

# CHAPTER - I

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## Introduction and Research Design

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LIVELIHOOD SUSTAINABILITY OF RURAL WOMEN THROUGH  
LIVESTOCK ENTERPRISES - AN ANALYTICAL STUDY IN  
GOALPARA DISTRICT OF ASSAM

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## CHAPTER- I

# INTRODUCTION AND RESEARCH DESIGN

### 1.1. INTRODUCTION

This involvement of person for earning their living is generally termed as *occupation*. On the basis of the availability of resources or services, manpower is utilized in many fold of activity or occupation. Incomes so generated from different occupations are utilized for sustainable livelihood for the family or the family members. In rural areas of our country, most of the people are primarily dependent on agricultural activities. Agricultural activities include crops, livestock and poultry, fisheries and other allied sectors are the components of primary sector for occupation, especially in rural India. Rural people are solely dependent on agriculture activities as major sources of income are generated from production of agricultural or other components of primary sector under different farming system approaches. Crops and livestock integrated or mixed farming's are viable enterprises in rural areas of our country. With limited resources or within a short period of time, through *sustainable livestock productions* which is one of the *important components of primary occupation*, employment opportunities are created especially for small and marginal farmers. Under different sets of environmental conditions, sometime sustainable livestock production system alone may provide high scope for creations of employment for the under privileged workers and for generation of good income.

Livestock farming is a major component of farming system as well as the rural economy providing employment and economic support to the rural families who are landless or those who possess a little land. The landless and rural women are important sub groups of rural poor likely to get benefit from livestock farming. Besides, in the face of uncertainties in crop production, livestock production has been found to provide economic stability to the rural poor. As a component of mixed and diversified farming system, livestock farming is highly relevant in draught prone, hilly, tribal and remote areas for sustaining livelihood for the farming community. Considering the growing

demand of livestock produces in developing countries, application of scientific tools and technical know-how need to be applied for raising the production and productivity from livestock sector. Increased domestic livestock production contributes to the growth of national income, improve livelihood and poverty alleviation.

Livestock sector plays an important role in the socio-economic development of the rural households. The livestock sector contributes 3.88 percent of the total Gross value added of the country at current prices about 3.92 percent at constant prices (2011-12). The livestock sector was expressed by 5.5 percent during 2013-14 against the total agriculture, forestry and fishing sectors growth 3.7 percent during the same period at 2011-12 prices (*Source Annual report 2014-15, Deptt. of AH, Dairying and Fisheries, Ministry of Agriculture, Govt. of India*). This sector contributed 31.25 percent of the value of output from agriculture and allied sector and amounted to Rs. 9,17,910 crores at current prices during 2016-17 and considering the value of output from agriculture and allied sector, the value of output was 31.11 percent at constant prices during 2016-17. (*Source Annual report 2018-19, Deptt. of A.H., Dairying and Fisheries, Ministry of Agriculture, Govt. of India*)

It has thus been established that livestock sector has emerged as an engine of agricultural growth in the country. It is the lifeline of Indian agro-based economy. Besides providing organic manure, livestock is the important source of several value-added by-products having immense future business potential and has scope for export earnings. Moreover, this sector supplements income from crop production and other sources and protects rural folk from crop failure. It also generates continuous stream of income and employment and reduces seasonality in the livelihood pattern of the rural poor in India. Over 70 percent of the rural households own livestock and majority of them are small, marginal and landless households.

The National Commission on Agriculture has identified dairying as an instrument of socio-economic change for maximum farmers. It is a fact that the dairy farming has not only been the integral part of our economy but also equally engrossed in our culture. The major product of livestock farming is milk and other dairy products. These products have a special role in national economy. The participation of women in dairy farm practices varies by region, culture and socio-economic status. Around 71 percent of the

work force engaged in livestock sector are women (*Annual report, DADF, Govt. of India, 2003*) and livestock sector have a key role in improving the economic welfare of women,

There is a little study made so far exclusively to understand livestock production system (even farming systems in general) of the underprivileged rural families. The livestock production system of the underprivileged families is different from those of resource-rich farmers since they aim at optimizing use of the limited available resources (material and labor) and minimizing external inputs and avert risks, as against maximizing profit by the resource rich. Thus, diversification and internalization are the main features of their production systems. Hence, to improve the livelihoods of the underprivileged families we need to understand their way of life, livestock production systems and their perceptions and about the role of livestock in their livelihood. Several issues pertaining to women's participation in livestock enterprise and other economic activities have not been properly probed into.

The contribution of women in animal husbandry is not new and they play an active role in performing many important tasks, like rearing and management, health care, maintain, hygiene and sanitation in farm houses and also selling food products of animal origin. Farm women provide economic support of the families and generation of income for the livelihood of the family members. However, they are invisible workers.

In recent years, the entrepreneurship has gained wide popularity around the globe. Women are becoming entrepreneurs at a more than proportionate rate compared to men. Empowerment of women is the prime objective of all developmental programmers and policies in India. According to ILO (*Inter-national Labor Organization*) report, "Women are responsible for 50percent of food production in the developing world. In Africa, 50percent agriculture and 100 percent food processing is done by women population.

Women make a significant contribution to the Gross National Products (GNP). But their services are still over looked in the male dominated society. Empowerment of women is operationalized in livestock enterprise as their ability to take independent decision, pursue economic activity of their interest, their active participation in livestock management and rearing, social participation and role for betterment of their family in particular and society in general.

The nature and extend of women's involvement vary greatly from region to region. Even within a region their involvement varies widely among different ecological sub zones, farming system, castes, communities, class and socio-economic status of the families. In Assam and other North-Eastern states, the picture of involvement of rural women in agriculture, animal husbandry and other allied sectors are somewhat different from the rest part of the country.

The role of women in Animal Husbandry and related activities is a subject of interest for social scientists and also for the planners and policymakers. In Goalpara district, the western of part of Assam, where livestock farming is an important part of the mixed crop farming system, women in the rural areas actively participate and undertake in all operations like rearing, management, health coverage, marketing of food of animal origins and different agricultural operations.

The present study is undertaken to assess the female labor force and their participation in various livestock activities, magnitude of their contribution in family labor income from livestock enterprises.

## **1.2. CONCEPT AND DEFINITIONS**

### **1.2.1. Livelihood**

Livelihood means generating some income or source of revenue through trade, business or any other work. It seeks to gain some employment or occupation. Therefore, it can be said that livelihood comprises an economic activity, involving self employment and/or wage employment by using only endowment (human or material) to generate adequate resources or meeting the requirements of self and dependents of the household. These activities are usually carried out repeatedly and become a way of life. A livelihood should keep a person gainfully and meaningfully occupied with dignity and honor. In other words, livelihood goes beyond income generation. In addition to providing employment or engagement, it brings to him satisfaction, dignity and self respect which, in turn, contributes to the life system of the individual.

There are several reasons for livelihood. The first and foremost is the belief in the right of all human beings to equal opportunity. The second is the promotion

of economic growth. The third is to ensure social and political stability. Through different types of livelihood resources like money, men and material are effectively and efficiently utilized.

A livelihood, as defined by the Department of International Development, comprises the capabilities, assets (both material and social resources) and activities required for the means of living (*DFID, 2000*). Environmentally, a livelihood is sustainable when it maintains or enhances a local and global asset in which livelihoods depend, and has a net beneficial effect on another livelihood. Land-based livelihoods of small and marginal farmers in India are increasingly becoming unsustainable, since their land is no longer due to meet the requirement of food of the family and fodder for their livestock.

Nature provides human societies and economics with a complex life support system, air, water, food and a suitable climate for survival. It also provides the physical resources are necessary for the sustenance of economics. Nature has supported and maintained life on earth since time immemorial and should continue to do in the future. This is known as the sustainability of nature or ecosystem or environment. However, we have been interfering with the sustainability of the natural system through our avaricious activities and if we continue on the same transitory, not only the other life forms but also the very existence of mankind is threatened. There are limits to nature's capacity to absorb impacts. Once alteration of nature's initial state occurs, it cannot quickly revert back to the initial state. Nature has a limited capacity to withstand rapid change. Thus today, the challenge before mankind is to determine the state in which we wish to live and to continue living within the limits inherent in nature's processes, within nature's carrying capacity.

### **1.2.2. Sustainability**

Sustainability refers to a process or state that can be maintained indefinitely. Natural resources must be used in ways that do not create ecological debts by over exploiting the carrying capacity of the earth. The term sustainability is also used to demonstrate the temporal and the livelihood context of development policies. The temporal context refers to the chronological perspective in which communities maintain their cultural and ecological integrity. The livelihood context of development policies is

the presentation of existing values which are under threat from external economic forces leading to the collapse of a delicate natural resource balance.

Sustainable development is the most politicized catch work of international development conferences and programs. Sustainable development has emerged out of the fears of depleting natural resources and a subsequent slowing or even closing down at much of the economic activities and production system. It is the result of rapacious misuse of earth's precious and limited resource base by those few who had a control over production system. The concept has emerged as a broad framework to debate, and decide or desirable direction of change in social and economic systems, policies, programs and actions at national, community or individual level.

Sustainability offers a long-term planning for productive techniques, industrial processes and equitable distribution policies for the exploitation of resources, such as coal, oil and water etc. This planning ensures their longer life span and a broader user base so that the greatest number of people may benefit out of it for the longest possible time frame. The emergence of the idea of sustainability also strikes at the indispensability of technological transformation towards energy saving devices, alternate and non-conventional system for providing comfort of citizens without bring down the quality of life. This has led to a total revolution in the way people and government have started thinking and designing their developmental programs and projects. A new aspect has emerged for the grass root governance which fuels growth by providing land, water, and forests that constitute the three basic inputs to any form of industrialization. Thus, sustainable development is also indicative of "planning from below" in contrast to "planning from top".

### **1.2.3. Livelihood sustainability**

Livelihood sustainability, therefore, has be looked into from different perspectives like environmental, cultural, ecological, social and economic aspects' or living livelihood in a better and dignified manner people adopt different enterprises, and vocations which demand resources. But the over exploitation of resources causes depletion of resources in a considerably short period of time affecting our environment, resulting in ecological imbalance. Social and cultural consequences are to follow in later

stage. In the initial stages there may be apparently economic gain. But in the long run these may not last long. Any livelihood may be called sustainable which continue to support life system of the individual or community for an indefinitely long period without causing the depletion of natural resources and leaving any bad impact for the present as well as future generation.

People adopt different enterprises for living their livelihood, which vary in accordance with their situation, like rural, urban, semi urban etc. The suitability of enterprises also depends upon the availability of resources, socio-economic condition, geographical and climatic condition, availability of capital, technological knowledge and many other factors. Selection of the enterprise also depends upon the mindset of the people and the education level.

#### **1.2.4. Enterprises and Entrepreneurship**

An enterprise denotes a business where entrepreneurial activity is carried out accompanied by initiative and resourcefulness. An entrepreneur is a person who habitually creates and innovates to build something of recognized value around perceived opportunities. Thus, it can be said that an entrepreneur plays two basic roles – first he acts as an opportunity spotter as he explores the opportunity. Secondly, as a project champion he has to create a successful person running profitable venture. It is not enough to find out the opportunities, one should also be able convert it into creative and successful venture. So, an enterprise begins with an idea and ends up in the running the related activity or business profitably and successfully. Opportunities for the entrepreneurs exist in different forms – sometimes it exists as need and sometimes as problem. Entrepreneurs see and materialize such opportunities. They apply their knowledge and experience, analyses and synthesis it to find a solution and convert the opportunity into a viable and profitable project which is regarded as an enterprise.

In other words, entrepreneurship means to create something new, organizing and coordinating and bearing risk with economic uncertainly. Entrepreneurial activities are substantially different depending on the type of organization that is being started. It is the name given to the factor of production which performs the function of ‘enterprise’. Out of the five factors of production i.e. land, labor, capital, organization and enterprise,

organization does the work of coordination between different factors and makes the production possible by taking upon itself the risk or more appropriately the uncertainty of production. That is why the entrepreneur is termed as “uncertainly bearer” and his function as that of ‘uncertainly bearing’.

The major factor for entrepreneurship is the achievement motivation. A society constituting individuals with a high level of need for achievement would come up as entrepreneurs. Entrepreneurship involves task accomplishment that embodies a reasonable challenge to the individuals’ competence.

### **1.2.5. Livestock**

Animal rearing originated in the history of mankind when people shifted from hunter-gatherer lifestyle to settle farming. Animals were domesticated when their breeding and living condition were controlled by human. It was found that dogs were domesticated in East Asia about 15,000 years ago, while goats and sheep were domesticated around 8000 B.C. Pigs were domesticated 7000 BC in the middle East and China (*Source: Breeds of livestock-Oklahoma state university. Ansi.ok state.edu.retrived on 10-12-2011*).

The term livestock became popular between 1650 and 1660 after merger of two words ‘Live’ and ‘Stock’. Livestock are domesticated animals which are reared for producing commodities such as food, Source fiber and labor (*Source: Dictionary.com.retrieved 23rd Nov/2015*). Therefore, it includes those animals reared for food and also the ruminants such as cattle and goat for production of meat and milk. The term livestock is used to differentiate the domestic animals from the pet animals. In recent years some organizations are also rearing livestock to promote the survival of rare breeds.

In India the term livestock includes different domesticated animals like cattle, buffalo, pig, goat and sheep but does not include poultry or other birds reared for egg production. *But the 1988 disaster assistance legislation in US Federal legislation* defined the term livestock as cattle, sheep, goat, swine and poultry and the equine animals used for food.

### **1.2.6. Livestock Enterprises**

Integration of livestock and poultry either in organized or unorganized system of management and production in mixed and or diversified system of farming practices of animal husbandry system along with other agricultural operations is one of the best economically viable system of farming practices under the different agro ecological situations. Management and production of livestock and poultry in the existing agro ecologically suited situations for commercial or domestic consumption of its products is considered as *Livestock Enterprise*. Activities under different livestock enterprises are daily occupations of the farming communities. Animal products such as milk, meat, egg etc. are produced, processed and marketed through the year round without any seasonal restriction. Livestock enterprises offer potential for introduction of wide ranges of project activities relating to gender mainstreaming, including improved production method, redistribution of intra household tasks and other related activities.

### **1.2.7. Food security**

Basic concept of food security means that people at all times have both physical and economic access to the basic food they need. The World Bank has defined food security as ‘access by all people at all times to enough food for an active, and healthy life’. Therefore, it is evident for ensuring food security two conditions are to be fulfilled- one is the availability of food and the other is the ability to acquire it. There is tendency to define food security at only the national level. But main emphasis needs to be laid at household or individual level. This is because of the fact that although at national level food security may ensure, but at the same time disparity may exist in food security among regions, communities, household and individuals.

There are several factors which result singly or in combination in food insecurity. Among these factors poverty is the major cause of chronic food insecurity. Although the percentage of population living below poverty line is decreasingly continuously, still a substantial number of people live below poverty line. Such poor people do not have adequate means or entitlement to secure access to food, even when it is available in local market.

Another major factor of food insecurity is lack of gainful employment. At present 40percent of the country's total population is dependent on agriculture for their livelihood. With the shrinkage land size, it is being increasingly difficult for the rural people to get gainful employment in agriculture and allied sector.

Further, land distribution is highly skewed in India and more than two-third of the farmer in India are either marginal, small or landless labourers, who are severely constrained in increasing their income through agriculture.

Limited access on lack of access to the improved technologies and other productive resources also contribute regularly in food insecurity. The traditional method of cultivation is the reason of low production and productivity.

Moreover, availability of food does not guarantee access to it for the poor. In India, low purchasing power, fluctuation in the availability of food stock at different period of the year and manipulation by private traders, lack of efficient public distribution system are some for the causes of food insecurity.

#### **1.2.8. Importance of Livestock Enterprises**

Indian livestock enterprise is basically mixed crop-livestock based farming system and women are playing a vital role in increasing the productivity farm animals and in return vast contribution is given to the rural economy of India.

Livestock sector not only provides essential proteins and nutritious human diet through milk, meat and egg, but also plays an important role in utilizing non edible Agri byproducts. Livestock also provides raw material/byproducts such as hides and skins, blood, bone, fat, etc.

The possession of livestock is influenced by several factors viz. socio-economic status, farmer's interest, availability of sources, cultural compatibility and environmental condition. Majority of cattle are possessed by marginal farmers followed by small, medium and large farmers. Further, it has been noticed that during last few decades the number of animals possessed by marginal farmers is increasing indicating its role in providing supplementary income.

The species and herd size of the animals owned seem to be positively related with the socio-economic status and land holding of the families viz., most of the under privileged families own small ruminants, with large animals are commonly owned by better of families. Preferred animals of the resource poor families are goats, which are aptly called poor man's cow.

Livestock contribute to sustainable rural livelihood security in more than one way. First, it produces food products like milk, meat and egg and non-food products like wool, hair etc. The food production is used for home consumption as well as for sale which result in generalize of employment and income of the family. Home consumption of food product is affected by factors like food habits, economic status of the family, market condition, crop performance, drought, socio-cultural context and certain production (*Source: Course AEM 205 of 2013, Study Materials, MANAGE, Hyderabad*).

Animal products are primarily a source of protein, but when they are a major constituent of human diet, they also contribute a significant proportion of total calories. About 60 per cent of the dietary protein supply in developed countries, 22 per cent in developing countries is derived from animal products. Therefore, this is the output function of livestock which is related to producing food and non food products.

One the other hand, the input function of livestock includes the crop production by way of draft power, manure, transportation of produce and people and fuel needs (through dung cakes) of the families. Large animals (cattle and buffalo) provide two major inputs in crop production viz. draft power and organic manure. Draught animals remain the most cost-effective source for small and medium scale farmers. However, the share of animal power in farming is decreasing and hence the demand for bullocks/male buffalo and their population is decreasing substantially, due to mechanization and changes in the farming system.

It has been found that in India about 40-60 percent of dung is used as manure and the rest is used as fuel. The extent of use of dung for different purposes depends on land holding, herd size, economic status of the family and availability of alternate material as fuel and fertilizer. In India alone 300 million of dung cakes are used as fuel every year. The collection and drying of dung for cooking generate income for women. Valuing

cattle and buffalo dung as manure is done only on the basis of its NPK values. The excreta from small ruminants are widely recognized as good quality manure (*Source: Course AEM 205 of 2013, Study Materials, MANAGE, Hyderabad*).

Another factor of livestock in the sustainable rural livelihood security is that livestock is considered as an asset value to rural families due to the fact that it provides as means of securing at the time of crisis. When the rural families are affected by natural calamities like flood, drought, cyclone, earthquake etc. the livestock enterprises can come as a rescue to the rural farmers and can give them some sort of relief. In rural areas, financial services like credit banking and insurance are non-existent. In this case, livestock play an important role as a means of saving and capital investment. For resource poor families, any kind of animal small or large, is an asset which can be easily encased in times of need. Thus, animals like cattle or goat are sometimes referred to as moving ATM.

Although ignored nowadays livestock has a social function. It has a strong socio-cultural linkage for most rural families and particularly for women, livestock on a part of the family. Their importance in rural society is evident from the fact that livestock are still considered as indicators of social status and provides a prestige to the rural families because of possession of very valuable and high yielding livestock. Many festivals and fairs are based on livestock. Possessing an animal of their choice gives women a considerable satisfaction.

### **1.2.9. Livelihood Sustainability and food security through Livestock Enterprises**

Livestock production and agriculture are intrinsically linked, its being dependent on the other. The share of livestock sector to agricultural GDP is continuously increasing. Livestock play a central role in providing livelihood to rural poor family as a source of supplementary income.

Livestock are reared by humans for various purposes like production of meat, milk, egg, fiber like wool and mohair, leather, fertilizer, and labor.

Mammalian livestock are raised for production of milk, which in turn can easily be processed into dairy products such as dahi, ghee, paneer, butter, cheese and many

such other mouth-watering products including sweets. On the other hand, to fulfill the protein need of animal origin different types of livestock are reared. Along with meat, eggs produced by the domesticated birds are also consumed by human for their dietary protein need.

Besides milk, meat and egg, livestock are raised for producing a range of fiber textiles, e.g. domestic sheep and goat produce wool and mohair. Cattle, swine, deer and sheep skins can be made into leather. Historically plants and animals domestication have been intimately linked due to manure produced by the animal. Livestocks are also used for mechanical work like ploughing, drawing carts, military functions and to power treatments for grinding game.

Few decades ago, livestock were reared by people mostly for self subsistence i.e. to say these were raised for livestock produce and products for mostly self consumption except few cases. But of late livestock rearing has become a viable enterprise. Rapid urbanization and industrialization have made people to migrate to cities and towns. Moreover, rapid economic growth, elevator in education level and many other factors have tremendously increased the demand of livestock produce and products to world over. This has created ample scope for livestock entrepreneurship.

India has a large livestock population regarded by some as an asset provided in plenty by nature, and by others as a burden. Since 1971, when 'poverty eradication' become the main theme of development planning, Indian Govt. Recognized the livestock development program as an important tool for poverty alleviation. The focus of the program has been on improving production of livestock commodities for income generation. In India underprivileged families contribute 70 to 80 percent of the total livestock produce and livestock are control to their livelihood and culture. Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generation opportunities for women and marginal farmers.

Livestock sector serve as a major source of employment providing job to a large number of persons. This sector employees eleven million people in principle status and

eight million people are subsidiary status (*Source Annual Report, 2013-14, dept. AH, Dairying and fisheries, Ministry of Agriculture , Govt. of India*).

In mixed crop- livestock farming systems, dairy productions contribute 20-50percent of family income. Total share from milk in the total income of under privileged family is as high as 75-80 percent during drought. Dairy productions are labor intensive and the employment generations are relatively high. Family members with low opportunity cost invariably provide labor, small ruminants (Sheep and Goat) are a major source of income for the under privileged families and their contribution ranges from 17-24 percent of family income (*Source: Course AEM 205 of 2013, Study Materials, MANAGE, Hyderabad*).

Hence to improve the livelihood of the under privileged families we need to understand their way of life, livestock production system and their perception and about the role of livestock in their livelihood.

For sustainable rural livelihood, resource poor farmers have to overcome technical, economic and social constraints to take benefit of increasing demand of livestock products and compete with commercial producers. This can be done by complete understanding of their production system.

#### **1.2.10. Livestock for Food Security**

Livestock can play a vital role in ensuring food security. Many economists including Amartya Sen argued that food availability at the national or local level is not a major problem. There are problems in ensuring access to food by underprivileged people. As per the recommendation of ICMR there should be 60 grams of protein per day with net protein utilization (NPU) of 65. Without substituting vegetable protein with adequate amount of animal protein, it is almost impossible to achieve protein quality of NPU 65 in the diet. It is being revealed by many studies that per capita consumption of different livestock food product is increasing constantly (*Naidu and Kondaiah 2014*).

Livestock sector which recorded growth value output about 48 percent per annum in eleventh five-year plan has excellent potential for higher growth in twelfth five-year plan. The increased demand for protein foods in the country is the main driven force for

such growth, which also more inclusive since small holders and landless farmers account for major shares in ownerships of livestock (Source *Annual Report, 2014-15, dept. AH, Dairying and fisheries, Ministry of Agriculture, Govt. of India*).

Livestock also provides inputs and service for crop production. It is needless to mention that horse, bullock, buffalo, ass, mules etc. are used in draught operation like ploughing to fields, pulling cart, lifting water etc. manures obtained from livestock act as nutrient for plants. Experiences from using chemical fertilizer has revealed many ill effects on human health. This has made organic family more popular and here lies the importance of manure from livestock. Dung cake is widely used as fuel for cooking and heating reducing expenditure for fuel wood or fossil fuels. Collection and drying of dung for cooking also generate income for women. Livestock also help in controlling weeds and thus help in crop production. This also helps in mitigating environmental problems and climate change.

Animal manure also provides good source of food e.g. pig droppings are used as feed for fishes, also pig act as scavengers. Poultry manure can be used to generate algae as a feed for fish.

Livestock have more equitable distribution than land. About 62.5 percent of household belongs to the category of below 2 hectares of land holding account per 71percent of the total number of cattle. Livestock products not only represent a high quality of food, but equally important they are a source of income for many small farmers for purchasing seeds, fertilizer and pesticides. Cash is generated from direct sales of milk, eggs and manure (Source: *Livestock International Vol. 10, Issue I, P-19*).

In mixes crop-livestock farming system, dairy production contributes 20-50percent of family income. Total share from milk in the total income of under privileged family is as high as 75-80 percent during intensive and the employment generation is relatively high, family members with low opportunity cost invariably provide labor, small ruminants (Sheep & Goats) are major source of income for the under privilege families and their contribution ranges from 17-24 percent of family income (Source: *Course AEM 205 of 2013, Study Materials, MANAGE, Hyderabad*).

Therefore, it is clear from the above discussion that livestock can play a pivotal role in providing nutrition security. Moreover, it can also play some role in an indirect way leading to food security. Livestock can provide major source of employment to both man and women.

#### **1.2.11. Participation of Women in Livestock Enterprises**

Animal Husbandry helps for improving gender equality. Agriculture in general and livestock in particular are important to make women empowered by giving their employment. Out of 60 million rural poor of the world who keeps livestock are women (*Source: FAO, 2012 b*).

Women perform household chores and at the same time participate in farm activities. Women have an active role and extensive involvement in livestock production, forest resource used and fishery processing. Due to climate change they are facing growing challenges in performing their duties both in household activities and farms.

Women contribute a considerable portion of their family income by farm and non-farm activities. But their labors for household chores are not accounted. There are high degrees of inter-state and intra-state variation in gender roles in agriculture, environment and livestock production. The mode of female participation in agriculture production varies with land owning status of the household. In overall farm production, women's average contribution is reported to be very high percentage of the total labor as observed by many workers.

There is a growing realization of the key role of women in agricultural development and their vital contribution in the field of agriculture, food security, horticulture, processing, nutrition, animal husbandry, fisheries and allied sector women have been putting labor not only in terms of physical output but also in terms of quality and efficiency. Women grow more than half of world's food. Their work is both wide-ranging and multifaceted, and they perform multiple tasks in the sphere of agriculture and biodiversity conservation. They are extensively involved in agriculture and livestock enterprises. But the nature and extent of their involvement differ with the variation in agro-production systems. Their roles range from marginal to landless laborer. Forty eight percent of India's self-employed farmers are women. There are 75 million women

engaged in dairying as against 15 million men in India. On the other hand, 20 million in animal husbandry as compared to 1.5 million men. Around 71 percent of work force engaged in livestock sector are women (*Source: Annual Report, 2003-04, dept. AH, Dairying and fisheries, Ministry of Agriculture, Govt. of India*). This sector plays a key role in improving the economic welfare of women.

Rural women carry out both domestic and livestock related activities. Their routine household activities include cleaning of the home, cooking, sticking, raising children while the livestock management practices include cleaning of animal shed, taking care of sick animals, calf rearing, feeding, watering to animals, milking, making dairy products, like ghee and butter, preparation of animal feed, record keeping, fodder cutting, selling of milk and milk product, making dung cake, collecting manure.

The participation of women in livestock enterprises causes great impact in their household in many respects like family's income, food, fuel, children's education and health. Rural families realize reasonable income from animal farming. These include income earned from the sale of animals as well as from the sale of animal products like milk, butter, ghee etc. The income earned from rural families from the sale of animal and animal products is used to buy food, cloth, as well as for education and health of the children. All these help rural families to be in a state of good welfare. Livestock provides a variety of food materials to the rural families. These are protein rich diet (milk, meat, egg etc.) and therefore these prevent their nutritional deficiency.

### **1.3. OBJECTIVES**

The study has been made with the following objectives emphasizing women involvement in livestock farming:

1. To find out the socio-economic profiles of rural women participating in livestock enterprises.
2. To study the nature and extent of participation of female labour force in all operations concerning management and production of livestock enterprises.
3. To estimate the impact of livestock enterprises in livelihood sustainability.
4. To study the role of women in enhancing household food security through livestock products.

## **1.4. HYPOTHESES**

- I) Socio economic factors of rural women have sufficient impact on livestock production.
- II) There exists association between level of participation and household food security through livestock products.
- III) There is significant relationship with improved livestock management and production activities with livelihood sustainability.

## **1.5. METHODOLOGY AND DATA COLLECTION**

Accordingly, for designing the proposed research work, in this chapter detail methods and techniques have been employed to explore and empirically achieve the objectives as laid down in the research work. Steps and procedures for conducting the research are presented in the following sub heads.

- I. Area of the study
- II. Sampling technique
- III. Selection of the variables
- IV. Selection of the respondents and sampling
- V. Construction of interview schedule
- VI. Collection of data
- VII. Statistical analysis of data

### **1.5.1. Study Area: Goalpara District of Assam**

Goalpara district was purposively selected for the study with which the researcher is well acquainted. The district is inhabited by mixed population consisting of tribal and non-tribal including backward communities. The area was selected for the proposed study because of livestock farming activities are important source of livelihood for the people in this area. Livestock resources, production and productivity from livestock and poultry and also scope for marketing of livestock products are observed to be highly potential. Besides, participation of women of both tribal and nontribal groups are actively involved in livestock enterprises.

In Goalpara district, total number of inhabited villages are 761. Tribal groups of this district are mainly Rabha, Bodo, Hajong and Garo along with other backward classes and General caste population are scattered in different villages of the district.

### **1.5.2. Sampling Technique**

A purposive random sampling technique was used for the study. It was purposive in the sense that the area of data collection was already being decided in the Goalpara District of Assam. The required nos. of respondents were randomly selected from the list of the villages for the study. The study is designed to assess the livelihood sustainability of rural farm women in this district through livestock enterprises.

### **1.5.3. Selection of variables**

Prior to the study on the proposed work, the researcher sometime alone and some other times will know local leaders, veterinary professionals, PRI members and NGO members visited different villages of the district and held discussion with the farm women regarding the situation, livestock enterprises, livestock farming practices and their socio-economic conditions. It facilitated the researcher to get herself acquainted with farm women belonging to different communities of both tribal and non-tribal groups.

These revealed the livelihood pattern of the farm women, quantum of income from livestock enterprises, various components of farming system, decision making pattern of farm women and also their consumption and sale of different livestock products. All these steps along with review of literature of the topic helped the researcher in the formulation/ preparation of the interview schedule of the study.

Extensive review of literatures and consultation with the officials of Veterinary Department, Govt. of Assam, KVK and with the experts of Extension Education Department, Assam Agricultural University, Khanapara, Guwahati under the supervision of the research guide were done to have comprehensive knowledge for collection of data for the study.

There are two types of variables – dependent variables and independent variables.

## LIST OF VARIABLES

Variable No.	Name of the variables	Measurement
<b>A) Independent variables</b>		
1.	Age	Direct question
2.	Education of the respondent	-do-
3.	Education of the respondent's family member	-do-
4.	Training attended by the respondent with duration	-do-
5.	Family size	-do-
6.	Family type	-do-
7.	Occupation	-do-
8.	Land holding in bigha	-do-
9.	Livestock and poultry population	-do-
10.	Annual income	-do-
11.	Social participation	-do-
12.	Mass media exposure	-do-
13.	Extension contact	-do-
14.	Livestock products produced	-do-
<b>B) Intermediate variables</b>		
15.	Decision making pattern	Inventory developed
16.	Knowledge of improved livestock farming practices	Inventory developed
17.	Livestock management	Inventory developed
<b>C) Dependent variables</b>		
18.	Extent of participation	Inventory scheduled
19.	Impact of livestock enterprises on livelihood sustainability	Inventory developed
20.	Household food security through livestock products	Inventory developed

### 1.5.4. Selection of the Respondents and sampling

The required no of respondents were randomly selected from the prepared list of villages of the study area. Considering the time bound nature of the study and a single-handed work on the proposed study, a minimum sample size was drawn by simple random technique at multiple steps as follows:

- Step-I :** A comprehensive list of total villages of the district were prepared block wise from all the 08 development blocks of the district Goalpara.
- Step-II:** From the list of villages, both tribal and non-tribal dominated villages were identified considering the demographic profile of the respective villages.
- Step-III:** Out of the total villages of the district so identified as tribal and non-tribal dominated, irrespective of development blocks, 10 tribal and 10 non-tribal villages were selected randomly for the study (Appendix – II).
- Step-IV:** List of women livestock raisers (married/widowed) from the said 20 selected villages who maintained at least one milch cow, and/or two small livestock (sheep/goat/pig etc.) and/or at least 20 nos. of poultry and/or duck at their households maintaining under scientific system of rearing were prepared with the help of officials of the AH & Vety Deptt. or PRI members. From the list of the women livestock raisers, 20 percent of the respondents were selected randomly from each village as sample size for the study.

### **1.5.5. Construction of Interview Schedule**

An interview schedule was prepared including the above-mentioned variables after having been consulted with the experts and officials of different disciplines of Animal Husbandry and Veterinary field.

### **1.5.6. Collection of data**

Both secondary data and primary data were collected for the study.

Secondary data were collected with extensive review of literature, departmental sources, research stations, KVK and other related institutions dealing with research and extension programs on animal husbandry, dairying and other allied activities.

Primary data were collected by the researcher herself with the above mention interview schedule.

### **1.5.7. Statistical analysis**

After collection of the data, will be scored, compiled and tabulated and will be subjected to draw the useful conclusion in the line of the objective of the study and the hypothesis proposed.

The following statistical analysis will be applied.

- I) Mean
- II) Frequency
- III) Percentage
- IV) Standard deviation
- V) t-test
- VI) Chi-square test
- VII) Correlation
- VIII) Regression

### **1.6. JUSTIFICATION FOR UNDERTAKING THE STUDY**

Goalpara district, the western part of Assam, where Animal Husbandry rearing activities are important part of the farming system, women in the rural areas actively participate and undertake in all operations like rearing, management, health coverage and also marketing of food of animal origins. Till today, no study has been conducted on different castes / communities/ tribes of women and their role in Animal Husbandry and allied activities in this part of Lower Assam. This part of Assam is having large population of livestock resources. In Goalpara district, as per the 19<sup>th</sup> livestock censuses report (2012), indigenous cattle (Lakhimi) population 2,84,374 nos. and CB cows 4,120 nos, buffalo 8,331 nos. desi and hybrid poultry 9,93,207 nos. sheep 24,792 nos. goat 94,550 nos. and pigs were 58,558 nos. In the 20<sup>th</sup> livestock censuses report (2019) cattle, buffalo, sheep, goat and pig were 3,26,054 nos., 8516 nos., 22,265 nos., 98,524 nos., and 48,804 nos. respectively which is an increase over 13.02 percentage in cattle, 2.22 percentage in buffalo, 4.20 percentage in goat population compare to the figure reported in 2012. Whereas, in case of sheep and pig slight decreased were reported. However, In the year 2017-18 milk, meat and egg production were recorded as 194.92 lakh liter 1,484.83 M.T. and 175.68 lakh nos. respectively indicating a major share in nutritional food, i.e. protein foods supplements for the people of the area and also having the huge scope in marketing's of livestock products and, also sale of livestock and poultry.

Women take active part in all operations for rearing management and marketing activities also. They provide economic supports to the families for generation of income to earn their livelihood.

Such a study will help us to know the socio-economic condition of different castes/ communities/tribes, contribution of women in rural economy through livestock enterprises. Further it will help us in having an empirical appraisal of the facts like socio-economic conditions of the women of various communities/tribes, impacts various plans and programs for their upliftment, their level of know how about the surrounding situation, their attitudes and orientation etc. Further, such a study will also help us in improving the condition of the fair sex of different castes / communities/tribes. The study is expected to help the Animal Husbandry & Veterinary Department and other developmental departments in formulating need based and appropriate policies and schemes for development of Animal Husbandry sector through involvement and women power in rural economy. This is why an analytical study on this issue is sought to be undertaken in the proposed research work.

## **1.7. CHAPTERIZATION**

The study possesses the following chapters:

- Chapter I : Introduction and Research Design
  - Chapter II : Profile of the study area: Goalpara district of Assam
  - Chapter III : Review of literature
  - Chapter IV : Livestock wealth and its contribution to Indian economy
  - Chapter V : Socio-economic profiles of rural women participating in livestock enterprises
  - Chapter VI : Nature and extent of participation of female labour in livestock enterprises
  - Chapter VII : Role of women in enhancing household food security through livestock products
  - Chapter VIII : Summary, suggestions and recommendations, conclusion
- Bibliography