit because from them the middle man parches in low cost and sale it in the market at high cost.

Mogan product and its local market price

| Sl. No. | Mogan Product | English Equivalent | Local Market Price (Rs.) |
|---|---|---|---|
| 1. | Nampa Chola | Red coat | 3,500 |
| 2. | Chuktoi Tan | Carpet | 2,000 |
| 3. | Cuktoi Nyeilok | White Blanket | 2,500 |
| 4. | Tan | Brown Carpet | 2,500 |
| 5. | Lemba | Red shawl | 1,500 |
| 6. | Matki loma | Brown cloth hanging back of women | 2,000 |
| 7. | Chudang | Belt | 1,500 |
| 8. | Bogre | Pouch/pocket hanging back of men | 3,000 |
| 9. | Daon | Bags | 4,000 |

Fleece is the important products of Sheep through these different products are made like carpet, foot mat, caps, rope/belt and mats. These products are also sale in market as well as it used for domestic purposes.

For making this valuable product the wool are prepared from Sheep outer fleece and inner fine wool using local tools like Tha, Thong, Dichung, Chaksi, Yukur, Fiang, Changtha, Jamsi etc.

At present context it is find that the economy of Lukzepa is changing from pastoralism to other primary activities like cultivation of dry rice and vegetables, fire wood supply, lodging, due to less beneficial from their livestock, they have adopted other economic activity. "Along with the declining Sheep population, the number of Shepherd, known as Lukzepa, are also decreasing,(Dr. Baruah director of NRCY) said.

The Lukzepa in Nykmadung mostly now a day's depends on cultivation which is giving them more beneficial as compare to their livestock. As the total population of Nykmadung village is 551 out of which 500 populations are engaged in Sheep rearing or they are having Sheep. But in recent decade it was decreases to 338, decreases by 67.6%.

## Discussion and Planning

It was found that there is recent continuous decline of Sheep population in Arunachal, there are many factors among which climate change is one factor which is also play a very vital role in declining of Sheep population. Like the temperature increase the rectal temperature of Sheep body also increase which affect in loss of weight, result in frequently affected by the diseases, and leads to die. If the temperature increases the production of fleece also decline. Rainfall also affects the ability of fodder in particular trans-human region which result less avaibility of grazing land. If the grazing land decrases the land holder of particular grazing land charges more tax upon Lukzepa which can't be payable by Lukzepa and leads them to sale their Sheep and engaged into other primary economic activities.

Overall at present the Sheep population of Arunachal has been 12,877(Quinquennial Livestock Census 2012). It was traced out that in 2007 census there was 19,889 of Sheep in Arunachal, in 1987 it was 28,742. Here 31% of decline of Sheep population in state level. As the Sheep population of Arunachal has been decrease in recent census, Sheep population over these 25 years through five livestock census

period show negative trend of population growth of Sheep. To increase the Sheep population in Arunachal we should set up Sheep farm. The scientific methods for Sheep rearing techniques as well as followings the methods which were trained by the experts/Doctors of Veterinary Department, the Sheep farm will give much beneficial to the Sheep farmers. They organized programs like training (scientific management), extension-cum-awareness programmed etc.

So decline of Sheep population can be check through scientific methods, by setting up Animal Husbandry and Veterinary Department in particular district where the livestock are available. This institute provides explicit connections with the nomad Shepherd farmers for development of Sheep husbandry in Arunacahl Pradesh.

## References


Abellam, A., and Olivera, R.(1979). La transhumancia par ferrocarrial en Espana. *Estudios Geograficor* 40.

Baied, Carlos A (1989), "*Transhumance and Land Use in the Northern Patagonian Andes*" Mountain Research and Development, *9*(4), 365-380.

Barth, F.(1960). Nomadism in the mountain and plateau areas of south west Asia. *In The Problem of the Arid Zone.* UNESCO.

Benoit, M. (1978). Pastoralisme et migration Les Peul de Barani et de Dokui (Haute-Vota).

Borthakur, D. N 1992, "*Agriculture of the North Eastern Region"* Beecee Prakashan, Gauhati.

Casimir, M, J. and Rao, A., 1985: Vertical Control in the Western Himalaya : Some notes on the pastoral ecology of the nomadic Bakrwal of Jammu and Kashmir. *Mountain Research and Development.*

Chakravarty, Minoti Kaul (1998) "*Transhumance and Customary Pastoral Rights in Himachal Pradesh: Claiming the High Pastures for Gaddis"* Mountain Research and Development, *18*(1), 5-17.

Cleary, M. C. (1986) "*Patterns of Transhumance in Languedoc*" Geography, *71*(1), 25-33.

Daniel A. (1977), "*Energy, Economics, and the Decline of Transhumance"* Geographical Review, 67(3), 284-298

Duarah, D. K (1992), "*The Monpas of Arunachal Pradesh"*Directorate of Research, Itanagar. A.P.

Dutta, D. K. 2000, "*The Monpas of Kalaktang"* Directorate of Research, Itanagar. A.P.

Geddes, David S.(1983), "*Neolithic Transhumance in the Mediterranean Pyrenees"* World Archaeology, *15*(1), Transhumance and Pastoralism (Jun., 1983), 51-66.

Gomez Ibanez, D. A.(1977). Energy, Economic and the decline of transhumance. *Geographical Review* 67 (3).

Grieve, J. W. A., 1920: Note on the Economics of Nomadic Grazing as practiced in Kangra District. *Indian Forester*, *46* (July, 1920).

Intigrinova, Tatyana (2005) "*Transhumance in Transition: Consequences of Socio-Economic Reform. A Case Study of Khoito Gol*, *Buryatia"* Inner Asia, Vol. 7, No. 1, Dedicated to Andre Gunder Frank (1929-2005) (2005), 87-105.

Lane, C, and Swift, J. (1989*). East African pastoralism: Common land, common problems.*

Lyon, F., 1993: Nomadic Pastoralists and Environmental Degradation in H.P. *India Conservation and Development Research Initiative CADARI, Report No.1.* Unpublished

Matley, Ian M.(1968) "*Transhumance in Bosnia and Herzegovina*" Geographical Review, *58*(2) (Apr., 1968), 231-261.

Perez, Manuel Ruiz and Saez, Adelina Valero (1990) "*Transhumance with Cows as a Rational Land Use Option in the Gredos Mountains"* Human Ecology, *18*(2) (Jun., 1990), 187-202.

Raina, V., 1959: Preliminary Survey of Grasses in Himachal Pradesh. Indian Forester, *85*(2).

Rinschede, G. (1977). Situation recente de la transhumance ovine dane les Pyrenees Francasses. *Review Geographique des Pyrenees et du Sud-Quest, 48*(4).

Ruiz, M. (1988). Analisis economic de explotaciones ganaderas transhumates. *Revista de Estudio Agrosociales, 146*.

Ruiz, M., and Ruiz, J. P. (1986). Ecological history of transhumance in Spain. *Biological conservation 37.*

Sanchez Belda, A., and Sanchez Trujuillano, M.C. (1979*). Razas ovinas Espanolas.* Ministerio de Agricultural Madrid.

Sarkar. N 1980 "*Buddhism among the Monpas & Sherdukpens"* Directorate of Research, Itanagar, Andhra Pradesh.

Singh, K.S, Das Gupta, Bera, Bagchi & Chowdhury. 1992 "*Domesticated Animals in India"* The Journal of Anthropological Survey of India, *41*(1&2), March & June.

Stewart, H.R., 1926: *The Economic Value of Goats in Punjab, Board of Economic Inquiry, Government of the Punjab, Lahore.*

Talachan, P.M 2000 "*Livestock in mixed mountain farming system"* ICIMOD, Newsletter No. 37.

Tubiana, M.J.(1971). System pastoral et obligation de transhumer chez les Zaghawa. Etudes Rurales 42.

Tylor, E.B 1988 Ashwani Goyal for GOYIL Saab, 86 U.B.Jawahar Nagar, New Delhi-110007.

Walker, Michael J. (1983)*"Laying a Mega-Myth: Dolmens and Drovers in Prehistoric Spain"* World Archaeology, *15*(1), Transhumance and Pastoralism (Jun., 1983), 37-50

Walton, C. L (1919) "*Transhumance and its Survival in Great Britain"* The Geographical Teacher, *10*(3) (Autumn, 1919), 103-106.